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HIGH-PRECISION DECADAL CALIBRATION OF THE RADIOCARBON TIME SCALE, AD 1950–2500 BC

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INTRODUCTION

The radiocarbon ages of dendrochronologically dated wood samples, each covering 10 years, are reported back to 2500 yr BC. The decadal calibration curve constructed from these data is an extension of the curve previously given for the AD interval (Stuiver, 1982). A major difference with the previous work, however, is the assessment of the error in the radiocarbon age determination. Whereas previously this error was only based on the Poisson counting statistics of the accumulated number of counts for the sample and standards, the current calibration error is based on an estimate of the reproducibility in the radiocarbon activity determination. As a consequence, the uncertainty in the current calibration curve is, on average, 1.6 times that of the AD curve previously given.

The radiocarbon ages obtained for the decadal wood samples (Fig 1 and Table 1) were used for the construction of the bi-decadal calibration curves also reported in this issue (Stuiver & Pearson, 1986; Pearson & Stuiver, 1986). Because the average ^{14}C age of a bi-decadal wood sample is determined from one 20-yr determination by the Belfast laboratory, and from two 10-yr determinations of the Seattle laboratory, the resulting bi-decadal calibration curve is more precisely defined than the decadal curve published here. For most purposes, therefore, the internationally recommended bi-decadal curves should be used. However, the decadal curve is important when investigators are interested in the fine structure of ^{14}C age calibration of samples formed during a short interval (*ie*, <2 decades).

DENDROCHRONOLOGY AND SAMPLE TREATMENT

The trees used for the AD interval were either Douglas Fir (Pseudotsuga menziesii) from the US Pacific Northwest, or Sequoia (*Sequioadendron giganteum*) from California. The dendrochronologic work on these materials is summarized in Table 2, and in Stuiver (1982) and Stuiver and Pearson (1986). Nearly all the BC material was dendro-dated by one of the authors (Becker, 1983). A limited number of samples from the Irish Oak chronology (Pilcher *et al*, 1984) was used near 500 BC.

Table 2 also lists the type of wood pretreatment. The de Vries method (Stuiver & Quay, 1980) was used for most of the AD wood samples, whereas alpha cellulose (Stuiver, Burk & Quay, 1984) was prepared for samples covering the BC interval. The de Vries method does not remove all components added after the year of growth, but our measurements show the influence of incomplete removal of late additions to be limited to 2 or 3 ^{14}C years (Stuiver & Quay, 1981).

TECHNIQUE AND LABORATORY REPRODUCIBILITY

The ^{14}C community has traditionally been satisfied with reporting age errors based on counting statistics alone. This clearly was an unwise choice as interlaboratory comparisons of results obtained for the same samples show substantial under-reporting of the ^{14}C age errors (International Study Group, 1982; Stuiver, 1982).

Repeat analyses of samples with ^{14}C ages <4000 yr yield an error for the Seattle laboratory equal to 1.6 times the Poisson counting error (Stuiver, 1982; Stuiver & Pearson, 1986). This 1.6 "error multiplier" is only valid for the age ranges given in this paper, and should not be applied to all samples measured in the Seattle laboratory (Stuiver, Pearson & Braziunas, 1986). The error reported with the ^{14}C ages in Table 1 is the actual reproducibility standard deviation. Suitable proof that this standard deviation indeed accounts for the entire uncertainty in the measuring process was derived from a comparison with the ^{14}C ages obtained by the Belfast laboratory (Pearson *et al*, 1986) on contemporaneous wood. The differences in ^{14}C ages of 214 sample pairs (Stuiver & Pearson, 1986, Fig 3) are fully compatible with the quoted errors of the Seattle and Belfast laboratories. Similar agreement is obtained when subdiving the paired samples of the AD 1950–2500 BC period in AD and BC intervals (Figs 2 and 3), and by comparing Belfast Irish Oak results with Seattle German Oak results (Fig 4). Four CO_2 gas proportional counters (Stuiver, Robinson & Yang, 1979) were used for the ^{14}C activity determinations. The counter volumes are ca 4L; when operated at a filling pressure of 3.0 to 3.5 atmospheres the count rates for 'old' NBS oxalic acid are 90 to 100 counts per minute. Background count rates are 1.5 to 2.5 counts per minute, depending on the counter.

SYSTEMATIC DIFFERENCES BETWEEN LABORATORIES

Systematic ^{14}C age differences are discussed in Stuiver (1982); Stuiver and Pearson (1986) and Stuiver *et al* (1986). It was shown that systematic offsets of the Seattle data are limited to a few years for the age ranges discussed here, and that ^{14}C ages of wood of the same age from Ireland, south Germany, and the northwest United States differed, on average, by a few years only. Thus, although our curves are based on wood from trees of dif-

ferent regions, identical results would have been obtained if all measurements had been made on one tree from one locality.

CALIBRATION INSTRUCTIONS

The calibration instructions are similar to those given in Stuiver and Pearson (1986) and Pearson and Stuiver (1986) and are repeated here. The Figure 1 calibration curves consist of three lines. The center line is the actual calibration curve whereas the outer lines indicate the one sigma (standard deviation) uncertainty in the calibration curve. The calibration curve depicts the (non-linear) transformation of ^{14}C ages to calibrated AD/BC (or BP) ages. The nomenclature adopted for the dendro (calendar) year time scale is cal AD/BC or cal BP. The cal AD/BC ages are plotted along the lower horizontal axis and the cal BP ages along the upper one.

Cal BP ages are relative to the year AD 1950, with 0 cal BP equal to AD 1950. The relationship between cal AD/BC and cal BP ages is simple: cal BP = 1950 − cal AD, and cal BP = 1949 + cal BC. The switch from 1950 to 1949 when converting BC ages is caused by the absence of the zero year in the AD/BC chronology (when progressing from 1 BC to AD 1, the cal BP ages should be without a gap).

The conversion of a ^{14}C age to cal age is straightforward: 1) draw a horizontal (parallel to the bottom axis) line (A) through the ^{14}C age to be converted, and 2) draw vertical lines through the intercept(s) of line A and the calibration curve (center line). The cal AD/BC ages can be read at the bottom axis, the cal BP ages at the top. A single ^{14}C age can correspond with multiple cal ages, due to past changes in atmospheric ^{14}C levels (see Stuiver, 1982 for illustration).

The user has to determine the calibrated ages from the Figure 1 graphs by drawing lines. An alternate approach is the use of Table 3, where the cal ages are listed for ^{14}C ages that increase by 20-year steps. Obviously the user has to interpolate between the 20-yr steps of ^{14}C ages and sigmas if further fine tuning is desired.

The conversion of the standard error in the ^{14}C age into a range of cal AD/BC (BP) ages is more complicated. The user should first determine whether he/she wants to use 1) the laboratory quoted error (see Stuiver & Pearson, 1986 for a discussion) or 2) increase the quoted error by a known "error multiplier." Once the sample σ has been targeted, the curve σ (one standard deviation) should be read from the calibration curve by taking the difference in ^{14}C years between center curve and outer curve(s) in Figure 1. The curve σ should then be used to calculate total

$$\sigma = \sqrt{(\text{sample } \sigma)^2 + (\text{curve } \sigma)^2}$$

(Stuiver, 1982).

Horizontal lines should now be drawn through the ^{14}C age + total σ, and ^{14}C age − total σ value. The vertical lines, drawn through the intercepts with the CENTRAL curve, yield the outer limits of possible cal AD/BC (or BP) ages that are compatible with the sample standard deviation.

The above procedure was used to derive the "ranges" of cal AD/BC (BP) ages listed in Table 3.

The conversion procedure yields 1) single or multiple cal AD/BC (BP) ages that are compatible with a certain ^{14}C age, and 2) the range(s) of cal ages that corresponds to the standard deviation in the ^{14}C age. The probability that a certain cal age is the actual sample age may be quite variable within the cal age range. Higher probabilities are encountered around the intercept ages. Low, or near zero probabilities are encountered when part of the calibration curve 'snakes' outside the total σ boundaries. The non-linear transform of a Gaussian standard deviation around a ^{14}C age into cal AD/BC (BP) ages leads to a very complex probability distribution that can only be calculated with the aid of computers. We are currently developing suitable programs for these probability calculations, and plan to make these programs available in the near future.

The calibration data presented in this paper are to be used for samples formed in isotopic (^{14}C) equilibrium with atmospheric CO_2. Although the wood samples were collected from specific regions (Ireland, Germany and western USA) the calibration data can be used for a large part of the Northern Hemisphere (Stuiver, 1982). However, systematic age differences are possible for Southern Hemispheric samples where ^{14}C ages of wood samples tend to be approximately 30 years older (Lerman, Mook & Vogel, 1970; Vogel, Fuls & Visser, 1986). Thus, ^{14}C ages of Southern Hemispheric samples should be reduced by 30 years before being converted into a cal AD/BC (BP) age.

MARINE SAMPLE AGES

The calibration curves should be applied only for age conversion of samples that were formed in equilibrium with atmospheric CO_2. Conventional ^{14}C ages of materials not in equilibrium with atmospheric reservoirs do not take into account the off-set in ^{14}C age that may occur (Stuiver & Polach, 1977). This off-set, or reservoir deficiency, has to be deducted from the reported ^{14}C age before any attempt can be made to convert to cal AD/BC (BP) ages. The reservoir deficiency is time-dependent for the mixed layer of the ocean. Model calculated calibration curves for marine samples are listed separately in this volume (Stuiver, Pearson & Braziunas, 1986). This paper also contains a plot of the Table 1 Δ ^{14}C values.

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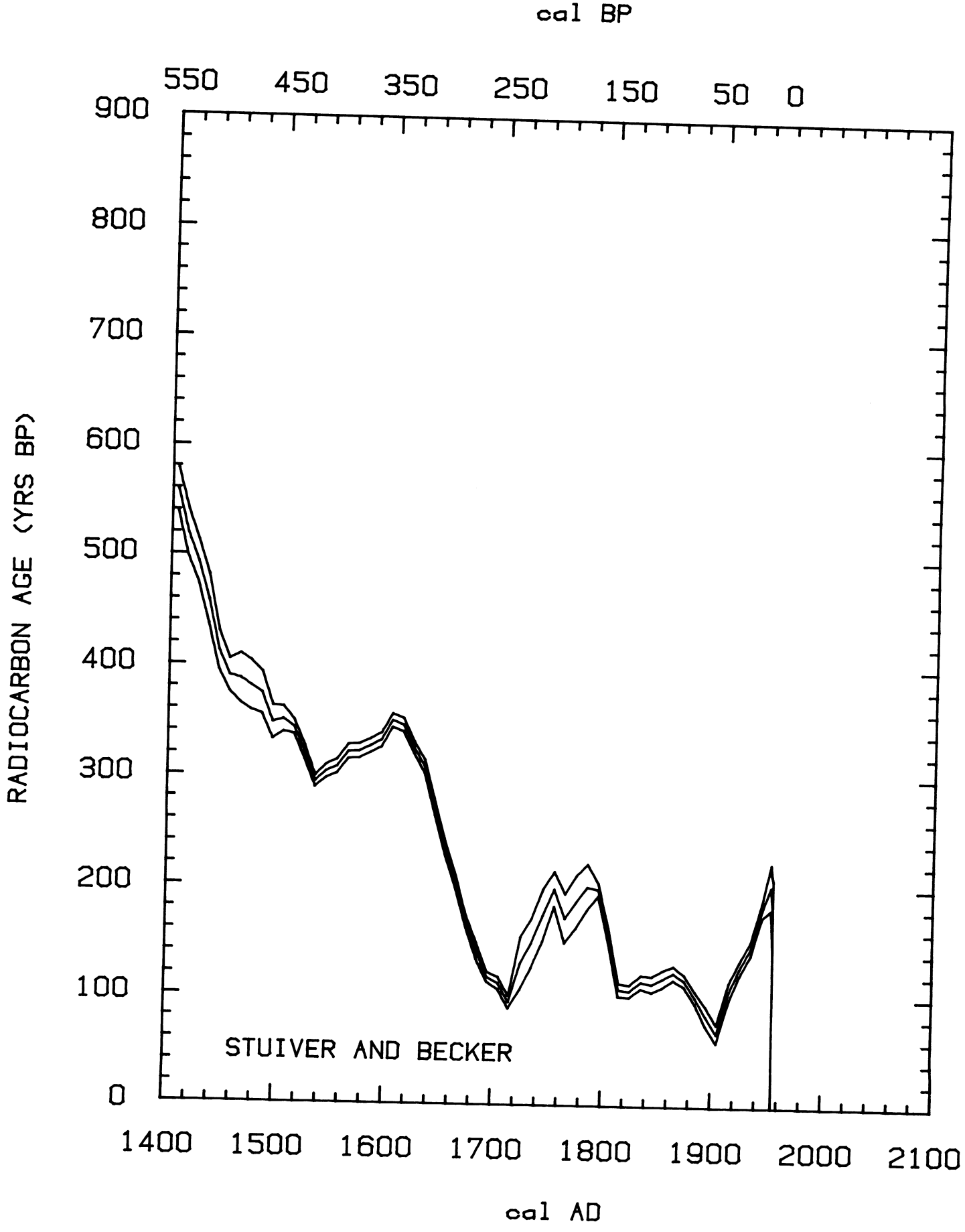

cal BP
550
450
350
250
150
50
0
900
800
700
600
500
400
300
200
100
0
RADIOCARBON AGE (YRS BP)
STUIVER AND BECKER
1400
1500
1600
1700
1800
1900
2000
2100
cal AD

Fig 1A

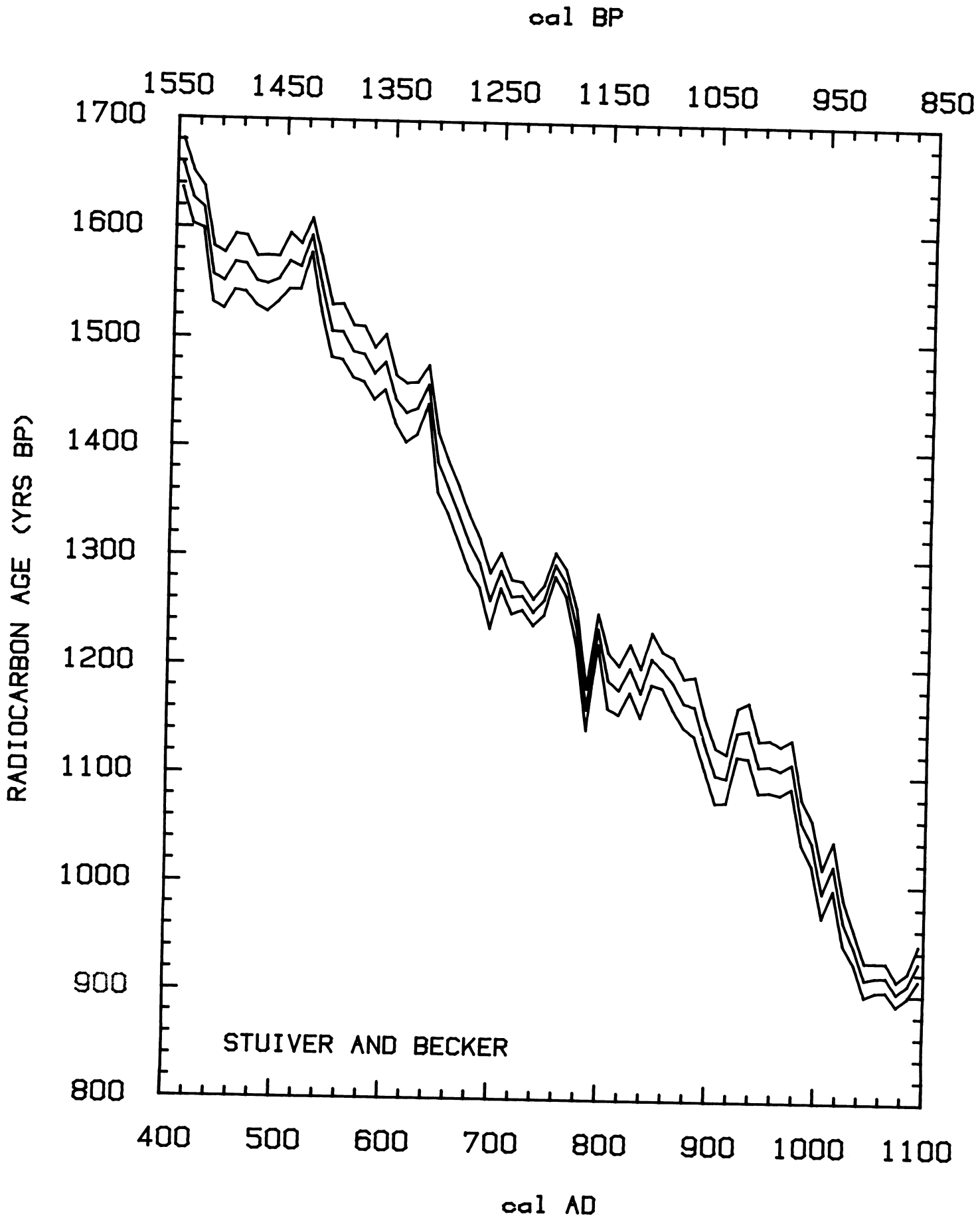

cal BP
1550
1450
1350
1250
1150
1050
950
850
1700
1600
1500
1400
1300
1200
1100
1000
900
800
RADIOCARBON AGE (YRS BP)
STUIVER AND BECKER
400
500
600
700
800
900
1000
1100
cal AD

Fig 1C

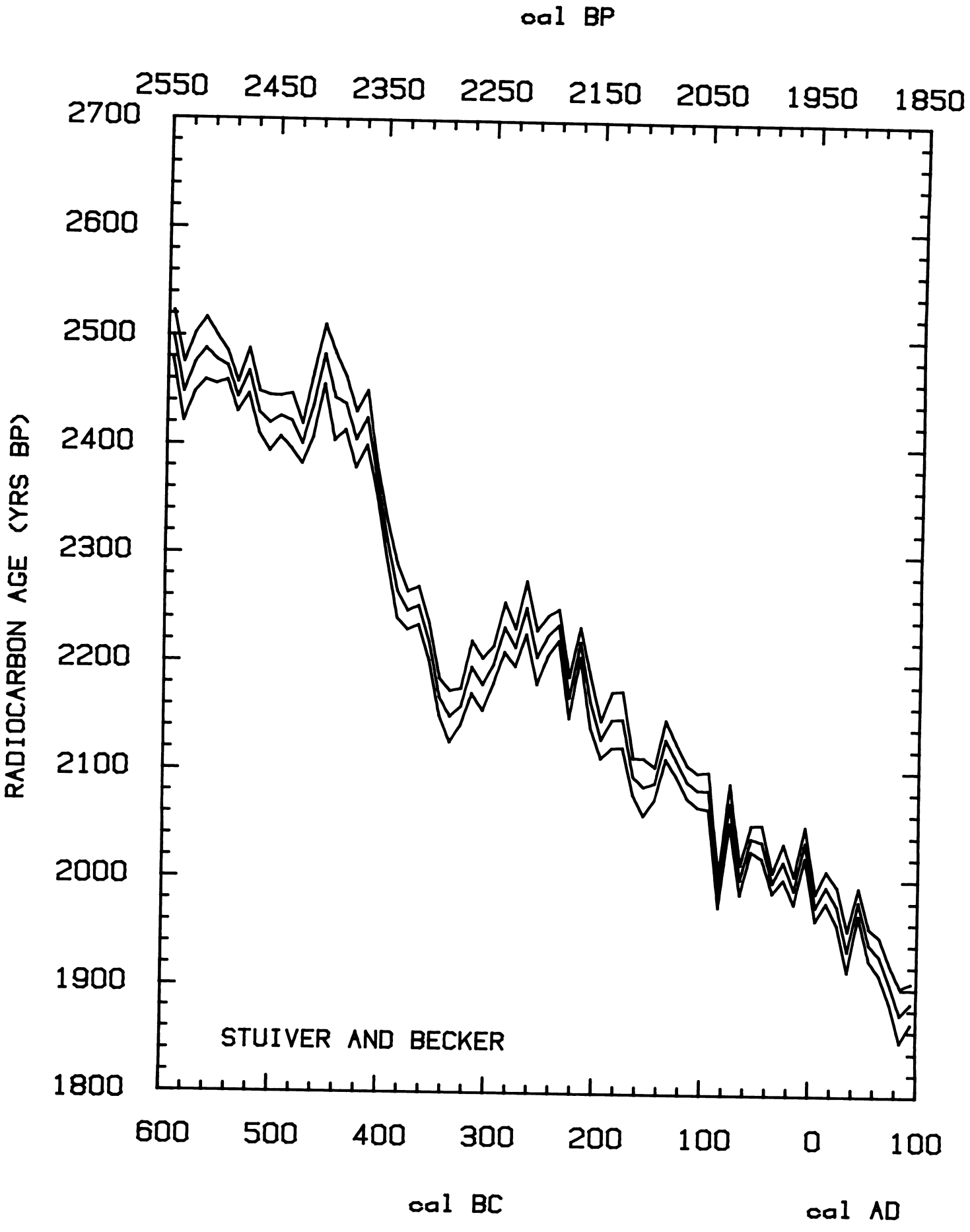

cal BP
2550
2450
2350
2250
2150
2050
1950
1850
2700
2600
2500
2400
2300
2200
2100
2000
1900
1800
RADIOCARBON AGE (YRS BP)
STUIVER AND BECKER
600
500
400
300
200
100
0
100
cal BC
cal AD

Fig 1E

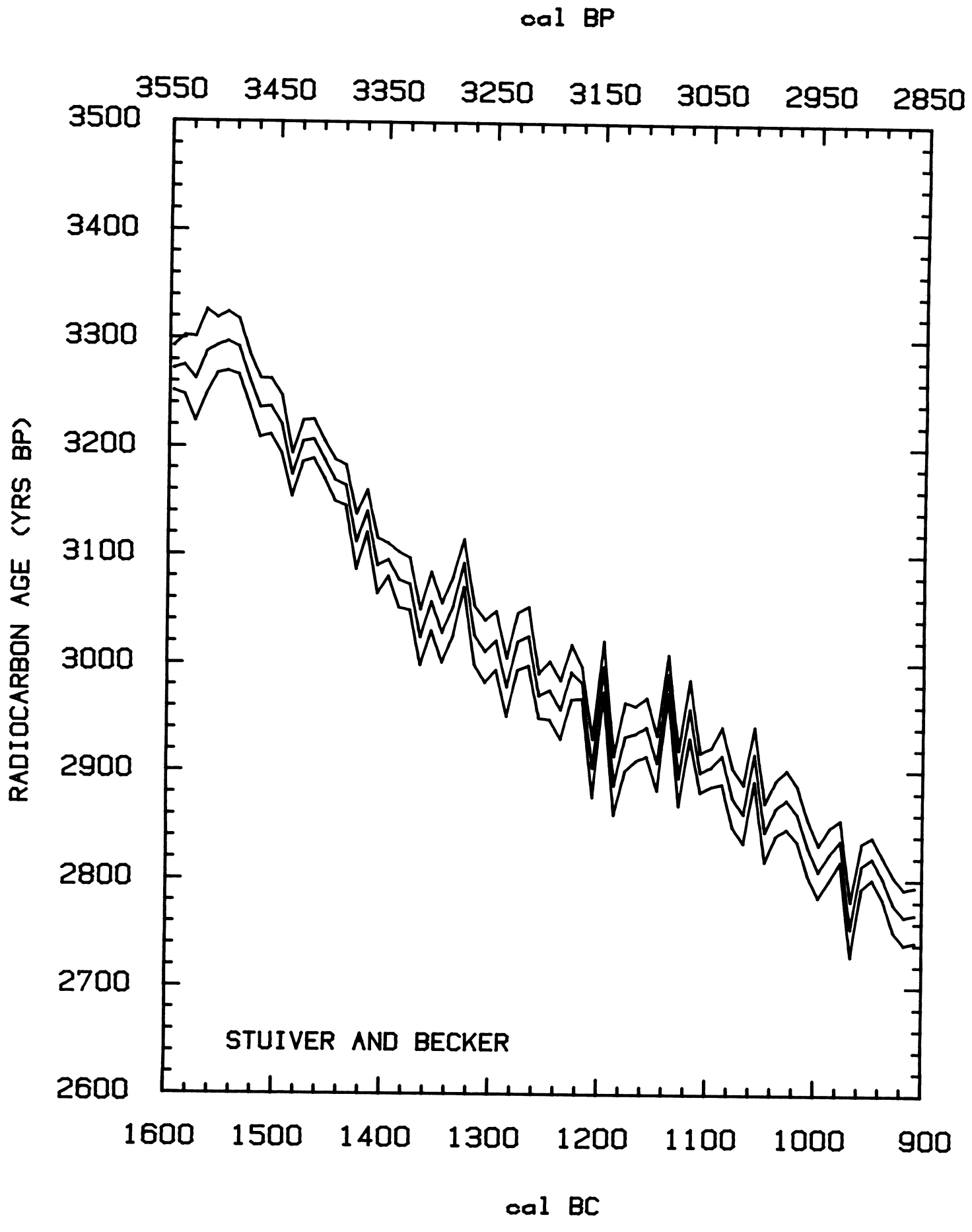

cal BP
3550 3450 3350 3250 3150 3050 2950 2850
3500
3400
3300
3200
3100
3000
2900
2800
2700
2600
RADIOCARBON AGE (YRS BP)
STUIVER AND BECKER
1600 1500 1400 1300 1200 1100 1000 900
cal BC

Fig 1G

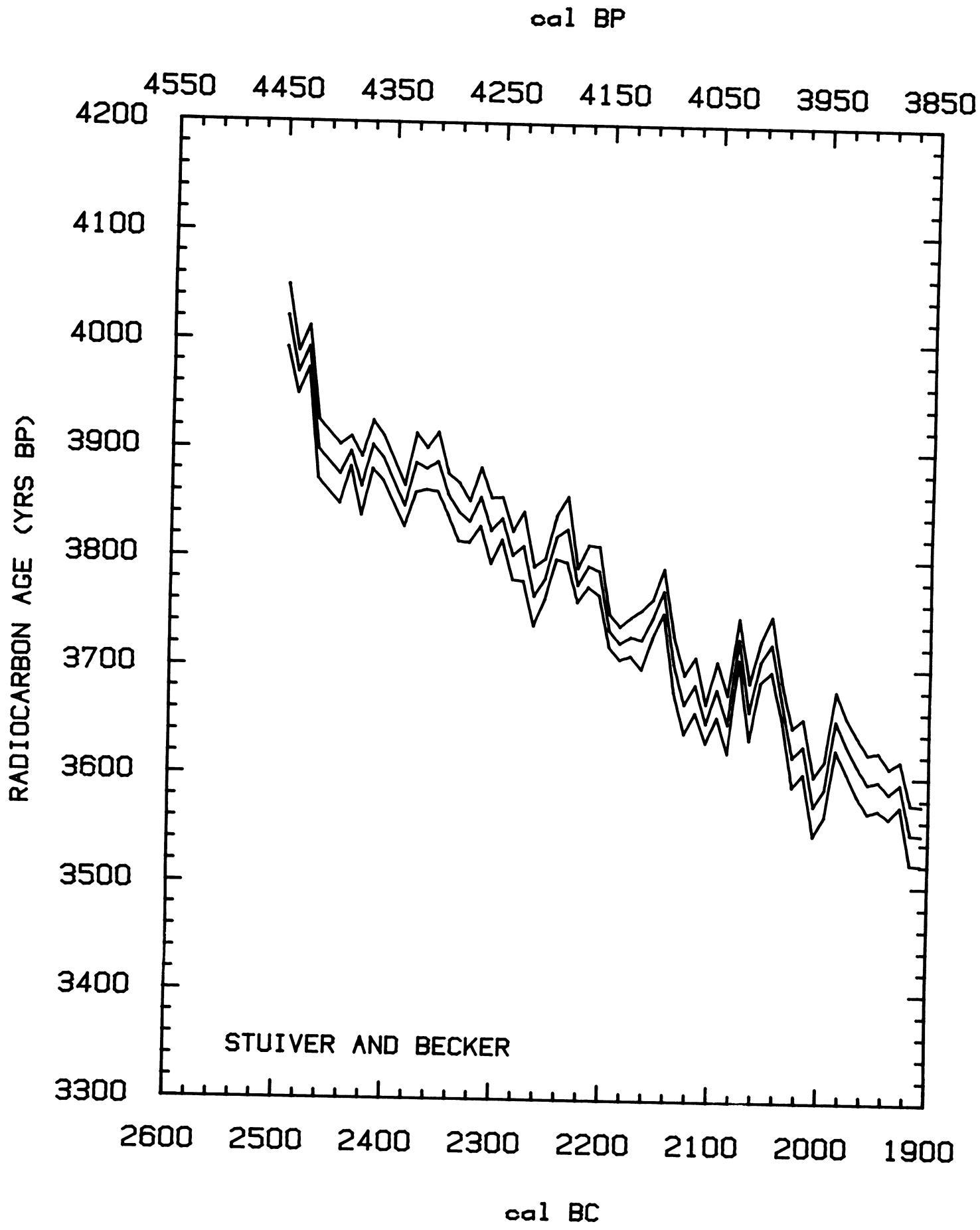

cal BP
4550
4450
4350
4250
4150
4050
3950
3850
4200
4100
4000
3900
3800
3700
3600
3500
3400
3300
RADIOCARBON AGE (YRS BP)
STUIVER AND BECKER
2600
2500
2400
2300
2200
2100
2000
1900
cal BC

Fig 1I

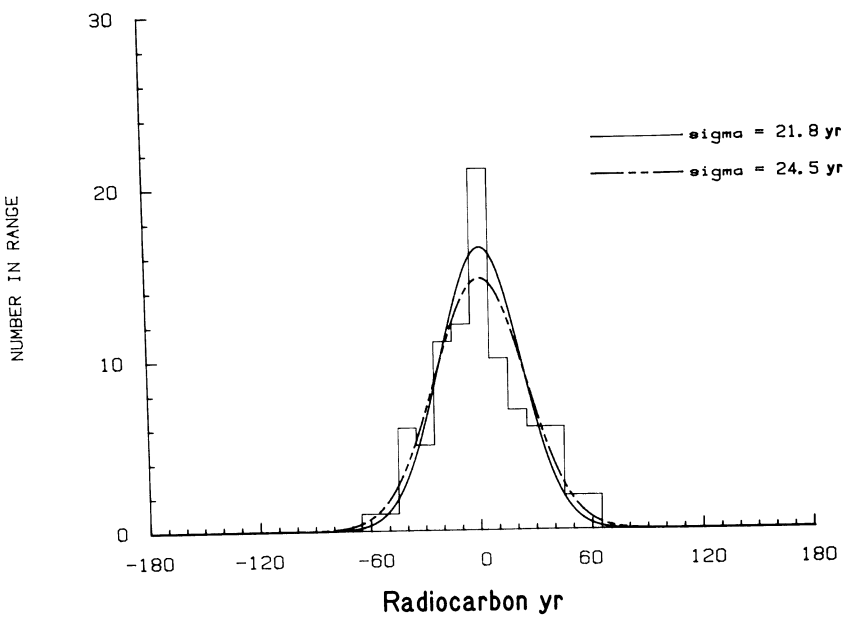


Fig 2. The distribution of ^{14}C age differences of contemporaneous sample pairs measured in Belfast and Seattle. All pairs are from the AD interval. Based on the laboratory precisions, the expected standard deviation is 21.8 yr, actual standard deviation is 24.5 yr.

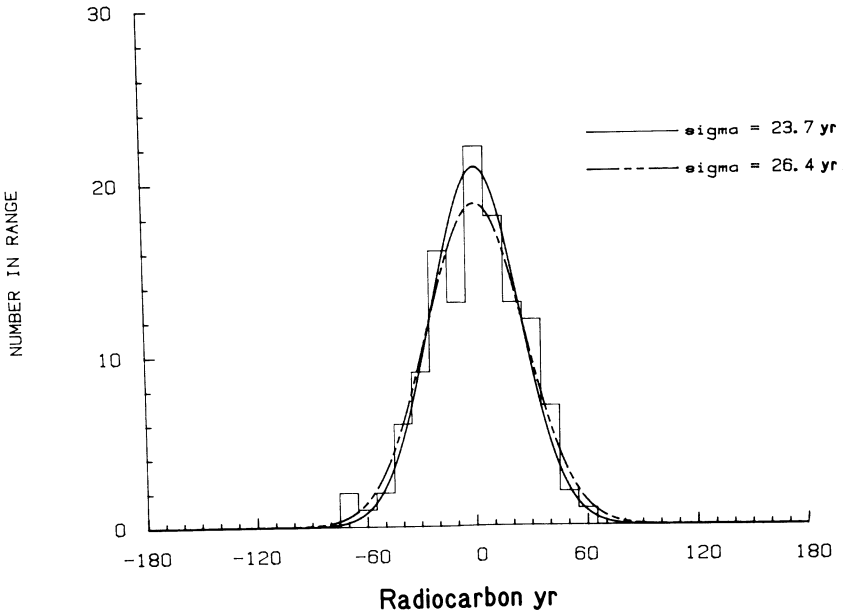


Fig 3. The distribution of ^{14}C age differences of contemporaneous sample pairs measured in Belfast and Seattle. All pairs are from the BC interval. The expected standard deviation, based on the precision quoted by the laboratories, is 23.7 yr. Actual standard deviation is 26.4 yr.

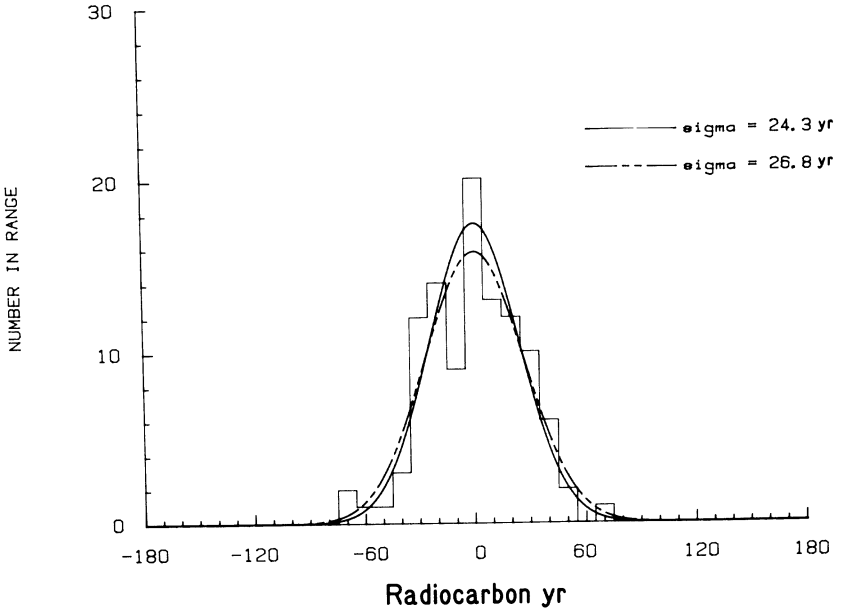


Fig 4. The distribution of ^{14}C age differences of contemporaneous sample pairs measured in Belfast (Irish Oak) and Seattle (South German Oak). Based on the laboratory precisions, the expected standard deviation in the age differences is 24.3 yr, actual standard deviation is 26.8 yr.

TABLE 1-A

The radiocarbon age determinations were made at the University of Washington (Seattle). The cal AD/BC ages (or cal BP) represent the mid-points of 10-year wood sections, except as noted with asterisks, when 20-year samples were needed to obtain the quantity of treated wood used for a measurement. The standard deviation of the age and Δ values includes a 1.6 lab error multiplier (see text). The trees and wood treatment are listed in Table 2. Overlapping decadal samples with mid-points no greater than one year apart were averaged. Single year data were averaged for the intervals AD 1510–1719 and AD 1790–1949.

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
AD 1944.3 BP 5.7	-21.7 ± .9	181 ± 7
AD 1934.5 BP 15.5	-16.2 ± .8	146 ± 6
AD 1924.5 BP 25.5	-12.8 ± .8	128 ± 6
AD 1915 BP 35	-9.0 ± 1.1	106 ± 9
AD 1904.5 BP 45.5	-2.9 ± 1.0	68 ± 8
AD 1894.5 BP 55.5	-3.7 ± 1.1	84 ± 9
AD 1884.5 BP 65.5	-4.6 ± .7	101 ± 6
AD 1874.5 BP 75.5	-5.4 ± .7	116 ± 6
AD 1864.5 BP 85.5	-5.0 ± .8	123 ± 6
AD 1854.5 BP 95.5	-3.1 ± 1.0	118 ± 8
AD 1845 BP 105	-1.3 ± .9	113 ± 7
AD 1835.0 BP 115.0	-.3 ± .8	115 ± 6
AD 1824.5 BP 125.5	2.0 ± .7	106 ± 6
AD 1814.5 BP 135.5	3.0 ± .8	107 ± 6
AD 1804.5 BP 145.5	-1.9 ± .8	157 ± 6
AD 1794.5 BP 155.5	-5.9 ± .7	198 ± 6
AD 1784.5 BP 165.5	-4.9 ± 2.6	201 ± 21
AD 1774.5 BP 175.5	-2.0 ± 3.0	187 ± 24
AD 1764.5 BP 185.5	1.1 ± 2.8	172 ± 22
AD 1754.5 BP 195.5	-1.0 ± 2.0	198 ± 16
AD 1744.5 BP 205.5	3.2 ± 3.0	174 ± 24
AD 1734.5 BP 215.5	7.6 ± 2.8	149 ± 22
AD 1724.5 BP 225.5	11.2 ± 3.0	130 ± 24
AD 1714.5 BP 235.5	16.9 ± .7	94 ± 6
AD 1704.7 BP 245.3	15.9 ± .7	112 ± 6
AD 1694.5 BP 255.5	16.4 ± .6	118 ± 4
AD 1684.5 BP 265.5	14.7 ± .9	141 ± 7
AD 1674.6 BP 275.4	12.5 ± .7	168 ± 6
AD 1664.5 BP 285.5	9.3 ± .8	203 ± 6
AD 1654.6 BP 295.4	6.7 ± .8	234 ± 7
AD 1644.5 BP 305.5	3.3 ± .8	271 ± 6
AD 1634.5 BP 315.5	-.3 ± .8	309 ± 6
AD 1624.5 BP 325.5	-1.2 ± .7	326 ± 5
AD 1614.5 BP 335.5	-2.5 ± .8	346 ± 6
AD 1604.5 BP 345.5	-1.8 ± .8	350 ± 6
AD 1594.5 BP 355.5	1.6 ± .8	333 ± 6
AD 1584.5 BP 365.5	3.5 ± .8	327 ± 6
AD 1574.5 BP 375.5	5.3 ± .8	322 ± 7
AD 1564.5 BP 385.5	6.6 ± .8	322 ± 7
AD 1554.5 BP 395.5	9.5 ± .8	308 ± 6
AD 1544.5 BP 405.5	11.3 ± .8	304 ± 6
AD 1534.5 BP 415.5	13.7 ± .6	294 ± 5

TABLE 1-B

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
AD 1524.5 BP 425.5	11.6 ± .8	321 ± 6
AD 1514.5 BP 435.5	10.0 ± .8	344 ± 7
AD 1504.8 BP 445.3	10.3 ± 1.4	351 ± 12
AD 1495 BP 455	11.8 ± 1.9	348 ± 15
AD 1485 BP 465	9.7 ± 2.4	374 ± 19
AD 1475 BP 475	10.1 ± 2.8	381 ± 22
AD 1465 BP 485	10.5 ± 2.8	387 ± 22
AD 1455 BP 495	11.4 ± 1.8	390 ± 15
AD 1445 BP 505	9.8 ± 2.2	412 ± 18
AD 1435 BP 515	5.2 ± 2.8	459 ± 22
AD 1425 BP 525	2.1 ± 2.4	493 ± 19
AD 1415 BP 535	.1 ± 2.6	519 ± 21
AD 1405 BP 545	-3.6 ± 2.4	559 ± 19
AD 1395 BP 555	-3.2 ± 2.6	565 ± 21
AD 1385 BP 565	-9.7 ± 1.9	628 ± 15
AD 1375 BP 575	-11.4 ± 2.1	651 ± 17
AD 1365 BP 585	-3.7 ± 2.0	598 ± 16
AD 1355 BP 595	-3.6 ± 2.3	607 ± 18
AD 1345 BP 605	1.7 ± 2.3	574 ± 18
AD 1335 BP 615	5.6 ± 1.9	553 ± 15
AD 1325 BP 625	.4 ± 2.0	604 ± 16
AD 1315 BP 635	-.4 ± 1.8	620 ± 15
AD 1305 BP 645	-.0 ± 1.9	627 ± 15
AD 1295 BP 655	-1.9 ± 2.8	652 ± 22
AD 1285 BP 665	-.7 ± 2.6	652 ± 21
AD 1275 BP 675	-12.6 ± 2.8	758 ± 22
AD 1265 BP 685	-10.0 ± 2.8	746 ± 22
AD 1255 BP 695	-15.9 ± 2.6	804 ± 21
AD 1245 BP 705	-14.4 ± 2.6	802 ± 21
AD 1235 BP 715	-12.3 ± 2.6	794 ± 21
AD 1225 BP 725	-12.5 ± 2.6	806 ± 21
AD 1215 BP 735	-14.4 ± 2.6	831 ± 21
AD 1205 BP 745	-16.5 ± 2.6	858 ± 21
AD 1195 BP 755	-14.2 ± 2.6	849 ± 21
AD 1185 BP 765	-16.9 ± 2.6	880 ± 21
AD 1175 BP 775	-14.6 ± 2.6	871 ± 21
AD 1165 BP 785	-12.1 ± 2.8	861 ± 22
AD 1155 BP 795	-16.3 ± 2.6	905 ± 21
AD 1145 BP 805	-22.3 ± 1.8	963 ± 15
AD 1135.3 BP 814.8	-12.9 ± 2.1	896 ± 17
AD 1125 BP 825	-13.7 ± 2.8	913 ± 22
AD 1115.3 BP 834.8	-15.7 ± 2.0	939 ± 16
AD 1105.3 BP 844.8	-14.6 ± 1.8	939 ± 15
AD 1095.3 BP 854.8	-12.3 ± 2.0	930 ± 16
AD 1085.3 BP 864.8	-8.6 ± 1.4	910 ± 12
AD 1075.3 BP 874.8	-6.4 ± 1.4	902 ± 12
AD 1065.3 BP 884.8	-7.1 ± 1.7	917 ± 13
AD 1055.3 BP 894.8	-5.9 ± 1.7	917 ± 14
AD 1045.3 BP 904.8	-4.4 ± 2.0	915 ± 16
AD 1035.3 BP 914.8	-6.8 ± 1.9	944 ± 15

TABLE 1-C

cal AD/BC cal BP	Δ¹⁴C	Radiocarbon age BP
AD 1025 BP 925	-8.5 ± 2.6	968 ± 21
AD 1015 BP 935	-13.6 ± 2.8	1019 ± 22
AD 1005 BP 945	-9.3 ± 2.8	993 ± 22
AD 995 BP 955	-13.8 ± 2.6	1040 ± 21
AD 985 BP 965	-15.0 ± 2.6	1059 ± 21
AD 975 BP 975	-20.3 ± 2.8	1112 ± 22
AD 965 BP 985	-18.4 ± 2.8	1106 ± 22
AD 955 BP 995	-17.7 ± 3.0	1110 ± 24
AD 945 BP 1005	-16.4 ± 3.0	1110 ± 24
AD 935 BP 1015	-19.3 ± 3.2	1143 ± 26
AD 925 BP 1025	-17.9 ± 2.8	1141 ± 22
AD 915 BP 1035	-11.5 ± 2.8	1099 ± 22
AD 905 BP 1045	-10.6 ± 3.2	1101 ± 26
AD 895 BP 1055	-13.0 ± 3.0	1130 ± 24
AD 885 BP 1065	-16.0 ± 3.4	1165 ± 27
AD 875 BP 1075	-15.2 ± 2.8	1168 ± 22
AD 865 BP 1085	-16.2 ± 3.0	1186 ± 24
AD 855 BP 1095	-16.5 ± 2.1	1198 ± 17
AD 845 BP 1105	-16.6 ± 3.0	1208 ± 24
AD 835 BP 1115	-11.5 ± 2.8	1176 ± 22
AD 825 BP 1125	-13.1 ± 2.8	1199 ± 22
AD 815 BP 1135	-9.4 ± 2.8	1179 ± 22
AD 805 BP 1145	-9.3 ± 3.2	1188 ± 26
AD 795 BP 1155	-13.9 ± 1.7	1235 ± 14
AD 785 BP 1165	-3.6 ± 2.4	1161 ± 19
AD 775 BP 1175	-11.7 ± 2.1	1236 ± 17
AD 764.8 BP 1185.2	-15.5 ± 1.6	1277 ± 13
AD 754.8 BP 1195.2	-16.4 ± 1.4	1294 ± 11
AD 744.8 BP 1205.2	-11.1 ± 1.7	1261 ± 14
AD 734.8 BP 1215.2	-8.6 ± 1.5	1250 ± 12
AD 724.8 BP 1225.3	-9.2 ± 1.6	1265 ± 13
AD 714.8 BP 1235.3	-7.9 ± 2.0	1264 ± 16
AD 704.8 BP 1245.3	-9.6 ± 2.0	1288 ± 16
AD 695 BP 1255	-5.0 ± 3.2	1260 ± 26
AD 685 BP 1265	-8.1 ± 2.8	1295 ± 22
AD 675 BP 1275	-9.2 ± 3.2	1313 ± 26
AD 665 BP 1285	-11.2 ± 3.2	1339 ± 26
AD 655 BP 1295	-13.0 ± 3.0	1364 ± 24
AD 645 BP 1305	-14.6 ± 3.4	1386 ± 27
AD 635 BP 1315	-22.2 ± 2.2	1458 ± 18
AD 625 BP 1325	-18.3 ± 3.0	1436 ± 24
AD 615 BP 1335	-16.6 ± 3.4	1432 ± 27
AD 605 BP 1345	-16.9 ± 2.8	1444 ± 22
AD 595 BP 1355	-19.9 ± 3.2	1478 ± 26
AD 585 BP 1365	-17.4 ± 3.0	1468 ± 24
AD 575 BP 1375	-18.4 ± 3.2	1485 ± 26
AD 565 BP 1385	-17.5 ± 3.0	1488 ± 24
AD 555 BP 1395	-18.5 ± 3.2	1506 ± 26
AD 545 BP 1405	-17.4 ± 3.0	1506 ± 24
AD 535 BP 1415	-21.2 ± 3.0	1547 ± 24

TABLE 1-D

cal AD/BC cal BP	Δ¹⁴C	Radiocarbon age BP
AD 525 BP 1425	-25.6 ± 2.0	1593 ± 16
AD 515 BP 1435	-21.0 ± 2.6	1565 ± 21
AD 505 BP 1445	-20.4 ± 3.2	1570 ± 26
AD 495 BP 1455	-17.2 ± 2.6	1553 ± 21
AD 485 BP 1465	-15.5 ± 3.2	1549 ± 26
AD 475 BP 1475	-14.6 ± 2.8	1552 ± 22
AD 465 BP 1485	-15.3 ± 3.2	1567 ± 26
AD 455 BP 1495	-14.3 ± 3.2	1569 ± 26
AD 445 BP 1505	-11.0 ± 3.2	1551 ± 26
AD 435 BP 1515	-10.5 ± 3.2	1557 ± 26
AD 425 BP 1525	-16.8 ± 2.4	1618 ± 19
AD 415 BP 1535	-16.7 ± 3.0	1627 ± 24
AD 405 BP 1545	-19.3 ± 2.8	1658 ± 22
AD 395 BP 1555	-18.1 ± 2.4	1658 ± 19
AD 385 BP 1565	-19.1 ± 2.0	1676 ± 16
AD 375 BP 1575	-21.2 ± 1.8	1703 ± 14
AD 365 BP 1585	-15.6 ± 2.8	1667 ± 22
AD 355 BP 1595	-17.0 ± 3.2	1688 ± 26
AD 345 BP 1605	-16.0 ± 2.8	1689 ± 22
AD 335 BP 1615	-19.3 ± 3.0	1726 ± 24
AD 325 BP 1625	-18.2 ± 3.2	1727 ± 26
AD 315 BP 1635	-21.5 ± 3.0	1764 ± 24
AD 305 BP 1645	-20.0 ± 3.0	1761 ± 24
AD 295 BP 1655	-13.6 ± 2.8	1718 ± 22
AD 285 BP 1665	-16.3 ± 3.0	1750 ± 24
AD 275 BP 1675	-9.6 ± 2.8	1705 ± 22
AD 265 BP 1685	-7.3 ± 2.2	1696 ± 18
AD 255 BP 1695	-14.4 ± 1.6	1763 ± 13
AD 245 BP 1705	-13.9 ± 1.6	1770 ± 13
AD 235 BP 1715	-13.8 ± 2.2	1778 ± 18
AD 225 BP 1725	-16.6 ± 3.2	1811 ± 26
AD 215 BP 1735	-16.7 ± 3.2	1821 ± 26
AD 205 BP 1745	-18.5 ± 2.2	1846 ± 18
AD 195 BP 1755	-13.1 ± 3.2	1811 ± 26
AD 185 BP 1765	-10.4 ± 2.8	1799 ± 22
AD 175 BP 1775	-11.7 ± 3.2	1820 ± 26
AD 165 BP 1785	-12.8 ± 3.4	1838 ± 27
AD 155 BP 1795	-10.9 ± 2.8	1832 ± 22
AD 145 BP 1805	-8.8 ± 3.2	1825 ± 26
AD 135 BP 1815	-7.6 ± 2.0	1825 ± 16
AD 125 BP 1825	-15.2 ± 1.7	1897 ± 13
AD 115 BP 1835	-13.3 ± 3.4	1891 ± 27
AD 105 BP 1845	-11.3 ± 3.2	1884 ± 26
AD 95 BP 1855	-10.4 ± 2.4	1887 ± 19
AD 85 BP 1865	-7.9 ± 3.2	1876 ± 26
AD 75 BP 1875	-10.2 ± 2.2	1905 ± 18
AD 65 BP 1885	-12.2 ± 2.2	1930 ± 18
AD 55 BP 1895	-12.4 ± 1.9	1942 ± 15
AD 44.8 BP 1905.3	-16.0 ± 1.6	1981 ± 13
AD 34.8 BP 1915.3	-9.1 ± 2.4	1935 ± 19

TABLE 1-E

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
AD 24.8 BP 1925.3	-13.1 ± 2.2	1977 ± 17
AD 14.8 BP 1935.3	-14.0 ± 1.8	1994 ± 15
AD 4.8 BP 1945.3	-10.5 ± 1.5	1976 ± 12
BC 5.3 BP 1954.3	-16.8 ± 1.8	2035 ± 14
BC 15.3 BP 1964.3	-10.2 ± 1.6	1991 ± 13
BC 25.3 BP 1974.3	-12.2 ± 2.1	2017 ± 17
BC 35.3 BP 1984.3	-8.6 ± 1.2	1998 ± 10
BC 45.3 BP 1994.3	-12.1 ± 1.9	2036 ± 15
BC 55.3 BP 2004.3	-11.3 ± 1.5	2039 ± 12
BC 65.3 BP 2014.3	-5.3 ± 1.7	2000 ± 14
BC 75.3 BP 2024.3	-12.8 ± 2.3	2071 ± 18
BC 85.3 BP 2034.3	-1.5 ± 1.8	1989 ± 14
BC 95.3 BP 2044.3	-11.9 ± 2.2	2082 ± 17
BC 105.3 BP 2054.3	-10.7 ± 2.0	2083 ± 16
BC 115.3 BP 2064.3	-10.5 ± 1.9	2091 ± 15
BC 125.3 BP 2074.3	-11.7 ± 1.9	2111 ± 15
BC 135.3 BP 2084.3	-12.9 ± 2.2	2130 ± 18
BC 145.3 BP 2094.3	-6.7 ± 1.9	2089 ± 15
BC 155.5 BP 2104.5	-5.0 ± 3.3	2085 ± 27
BC 165.5 BP 2114.5	-5.0 ± 2.1	2095 ± 17
BC 175.5 BP 2124.5	-10.3 ± 3.3	2148 ± 26
BC 185.5 BP 2134.5	-9.0 ± 3.2	2147 ± 26
BC 195.5 BP 2144.5	-5.6 ± 2.2	2129 ± 17
BC 205.5 BP 2154.5	-8.7 ± 3.0	2164 ± 24
BC 215.5 BP 2164.5	-14.3 ± 1.7	2219 ± 14
BC 225.5 BP 2174.5	-6.8 ± 2.4	2168 ± 19
BC 235.5 BP 2184.5	-13.8 ± 1.8	2235 ± 14
BC 245.5 BP 2194.5	-11.4 ± 2.3	2225 ± 19
BC 255.5 BP 2204.5	-7.8 ± 3.1	2205 ± 25
BC 265.5 BP 2214.5	-12.2 ± 3.0	2251 ± 24
BC 275.5 BP 2224.5	-6.4 ± 2.2	2214 ± 18
BC 285.5 BP 2234.5	-7.6 ± 2.9	2233 ± 23
BC 295.5 BP 2244.5	-2.1 ± 2.1	2198 ± 17
BC 305.5 BP 2254.5	1.4 ± 3.0	2179 ± 24
BC 315.5 BP 2264.5	.7 ± 3.0	2195 ± 24
BC 325.5 BP 2274.5	6.5 ± 2.1	2159 ± 17
BC 335.5 BP 2284.5	8.8 ± 3.0	2150 ± 24
BC 345.5 BP 2294.5	7.8 ± 2.2	2168 ± 17
BC 355.5 BP 2304.5	2.6 ± 2.2	2218 ± 17
BC 365.5 BP 2314.5	-.3 ± 2.2	2252 ± 18
BC 375.5 BP 2324.5	1.5 ± 2.2	2247 ± 18
BC 385.5 BP 2334.5	.4 ± 3.1	2265 ± 25
BC 395.5 BP 2344.5	-4.3 ± 2.3	2313 ± 18
BC 405.5 BP 2354.5	-10.0 ± 1.7	2368 ± 14
BC 415.5 BP 2364.5	-15.7 ± 3.2	2425 ± 25
BC 425.5 BP 2374.5	-12.0 ± 3.2	2405 ± 26
BC 435.5 BP 2384.5	-14.9 ± 3.1	2438 ± 25
BC 445.5 BP 2394.5	-14.5 ± 5.0	2444 ± 40
BC 455.5 BP 2404.5	-18.1 ± 3.4	2483 ± 28
BC 465.5 BP 2414.5	-11.2 ± 3.8	2437 ± 30

TABLE 1-F

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 475.5 BP 2424.5	-5.5 ± 2.3	2401 ± 18
BC 485.5 BP 2434.5	-6.9 ± 3.2	2422 ± 26
BC 495.5 BP 2444.5	-6.3 ± 2.4	2426 ± 19
BC 505.5 BP 2454.5	-4.3 ± 3.2	2420 ± 26
BC 515.5 BP 2464.5	-4.3 ± 2.4	2430 ± 19
BC 525.5 BP 2474.5	-7.8 ± 2.6	2468 ± 21
BC 535.5 BP 2484.5	-3.6 ± 1.7	2444 ± 14
BC 545.5 BP 2494.5	-6.0 ± 1.6	2472 ± 13
BC 555.5 BP 2504.5	-5.5 ± 2.8	2478 ± 22
BC 565.5 BP 2514.5	-5.5 ± 3.6	2488 ± 29
BC 575.5 BP 2524.5	-2.7 ± 3.4	2475 ± 27
BC 585.5 BP 2534.5	1.9 ± 3.4	2448 ± 27
BC 595.5 BP 2544.5	-3.4 ± 2.8	2500 ± 22
BC 605.5 BP 2554.5	-3.5 ± 2.8	2511 ± 22
BC 615.5 BP 2564.5	1.8 ± 2.6	2478 ± 21
BC 625.5 BP 2574.5	-.6 ± 2.6	2507 ± 21
BC 635.5 BP 2584.5	3.4 ± 3.2	2484 ± 26
BC 646 BP 2595	6.7 ± 2.3	2468 ± 18
BC 655.5 BP 2604.5	8.3 ± 2.0	2464 ± 16
BC 665.5 BP 2614.5	-.9 ± 2.8	2548 ± 22
BC 696.5 BP 2645.5	15.7 ± 4.8	2446 ± 38
BC 706.5 BP 2655.5	16.5 ± 5.0	2449 ± 40
BC 716.5 BP 2665.5	17.0 ± 5.0	2455 ± 40
*BC 731.5 BP 2680.5	21.6 ± 2.3	2434 ± 18
*BC 751.5 BP 2700.5	22.5 ± 3.2	2446 ± 26
*BC 771.5 BP 2720.5	13.0 ± 3.2	2540 ± 26
BC 786.5 BP 2735.5	15.1 ± 2.4	2538 ± 19
BC 796.5 BP 2745.5	8.6 ± 2.4	2599 ± 19
BC 806.5 BP 2755.5	4.1 ± 2.4	2645 ± 19
BC 816.5 BP 2765.5	3.9 ± 3.2	2656 ± 26
BC 826.5 BP 2775.5	4.3 ± 2.4	2663 ± 19
BC 836.5 BP 2785.5	-2.4 ± 2.4	2727 ± 19
BC 846.5 BP 2795.5	-2.8 ± 2.4	2739 ± 20
BC 856.5 BP 2805.5	-2.0 ± 3.2	2742 ± 26
BC 866.5 BP 2815.5	.8 ± 3.1	2730 ± 25
BC 876.5 BP 2825.5	2.8 ± 3.2	2723 ± 26
BC 886.5 BP 2835.5	7.6 ± 3.2	2695 ± 26
BC 896.5 BP 2845.5	3.8 ± 3.2	2735 ± 26
BC 906.5 BP 2855.5	.9 ± 3.2	2768 ± 26
BC 916.5 BP 2865.5	2.3 ± 3.2	2766 ± 26
BC 926.5 BP 2875.5	2.1 ± 3.2	2778 ± 26
BC 936.5 BP 2885.5	.3 ± 2.4	2802 ± 19
BC 946.5 BP 2895.5	-.8 ± 2.4	2820 ± 19
BC 956.5 BP 2905.5	1.3 ± 2.6	2813 ± 21
BC 966.5 BP 2915.5	9.8 ± 3.2	2755 ± 26
BC 976.5 BP 2925.5	.9 ± 2.4	2836 ± 19
BC 986.5 BP 2935.5	3.6 ± 3.0	2824 ± 24
BC 996.5 BP 2945.5	6.8 ± 3.0	2808 ± 24
BC 1006.5 BP 2955.5	5.3 ± 3.2	2830 ± 26
BC 1016.5 BP 2965.5	2.6 ± 3.2	2861 ± 26

TABLE 1-G

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 1026.5	2.2 ± 3.4	2874 ± 27
BP 2975.5 BC 1036.5	4.4 ± 3.2	2866 ± 26
BP 2985.5 BC 1046.5	8.4 ± 3.4	2844 ± 27
BP 2995.5 BC 1056.5	.6 ± 3.2	2916 ± 26
BP 3005.5 BC 1066.5	8.7 ± 3.4	2861 ± 27
BP 3015.5 BC 1076.5	8.0 ± 3.4	2876 ± 27
BP 3025.5 BC 1086.5	4.4 ± 3.3	2915 ± 27
BP 3035.5 BC 1096.5	7.0 ± 2.3	2904 ± 18
BP 3045.5 BC 1106.5	8.8 ± 2.3	2899 ± 18
BP 3055.5 BC 1116.5	2.6 ± 3.4	2958 ± 27
BP 3065.5 BC 1126.5	11.9 ± 3.2	2894 ± 26
BP 3075.5 BC 1136.5	1.0 ± 2.3	2991 ± 18
BP 3085.5 BC 1146.5	12.6 ± 3.2	2908 ± 26
BP 3095.5 BC 1156.5	9.6 ± 3.4	2941 ± 27
BP 3105.5 BC 1166.5	11.6 ± 3.2	2935 ± 26
BP 3115.5 BC 1176.5	13.2 ± 4.0	2932 ± 32
BP 3125.5 BC 1186.5	20.1 ± 3.4	2887 ± 27
BP 3135.5 BC 1196.5	7.4 ± 3.0	2997 ± 24
BP 3145.5 BC 1206.5	20.6 ± 3.4	2903 ± 27
BP 3155.5 BC 1216.5	11.8 ± 1.9	2982 ± 15
BP 3165.5 BC 1226.5	11.8 ± 3.2	2992 ± 26
BP 3175.5 BC 1236.5	17.4 ± 3.4	2957 ± 27
BP 3185.5 BC 1246.5	16.4 ± 3.4	2975 ± 27
BP 3195.5 BC 1256.5	18.2 ± 2.6	2970 ± 21
BP 3205.5 BC 1266.5	12.5 ± 3.4	3025 ± 27
BP 3215.5		

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 1276.5	14.4 ± 3.3	3020 ± 26
BP 3225.5 BC 1286.5	20.9 ± 3.4	2978 ± 27
BP 3235.5 BC 1296.5	16.7 ± 3.4	3021 ± 27
BP 3245.5 BC 1306.5	19.2 ± 3.6	3011 ± 29
BP 3255.5 BC 1316.5	18.5 ± 3.4	3026 ± 27
BP 3265.5 BC 1326.5	11.4 ± 2.8	3092 ± 22
BP 3275.5 BC 1336.5	17.7 ± 3.4	3052 ± 27
BP 3285.5 BC 1346.5	22.0 ± 3.4	3028 ± 27
BP 3295.5 BC 1356.5	19.5 ± 3.4	3057 ± 27
BP 3305.5 BC 1366.5	25.0 ± 3.2	3024 ± 26
BP 3315.5 BC 1376.5	20.0 ± 3.0	3073 ± 24
BP 3325.5 BC 1386.5	20.7 ± 3.2	3077 ± 26
BP 3335.5 BC 1396.5	19.6 ± 1.9	3095 ± 15
BP 3345.5 BC 1406.5	21.5 ± 3.2	3090 ± 26
BP 3355.5 BC 1416.5	16.3 ± 2.4	3140 ± 20
BP 3365.5 BC 1426.5	21.2 ± 3.2	3112 ± 26
BP 3375.5 BC 1436.5	15.8 ± 2.3	3164 ± 19
BP 3385.5 BC 1446.5	16.4 ± 2.4	3169 ± 19
BP 3395.5 BC 1456.5	15.2 ± 2.2	3188 ± 18
BP 3405.5 BC 1466.5	14.1 ± 2.3	3207 ± 18
BP 3415.5 BC 1476.5	15.6 ± 2.4	3205 ± 19
BP 3425.5 BC 1486.5	20.7 ± 2.5	3174 ± 20
BP 3435.5 BC 1496.5	16.0 ± 3.3	3221 ± 27
BP 3445.5 BC 1506.5	15.2 ± 3.2	3237 ± 26
BP 3455.5 BC 1516.5	16.5 ± 3.4	3236 ± 27
BP 3465.5		

TABLE 1-H

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 1526.5	14.5 ± 3.0	3262 ± 24
BP 3475.5 BC 1536.5	11.9 ± 3.2	3292 ± 26
BP 3485.5 BC 1546.5	12.5 ± 3.4	3297 ± 27
BP 3495.5 BC 1556.5	14.3 ± 3.2	3293 ± 26
BP 3505.5 BC 1566.5	16.2 ± 4.9	3287 ± 39
BP 3515.5 BC 1576.5	20.6 ± 4.9	3262 ± 39
BP 3525.5 BC 1586.5	20.2 ± 3.4	3275 ± 27
BP 3535.5 BC 1596.5	21.8 ± 2.6	3272 ± 21
BP 3545.5 BC 1606.5	17.4 ± 2.4	3317 ± 19
BP 3555.5 BC 1616.5	19.0 ± 2.6	3314 ± 21
BP 3565.5 BC 1626.5	17.0 ± 2.6	3339 ± 21
BP 3575.5 BC 1636.5	18.3 ± 3.4	3339 ± 27
BP 3585.5 BC 1646.5	14.8 ± 2.0	3376 ± 16
BP 3595.5 BC 1656.5	20.5 ± 2.4	3341 ± 19
BP 3605.5 BC 1666.5	14.7 ± 3.4	3396 ± 27
BP 3615.5 BC 1676.5	26.7 ± 3.2	3312 ± 26
BP 3625.5 BC 1686.5	22.8 ± 3.4	3352 ± 27
BP 3635.5 BC 1696.5	15.3 ± 2.3	3421 ± 19
BP 3645.5 BC 1706.5	17.9 ± 3.4	3410 ± 27
BP 3655.5 BC 1716.5	21.7 ± 3.4	3390 ± 27
BP 3665.5 BC 1726.5	21.6 ± 3.4	3400 ± 27
BP 3675.5 BC 1736.5	19.9 ± 3.4	3423 ± 27
BP 3685.5 BC 1746.5	17.4 ± 3.4	3453 ± 27
BP 3695.5 BC 1756.5	15.6 ± 2.4	3477 ± 19
BP 3705.5 BC 1766.5	19.5 ± 2.6	3456 ± 21
BP 3715.5		

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 1776.5	16.9 ± 2.6	3486 ± 21
BP 3725.5 BC 1786.5	16.0 ± 2.3	3503 ± 18
BP 3735.5 BC 1796.5	18.8 ± 2.3	3491 ± 19
BP 3745.5 BC 1806.5	23.5 ± 2.3	3463 ± 19
BP 3755.5 BC 1816.5	20.1 ± 2.3	3499 ± 19
BP 3765.5 BC 1826.5	24.5 ± 3.4	3475 ± 27
BP 3775.5 BC 1836.5	17.3 ± 3.2	3541 ± 26
BP 3785.5 BC 1846.5	27.4 ± 3.4	3471 ± 27
BP 3795.5 BC 1856.5	28.4 ± 3.4	3473 ± 27
BP 3805.5 BC 1866.5	28.1 ± 3.4	3485 ± 27
BP 3815.5 BC 1876.5	28.8 ± 2.3	3489 ± 19
BP 3825.5 BC 1886.5	22.8 ± 3.2	3546 ± 26
BP 3835.5 BC 1896.5	20.8 ± 3.4	3572 ± 27
BP 3845.5 BC 1906.5	25.1 ± 3.4	3548 ± 27
BP 3855.5 BC 1916.5	26.2 ± 3.4	3549 ± 27
BP 3865.5 BC 1926.5	21.6 ± 2.6	3595 ± 21
BP 3875.5 BC 1936.5	23.9 ± 2.9	3586 ± 23
BP 3885.5 BC 1946.5	23.7 ± 3.3	3597 ± 27
BP 3895.5 BC 1956.5	25.3 ± 3.4	3595 ± 27
BP 3905.5 BC 1966.5	24.5 ± 3.4	3611 ± 27
BP 3915.5 BC 1976.5	23.3 ± 3.2	3630 ± 26
BP 3925.5 BC 1986.5	21.6 ± 3.4	3653 ± 27
BP 3935.5 BC 1996.5	30.9 ± 3.2	3590 ± 26
BP 3945.5 BC 2006.5	34.2 ± 3.4	3574 ± 27
BP 3955.5 BC 2016.5	28.4 ± 3.2	3629 ± 26
BP 3965.5		

TABLE 1-I

cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP	cal AD/BC cal BP	$\Delta^{14}C$	Radiocarbon age BP
BC 2026.5 BP 3975.5	30.9 ± 3.4	3619 ± 27	BC 2276.5 BP 4225.5	37.5 ± 4.0	3811 ± 32
BC 2036.5 BP 3985.5	25.5 ± 2.1	3671 ± 17	BC 2286.5 BP 4235.5	39.8 ± 2.8	3802 ± 22
BC 2046.5 BP 3995.5	20.1 ± 3.2	3723 ± 26	BC 2296.5 BP 4245.5	36.7 ± 2.5	3836 ± 20
BC 2056.5 BP 4005.5	23.4 ± 2.4	3707 ± 19	BC 2306.5 BP 4255.5	39.4 ± 3.8	3825 ± 30
BC 2066.5 BP 4015.5	30.5 ± 3.3	3661 ± 26	BC 2316.5 BP 4265.5	36.7 ± 3.4	3856 ± 27
BC 2076.5 BP 4025.5	23.2 ± 2.4	3728 ± 19	BC 2326.5 BP 4275.5	40.9 ± 2.4	3833 ± 19
BC 2086.5 BP 4035.5	34.5 ± 3.4	3649 ± 27	BC 2336.5 BP 4285.5	41.0 ± 3.4	3842 ± 27
BC 2096.5 BP 4045.5	31.7 ± 3.2	3681 ± 26	BC 2346.5 BP 4295.5	40.2 ± 2.4	3858 ± 19
BC 2106.5 BP 4055.5	37.0 ± 2.3	3650 ± 18	BC 2356.5 BP 4305.5	37.6 ± 3.4	3888 ± 27
BC 2116.5 BP 4065.5	33.7 ± 3.2	3685 ± 26	BC 2366.5 BP 4315.5	39.7 ± 2.4	3882 ± 19
BC 2126.5 BP 4075.5	37.2 ± 3.4	3667 ± 27	BC 2376.5 BP 4325.5	40.2 ± 3.4	3887 ± 27
BC 2136.5 BP 4085.5	33.7 ± 3.2	3704 ± 26	BC 2386.5 BP 4335.5	46.7 ± 2.4	3847 ± 19
BC 2146.5 BP 4095.5	26.4 ± 2.6	3771 ± 21	BC 2406.5 BP 4355.5	43.5 ± 2.6	3891 ± 21
BC 2156.5 BP 4105.5	30.8 ± 2.2	3746 ± 17	BC 2416.5 BP 4365.5	43.1 ± 2.8	3903 ± 22
BC 2166.5 BP 4115.5	34.6 ± 3.4	3726 ± 27	BC 2426.5 BP 4375.5	49.4 ± 3.4	3865 ± 27
BC 2176.5 BP 4125.5	35.5 ± 2.2	3729 ± 18	BC 2436.5 BP 4385.5	46.5 ± 1.8	3897 ± 14
BC 2186.5 BP 4135.5	37.6 ± 1.9	3723 ± 15	BC 2446.5 BP 4395.5	50.5 ± 3.4	3876 ± 27
BC 2196.5 BP 4145.5	37.3 ± 1.9	3735 ± 15	BC 2466.5 BP 4415.5	50.0 ± 3.4	3899 ± 27
BC 2206.5 BP 4155.5	31.5 ± 2.8	3789 ± 22	BC 2476.5 BP 4425.5	39.1 ± 2.4	3993 ± 20
BC 2216.5 BP 4165.5	32.2 ± 2.4	3794 ± 19	BC 2486.5 BP 4435.5	43.4 ± 2.5	3969 ± 20
BC 2226.5 BP 4175.5	35.7 ± 2.0	3776 ± 16	BC 2496.5 BP 4445.5	38.0 ± 3.6	4021 ± 29
BC 2236.5 BP 4185.5	30.4 ± 3.8	3827 ± 30			
BC 2246.5 BP 4195.5	32.6 ± 2.5	3820 ± 20			
BC 2256.5 BP 4205.5	38.8 ± 2.3	3781 ± 19			
BC 2266.5 BP 4215.5	42.2 ± 3.4	3765 ± 27			

TABLE 2

Lab code	Species	Dendro-ages used	Wood treatment*	Location	Dendro-chronology
C	Douglas fir	AD 1915–1954 (single year)	CL	Olympic Peninsula, WA (47° 46′ N, 124° 06′ W)	Ring counted only
A	Douglas fir	AD 1820–1913 (single year)	DV**	Olympic Peninsula, WA (47° 46′ N, 124° 06′ W)	Ring counted only
B	Douglas fir	AD 1690–1719 AD 1790–1819 (single year)	DV	Mt Rainier Natl Park, WA (46° 45′ N, 121° 45′ W)	Ring counted only
F	Douglas fir	AD 1510–1699 (single year)	DV	Coos Bay, OR (43° 07′ N, 123° 40′ W)	Ring counted only
		AD 1505–1935 (decadal)	DV†		
R	Douglas fir	AD 1305–1505 (decadal)	DV	Pierce County, WA (47°N 122°W)	Ring counted only
S	Douglas fir	AD 945–1315 (decadal)	DV	Shawnigan Lake, Vancouver Island, BC Canada (48° 40′ N, 123° 40′ W)	Cross-dated by M Parker *et al*, Western Products Forestry Vancouver, BC
RC	Sequoia	AD 265–935 (decadal)	DV	Sequoia Nat'l Park, CA (36.5° N, 118.5° W)	Cross-dated by H Garfinkel, University of Washington, Seattle
ECK	Oak	AD 705–765 (decadal)	DV	Northern Germany	Cross-dated by D Eckstein, University of Hamburg
SR	Sequoia	145 BC–AD 265 (decadal)	DV	Sequoia Natl Park, CA (36.5° N, 118.5° W)	Cross-dated by H Garfinkel
BK	Oak	2495 BC–AD 45 (decadal)	CL	Southern Germany	Cross-dated by B Becker, University of Hohenheim, Stuttgart, W Germany
PQ	Oak	625–515 BC (decadal)	CL	Ireland	Cross-dated by JR Pilcher, MGL Baillie and GW Pearson, University of Belfast, Northern Ireland

*CL = cellulose method, DV = De Vries method
**Cellulose duplicates run for AD 1836, 1837 and 1853
†Cellulose treatment AD 1505 and 1515

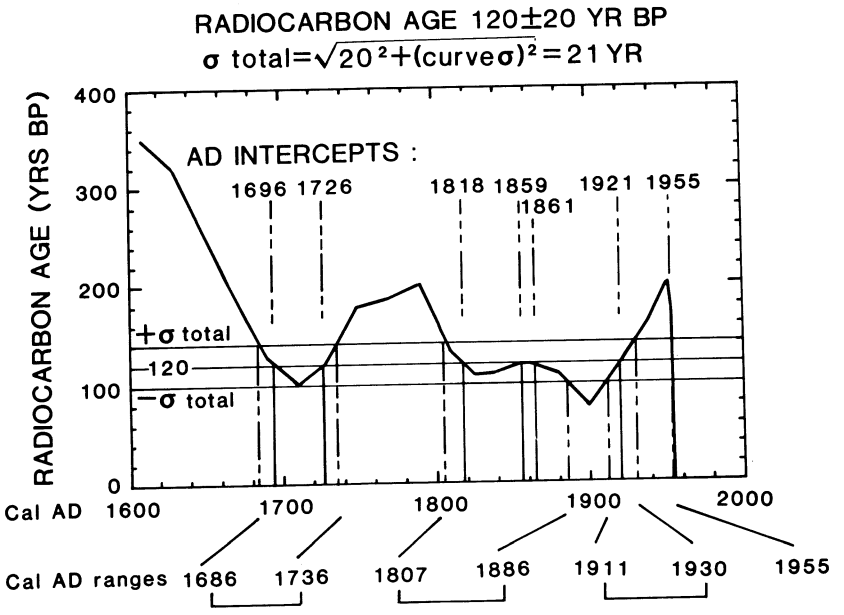
TABLE 3

The conversion of the radiocarbon ages to a series of ranges of cal AD/BC (*and* BP) dates is determined by the AD/BC intercepts of the sample radiocarbon age ± $\sqrt{(\text{sample } \sigma)^2 + (\text{curve } \sigma)^2}$ and the calibration curve. Intercepts of the radiocarbon age with the calibration curve are listed to the right. Sample σ is the standard error in the radiocarbon age.

The youngest decade of the calibration curve is AD 1940–1949 with a conventional radiocarbon age of 181 years BP. The curve has been extended to 1954 using data from Stuiver and Quay (1981). Nuclear bomb testing increased atmospheric ^{14}C substantially in 1955, resulting in the "vertical" portion of the Fig 1A calibration curve. Intercepts with this vertical portion yield the 1955*s of the table. In those instances where cal AD/BC ages indicate "negative" BP ages the BP age is given as 0* BP.

For sample sigmas and ranges larger or equal to 100 years the data were rounded to the nearest decade. When the gap between two successive ranges was less than 10 years, the two ranges were combined to a single one.

Illustrations from Stuiver and Pearson (1986) and Pearson and Stuiver (1986) are given below.



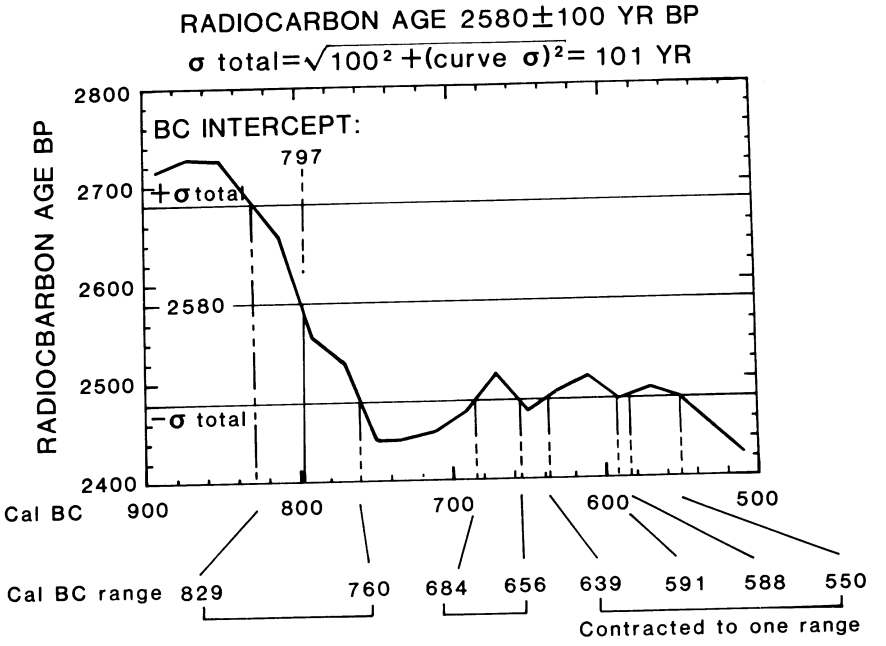


TABLE 3-A

RADIOCARBON AGE BP 80 CALIBRATED AGES: cal AD 1897, 1908, 1955*
cal BP 53, 42, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1710-1717(240-233)	1883-1914(67-36)	
σ = 40	1693-1722(257-228)	1812-1922(138-28)	
σ = 60	1685-1730(265-220)	1808-1932(142-18)	
σ = 80	1677-1739(273-211)	1804-1939(146-11)	
σ = 100	1671-1747(279-203)	1761-1770(189-180)	1800-1955*(150-0*)
σ = 120	1670-1955*(280-0*)		
σ = 160	1650-1955*(300-0*)		
σ = 200	1640-1955*(310-0*)		

RADIOCARBON AGE BP 100 CALIBRATED AGES: cal AD 1711, 1716, 1885, 1913, 1955*
cal BP 239, 234, 65, 37, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1692-1722(258-228)	1811-1922(139-28)	
σ = 40	1684-1731(266-219)	1808-1932(142-18)	
σ = 60	1677-1739(273-211)	1804-1939(146-11)	
σ = 80	1671-1747(279-203)	1761-1770(189-180)	1799-1955*(151-0*)
σ = 100	1670-1955*(280-0*)		
σ = 120	1660-1955*(290-0*)		
σ = 160	1650-1955*(300-0*)		
σ = 200	1532-1541(418-409)	1640-1955*(310-0*)	

RADIOCARBON AGE BP 120 CALIBRATED AGES: cal AD 1693, 1722, 1812, 1859, 1869, 1921, 1955*
cal BP 257, 228, 138, 91, 81, 29, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1684-1731(266-219)	1808-1886(142-64)	1913-1932(37-18)
σ = 40	1677-1739(273-211)	1804-1939(146-11)	
σ = 60	1671-1747(279-203)	1761-1770(189-180)	1799-1955*(151-0*)
σ = 80	1665-1955*(285-0*)		
σ = 100	1660-1955*(290-0*)		
σ = 120	1650-1955*(300-0*)		
σ = 160	1640-1955*(310-0*)		
σ = 200	1525-1563(425-387)	1630-1955*(320-0*)	

RADIOCARBON AGE BP 140 CALIBRATED AGES: cal AD 1685, 1730, 1808, 1931, 1955*
cal BP 265, 220, 142, 19, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1676-1696(274-254)	1721-1740(229-210)	1803-1813(147-137)
	1853-1874(97-76)	1920-1939(30-11)	
σ = 40	1671-1748(279-202)	1761-1771(189-179)	1799-1886(151-64)
	1913-1955*(37-0*)		
σ = 60	1665-1955*(285-0*)		
σ = 80	1659-1955*(291-0*)		
σ = 100	1650-1955*(300-0*)		
σ = 120	1650-1955*(300-0*)		
σ = 160	1532-1541(418-409)	1640-1955*(310-0*)	
σ = 200	1516-1599(434-351)	1620-1955*(330-0*)	

TABLE 3-B

RADIOCARBON AGE BP 160 CALIBRATED AGES: cal AD 1677, 1739, 1804, 1938, 1955*
cal BP 273, 211, 146, 12, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1670-1686(280-264)	1728-1748(222-202)	1760-1772(190-178)
	1798-1809(152-141)	1929-1955*(21-0*)	
σ = 40	1665-1694(285-256)	1721-1812(229-138)	1856-1872(94-78)
	1920-1955*(30-0*)		
σ = 60	1659-1886(291-64)	1913-1955*(37-0*)	
σ = 80	1653-1898(297-52)	1908-1955*(42-0*)	
σ = 100	1650-1955*(300-0*)		
σ = 120	1640-1955*(310-0*)		
σ = 160	1525-1564(425-386)	1630-1955*(320-0*)	
σ = 200	1490-1955*(460-0*)		

RADIOCARBON AGE BP 180 CALIBRATED AGES: cal AD 1671, 1747, 1761, 1770, 1799, 1944, 1954
cal BP 279, 203, 189, 180, 151, 6, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1664-1679(286-271)	1737-1805(213-145)	1937-1955*(13-0*)
σ = 40	1658-1686(292-264)	1728-1808(222-142)	1929-1955*(21-0*)
σ = 60	1652-1694(298-256)	1721-1812(229-138)	1855-1872(95-78)
	1920-1955*(30-0*)		
σ = 80	1647-1886(303-64)	1913-1955*(37-0*)	
σ = 100	1640-1955*(310-0*)		
σ = 120	1532-1542(418-408)	1640-1955*(310-0*)	
σ = 160	1516-1599(434-351)	1620-1955*(330-0*)	
σ = 200	1480-1955*(470-0*)		

RADIOCARBON AGE BP 200 CALIBRATED AGES: cal AD 1665, 1784, 1787, 1951, 1952
cal BP 285, 166, 163, 0*, 0*

Sample σ and cal AD(cal BP) ranges:

σ = 20	1657-1673(293-277)	1745-1800(205-150)	1943-1955*(7-0*)
σ = 40	1652-1679(298-271)	1738-1804(212-146)	1938-1955*(12-0*)
σ = 60	1647-1686(303-264)	1729-1808(221-142)	1930-1955*(20-0*)
σ = 80	1642-1694(308-256)	1721-1812(229-138)	1856-1871(94-79)
	1920-1955*(30-0*)		
σ = 100	1532-1542(418-408)	1640-1890(310-60)	1913-1955*(37-0*)
σ = 120	1524-1564(426-386)	1630-1955*(320-0*)	
σ = 160	1490-1955*(460-0*)		
σ = 200	1450-1955*(500-0*)		

TABLE 3-C

RADIOCARBON AGE BP 220 CALIBRATED AGE: cal AD 1659
cal BP 291

Sample σ and cal AD(cal BP) ranges:

σ = 20	1653-1666(297-284)	1783-1792(167-158)	1951-1952(0*)
σ = 40	1647-1671(303-279)	1747-1799(203-151)	1944-1954(6-0*)
σ = 60	1642-1678(308-272)	1739-1804(211-146)	1938-1955*(12-0*)
σ = 80	1532-1541(418-409)	1637-1685(313-265)	1730-1808(220-142)
	1931-1955*(19-0*)		
σ = 100	1525-1563(425-387)	1628-1694(322-256)	1722-1812(228-138)
	1858-1870(92-80)	1921-1955*(29-0*)	
σ = 120	1516-1599(434-351)	1620-1890(330-60)	1913-1955*(37-0*)
σ = 160	1480-1955*(470-0*)		
σ = 200	1440-1955*(510-0*)		

RADIOCARBON AGE BP 240 CALIBRATED AGE: cal AD 1653
cal BP 297

Sample σ and cal AD(cal BP) ranges:

σ = 20	1647-1659(303-291)		
σ = 40	1642-1666(308-284)	1784-1790(166-160)	1951-1952(0*)
σ = 60	1532-1541(418-409)	1637-1671(313-279)	1747-1799(203-151)
	1944-1954(6-0*)		
σ = 80	1525-1563(425-387)	1628-1678(322-272)	1739-1804(211-146)
	1938-1955*(12-0*)		
σ = 100	1516-1599(434-351)	1618-1685(332-265)	1730-1808(220-142)
	1931-1955*(19-0*)		
σ = 120	1490-1690(460-260)	1722-1812(228-138)	1858-1870(92-80)
	1921-1955*(29-0*)		
σ = 160	1450-1900(500-50)	1908-1955*(42-0*)	
σ = 200	1440-1955*(510-0*)		

RADIOCARBON AGE BP 260 CALIBRATED AGE: cal AD 1647
cal BP 303

Sample σ and cal AD(cal BP) ranges:

σ = 20	1642-1653(308-297)		
σ = 40	1532-1541(418-409)	1637-1659(313-291)	
σ = 60	1525-1563(425-387)	1628-1665(322-285)	1784-1789(166-161)
	1951-1952(0*)		
σ = 80	1516-1599(434-351)	1618-1671(332-279)	1747-1799(203-151)
	1944-1954(6-0*)		
σ = 100	1490-1680(460-270)	1739-1804(211-146)	1938-1955*(12-0*)
σ = 120	1480-1690(470-260)	1730-1808(220-142)	1931-1955*(19-0*)
σ = 160	1440-1890(510-60)	1913-1955*(37-0*)	
σ = 200	1430-1955*(520-0*)		

TABLE 3-D

RADIOCARBON AGE BP 280 CALIBRATED AGE: cal AD 1642
cal BP 308

Sample σ and cal AD(cal BP) ranges:

σ = 20	1532-1542(418-408)	1637-1648(313-302)	
σ = 40	1525-1564(425-386)	1628-1653(322-297)	
σ = 60	1516-1599(434-351)	1617-1659(333-291)	
σ = 80	1490-1665(460-285)	1784-1789(166-161)	1951-1952(0*)
σ = 100	1480-1670(470-280)	1747-1799(203-151)	1944-1954(6-0*)
σ = 120	1450-1680(500-270)	1739-1804(211-146)	1938-1955*(12-0*)
σ = 160	1440-1690(510-260)	1722-1812(228-138)	1858-1869(92-81)
	1921-1955*(29-0*)		
σ = 200	1430-1900(520-50)	1908-1955*(42-0*)	

RADIOCARBON AGE BP 300 CALIBRATED AGES: cal AD 1532, 1541, 1637
cal BP 418, 409, 313

Sample σ and cal AD(cal BP) ranges:

σ = 20	1524-1564(426-386)	1628-1642(322-308)	
σ = 40	1516-1599(434-351)	1617-1648(333-302)	
σ = 60	1490-1653(460-297)		
σ = 80	1476-1659(474-291)		
σ = 100	1450-1670(500-280)	1784-1788(166-162)	1951-1952(0*)
σ = 120	1440-1670(510-280)	1747-1799(203-151)	1944-1954(6-0*)
σ = 160	1430-1680(520-270)	1730-1808(220-142)	1931-1955*(19-0*)
σ = 200	1420-1890(530-60)	1913-1955*(37-0*)	

RADIOCARBON AGE BP 320 CALIBRATED AGES: cal AD 1525, 1563, 1628
cal BP 425, 387, 322

Sample σ and cal AD(cal BP) ranges:

σ = 20	1516-1599(434-351)	1617-1637(333-313)	
σ = 40	1490-1642(460-308)		
σ = 60	1476-1648(474-302)		
σ = 80	1450-1653(500-297)		
σ = 100	1440-1660(510-290)		
σ = 120	1440-1670(510-280)	1784-1788(166-162)	1951-1952(0*)
σ = 160	1430-1680(520-270)	1739-1804(211-146)	1938-1955*(12-0*)
σ = 200	1410-1690(540-260)	1722-1812(228-138)	1859-1869(91-81)
	1921-1955*(29-0*)		

RADIOCARBON AGE BP 340 CALIBRATED AGES: cal AD 1516, 1599, 1618
cal BP 434, 351, 332

Sample σ and cal AD(cal BP) ranges:

σ = 20	1490-1525(460-425)	1563-1629(387-321)	
σ = 40	1476-1637(474-313)		
σ = 60	1450-1642(500-308)		
σ = 80	1443-1647(507-303)		
σ = 100	1440-1650(510-300)		
σ = 120	1430-1660(520-290)		
σ = 160	1420-1670(530-280)	1747-1799(203-151)	1944-1954(6-0*)
σ = 200	1410-1680(540-270)	1730-1808(220-142)	1931-1955*(19-0*)

TABLE 3-E

RADIOCARBON AGE BP 360 CALIBRATED AGE: cal AD 1490
cal BP 460

Sample σ and cal AD(cal BP) ranges:

σ = 20	1467-1519(483-431)	1595-1621(355-329)	
σ = 40	1449-1526(501-424)	1561-1630(389-320)	
σ = 60	1443-1637(507-313)		
σ = 80	1439-1643(511-307)		
σ = 100	1430-1650(520-300)		
σ = 120	1430-1650(520-300)		
σ = 160	1410-1670(540-280)	1783-1792(167-158)	1951-1952(0*)
σ = 200	1333-1339(617-611)	1400-1680(550-270)	1739-1804(211-146)
	1938-1955*(12-0*)		

RADIOCARBON AGE BP 380 CALIBRATED AGE: cal AD 1476
cal BP 474

Sample σ and cal AD(cal BP) ranges:

σ = 20	1447-1494(503-456)		
σ = 40	1442-1518(508-432)	1596-1620(354-330)	
σ = 60	1438-1526(512-424)	1561-1630(389-320)	
σ = 80	1434-1637(516-313)		
σ = 100	1430-1640(520-310)		
σ = 120	1420-1650(530-300)		
σ = 160	1410-1660(540-290)		
σ = 200	1329-1347(621-603)	1390-1670(560-280)	1746-1799(204-151)
	1944-1954(6-0*)		

RADIOCARBON AGE BP 400 CALIBRATED AGE: cal AD 1451
cal BP 499

Sample σ and cal AD(cal BP) ranges:

σ = 20	1442-1485(508-465)		
σ = 40	1438-1492(512-458)		
σ = 60	1434-1517(516-433)	1598-1619(352-331)	
σ = 80	1428-1525(522-425)	1562-1629(388-321)	
σ = 100	1420-1640(530-310)		
σ = 120	1410-1640(540-310)		
σ = 160	1333-1339(617-611)	1400-1650(550-300)	
σ = 200	1326-1365(624-585)	1390-1670(560-280)	1784-1790(166-160)
	1951-1952(0*)		

RADIOCARBON AGE BP 420 CALIBRATED AGE: cal AD 1443
cal BP 507

Sample σ and cal AD(cal BP) ranges:

σ = 20	1437-1454(513-496)	
σ = 40	1433-1484(517-466)	
σ = 60	1428-1492(522-458)	
σ = 80	1421-1517(529-433)	1597-1619(353-331)
σ = 100	1410-1530(540-420)	1562-1629(388-321)
σ = 120	1410-1640(540-310)	
σ = 160	1329-1347(621-603)	1390-1650(560-300)
σ = 200	1314-1369(636-581)	1390-1660(560-290)

TABLE 3-F

RADIOCARBON AGE BP 440 CALIBRATED AGE: cal AD 1439
cal BP 511

Sample σ and cal AD(cal BP) ranges:

σ = 20	1432-1445(518-505)		
σ = 40	1427-1453(523-497)		
σ = 60	1421-1481(529-469)		
σ = 80	1414-1491(536-459)		
σ = 100	1410-1520(540-430)	1598-1619(352-331)	
σ = 120	1333-1339(617-611)	1400-1530(550-420)	1562-1629(388-321)
σ = 160	1325-1366(625-584)	1390-1640(560-310)	
σ = 200	1300-1650(650-300)		

RADIOCARBON AGE BP 460 CALIBRATED AGE: cal AD 1435
cal BP 515

Sample σ and cal AD(cal BP) ranges:

σ = 20	1426-1441(524-509)		
σ = 40	1420-1444(530-506)		
σ = 60	1414-1452(536-498)		
σ = 80	1409-1480(541-470)		
σ = 100	1333-1339(617-611)	1400-1491(550-459)	
σ = 120	1329-1347(621-603)	1390-1520(560-430)	1598-1619(352-331)
σ = 160	1314-1369(636-581)	1390-1640(560-310)	
σ = 200	1280-1650(670-300)		

RADIOCARBON AGE BP 480 CALIBRATED AGE: cal AD 1429
cal BP 521

Sample σ and cal AD(cal BP) ranges:

σ = 20	1419-1437(531-513)	
σ = 40	1414-1440(536-510)	
σ = 60	1409-1444(541-506)	
σ = 80	1333-1340(617-610)	1399-1452(551-498)
σ = 100	1329-1347(621-603)	1392-1480(558-470)
σ = 120	1325-1366(625-584)	1390-1490(560-460)
σ = 160	1300-1530(650-420)	1562-1629(388-321)
σ = 200	1280-1640(670-310)	

RADIOCARBON AGE BP 500 CALIBRATED AGE: cal AD 1422
cal BP 528

Sample σ and cal AD(cal BP) ranges:

σ = 20	1413-1431(537-519)	
σ = 40	1409-1436(541-514)	
σ = 60	1333-1340(617-610)	1398-1440(552-510)
σ = 80	1329-1348(621-602)	1392-1444(558-506)
σ = 100	1325-1366(625-584)	1389-1451(561-499)
σ = 120	1313-1369(637-581)	1386-1479(564-471)
σ = 160	1280-1520(670-430)	1598-1618(352-332)
σ = 200	1280-1640(670-310)	

TABLE 3-G

RADIOCARBON AGE BP 520 CALIBRATED AGE: cal AD 1415
cal BP 535

Sample σ and cal AD(cal BP) ranges:

σ = 20	1408-1425(542-525)	
σ = 40	1333-1341(617-609)	1396-1430(554-520)
σ = 60	1329-1348(621-602)	1392-1435(558-515)
σ = 80	1325-1366(625-584)	1389-1440(561-510)
σ = 100	1313-1370(637-580)	1386-1444(564-506)
σ = 120	1300-1450(650-500)	
σ = 160	1280-1490(670-460)	
σ = 200	1280-1530(670-420)	1563-1629(387-321)

RADIOCARBON AGE BP 540 CALIBRATED AGE: cal AD 1410
cal BP 540

Sample σ and cal AD(cal BP) ranges:

σ = 20	1332-1342(618-608)	1394-1418(556-532)
σ = 40	1329-1348(621-602)	1392-1424(558-526)
σ = 60	1325-1366(625-584)	1389-1430(561-520)
σ = 80	1312-1370(638-580)	1386-1435(564-515)
σ = 100	1300-1440(650-510)	
σ = 120	1280-1440(670-510)	
σ = 160	1280-1480(670-470)	
σ = 200	1280-1520(670-430)	1598-1618(352-332)

RADIOCARBON AGE BP 560 CALIBRATED AGES: cal AD 1334, 1338, 1403
cal BP 616, 612, 547

Sample σ and cal AD(cal BP) ranges:

σ = 20	1328-1349(622-601)	1392-1411(558-539)
σ = 40	1325-1366(625-584)	1389-1416(561-534)
σ = 60	1312-1370(638-580)	1386-1423(564-527)
σ = 80	1299-1429(651-521)	
σ = 100	1280-1440(670-510)	
σ = 120	1280-1440(670-510)	
σ = 160	1280-1450(670-500)	
σ = 200	1260-1490(690-460)	

RADIOCARBON AGE BP 580 CALIBRATED AGES: cal AD 1330, 1347, 1393
cal BP 620, 603, 557

Sample σ and cal AD(cal BP) ranges:

σ = 20	1323-1367(627-583)	1388-1406(562-544)
σ = 40	1310-1370(640-580)	1386-1411(564-539)
σ = 60	1299-1416(651-534)	
σ = 80	1284-1423(666-527)	
σ = 100	1280-1430(670-520)	
σ = 120	1280-1440(670-510)	
σ = 160	1280-1440(670-510)	
σ = 200	1260-1480(690-470)	

TABLE 3-H

RADIOCARBON AGE BP 600 CALIBRATED AGES: cal AD 1326, 1353, 1363, 1365, 1389
cal BP 624, 597, 587, 585, 561

Sample σ and cal AD(cal BP) ranges:

σ = 20	1306-1331(644-619)	1345-1370(605-580)	1385-1394(565-556)
σ = 40	1298-1406(652-544)		
σ = 60	1284-1410(666-540)		
σ = 80	1282-1415(668-535)		
σ = 100	1280-1420(670-530)		
σ = 120	1280-1430(670-520)		
σ = 160	1260-1440(690-510)		
σ = 200	1229-1244(721-706)	1260-1450(690-500)	

RADIOCARBON AGE BP 620 CALIBRATED AGES: cal AD 1315, 1369, 1386
cal BP 635, 581, 564

Sample σ and cal AD(cal BP) ranges:

σ = 20	1297-1327(653-623)	1351-1390(599-560)
σ = 40	1284-1330(666-620)	1346-1393(604-557)
σ = 60	1282-1405(668-545)	
σ = 80	1280-1410(670-540)	
σ = 100	1280-1420(670-530)	
σ = 120	1280-1420(670-530)	
σ = 160	1260-1430(690-520)	
σ = 200	1220-1440(730-510)	

RADIOCARBON AGE BP 640 CALIBRATED AGES: cal AD 1300, 1373, 1380
cal BP 650, 577, 570

Sample σ and cal AD(cal BP) ranges:

σ = 20	1284-1319(666-631)	1368-1387(582-563)
σ = 40	1282-1326(668-624)	1352-1390(598-560)
σ = 60	1280-1330(670-620)	1346-1393(604-557)
σ = 80	1278-1405(672-545)	
σ = 100	1280-1410(670-540)	
σ = 120	1260-1420(690-530)	
σ = 160	1229-1244(721-706)	1260-1430(690-520)
σ = 200	1210-1440(740-510)	

RADIOCARBON AGE BP 660 CALIBRATED AGE: cal AD 1284
cal BP 666

Sample σ and cal AD(cal BP) ranges:

σ = 20	1281-1304(669-646)	1371-1384(579-566)
σ = 40	1280-1319(670-631)	1368-1387(582-563)
σ = 60	1278-1326(672-624)	1352-1390(598-560)
σ = 80	1276-1330(674-620)	1346-1393(604-557)
σ = 100	1260-1410(690-540)	
σ = 120	1260-1410(690-540)	
σ = 160	1220-1420(730-530)	
σ = 200	1165-1165(785-785)	1190-1430(760-520)

TABLE 3-I

RADIOCARBON AGE BP 680 CALIBRATED AGE: cal AD 1282
cal BP 668

Sample σ and cal AD(cal BP) ranges:

σ = 20	1280-1296(670-654)		
σ = 40	1278-1302(672-648)	1372-1382(578-568)	
σ = 60	1276-1318(674-632)	1368-1387(582-563)	
σ = 80	1262-1326(688-624)	1352-1390(598-560)	
σ = 100	1259-1330(691-620)	1346-1393(604-557)	
σ = 120	1230-1410(720-540)		
σ = 160	1210-1420(740-530)		
σ = 200	1160-1430(790-520)		

RADIOCARBON AGE BP 700 CALIBRATED AGE: cal AD 1280
cal BP 670

Sample σ and cal AD(cal BP) ranges:

σ = 20	1278-1283(672-667)		
σ = 40	1276-1285(674-665)		
σ = 60	1262-1301(688-649)	1372-1381(578-569)	
σ = 80	1259-1317(691-633)	1369-1387(581-563)	
σ = 100	1228-1326(722-624)	1352-1390(598-560)	
σ = 120	1220-1330(730-620)	1346-1393(604-557)	
σ = 160	1165-1166(785-784)	1190-1410(760-540)	
σ = 200	1132-1136(818-814)	1160-1420(790-530)	

RADIOCARBON AGE BP 720 CALIBRATED AGE: cal AD 1279
cal BP 671

Sample σ and cal AD(cal BP) ranges:

σ = 20	1264-1281(686-669)		
σ = 40	1262-1283(688-667)		
σ = 60	1259-1285(691-665)		
σ = 80	1227-1301(723-649)	1372-1381(578-569)	
σ = 100	1218-1317(732-633)	1369-1387(581-563)	
σ = 120	1210-1330(740-620)	1352-1390(598-560)	
σ = 160	1160-1410(790-540)		
σ = 200	1043-1091(907-859)	1122-1139(828-811)	1150-1420(800-530)

RADIOCARBON AGE BP 740 CALIBRATED AGE: cal AD 1277
cal BP 673

Sample σ and cal AD(cal BP) ranges:

σ = 20	1261-1279(689-671)		
σ = 40	1258-1281(692-669)		
σ = 60	1227-1283(723-667)		
σ = 80	1218-1285(732-665)		
σ = 100	1211-1301(739-649)	1372-1381(578-569)	
σ = 120	1165-1166(785-784)	1190-1320(760-630)	1369-1387(581-563)
σ = 160	1132-1136(818-814)	1160-1330(790-620)	1346-1393(604-557)
σ = 200	1040-1410(910-540)		

TABLE 3-J

RADIOCARBON AGE BP 760 CALIBRATED AGE: cal AD 1263
cal BP 687

Sample σ and cal AD(cal BP) ranges:

σ = 20	1258-1278(692-672)		
σ = 40	1225-1279(725-671)		
σ = 60	1218-1281(732-669)		
σ = 80	1211-1283(739-667)		
σ = 100	1165-1167(785-783)	1191-1284(759-666)	
σ = 120	1160-1300(790-650)	1373-1381(577-569)	
σ = 160	1043-1091(907-859)	1122-1139(828-811)	1150-1330(800-620)
	1352-1390(598-560)		
σ = 200	1030-1400(920-550)		

RADIOCARBON AGE BP 780 CALIBRATED AGE: cal AD 1259
cal BP 691

Sample σ and cal AD(cal BP) ranges:

σ = 20	1223-1276(727-674)		
σ = 40	1217-1277(733-673)		
σ = 60	1210-1279(740-671)		
σ = 80	1165-1167(785-783)	1191-1281(759-669)	
σ = 100	1160-1280(790-670)		
σ = 120	1132-1136(818-814)	1160-1280(790-670)	
σ = 160	1040-1320(910-630)	1369-1386(581-564)	
σ = 200	1020-1330(930-620)	1346-1393(604-557)	

RADIOCARBON AGE BP 800 CALIBRATED AGES: cal AD 1230, 1243, 1256
cal BP 720, 707, 694

Sample σ and cal AD(cal BP) ranges:

σ = 20	1216-1261(734-689)		
σ = 40	1210-1275(740-675)		
σ = 60	1164-1168(786-782)	1190-1277(760-673)	
σ = 80	1160-1279(790-671)		
σ = 100	1131-1136(819-814)	1160-1280(790-670)	
σ = 120	1043-1091(907-859)	1122-1139(828-811)	1150-1280(800-670)
σ = 160	1030-1300(920-650)	1373-1380(577-570)	
σ = 200	1003-1008(947-942)	1020-1330(930-620)	1353-1390(597-560)

RADIOCARBON AGE BP 820 CALIBRATED AGE: cal AD 1219
cal BP 731

Sample σ and cal AD(cal BP) ranges:

σ = 20	1208-1257(742-693)		
σ = 40	1164-1169(786-781)	1190-1260(760-690)	
σ = 60	1160-1263(790-687)	1274-1275(676-675)	
σ = 80	1075-1076(875-874)	1131-1136(819-814)	1155-1277(795-673)
σ = 100	1043-1091(907-859)	1121-1139(829-811)	1150-1280(800-670)
σ = 120	1040-1280(910-670)		
σ = 160	1020-1280(930-670)		
σ = 200	1000-1320(950-630)	1369-1386(581-564)	

TABLE 3-K

RADIOCARBON AGE BP 840 CALIBRATED AGE: cal AD 1212
cal BP 738

Sample σ and cal AD(cal BP) ranges:

σ = 20	1163-1173(787-777)	1189-1223(761-727)	
σ = 40	1159-1257(791-693)		
σ = 60	1074-1077(876-873)	1131-1136(819-814)	1155-1260(795-690)
σ = 80	1043-1091(907-859)	1121-1139(829-811)	1152-1263(798-687)
σ = 100	1040-1280(910-670)		
σ = 120	1030-1280(920-670)		
σ = 160	1003-1008(947-942)	1020-1280(930-670)	
σ = 200	990-1300(960-650)	1373-1380(577-570)	

RADIOCARBON AGE BP 860 CALIBRATED AGE: cal AD 1191
cal BP 759

Sample σ and cal AD(cal BP) ranges:

σ = 20	1159-1215(791-735)		
σ = 40	1073-1079(877-871)	1130-1137(820-813)	1155-1221(795-729)
σ = 60	1042-1092(908-858)	1121-1139(829-811)	1152-1256(798-694)
σ = 80	1036-1260(914-690)		
σ = 100	1030-1260(920-690)		
σ = 120	1020-1280(930-670)		
σ = 160	1000-1280(950-670)		
σ = 200	980-1280(970-670)		

RADIOCARBON AGE BP 880 CALIBRATED AGES: cal AD 1161, 1185
cal BP 789, 765

Sample σ and cal AD(cal BP) ranges:

σ = 20	1071-1084(879-866)	1127-1137(823-813)	1154-1207(796-743)
σ = 40	1042-1093(908-857)	1120-1139(830-811)	1152-1213(798-737)
σ = 60	1035-1221(915-729)		
σ = 80	1027-1256(923-694)		
σ = 100	1020-1260(930-690)		
σ = 120	1000-1260(950-690)		
σ = 160	990-1280(960-670)		
σ = 200	980-1280(970-670)		

RADIOCARBON AGE BP 900 CALIBRATED AGES: cal AD 1133, 1136, 1156
cal BP 817, 814, 794

Sample σ and cal AD(cal BP) ranges:

σ = 20	1041-1094(909-856)	1119-1140(831-810)	1151-1162(799-788)
	1176-1188(774-762)		
σ = 40	1035-1193(915-757)	1203-1206(747-744)	
σ = 60	1027-1213(923-737)		
σ = 80	1022-1220(928-730)		
σ = 100	1000-1260(950-690)		
σ = 120	1000-1260(950-690)		
σ = 160	980-1280(970-670)		
σ = 200	906-916(1044-1034)	980-1280(970-670)	

TABLE 3-L

RADIOCARBON AGE BP 920 CALIBRATED AGES: cal AD 1043, 1090, 1122, 1139, 1152
cal BP 907, 860, 828, 811, 798

Sample σ and cal AD(cal BP) ranges:

σ = 20	1034-1157(916-793)		
σ = 40	1027-1161(923-789)	1181-1186(769-764)	
σ = 60	1022-1192(928-758)		
σ = 80	1003-1008(947-942)	1018-1212(932-738)	
σ = 100	1000-1220(950-730)		
σ = 120	990-1230(960-720)	1241-1256(709-694)	
σ = 160	980-1260(970-690)		
σ = 200	898-920(1052-1030)	940-1280(1010-670)	

RADIOCARBON AGE BP 940 CALIBRATED AGES: cal AD 1037, 1142, 1149
cal BP 913, 808, 801

Sample σ and cal AD(cal BP) ranges:

σ = 20	1026-1067(924-883)	1087-1124(863-826)	1138-1153(812-797)
σ = 40	1022-1157(928-793)		
σ = 60	1003-1161(947-789)	1182-1186(768-764)	
σ = 80	999-1192(951-758)		
σ = 100	990-1210(960-740)		
σ = 120	980-1220(970-730)		
σ = 160	906-915(1044-1035)	980-1260(970-690)	
σ = 200	892-925(1058-1025)	940-1280(1010-670)	

RADIOCARBON AGE BP 960 CALIBRATED AGES: cal AD 1028, 1144, 1146
cal BP 922, 806, 804

Sample σ and cal AD(cal BP) ranges:

σ = 20	1021-1039(929-911)	1099-1117(851-833)	1141-1150(809-800)
σ = 40	1003-1066(947-884)	1088-1124(862-826)	1138-1153(812-797)
σ = 60	999-1157(951-793)		
σ = 80	994-1161(956-789)	1183-1186(767-764)	
σ = 100	980-1190(970-760)		
σ = 120	980-1210(970-740)		
σ = 160	898-920(1052-1030)	940-1230(1010-720)	1242-1256(708-694)
σ = 200	890-1260(1060-690)		

RADIOCARBON AGE BP 980 CALIBRATED AGE: cal AD 1023
cal BP 927

Sample σ and cal AD(cal BP) ranges:

σ = 20	1002-1032(948-918)	1143-1147(807-803)	
σ = 40	998-1038(952-912)	1100-1117(850-833)	1141-1150(809-800)
σ = 60	993-1066(957-884)	1088-1124(862-826)	1138-1153(812-797)
σ = 80	984-1157(966-793)		
σ = 100	980-1160(970-790)	1182-1186(768-764)	
σ = 120	905-916(1045-1034)	980-1190(970-760)	
σ = 160	890-1220(1060-730)		
σ = 200	782-788(1168-1162)	812-816(1138-1134)	833-836(1117-1114)
	870-1260(1080-690)		

TABLE 3-M

RADIOCARBON AGE BP 1000 CALIBRATED AGES: cal AD 1004, 1008, 1019
cal BP 946, 942, 931

Sample σ and cal AD(cal BP) ranges:

σ = 20	997-1024(953-926)		
σ = 40	992-1031(958-919)	1144-1147(806-803)	
σ = 60	984-1038(966-912)	1102-1116(848-834)	1141-1150(809-800)
σ = 80	981-1044(969-906)	1089-1123(861-827)	1138-1153(812-797)
σ = 100	905-916(1045-1034)	980-1160(970-790)	
σ = 120	898-920(1052-1030)	940-1160(1010-790)	1182-1186(768-764)
σ = 160	890-1210(1060-740)		
σ = 200	780-790(1170-1160)	800-1230(1150-720)	1241-1256(709-694)

RADIOCARBON AGE BP 1020 CALIBRATED AGE: cal AD 999
cal BP 951

Sample σ and cal AD(cal BP) ranges:

σ = 20	990-1020(960-930)		
σ = 40	984-1024(966-926)		
σ = 60	980-1030(970-920)	1144-1146(806-804)	
σ = 80	904-916(1046-1034)	977-1038(973-912)	1103-1116(847-834)
	1141-1149(809-801)		
σ = 100	898-921(1052-1029)	940-1040(1010-910)	1089-1123(861-827)
	1138-1153(812-797)		
σ = 120	890-1160(1060-790)		
σ = 160	782-788(1168-1162)	812-816(1138-1134)	833-837(1117-1113)
	870-1190(1080-760)		
σ = 200	780-1220(1170-730)		

RADIOCARBON AGE BP 1040 CALIBRATED AGE: cal AD 995
cal BP 955

Sample σ and cal AD(cal BP) ranges:

σ = 20	983-1001(967-949)	1012-1016(938-934)	
σ = 40	980-1020(970-930)		
σ = 60	904-916(1046-1034)	977-1023(973-927)	
σ = 80	898-921(1052-1029)	941-1029(1009-921)	1144-1146(806-804)
σ = 100	890-1040(1060-910)	1103-1116(847-834)	1141-1149(809-801)
σ = 120	890-1040(1060-910)	1089-1123(861-827)	1138-1153(812-797)
σ = 160	780-790(1170-1160)	800-1160(1150-790)	1183-1186(767-764)
σ = 200	770-1210(1180-740)		

TABLE 3-N

RADIOCARBON AGE BP 1060 CALIBRATED AGE: cal AD 985
cal BP 965

Sample σ and cal AD(cal BP) ranges:

σ = 20	979-997(971-953)		
σ = 40	904-917(1046-1033)	976-1000(974-950)	1013-1016(937-934)
σ = 60	897-921(1053-1029)	941-1019(1009-931)	
σ = 80	891-1023(1059-927)		
σ = 100	890-1030(1060-920)	1144-1146(806-804)	
σ = 120	782-788(1168-1162)	812-816(1138-1134)	833-837(1117-1113)
	870-1040(1080-910)	1104-1116(846-834)	1141-1149(809-801)
σ = 160	780-1160(1170-790)		
σ = 200	727-745(1223-1205)	770-1190(1180-760)	

RADIOCARBON AGE BP 1080 CALIBRATED AGE: cal AD 981
cal BP 969

Sample σ and cal AD(cal BP) ranges:

σ = 20	902-918(1048-1032)	957-989(993-961)	
σ = 40	897-921(1053-1029)	940-996(1010-954)	
σ = 60	891-1000(1059-950)	1014-1015(936-935)	
σ = 80	885-1019(1065-931)		
σ = 100	782-788(1168-1162)	811-817(1139-1133)	832-837(1118-1113)
	870-1020(1080-930)		
σ = 120	780-791(1170-1159)	800-1030(1150-920)	1144-1146(806-804)
σ = 160	770-1040(1180-910)	1089-1123(861-827)	1138-1153(812-797)
σ = 200	689-751(1261-1199)	760-1160(1190-790)	1183-1185(767-765)

RADIOCARBON AGE BP 1100 CALIBRATED AGES: cal AD 910, 915, 977
cal BP 1040, 1035, 973

Sample σ and cal AD(cal BP) ranges:

σ = 20	895-922(1055-1028)	939-983(1011-967)	
σ = 40	890-988(1060-962)		
σ = 60	885-996(1065-954)		
σ = 80	782-788(1168-1162)	810-817(1140-1133)	832-837(1118-1113)
	866-1000(1084-950)	1014-1015(936-935)	
σ = 100	780-791(1170-1159)	800-1020(1150-930)	
σ = 120	780-1020(1170-930)		
σ = 160	695-696(1255-1254)	727-745(1223-1205)	770-1040(1180-910)
	1104-1115(846-835)	1141-1149(809-801)	
σ = 200	680-1160(1270-790)		

RADIOCARBON AGE BP 1120 CALIBRATED AGES: cal AD 899, 920, 942
cal BP 1051, 1030, 1008

Sample σ and cal AD(cal BP) ranges:

σ = 20	889-979(1061-971)		
σ = 40	784-786(1166-1164)	878-982(1072-968)	
σ = 60	782-788(1168-1162)	809-818(1141-1132)	831-838(1119-1112)
	866-987(1084-963)		
σ = 80	779-791(1171-1159)	802-996(1148-954)	
σ = 100	780-1000(1170-950)	1014-1015(936-935)	
σ = 120	770-1020(1180-930)		
σ = 160	689-751(1261-1199)	760-1030(1190-920)	1144-1146(806-804)
σ = 200	670-1040(1280-910)	1089-1123(861-827)	1138-1153(812-797)

TABLE 3-O

RADIOCARBON AGE BP 1140 CALIBRATED AGES: cal AD 892, 925, 936
cal BP 1058, 1025, 1014

Sample σ and cal AD(cal BP) ranges:

σ = 20	784-786(1166-1164)	873-902(1077-1048)	917-976(1033-974)
σ = 40	782-788(1168-1162)	806-819(1144-1131)	830-838(1120-1112)
	864-979(1086-971)		
σ = 60	779-791(1171-1159)	801-982(1149-968)	
σ = 80	777-986(1173-964)		
σ = 100	770-1000(1180-950)		
σ = 120	694-696(1256-1254)	726-745(1224-1205)	770-1000(1180-950)
σ = 160	680-1020(1270-930)		
σ = 200	660-1040(1290-910)	1104-1115(846-835)	1141-1149(809-801)

RADIOCARBON AGE BP 1160 CALIBRATED AGE: cal AD 886
cal BP 1064

Sample σ and cal AD(cal BP) ranges:

σ = 20	781-789(1169-1161)	804-840(1146-1110)	860-896(1090-1054)
	922-940(1028-1010)		
σ = 40	779-901(1171-1049)	918-944(1032-1006)	
σ = 60	776-978(1174-972)		
σ = 80	773-982(1177-968)		
σ = 100	694-696(1256-1254)	726-745(1224-1205)	770-990(1180-960)
σ = 120	688-751(1262-1199)	760-1000(1190-950)	
σ = 160	670-1020(1280-930)		
σ = 200	660-1030(1290-920)	1144-1146(806-804)	

RADIOCARBON AGE BP 1180 CALIBRATED AGES: cal AD 782, 788, 814, 816, 833, 836, 868
cal BP 1168, 1162, 1136, 1134, 1117, 1114, 1082

Sample σ and cal AD(cal BP) ranges:

σ = 20	779-889(1171-1061)		
σ = 40	776-894(1174-1056)	923-937(1027-1013)	
σ = 60	773-900(1177-1050)	919-943(1031-1007)	
σ = 80	694-696(1256-1254)	726-745(1224-1205)	768-978(1182-972)
σ = 100	689-751(1261-1199)	760-980(1190-970)	
σ = 120	680-990(1270-960)		
σ = 160	660-1000(1290-950)		
σ = 200	650-1020(1300-930)		

TABLE 3-P

RADIOCARBON AGE BP 1200 CALIBRATED AGES: cal AD 780, 790, 802, 842, 853
cal BP 1170, 1160, 1148, 1108, 1097

Sample σ and cal AD(cal BP) ranges:

σ = 20	776-873(1174-1077)		
σ = 40	773-888(1177-1062)		
σ = 60	694-696(1256-1254)	726-745(1224-1205)	768-893(1182-1057)
	924-937(1026-1013)		
σ = 80	689-751(1261-1199)	762-899(1188-1051)	919-943(1031-1007)
σ = 100	680-980(1270-970)		
σ = 120	670-980(1280-970)		
σ = 160	660-1000(1290-950)		
σ = 200	640-1020(1310-930)		

RADIOCARBON AGE BP 1220 CALIBRATED AGES: cal AD 777, 793, 798
cal BP 1173, 1157, 1152

Sample σ and cal AD(cal BP) ranges:

σ = 20	772-804(1178-1146)	822-828(1128-1122)	840-859(1110-1091)
σ = 40	694-696(1256-1254)	715-746(1235-1204)	768-870(1182-1080)
σ = 60	688-751(1262-1199)	762-887(1188-1063)	
σ = 80	681-893(1269-1057)	924-936(1026-1014)	
σ = 100	670-900(1280-1050)	920-942(1030-1008)	
σ = 120	660-980(1290-970)		
σ = 160	650-990(1300-960)		
σ = 200	640-1000(1310-950)		

RADIOCARBON AGE BP 1240 CALIBRATED AGE: cal AD 774
cal BP 1176

Sample σ and cal AD(cal BP) ranges:

σ = 20	694-697(1256-1253)	714-746(1236-1204)	768-778(1182-1172)
	792-799(1158-1151)		
σ = 40	688-751(1262-1199)	762-803(1188-1147)	824-826(1126-1124)
	842-856(1108-1094)		
σ = 60	681-869(1269-1081)		
σ = 80	672-887(1278-1063)		
σ = 100	660-890(1290-1060)	924-936(1026-1014)	
σ = 120	660-900(1290-1050)	920-942(1030-1008)	
σ = 160	640-980(1310-970)		
σ = 200	608-627(1342-1323)	640-1000(1310-950)	

RADIOCARBON AGE BP 1260 CALIBRATED AGES: cal AD 695, 728, 744, 769
cal BP 1255, 1222, 1206, 1181

Sample σ and cal AD(cal BP) ranges:

σ = 20	688-775(1262-1175)		
σ = 40	681-778(1269-1172)	793-799(1157-1151)	
σ = 60	672-803(1278-1147)	824-826(1126-1124)	842-855(1108-1095)
σ = 80	664-869(1286-1081)		
σ = 100	660-890(1290-1060)		
σ = 120	650-890(1300-1060)	924-936(1026-1014)	
σ = 160	640-980(1310-970)		
σ = 200	600-980(1350-970)		

TABLE 3-Q

RADIOCARBON AGE BP 1280 CALIBRATED AGES: cal AD 689, 702, 708, 751, 763
cal BP 1261, 1248, 1242, 1199, 1187

Sample σ and cal AD(cal BP) ranges:

σ = 20	679-771(1271-1179)		
σ = 40	671-775(1279-1175)		
σ = 60	664-777(1286-1173)	793-799(1157-1151)	
σ = 80	656-803(1294-1147)	824-825(1126-1125)	842-855(1108-1095)
σ = 100	650-870(1300-1080)		
σ = 120	640-890(1310-1060)		
σ = 160	608-627(1342-1323)	640-900(1310-1050)	920-942(1030-1008)
σ = 200	580-980(1370-970)		

RADIOCARBON AGE BP 1300 CALIBRATED AGE: cal AD 682
cal BP 1268

Sample σ and cal AD(cal BP) ranges:

σ = 20	668-713(1282-1237)	747-767(1203-1183)	
σ = 40	662-771(1288-1179)		
σ = 60	655-775(1295-1175)		
σ = 80	646-778(1304-1172)	792-799(1158-1151)	
σ = 100	640-800(1310-1150)	824-826(1126-1124)	841-856(1109-1094)
σ = 120	640-870(1310-1080)		
σ = 160	600-890(1350-1060)	924-936(1026-1014)	
σ = 200	560-980(1390-970)		

RADIOCARBON AGE BP 1320 CALIBRATED AGE: cal AD 672
cal BP 1278

Sample σ and cal AD(cal BP) ranges:

σ = 20	660-687(1290-1263)	753-759(1197-1191)	
σ = 40	653-711(1297-1239)	748-766(1202-1184)	
σ = 60	645-770(1305-1180)		
σ = 80	643-775(1307-1175)		
σ = 100	640-780(1310-1170)	793-799(1157-1151)	
σ = 120	610-800(1340-1150)	824-826(1126-1124)	842-856(1108-1094)
σ = 160	580-890(1370-1060)		
σ = 200	540-900(1410-1050)	920-942(1030-1008)	

RADIOCARBON AGE BP 1340 CALIBRATED AGE: cal AD 665
cal BP 1285

Sample σ and cal AD(cal BP) ranges:

σ = 20	651-678(1299-1272)		
σ = 40	645-686(1305-1264)		
σ = 60	642-710(1308-1240)	749-765(1201-1185)	
σ = 80	640-770(1310-1180)		
σ = 100	610-770(1340-1180)		
σ = 120	600-780(1350-1170)	793-799(1157-1151)	
σ = 160	560-870(1390-1080)		
σ = 200	540-890(1410-1060)	924-936(1026-1014)	

TABLE 3-R

RADIOCARBON AGE BP 1360 CALIBRATED AGE: cal AD 656
cal BP 1294

Sample σ and cal AD(cal BP) ranges:

σ = 20	644-669(1306-1281)		
σ = 40	642-675(1308-1275)		
σ = 60	640-685(1310-1265)		
σ = 80	605-690(1345-1260)	701-710(1249-1240)	749-765(1201-1185)
σ = 100	600-730(1350-1220)	741-770(1209-1180)	
σ = 120	580-770(1370-1180)		
σ = 160	540-800(1410-1150)	824-825(1126-1125)	842-855(1108-1095)
σ = 200	434-451(1516-1499)	469-500(1481-1450)	530-890(1420-1060)

RADIOCARBON AGE BP 1380 CALIBRATED AGE: cal AD 648
cal BP 1302

Sample σ and cal AD(cal BP) ranges:

σ = 20	641-662(1309-1288)		
σ = 40	639-668(1311-1282)		
σ = 60	605-674(1345-1276)		
σ = 80	599-684(1351-1266)		
σ = 100	580-690(1370-1260)	701-709(1249-1241)	750-765(1200-1185)
σ = 120	560-730(1390-1220)	741-770(1209-1180)	
σ = 160	540-780(1410-1170)	793-799(1157-1151)	
σ = 200	430-870(1520-1080)		

RADIOCARBON AGE BP 1400 CALIBRATED AGE: cal AD 643
cal BP 1307

Sample σ and cal AD(cal BP) ranges:

σ = 20	639-652(1311-1298)		
σ = 40	604-659(1346-1291)		
σ = 60	599-666(1351-1284)		
σ = 80	576-674(1374-1276)		
σ = 100	560-680(1390-1270)		
σ = 120	540-690(1410-1260)	701-709(1249-1241)	750-764(1200-1186)
σ = 160	434-451(1516-1499)	469-500(1481-1450)	530-770(1420-1180)
σ = 200	430-780(1520-1170)	790-803(1160-1147)	842-854(1108-1096)

RADIOCARBON AGE BP 1420 CALIBRATED AGE: cal AD 640
cal BP 1310

Sample σ and cal AD(cal BP) ranges:

σ = 20	603-645(1347-1305)		
σ = 40	599-650(1351-1300)		
σ = 60	576-658(1374-1292)		
σ = 80	556-666(1394-1284)		
σ = 100	540-670(1410-1280)		
σ = 120	540-680(1410-1270)		
σ = 160	430-730(1520-1220)	742-770(1208-1180)	
σ = 200	420-780(1530-1170)	793-798(1157-1152)	

TABLE 3-S

RADIOCARBON AGE BP 1440 CALIBRATED AGES: cal AD 608, 627, 638
cal BP 1342, 1323, 1312

Sample σ and cal AD(cal BP) ranges:

σ = 20	583-642(1367-1308)		
σ = 40	572-644(1378-1306)		
σ = 60	556-650(1394-1300)		
σ = 80	541-658(1409-1292)		
σ = 100	540-670(1410-1280)		
σ = 120	434-451(1516-1499)	468-500(1482-1450)	530-670(1420-1280)
σ = 160	430-690(1520-1260)	701-709(1249-1241)	750-764(1200-1186)
σ = 200	410-770(1540-1180)		

RADIOCARBON AGE BP 1460 CALIBRATED AGE: cal AD 600
cal BP 1350

Sample σ and cal AD(cal BP) ranges:

σ = 20	563-639(1387-1311)		
σ = 40	545-641(1405-1309)		
σ = 60	541-644(1409-1306)		
σ = 80	536-649(1414-1301)		
σ = 100	434-452(1516-1498)	468-501(1482-1449)	530-660(1420-1290)
σ = 120	430-670(1520-1280)		
σ = 160	420-680(1530-1270)		
σ = 200	390-730(1560-1220)	743-769(1207-1181)	

RADIOCARBON AGE BP 1480 CALIBRATED AGE: cal AD 578
cal BP 1372

Sample σ and cal AD(cal BP) ranges:

σ = 20	544-604(1406-1346)	631-636(1319-1314)	
σ = 40	540-638(1410-1312)		
σ = 60	536-641(1414-1309)		
σ = 80	434-452(1516-1498)	467-501(1483-1449)	531-644(1419-1306)
σ = 100	430-650(1520-1300)		
σ = 120	430-660(1520-1290)		
σ = 160	410-670(1540-1280)		
σ = 200	358-369(1592-1581)	380-690(1570-1260)	701-709(1249-1241)
	750-764(1200-1186)		

RADIOCARBON AGE BP 1500 CALIBRATED AGE: cal AD 558
cal BP 1392

Sample σ and cal AD(cal BP) ranges:

σ = 20	539-598(1411-1352)		
σ = 40	535-602(1415-1348)	633-636(1317-1314)	
σ = 60	434-453(1516-1497)	466-502(1484-1448)	531-612(1419-1338)
	623-638(1327-1312)		
σ = 80	431-641(1519-1309)		
σ = 100	430-640(1520-1310)		
σ = 120	420-650(1530-1300)		
σ = 160	390-670(1560-1280)		
σ = 200	264-271(1686-1679)	340-680(1610-1270)	

TABLE 3-T

RADIOCARBON AGE BP 1520 CALIBRATED AGE: cal AD 542
cal BP 1408

Sample σ and cal AD(cal BP) ranges:

σ = 20	476-490(1474-1460)	534-564(1416-1386)	
σ = 40	433-454(1517-1496)	465-516(1485-1434)	531-596(1419-1354)
σ = 60	430-602(1520-1348)	634-635(1316-1315)	
σ = 80	427-611(1523-1339)	625-638(1325-1312)	
σ = 100	420-640(1530-1310)		
σ = 120	410-640(1540-1310)		
σ = 160	358-369(1592-1581)	380-660(1570-1290)	
σ = 200	261-279(1689-1671)	294-296(1656-1654)	340-670(1610-1280)

RADIOCARBON AGE BP 1540 CALIBRATED AGE: cal AD 537
cal BP 1413

Sample σ and cal AD(cal BP) ranges:

σ = 20	433-517(1517-1433)	530-544(1420-1406)	
σ = 40	430-562(1520-1388)		
σ = 60	427-581(1523-1369)	592-596(1358-1354)	
σ = 80	419-601(1531-1349)	634-635(1316-1315)	
σ = 100	410-610(1540-1340)	626-638(1324-1312)	
σ = 120	390-640(1560-1310)		
σ = 160	264-271(1686-1679)	340-650(1610-1300)	
σ = 200	258-300(1692-1650)	320-670(1630-1280)	

RADIOCARBON AGE BP 1560 CALIBRATED AGES: cal AD 435, 450, 470, 499, 532
cal BP 1515, 1500, 1480, 1451, 1418

Sample σ and cal AD(cal BP) ranges:

σ = 20	430-539(1520-1411)		
σ = 40	427-543(1523-1407)		
σ = 60	418-561(1532-1389)		
σ = 80	410-580(1540-1370)	594-595(1356-1355)	
σ = 100	390-600(1560-1350)		
σ = 120	358-369(1592-1581)	380-610(1570-1340)	626-638(1324-1312)
σ = 160	261-279(1689-1671)	294-296(1656-1654)	340-640(1610-1310)
σ = 200	260-660(1690-1290)		

RADIOCARBON AGE BP 1580 CALIBRATED AGES: cal AD 431, 520, 528
cal BP 1519, 1430, 1422

Sample σ and cal AD(cal BP) ranges:

σ = 20	427-475(1523-1475)	491-534(1459-1416)	
σ = 40	418-538(1532-1412)		
σ = 60	410-542(1540-1408)		
σ = 80	392-560(1558-1390)		
σ = 100	358-369(1592-1581)	380-580(1570-1370)	
σ = 120	264-271(1686-1679)	340-600(1610-1350)	
σ = 160	258-300(1692-1650)	320-640(1630-1310)	
σ = 200	230-650(1720-1300)		

TABLE 3-U

RADIOCARBON AGE BP 1600 CALIBRATED AGE: cal AD 428
cal BP 1522

Sample σ and cal AD(cal BP) ranges:

σ = 20	414-433(1536-1517)	517-530(1433-1420)	
σ = 40	409-473(1541-1477)	495-534(1455-1416)	
σ = 60	392-538(1558-1412)		
σ = 80	357-370(1593-1580)	382-542(1568-1408)	
σ = 100	264-272(1686-1678)	340-560(1610-1390)	
σ = 120	261-279(1689-1671)	294-296(1656-1654)	340-580(1610-1370)
σ = 160	260-610(1690-1340)	626-638(1324-1312)	
σ = 200	184-187(1766-1763)	230-640(1720-1310)	

RADIOCARBON AGE BP 1620 CALIBRATED AGE: cal AD 423
cal BP 1527

Sample σ and cal AD(cal BP) ranges:

σ = 20	408-430(1542-1520)	524-526(1426-1424)	
σ = 40	391-432(1559-1518)	518-529(1432-1421)	
σ = 60	357-370(1593-1580)	382-437(1568-1513)	448-472(1502-1478)
	497-533(1453-1417)		
σ = 80	264-272(1686-1678)	341-537(1609-1413)	
σ = 100	261-279(1689-1671)	294-296(1656-1654)	340-540(1610-1410)
σ = 120	258-301(1692-1649)	320-560(1630-1390)	
σ = 160	230-600(1720-1350)		
σ = 200	174-198(1776-1752)	220-640(1730-1310)	

RADIOCARBON AGE BP 1640 CALIBRATED AGE: cal AD 411
cal BP 1539

Sample σ and cal AD(cal BP) ranges:

σ = 20	363-366(1587-1584)	388-426(1562-1524)	
σ = 40	356-370(1594-1580)	381-429(1569-1521)	
σ = 60	264-274(1686-1676)	341-432(1609-1518)	519-529(1431-1421)
σ = 80	261-279(1689-1671)	293-296(1657-1654)	336-436(1614-1514)
	448-472(1502-1478)	497-533(1453-1417)	
σ = 100	258-301(1692-1649)	320-540(1630-1410)	
σ = 120	260-540(1690-1410)		
σ = 160	184-187(1766-1763)	230-580(1720-1370)	
σ = 200	130-610(1820-1340)	626-638(1324-1312)	

RADIOCARBON AGE BP 1660 CALIBRATED AGE: cal AD 394
cal BP 1556

Sample σ and cal AD(cal BP) ranges:

σ = 20	356-371(1594-1579)	381-413(1569-1537)	
σ = 40	264-273(1686-1677)	341-425(1609-1525)	
σ = 60	261-279(1689-1671)	294-296(1656-1654)	336-428(1614-1522)
σ = 80	258-301(1692-1649)	321-432(1629-1518)	520-528(1430-1422)
σ = 100	260-430(1690-1520)	449-471(1501-1479)	498-533(1452-1417)
σ = 120	230-540(1720-1410)		
σ = 160	174-198(1776-1752)	220-560(1730-1390)	
σ = 200	130-600(1820-1350)		

TABLE 3-V

RADIOCARBON AGE BP 1680 CALIBRATED AGES: cal AD 359, 369, 383
cal BP 1591, 1581, 1567

Sample σ and cal AD(cal BP) ranges:

σ = 20	263-276(1687-1674)	340-407(1610-1543)	
σ = 40	261-279(1689-1671)	293-296(1657-1654)	335-412(1615-1538)
σ = 60	258-301(1692-1649)	321-425(1629-1525)	
σ = 80	255-428(1695-1522)		
σ = 100	230-430(1720-1520)	520-528(1430-1422)	
σ = 120	184-187(1766-1763)	230-430(1720-1520)	449-471(1501-1479)
	498-533(1452-1417)		
σ = 160	130-540(1820-1410)		
σ = 200	83-90(1867-1860)	130-580(1820-1370)	

RADIOCARBON AGE BP 1700 CALIBRATED AGES: cal AD 264, 269, 342, 374, 376
cal BP 1686, 1681, 1608, 1576, 1574

Sample σ and cal AD(cal BP) ranges:

σ = 20	260-280(1690-1670)	292-297(1658-1653)	325-387(1625-1563)
σ = 40	258-301(1692-1649)	320-406(1630-1544)	
σ = 60	255-412(1695-1538)		
σ = 80	234-425(1716-1525)		
σ = 100	184-187(1766-1763)	230-430(1720-1520)	
σ = 120	174-198(1776-1752)	210-430(1740-1520)	520-528(1430-1422)
σ = 160	130-540(1820-1410)		
σ = 200	80-560(1870-1390)		

RADIOCARBON AGE BP 1720 CALIBRATED AGES: cal AD 261, 278, 294, 295, 337
cal BP 1689, 1672, 1656, 1655, 1613

Sample σ and cal AD(cal BP) ranges:

σ = 20	257-302(1693-1648)	319-345(1631-1605)	372-380(1578-1570)
σ = 40	252-386(1698-1564)		
σ = 60	233-406(1717-1544)		
σ = 80	183-188(1767-1762)	227-412(1723-1538)	
σ = 100	174-198(1776-1752)	210-430(1740-1520)	
σ = 120	130-430(1820-1520)		
σ = 160	83-90(1867-1860)	130-430(1820-1520)	449-470(1501-1480)
	498-533(1452-1417)		
σ = 200	70-540(1880-1410)		

RADIOCARBON AGE BP 1740 CALIBRATED AGES: cal AD 258, 283, 288, 300, 321
cal BP 1692, 1667, 1662, 1650, 1629

Sample σ and cal AD(cal BP) ranges:

σ = 20	245-263(1705-1687)	276-339(1674-1611)	
σ = 40	233-344(1717-1606)	373-378(1577-1572)	
σ = 60	183-189(1767-1761)	227-385(1723-1565)	
σ = 80	173-198(1777-1752)	214-405(1736-1545)	
σ = 100	130-410(1820-1540)		
σ = 120	130-430(1820-1520)		
σ = 160	80-430(1870-1520)	520-528(1430-1422)	
σ = 200	33-36(1917-1914)	60-540(1890-1410)	

TABLE 3-W

RADIOCARBON AGE BP 1760 CALIBRATED AGES: cal AD 256, 305, 316
cal BP 1694, 1645, 1634

Sample σ and cal AD(cal BP) ranges:

σ = 20	232-260(1718-1690)	281-324(1669-1626)	
σ = 40	182-190(1768-1760)	227-262(1723-1688)	277-338(1673-1612)
σ = 60	173-199(1777-1751)	214-343(1736-1607)	373-377(1577-1573)
σ = 80	132-384(1818-1566)		
σ = 100	130-410(1820-1540)		
σ = 120	83-90(1867-1860)	130-410(1820-1540)	
σ = 160	70-430(1880-1520)		
σ = 200	30-430(1920-1520)	449-470(1501-1480)	498-532(1452-1418)

RADIOCARBON AGE BP 1780 CALIBRATED AGE: cal AD 234
cal BP 1716

Sample σ and cal AD(cal BP) ranges:

σ = 20	180-193(1770-1757)	225-257(1725-1693)	303-319(1647-1631)
σ = 40	135-145(1815-1805)	172-199(1778-1751)	213-259(1737-1691)
	282-323(1668-1627)		
σ = 60	132-262(1818-1688)	277-338(1673-1612)	
σ = 80	130-343(1820-1607)	373-377(1577-1573)	
σ = 100	83-91(1867-1859)	130-380(1820-1570)	
σ = 120	80-390(1870-1560)		
σ = 160	33-36(1917-1914)	60-420(1890-1530)	
σ = 200	4-8(1946-1942)	20-430(1930-1520)	520-528(1430-1422)

RADIOCARBON AGE BP 1800 CALIBRATED AGES: cal AD 185, 186, 228
cal BP 1765, 1764, 1722

Sample σ and cal AD(cal BP) ranges:

σ = 20	134-152(1816-1798)	169-201(1781-1749)	211-245(1739-1705)
σ = 40	132-256(1818-1694)	303-318(1647-1632)	
σ = 60	129-259(1821-1691)	282-323(1668-1627)	
σ = 80	82-92(1868-1858)	127-262(1823-1688)	278-338(1672-1612)
σ = 100	80-340(1870-1610)	373-377(1577-1573)	
σ = 120	70-380(1880-1570)		
σ = 160	30-410(1920-1540)		
σ = 200	cal BC 87-84(2036-2033)	cal BC 36-33(1985-1982)	
	cal BC 19-13(1968-1962)	1-430(1949-1520)	

RADIOCARBON AGE BP 1820 CALIBRATED AGES: cal AD 175, 198, 216
cal BP 1775, 1752, 1734

Sample σ and cal AD(cal BP) ranges:

σ = 20	131-232(1819-1718)		
σ = 40	129-241(1821-1709)		
σ = 60	82-106(1868-1844)	127-256(1823-1694)	304-317(1646-1633)
σ = 80	75-259(1875-1691)	282-322(1668-1628)	
σ = 100	70-260(1880-1690)	278-337(1672-1613)	
σ = 120	33-36(1917-1914)	50-340(1900-1610)	374-377(1576-1573)
σ = 160	4-8(1946-1942)	20-390(1930-1560)	
σ = 200	cal BC 89-81(2038-2030)	cal BC 68-60(2017-2009)	
	cal BC 40-cal AD 420(1990-1530)		

TABLE 3-X

RADIOCARBON AGE BP 1840 CALIBRATED AGES: cal AD 133, 203, 207
cal BP 1817, 1747, 1743

Sample σ and cal AD(cal BP) ranges:

σ = 20	129-179(1821-1771)	195-224(1755-1726)	
σ = 40	82-93(1868-1857)	127-230(1823-1720)	
σ = 60	76-236(1874-1714)		
σ = 80	68-256(1882-1694)	304-317(1646-1633)	
σ = 100	33-36(1917-1914)	50-260(1900-1690)	282-289(1668-1661)
	300-322(1650-1628)		
σ = 120	30-260(1920-1690)	278-337(1672-1613)	
σ = 160	cal BC 87-84(2036-2033)	cal BC 36-34(1985-1983)	
	cal BC 19-13(1968-1962)	1-380(1949-1570)	
σ = 200	cal BC 90-cal AD 410(2040-1540)		

RADIOCARBON AGE BP 1860 CALIBRATED AGE: cal AD 130
cal BP 1820

Sample σ and cal AD(cal BP) ranges:

σ = 20	82-106(1868-1844)	127-134(1823-1816)	160-167(1790-1783)
	202-209(1748-1741)		
σ = 40	76-176(1874-1774)	197-219(1753-1731)	
σ = 60	68-229(1882-1721)		
σ = 80	33-36(1917-1914)	55-235(1895-1715)	
σ = 100	30-260(1920-1690)	305-316(1645-1634)	
σ = 120	4-8(1946-1942)	20-260(1930-1690)	283-288(1667-1662)
	300-322(1650-1628)		
σ = 160	cal BC 89-81(2038-2030)	cal BC 68-60(2017-2009)	
	cal BC 40-cal AD 340(1990-1610)	374-376(1576-1574)	
σ = 200	cal BC 90-cal AD 390(2040-1560)		

RADIOCARBON AGE BP 1880 CALIBRATED AGES: cal AD 84, 89, 127
cal BP 1866, 1861, 1823

Sample σ and cal AD(cal BP) ranges:

σ = 20	74-131(1876-1819)		
σ = 40	67-134(1883-1816)	160-166(1790-1784)	202-209(1748-1741)
σ = 60	33-37(1917-1913)	55-176(1895-1774)	197-219(1753-1731)
σ = 80	28-229(1922-1721)		
σ = 100	4-8(1946-1942)	20-230(1930-1720)	
σ = 120	cal BC 87-84(2036-2033)	cal BC 36-33(1985-1982)	
	cal BC 19-13(1968-1962)	1-260(1949-1690)	304-316(1646-1634)
σ = 160	cal BC 90-cal AD 260(2040-1690)	278-337(1672-1613)	
σ = 200	cal BC 100-cal AD 380(2050-1570)		

TABLE 3-Y

```
RADIOCARBON AGE BP 1900   CALIBRATED AGE:   cal AD   77
                                            cal BP 1873
Sample σ and cal AD(cal BP) ranges:
σ =  20   65-129(1885-1821)
σ =  40   32-37(1918-1913)      54-131(1896-1819)
σ =  60   28-133(1922-1817)     162-166(1788-1784)    202-209(1748-1741)
σ =  80   4-9(1946-1941)        21-176(1929-1774)     197-219(1753-1731)
σ = 100   cal BC 87-84(2036-2033)  cal BC 66-65(2015-2014)
          cal BC 36-33(1985-1982)  cal BC 20-13(1969-1962)
          1-230(1949-1720)
σ = 120   cal BC 89-81(2038-2030)  cal BC 68-60(2017-2009)
          cal BC 40-cal AD 230(1990-1720)
σ = 160   cal BC 90-cal AD 260(2040-1690)  282-289(1668-1661)
          300-322(1650-1628)
σ = 200   cal BC 167-142(2116-2091)  cal BC 120-cal AD 340(2070-1610)
          374-376(1576-1574)
```

```
RADIOCARBON AGE BP 1920   CALIBRATED AGE:   cal AD   69
                                            cal BP 1881
Sample σ and cal AD(cal BP) ranges:
σ =  20   32-37(1918-1913)      54-79(1896-1871)      119-125(1831-1825)
σ =  40   28-128(1922-1822)
σ =  60   4-8(1946-1942)        21-130(1929-1820)
σ =  80   cal BC 87-84(2036-2033)  cal BC 36-33(1985-1982)
          cal BC 19-13(1968-1962)  1-133(1949-1817)      203-208(1747-1742)
σ = 100   cal BC 89-81(2038-2030)  cal BC 68-60(2017-2009)
          cal BC 40-cal AD 180(1990-1770)  197-218(1753-1732)
σ = 120   cal BC 90-cal AD 230(2040-1720)
σ = 160   cal BC 100-cal AD 260(2050-1690)  305-316(1645-1634)
σ = 200   cal BC 170-cal AD 260(2120-1690)  278-337(1672-1613)
```

```
RADIOCARBON AGE BP 1940   CALIBRATED AGES:  cal AD   34,   36,   57
                                            cal BP 1916, 1914, 1893
Sample σ and cal AD(cal BP) ranges:
σ =  20   27-71(1923-1879)
σ =  40   3-9(1947-1941)        21-78(1929-1872)
σ =  60   cal BC 87-84(2036-2033)  cal BC 66-65(2015-2014)
          cal BC 36-33(1985-1982)  cal BC 20-13(1969-1962)
          1-128(1949-1822)
σ =  80   cal BC 89-81(2038-2030)  cal BC 68-60(2017-2009)
          cal BC 42-cal AD 130(1991-1820)
σ = 100   cal BC 90-cal AD 130(2040-1820)  203-208(1747-1742)
σ = 120   cal BC 90-cal AD 180(2040-1770)  197-217(1753-1733)
σ = 160   cal BC 167-142(2116-2091)  cal BC 120-cal AD 230(2070-1720)
σ = 200   cal BC 199-189(2148-2138)  cal BC 170-cal AD 260(2120-1690)
          283-288(1667-1662)    300-322(1650-1628)
```

TABLE 3-Z

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RADIOCARBON AGE BP 1960   CALIBRATED AGES:  cal AD   29,   40,   50
                                            cal BP 1921, 1910, 1900
Sample σ and cal AD(cal BP) ranges:
σ =  20   3-62(1947-1888)
σ =  40   cal BC 87-84(2036-2033)  cal BC 66-65(2015-2014)
          cal BC 37-33(1986-1982)  cal BC 20-13(1969-1962)
          1-70(1949-1880)
σ =  60   cal BC 89-81(2038-2030)  cal BC 68-60(2017-2009)
          cal BC 42-cal AD 77(1991-1873)
σ =  80   cal BC 91-cal AD 128(2040-1822)
σ = 100   cal BC 90-cal AD 130(2040-1820)
σ = 120   cal BC 100-cal AD 130(2050-1820)  203-208(1747-1742)
σ = 160   cal BC 170-cal AD 230(2120-1720)
σ = 200   cal BC 342-325(2291-2274)  cal BC 200-cal AD 260(2150-1690)
          305-316(1645-1634)
```

```
RADIOCARBON AGE BP 1980   CALIBRATED AGES:  cal AD    4,    7,   23,   45
                                            cal BP 1946, 1943, 1927, 1905
Sample σ and cal AD(cal BP) ranges:
σ =  20   cal BC 87-83(2036-2032)  cal BC 66-64(2015-2013)
          cal BC 37-32(1986-1981)  cal BC 20-12(1969-1961)
          cal BC 1-cal AD 51(1950-1899)
σ =  40   cal BC 89-81(2038-2030)  cal BC 68-59(2017-2008)
          cal BC 42-cal AD 59(1991-1891)
σ =  60   cal BC 91-cal AD 70(2040-1880)
σ =  80   cal BC 93-cal AD 77(2042-1873)
σ = 100   cal BC 100-cal AD 130(2050-1820)
σ = 120   cal BC 167-142(2116-2091)  cal BC 120-cal AD 130(2070-1820)
σ = 160   cal BC 199-189(2148-2138)  cal BC 170-cal AD 180(2120-1770)
          197-217(1753-1733)
σ = 200   cal BC 348-320(2297-2269)  cal BC 306-305(2255-2254)
          cal BC 227-223(2176-2172)  cal BC 210-cal AD 230(2160-1720)
```

```
RADIOCARBON AGE BP 2000   CALIBRATED AGES:  cal AD   86,   84,   36,   34,   19,
                                                    13,    1
                                            cal BP 2035, 2033, 1985, 1983, 1968,
                                                   1962, 1949
Sample σ and cal AD(cal BP) ranges:
σ =  20   cal BC 89-81(2038-2030)  cal BC 69-59(2018-2008)
          cal BC 42-cal AD 25(1991-1925)  44-46(1906-1904)
σ =  40   cal BC 91-cal AD 29(2040-1921)  40-51(1910-1899)
σ =  60   cal BC 93-cal AD 58(2042-1892)
σ =  80   cal BC 95-cal AD 70(2044-1880)
σ = 100   cal BC 167-142(2116-2091)  cal BC 120-cal AD 80(2070-1870)
σ = 120   cal BC 170-cal AD 130(2120-1820)
σ = 160   cal BC 342-325(2291-2274)  cal BC 200-cal AD 130(2150-1820)
          203-208(1747-1742)
σ = 200   cal BC 352-295(2301-2244)  cal BC 230-cal AD 230(2180-1720)
```

TABLE 3-AA

RADIOCARBON AGE BP 2020 CALIBRATED AGES: cal BC 89, 81, 68, 60, 41, 9, 3
cal BP 2038, 2030, 2017, 2009, 1990, 1958, 1952

Sample σ and cal BC(cal BP) ranges:

σ = 20	cal BC 91-cal AD 1(2040-1949)		
σ = 40	cal BC 93-cal AD 24(2042-1926)	cal AD 44-46(1906-1904)	
σ = 60	cal BC 95-cal AD 29(2044-1921)	cal AD 40-51(1910-1899)	
σ = 80	167-142(2116-2091)	cal BC 121-cal AD 58(2070-1892)	
σ = 100	cal BC 170-cal AD 70(2120-1880)		
σ = 120	199-189(2148-2138)	cal BC 170-cal AD 80(2120-1870)	
σ = 160	348-320(2297-2269)	306-305(2255-2254)	227-223(2176-2172)
	cal BC 210-cal AD 130(2160-1820)		
σ = 200	356-274(2305-2223)	259-248(2208-2197)	
	cal BC 230-cal AD 180(2180-1770)	cal AD 197-217(1753-1733)	

RADIOCARBON AGE BP 2040 CALIBRATED AGES: cal BC 91, 79, 71
cal BP 2040, 2028, 2020

Sample σ and cal BC(cal BP) ranges:

σ = 20	93-40(2042-1989)	27-24(1976-1973)	10-2(1959-1951)
σ = 40	cal BC 106-cal AD 1(2055-1949)		
σ = 60	167-142(2116-2091)	cal BC 121-cal AD 24(2070-1926)	
	cal AD 44-46(1906-1904)		
σ = 80	cal BC 171-cal AD 29(2120-1921)	cal AD 40-51(1910-1899)	
σ = 100	199-189(2148-2138)	cal BC 170-cal AD 60(2120-1890)	
σ = 120	342-325(2291-2274)	cal BC 200-cal AD 70(2150-1880)	
σ = 160	352-295(2301-2244)	cal BC 230-cal AD 130(2180-1820)	
σ = 200	cal BC 360-cal AD 130(2310-1820)	cal AD 203-208(1747-1742)	

RADIOCARBON AGE BP 2060 CALIBRATED AGES: cal BC 93, 77, 74
cal BP 2042, 2026, 2023

Sample σ and cal BC(cal BP) ranges:

σ = 20	156-155(2105-2104)	109-90(2058-2039)	80-70(2029-2019)
	56-45(2005-1994)		
σ = 40	167-142(2116-2091)	121-40(2070-1989)	9-2(1958-1951)
σ = 60	cal BC 171-cal AD 1(2120-1949)		
σ = 80	199-189(2148-2138)	cal BC 174-cal AD 24(2123-1926)	
	cal AD 44-45(1906-1905)		
σ = 100	342-325(2291-2274)	cal BC 200-cal AD 30(2150-1920)	
	cal AD 40-51(1910-1899)		
σ = 120	348-319(2297-2268)	307-305(2256-2254)	227-223(2176-2172)
	cal BC 210-cal AD 60(2160-1890)		
σ = 160	356-274(2305-2223)	259-247(2208-2196)	
	cal BC 230-cal AD 80(2180-1870)		
σ = 200	cal BC 380-cal AD 130(2330-1820)		

TABLE 3-BB

RADIOCARBON AGE BP 2080 CALIBRATED AGE: cal BC 95
cal BP 2044

Sample σ and cal BC(cal BP) ranges:

σ = 20	167-141(2116-2090)	123-92(2072-2041)	77-73(2026-2022)
σ = 40	171-90(2120-2039)	79-70(2028-2019)	56-50(2005-1999)
σ = 60	199-188(2148-2137)	174-41(2123-1990)	9-2(1958-1951)
σ = 80	342-325(2291-2274)	cal BC 205-cal AD 1(2154-1949)	
σ = 100	348-319(2297-2268)	307-304(2256-2253)	228-223(2177-2172)
	cal BC 210-cal AD 20(2160-1930)	cal AD 44-45(1906-1905)	
σ = 120	352-295(2301-2244)	cal BC 230-cal AD 30(2180-1920)	
	cal AD 40-50(1910-1900)		
σ = 160	cal BC 360-cal AD 70(2310-1880)		
σ = 200	cal BC 390-cal AD 130(2340-1820)		

RADIOCARBON AGE BP 2100 CALIBRATED AGES: cal BC 166, 143, 120
cal BP 2115, 2092, 2069

Sample σ and cal BC(cal BP) ranges:

σ = 20	171-94(2120-2043)		
σ = 40	200-187(2149-2136)	175-92(2124-2041)	77-73(2026-2022)
σ = 60	343-324(2292-2273)	205-90(2154-2039)	79-71(2028-2020)
	56-51(2005-2000)		
σ = 80	348-319(2297-2268)	307-304(2256-2253)	228-223(2177-2172)
	209-41(2158-1990)	9-2(1958-1951)	
σ = 100	352-294(2301-2243)	cal BC 230-cal AD 1(2180-1949)	
σ = 120	356-273(2305-2222)	259-247(2208-2196)	
	cal BC 230-cal AD 20(2180-1930)	cal AD 44-45(1906-1905)	
σ = 160	cal BC 380-cal AD 60(2330-1890)		
σ = 200	cal BC 390-cal AD 80(2340-1870)		

RADIOCARBON AGE BP 2120 CALIBRATED AGES: cal BC 170, 138, 130
cal BP 2119, 2087, 2079

Sample σ and cal BC(cal BP) ranges:

σ = 20	201-186(2150-2135)	175-163(2124-2112)	144-116(2093-2065)
σ = 40	344-324(2293-2273)	205-95(2154-2044)	
σ = 60	348-319(2297-2268)	308-304(2257-2253)	228-223(2177-2172)
	209-93(2158-2042)	77-73(2026-2022)	
σ = 80	352-294(2301-2243)	231-90(2180-2039)	79-71(2028-2020)
	55-53(2004-2002)		
σ = 100	356-273(2305-2222)	259-247(2208-2196)	230-40(2180-1990)
	9-2(1958-1951)		
σ = 120	cal BC 360-cal AD 1(2310-1949)		
σ = 160	cal BC 390-cal AD 30(2340-1920)	cal AD 40-50(1910-1900)	
σ = 200	cal BC 400-cal AD 70(2350-1880)		

TABLE 3-CC

RADIOCARBON AGE BP 2140 CALIBRATED AGES: cal BC 199, 189, 174
cal BP 2148, 2138, 2123

Sample σ and cal BC(cal BP) ranges:

σ = 20	346-323(2295-2272)	226-225(2175-2174)	206-168(2155-2117)
	140-125(2089-2074)		
σ = 40	349-302(2298-2251)	228-222(2177-2171)	209-165(2158-2114)
	144-117(2093-2066)		
σ = 60	353-294(2302-2243)	231-95(2180-2044)	
σ = 80	357-273(2306-2222)	259-246(2208-2195)	234-93(2183-2042)
	77-73(2026-2022)		
σ = 100	360-90(2310-2040)	79-71(2028-2020)	55-52(2004-2001)
σ = 120	380-40(2330-1990)	9-2(1958-1951)	
σ = 160	cal BC 390-cal AD 20(2340-1930)	cal AD 44-45(1906-1905)	
σ = 200	cal BC 400-cal AD 60(2350-1890)		

RADIOCARBON AGE BP 2160 CALIBRATED AGES: cal BC 341, 325, 204
cal BP 2290, 2274, 2153

Sample σ and cal BC(cal BP) ranges:

σ = 20	350-300(2299-2249)	229-221(2178-2170)	210-172(2159-2121)
σ = 40	353-293(2302-2242)	256-255(2205-2204)	231-169(2180-2118)
	139-128(2088-2077)		
σ = 60	357-273(2306-2222)	260-246(2209-2195)	234-166(2183-2115)
	143-118(2092-2067)		
σ = 80	363-95(2312-2044)		
σ = 100	380-90(2330-2040)	77-73(2026-2022)	
σ = 120	390-90(2340-2040)	79-71(2028-2020)	55-54(2004-2003)
σ = 160	cal BC 400-cal AD 1(2350-1949)		
σ = 200	cal BC 400-cal AD 30(2350-1920)	cal AD 40-50(1910-1900)	

RADIOCARBON AGE BP 2180 CALIBRATED AGES: cal BC 348, 320, 306, 305, 227, 223, 208
cal BP 2297, 2269, 2255, 2254, 2176, 2172, 2157

Sample σ and cal BC(cal BP) ranges:

σ = 20	353-293(2302-2242)	256-254(2205-2203)	231-202(2180-2151)
σ = 40	357-273(2306-2222)	260-246(2209-2195)	234-173(2183-2122)
σ = 60	363-170(2312-2119)	138-129(2087-2078)	
σ = 80	384-166(2333-2115)	143-119(2092-2068)	
σ = 100	390-90(2340-2040)		
σ = 120	390-90(2340-2040)	77-74(2026-2023)	
σ = 160	400-40(2350-1990)	9-2(1958-1951)	
σ = 200	cal BC 410-cal AD 20(2360-1930)	cal AD 44-45(1906-1905)	

TABLE 3-DD

RADIOCARBON AGE BP 2200 CALIBRATED AGES: cal BC 352, 295, 230, 219, 212
cal BP 2301, 2244, 2179, 2168, 2161

Sample σ and cal BC(cal BP) ranges:

σ = 20	358-347(2307-2296)	322-272(2271-2221)	260-207(2209-2156)
σ = 40	363-339(2312-2288)	328-203(2277-2152)	
σ = 60	384-174(2333-2123)		
σ = 80	389-170(2338-2119)	138-129(2087-2078)	
σ = 100	390-170(2340-2120)	143-119(2092-2068)	
σ = 120	400-90(2350-2040)		
σ = 160	400-90(2350-2040)	79-71(2028-2020)	
σ = 200	476-475(2425-2424)	cal BC 410-cal AD 1(2360-1949)	

RADIOCARBON AGE BP 2220 CALIBRATED AGES: cal BC 356, 289, 279, 274, 259, 248, 233
cal BP 2305, 2238, 2228, 2223, 2208, 2197, 2182

Sample σ and cal BC(cal BP) ranges:

σ = 20	376-350(2325-2299)	317-313(2266-2262)	299-210(2248-2159)
σ = 40	385-347(2334-2296)	321-207(2270-2156)	
σ = 60	389-339(2338-2288)	328-203(2277-2152)	
σ = 80	393-174(2342-2123)		
σ = 100	400-170(2350-2120)	138-129(2087-2078)	
σ = 120	400-170(2350-2120)	143-119(2092-2068)	
σ = 160	410-90(2360-2040)	77-74(2026-2023)	
σ = 200	507-504(2456-2453)	485-470(2434-2419)	430-40(2380-1990)
	9-3(1958-1952)		

RADIOCARBON AGE BP 2240 CALIBRATED AGES: cal BC 362, 268, 263
cal BP 2311, 2217, 2212

Sample σ and cal BC(cal BP) ranges:

σ = 20	386-354(2335-2303)	292-232(2241-2181)	217-214(2166-2163)
σ = 40	390-351(2339-2300)	316-315(2265-2264)	297-211(2246-2160)
σ = 60	393-347(2342-2296)	321-208(2270-2157)	
σ = 80	397-340(2346-2289)	327-204(2276-2153)	
σ = 100	400-170(2350-2120)		
σ = 120	400-170(2350-2120)	138-129(2087-2078)	
σ = 160	476-475(2425-2424)	410-90(2360-2040)	
σ = 200	744-726(2693-2675)	519-465(2468-2414)	440-90(2390-2040)
	79-71(2028-2020)		

TABLE 3-EE

RADIOCARBON AGE BP 2260 CALIBRATED AGE: cal BC 382
cal BP 2331

Sample σ and cal BC(cal BP) ranges:

σ = 20	390-359(2339-2308)	286-285(2235-2234)	271-261(2220-2210)
	239-235(2188-2184)		
σ = 40	394-355(2343-2304)	291-233(2240-2182)	216-215(2165-2164)
σ = 60	397-351(2346-2300)	296-211(2245-2160)	
σ = 80	401-347(2350-2296)	320-208(2269-2157)	
σ = 100	404-340(2353-2289)	330-200(2280-2150)	
σ = 120	410-170(2360-2120)		
σ = 160	507-503(2456-2452)	485-470(2434-2419)	430-170(2380-2120)
	143-119(2092-2068)		
σ = 200	755-692(2704-2641)	588-581(2537-2530)	542-460(2491-2409)
	450-90(2400-2040)	77-74(2026-2023)	

RADIOCARBON AGE BP 2280 CALIBRATED AGE: cal BC 389
cal BP 2338

Sample σ and cal BC(cal BP) ranges:

σ = 20	395-365(2344-2314)		
σ = 40	398-360(2347-2309)	270-262(2219-2211)	236-235(2185-2184)
σ = 60	401-355(2350-2304)	290-233(2239-2182)	216-215(2165-2164)
σ = 80	404-351(2353-2300)	296-230(2245-2179)	220-212(2169-2161)
σ = 100	408-348(2357-2297)	320-210(2270-2160)	
σ = 120	476-475(2425-2424)	411-340(2360-2289)	330-200(2280-2150)
σ = 160	744-726(2693-2675)	519-464(2468-2413)	440-170(2390-2120)
	138-129(2087-2078)		
σ = 200	759-686(2708-2635)	658-637(2607-2586)	617-615(2566-2564)
	592-571(2541-2520)	560-90(2510-2040)	

RADIOCARBON AGE BP 2300 CALIBRATED AGE: cal BC 393
cal BP 2342

Sample σ and cal BC(cal BP) ranges:

σ = 20	398-387(2347-2336)		
σ = 40	401-380(2350-2329)		
σ = 60	405-361(2354-2310)	269-262(2218-2211)	
σ = 80	408-355(2357-2304)	290-233(2239-2182)	216-215(2165-2164)
σ = 100	476-475(2425-2424)	411-351(2360-2300)	296-230(2245-2179)
	220-212(2169-2161)		
σ = 120	508-502(2457-2451)	486-470(2435-2419)	431-348(2380-2297)
	320-210(2270-2160)		
σ = 160	755-692(2704-2641)	588-581(2537-2530)	542-460(2491-2409)
	450-170(2400-2120)		
σ = 200	763-680(2712-2629)	660-608(2609-2557)	600-170(2550-2120)
	143-119(2092-2068)		

TABLE 3-FF

RADIOCARBON AGE BP 2320 CALIBRATED AGE: cal BC 397
cal BP 2346

Sample σ and cal BC(cal BP) ranges:

σ = 20	401-392(2350-2341)		
σ = 40	405-388(2354-2337)		
σ = 60	408-381(2357-2330)		
σ = 80	476-475(2425-2424)	411-361(2360-2310)	269-263(2218-2212)
σ = 100	507-503(2456-2452)	485-470(2434-2419)	430-356(2379-2305)
	289-259(2238-2208)	249-233(2198-2182)	216-215(2165-2164)
σ = 120	744-726(2693-2675)	518-465(2467-2414)	440-352(2389-2301)
	295-230(2244-2179)	219-212(2168-2161)	
σ = 160	759-686(2708-2635)	657-638(2606-2587)	616-615(2565-2564)
	592-571(2541-2520)	560-340(2510-2290)	330-200(2280-2150)
σ = 200	767-674(2716-2623)	660-170(2610-2120)	138-130(2087-2079)

RADIOCARBON AGE BP 2340 CALIBRATED AGE: cal BC 400
cal BP 2349

Sample σ and cal BC(cal BP) ranges:

σ = 20	405-396(2354-2345)		
σ = 40	408-392(2357-2341)		
σ = 60	476-475(2425-2424)	411-388(2360-2337)	
σ = 80	507-503(2456-2452)	485-470(2434-2419)	430-382(2379-2331)
σ = 100	744-726(2693-2675)	519-465(2468-2414)	441-362(2390-2311)
	269-263(2218-2212)		
σ = 120	750-220(2700-2170)		
σ = 160	763-680(2712-2629)	660-609(2609-2558)	600-350(2550-2300)
	320-210(2270-2160)		
σ = 200	790-170(2740-2120)		

RADIOCARBON AGE BP 2360 CALIBRATED AGE: cal BC 404
cal BP 2353

Sample σ and cal BC(cal BP) ranges:

σ = 20	409-399(2358-2348)		
σ = 40	477-475(2426-2424)	412-396(2361-2345)	
σ = 60	508-502(2457-2451)	486-470(2435-2419)	431-392(2380-2341)
σ = 80	744-726(2693-2675)	519-464(2468-2413)	441-388(2390-2337)
σ = 100	755-692(2704-2641)	588-581(2537-2530)	542-460(2491-2409)
	450-382(2399-2331)		
σ = 120	759-686(2708-2635)	657-637(2606-2586)	617-615(2566-2564)
	592-571(2541-2520)	560-360(2510-2310)	269-263(2218-2212)
σ = 160	767-674(2716-2623)	660-350(2610-2300)	295-230(2244-2179)
	219-212(2168-2161)		
σ = 200	790-340(2740-2290)	330-200(2280-2150)	

TABLE 3-GG

RADIOCARBON AGE BP 2380 CALIBRATED AGE: cal BC 408
cal BP 2357

Sample σ and cal BC(cal BP) ranges:

σ = 20	479-473(2428-2422)	426-424(2375-2373)	412-403(2361-2352)
σ = 40	510-469(2459-2418)	431-400(2380-2349)	
σ = 60	747-725(2696-2674)	519-464(2468-2413)	444-396(2393-2345)
σ = 80	755-692(2704-2641)	588-580(2537-2529)	542-392(2491-2341)
σ = 100	759-686(2708-2635)	658-637(2607-2586)	617-614(2566-2563)
	592-570(2541-2519)	560-390(2510-2340)	
σ = 120	763-680(2712-2629)	660-608(2609-2557)	600-380(2550-2330)
σ = 160	790-360(2740-2310)	289-259(2238-2208)	248-233(2197-2182)
	216-215(2165-2164)		
σ = 200	790-350(2740-2300)	320-210(2270-2160)	

RADIOCARBON AGE BP 2400 CALIBRATED AGE: cal BC 411
cal BP 2360

Sample σ and cal BC(cal BP) ranges:

σ = 20	514-468(2463-2417)	432-406(2381-2355)	
σ = 40	749-724(2698-2673)	536-535(2485-2484)	519-464(2468-2413)
	446-403(2395-2352)		
σ = 60	755-691(2704-2640)	588-580(2537-2529)	542-400(2491-2349)
σ = 80	759-685(2708-2634)	658-637(2607-2586)	617-614(2566-2563)
	592-396(2541-2345)		
σ = 100	763-680(2712-2629)	660-608(2609-2557)	600-390(2550-2340)
σ = 120	768-674(2717-2623)	660-390(2610-2340)	
σ = 160	790-360(2740-2310)	269-263(2218-2212)	
σ = 200	800-350(2750-2300)	295-230(2244-2179)	219-212(2168-2161)

RADIOCARBON AGE BP 2420 CALIBRATED AGES: cal BC 506, 505, 485, 470, 430, 418, 415
cal BP 2455, 2454, 2434, 2419, 2379, 2367, 2364

Sample σ and cal BC(cal BP) ranges:

σ = 20	752-720(2701-2669)	709-695(2658-2644)	586-585(2535-2534)
	538-533(2487-2482)	521-463(2470-2412)	447-409(2396-2358)
σ = 40	756-690(2705-2639)	656-651(2605-2600)	589-579(2538-2528)
	543-406(2492-2355)		
σ = 60	760-685(2709-2634)	658-635(2607-2584)	618-614(2567-2563)
	592-403(2541-2352)		
σ = 80	764-679(2713-2628)	660-400(2609-2349)	
σ = 100	768-673(2717-2622)	660-400(2610-2350)	
σ = 120	790-390(2740-2340)		
σ = 160	790-380(2740-2330)		
σ = 200	800-360(2750-2310)	290-233(2239-2182)	216-215(2165-2164)

TABLE 3-HH

RADIOCARBON AGE BP 2440 CALIBRATED AGES: cal BC 742, 727, 518, 465, 439
cal BP 2691, 2676, 2467, 2414, 2388

Sample σ and cal BC(cal BP) ranges:

σ = 20	757-688(2706-2637)	657-643(2606-2592)	590-576(2539-2525)
	547-412(2496-2361)		
σ = 40	760-684(2709-2633)	658-634(2607-2583)	619-612(2568-2561)
	593-410(2542-2359)		
σ = 60	764-678(2713-2627)	660-407(2609-2356)	
σ = 80	768-673(2717-2622)	663-403(2612-2352)	
σ = 100	790-400(2740-2350)		
σ = 120	790-400(2740-2350)		
σ = 160	800-390(2750-2340)		
σ = 200	810-360(2760-2310)	269-263(2218-2212)	

RADIOCARBON AGE BP 2460 CALIBRATED AGES: cal BC 754, 692, 588, 581, 541, 529, 524, 460, 450
cal BP 2703, 2641, 2537, 2530, 2490, 2478, 2473, 2409, 2399

Sample σ and cal BC(cal BP) ranges:

σ = 20	761-683(2710-2632)	659-632(2608-2581)	620-611(2569-2560)
	594-514(2543-2463)	468-433(2417-2382)	
σ = 40	764-678(2713-2627)	661-413(2610-2362)	
σ = 60	768-410(2717-2359)		
σ = 80	787-407(2736-2356)		
σ = 100	790-400(2740-2350)		
σ = 120	790-400(2740-2350)		
σ = 160	800-390(2750-2340)		
σ = 200	820-380(2770-2330)		

RADIOCARBON AGE BP 2480 CALIBRATED AGES: cal BC 759, 686, 657, 638, 616, 615, 592, 572, 558, 456, 455
cal BP 2708, 2635, 2606, 2587, 2565, 2564, 2541, 2521, 2507, 2405, 2404

Sample σ and cal BC(cal BP) ranges:

σ = 20	766-752(2715-2701)	722-676(2671-2625)	661-520(2610-2469)
	463-446(2412-2395)		
σ = 40	769-516(2718-2465)	467-434(2416-2383)	
σ = 60	788-482(2737-2431)	472-414(2421-2363)	
σ = 80	791-410(2740-2359)		
σ = 100	790-410(2740-2360)		
σ = 120	800-400(2750-2350)		
σ = 160	810-400(2760-2350)		
σ = 200	830-390(2780-2340)		

TABLE 3-II

RADIOCARBON AGE BP 2500 CALIBRATED AGES: cal BC 763, 680, 660, 629, 623, 609, 595
cal BP 2712, 2629, 2609, 2578, 2572, 2558, 2545

Sample σ and cal BC(cal BP) ranges:

σ = 20	770-756(2719-2705)	689-656(2638-2605)	645-590(2594-2539)
	578-544(2527-2493)	458-452(2407-2401)	
σ = 40	788-753(2737-2702)	717-714(2666-2663)	694-522(2643-2471)
	462-448(2411-2397)		
σ = 60	791-517(2740-2466)	466-435(2415-2384)	
σ = 80	794-483(2743-2432)	471-414(2420-2363)	
σ = 100	800-410(2750-2360)		
σ = 120	800-410(2750-2360)		
σ = 160	820-400(2770-2350)		
σ = 200	888-884(2837-2833)	830-390(2780-2340)	

RADIOCARBON AGE BP 2520 CALIBRATED AGES: cal BC 767, 674, 662
cal BP 2716, 2623, 2611

Sample σ and cal BC(cal BP) ranges:

σ = 20	789-760(2738-2709)	684-658(2633-2607)	634-593(2583-2542)
	566-565(2515-2514)		
σ = 40	791-757(2740-2706)	688-657(2637-2606)	643-590(2592-2539)
	576-546(2525-2495)	458-453(2407-2402)	
σ = 60	794-753(2743-2702)	717-716(2666-2665)	694-522(2643-2471)
	462-448(2411-2397)		
σ = 80	798-517(2747-2466)	466-435(2415-2384)	
σ = 100	800-480(2750-2430)	471-414(2420-2363)	
σ = 120	810-410(2760-2360)		
σ = 160	830-400(2780-2350)		
σ = 200	893-877(2842-2826)	840-400(2790-2350)	

RADIOCARBON AGE BP 2540 CALIBRATED AGES: cal BC 787, 772, 668, 665
cal BP 2736, 2721, 2617, 2614

Sample σ and cal BC(cal BP) ranges:

σ = 20	792-765(2741-2714)	677-661(2626-2610)	606-604(2555-2553)
σ = 40	794-762(2743-2711)	682-659(2631-2608)	631-621(2580-2570)
	611-594(2560-2543)		
σ = 60	798-758(2747-2707)	687-657(2636-2606)	641-591(2590-2540)
	575-552(2524-2501)	457-454(2406-2403)	
σ = 80	802-754(2751-2703)	693-540(2642-2489)	530-523(2479-2472)
	461-449(2410-2398)		
σ = 100	810-520(2760-2470)	465-435(2414-2384)	
σ = 120	830-480(2780-2430)	471-429(2420-2378)	419-414(2368-2363)
σ = 160	888-884(2837-2833)	830-410(2780-2360)	
σ = 200	900-400(2850-2350)		

TABLE 3-JJ

RADIOCARBON AGE BP 2560 CALIBRATED AGE: cal BC 790
cal BP 2739

Sample σ and cal BC(cal BP) ranges:

σ = 20	795-770(2744-2719)	670-664(2619-2613)	
σ = 40	798-766(2747-2715)	675-662(2624-2611)	
σ = 60	802-762(2751-2711)	681-659(2630-2608)	630-622(2579-2571)
	610-595(2559-2544)		
σ = 80	806-758(2755-2707)	687-657(2636-2606)	640-591(2589-2540)
	573-555(2522-2504)	457-454(2406-2403)	
σ = 100	825-754(2774-2703)	690-540(2640-2490)	529-523(2478-2472)
	461-449(2410-2398)		
σ = 120	829-739(2778-2688)	730-520(2680-2470)	465-436(2414-2385)
σ = 160	893-877(2842-2826)	840-410(2790-2360)	
σ = 200	967-965(2916-2914)	900-400(2850-2350)	

RADIOCARBON AGE BP 2580 CALIBRATED AGE: cal BC 793
cal BP 2742

Sample σ and cal BC(cal BP) ranges:

σ = 20	798-789(2747-2738)		
σ = 40	802-771(2751-2720)	669-664(2618-2613)	
σ = 60	806-767(2755-2716)	675-662(2624-2611)	
σ = 80	825-763(2774-2712)	681-659(2630-2608)	630-622(2579-2571)
	610-595(2559-2544)		
σ = 100	829-758(2778-2707)	687-657(2636-2606)	639-591(2588-2540)
	573-556(2522-2505)	457-454(2406-2403)	
σ = 120	888-884(2837-2833)	833-754(2782-2703)	690-540(2640-2490)
	529-523(2478-2472)	461-449(2410-2398)	
σ = 160	900-480(2850-2430)	470-430(2419-2379)	419-414(2368-2363)
σ = 200	970-962(2919-2911)	930-410(2880-2360)	

RADIOCARBON AGE BP 2600 CALIBRATED AGE: cal BC 797
cal BP 2746

Sample σ and cal BC(cal BP) ranges:

σ = 20	803-792(2752-2741)		
σ = 40	806-789(2755-2738)		
σ = 60	827-771(2776-2720)	669-664(2618-2613)	
σ = 80	830-767(2779-2716)	675-662(2624-2611)	
σ = 100	888-884(2837-2833)	833-763(2782-2712)	681-660(2630-2609)
	629-622(2578-2571)	609-595(2558-2544)	
σ = 120	893-877(2842-2826)	836-758(2785-2707)	687-657(2636-2606)
	639-591(2588-2540)	573-556(2522-2505)	457-454(2406-2403)
σ = 160	967-965(2916-2914)	900-740(2850-2690)	730-520(2680-2470)
	465-437(2414-2386)		
σ = 200	972-959(2921-2908)	940-410(2890-2360)	

TABLE 3-KK

RADIOCARBON AGE BP 2620 CALIBRATED AGE: cal BC 801
cal BP 2750

Sample σ and cal BC(cal BP) ranges:

σ = 20	809-795(2758-2744)		
σ = 40	827-793(2776-2742)		
σ = 60	830-790(2779-2739)		
σ = 80	888-884(2837-2833)	833-771(2782-2720)	669-664(2618-2613)
σ = 100	893-877(2842-2826)	836-767(2785-2716)	675-662(2624-2611)
σ = 120	900-760(2850-2710)	681-660(2630-2609)	629-623(2578-2572)
	609-595(2558-2544)		
σ = 160	970-962(2919-2911)	930-750(2880-2700)	690-540(2640-2490)
	529-523(2478-2472)	461-449(2410-2398)	
σ = 200	1002-988(2951-2937)	970-480(2920-2430)	470-430(2419-2379)
	418-414(2367-2363)		

RADIOCARBON AGE BP 2640 CALIBRATED AGE: cal BC 805
cal BP 2754

Sample σ and cal BC(cal BP) ranges:

σ = 20	827-799(2776-2748)		
σ = 40	830-796(2779-2745)		
σ = 60	889-884(2838-2833)	833-793(2782-2742)	
σ = 80	893-877(2842-2826)	836-790(2785-2739)	
σ = 100	900-770(2850-2720)	668-664(2617-2613)	
σ = 120	967-965(2916-2914)	900-770(2850-2720)	674-662(2623-2611)
σ = 160	972-959(2921-2908)	940-760(2890-2710)	687-657(2636-2606)
	639-591(2588-2540)	573-556(2522-2505)	456-454(2405-2403)
σ = 200	1010-740(2960-2690)	730-520(2680-2470)	465-437(2414-2386)

RADIOCARBON AGE BP 2660 CALIBRATED AGE: cal BC 822
cal BP 2771

Sample σ and cal BC(cal BP) ranges:

σ = 20	831-803(2780-2752)		
σ = 40	889-883(2838-2832)	833-800(2782-2749)	
σ = 60	894-875(2843-2824)	836-796(2785-2745)	
σ = 80	899-793(2848-2742)		
σ = 100	967-965(2916-2914)	900-790(2850-2740)	
σ = 120	970-962(2919-2911)	930-770(2880-2720)	669-664(2618-2613)
σ = 160	1003-988(2952-2937)	970-760(2920-2710)	681-660(2630-2609)
	629-623(2578-2572)	609-595(2558-2544)	
σ = 200	1067-1066(3016-3015)	1049-1039(2998-2988)	1020-750(2970-2700)
	690-540(2640-2490)	529-523(2478-2472)	461-449(2410-2398)

TABLE 3-LL

RADIOCARBON AGE BP 2680 CALIBRATED AGE: cal BC 829
cal BP 2778

Sample σ and cal BC(cal BP) ranges:

σ = 20	890-882(2839-2831)	834-813(2783-2762)	
σ = 40	894-875(2843-2824)	836-804(2785-2753)	
σ = 60	899-800(2848-2749)		
σ = 80	967-965(2916-2914)	905-796(2854-2745)	
σ = 100	970-962(2919-2911)	930-790(2880-2740)	
σ = 120	972-958(2921-2907)	940-790(2890-2740)	
σ = 160	1010-770(2960-2720)	674-662(2623-2611)	
σ = 200	1078-1063(3027-3012)	1050-760(3000-2710)	686-657(2635-2606)
	639-591(2588-2540)	572-557(2521-2506)	456-454(2405-2403)

RADIOCARBON AGE BP 2700 CALIBRATED AGES: cal BC 888, 885, 832
cal BP 2837, 2834, 2781

Sample σ and cal BC(cal BP) ranges:

σ = 20	895-865(2844-2814)	840-827(2789-2776)	
σ = 40	900-814(2849-2763)		
σ = 60	968-965(2917-2914)	905-804(2854-2753)	
σ = 80	970-962(2919-2911)	929-800(2878-2749)	
σ = 100	972-958(2921-2907)	940-800(2890-2750)	
σ = 120	1003-988(2952-2937)	970-790(2920-2740)	
σ = 160	1067-1066(3016-3015)	1049-1038(2998-2987)	1020-770(2970-2720)
	668-664(2617-2613)		
σ = 200	1188-1183(3137-3132)	1127-1125(3076-3074)	1107-1102(3056-3051)
	1080-760(3030-2710)	681-660(2630-2609)	629-623(2578-2572)
	609-595(2558-2544)		

RADIOCARBON AGE BP 2720 CALIBRATED AGES: cal BC 893, 878, 835
cal BP 2842, 2827, 2784

Sample σ and cal BC(cal BP) ranges:

σ = 20	901-831(2850-2780)		
σ = 40	968-965(2917-2914)	917-828(2866-2777)	
σ = 60	970-961(2919-2910)	929-816(2878-2765)	
σ = 80	972-958(2921-2907)	937-805(2886-2754)	
σ = 100	1003-987(2952-2936)	970-800(2920-2750)	
σ = 120	1010-800(2960-2750)		
σ = 160	1078-1063(3027-3012)	1050-790(3000-2740)	
σ = 200	1209-1205(3158-3154)	1190-1179(3139-3128)	1151-1145(3100-3094)
	1129-1122(3078-3071)	1110-770(3060-2720)	674-662(2623-2611)

TABLE 3-MM

RADIOCARBON AGE BP 2740 CALIBRATED AGES: cal BC 898, 858, 849
cal BP 2847, 2807, 2798

Sample σ and cal BC(cal BP) ranges:			
σ = 20	969-964(2918-2913)	921-834(2870-2783)	
σ = 40	970-961(2919-2910)	930-831(2879-2780)	
σ = 60	973-958(2922-2907)	938-828(2887-2777)	
σ = 80	1004-987(2953-2936)	975-816(2924-2765)	
σ = 100	1010-800(2960-2750)		
σ = 120	1068-1066(3017-3015)	1049-1038(2998-2987)	1020-800(2970-2750)
σ = 160	1188-1183(3137-3132)	1127-1125(3076-3074)	1107-1101(3056-3050)
	1080-790(3030-2740)		
σ = 200	1211-1202(3160-3151)	1191-1142(3140-3091)	1130-770(3080-2720)
	668-664(2617-2613)		

RADIOCARBON AGE BP 2760 CALIBRATED AGES: cal BC 967, 966, 904
cal BP 2916, 2915, 2853

Sample σ and cal BC(cal BP) ranges:			
σ = 20	971-960(2920-2909)	932-895(2881-2844)	868-838(2817-2787)
σ = 40	973-958(2922-2907)	939-891(2888-2840)	880-834(2829-2783)
σ = 60	1004-986(2953-2935)	975-832(2924-2781)	
σ = 80	1011-829(2960-2778)		
σ = 100	1068-1066(3017-3015)	1049-1038(2998-2987)	1020-820(2970-2770)
σ = 120	1078-1063(3027-3012)	1050-800(3000-2750)	
σ = 160	1209-1205(3158-3154)	1190-1179(3139-3128)	1151-1145(3100-3094)
	1129-1122(3078-3071)	1110-800(3060-2750)	
σ = 200	1239-1235(3188-3184)	1210-790(3160-2740)	

RADIOCARBON AGE BP 2780 CALIBRATED AGES: cal BC 970, 962, 927
cal BP 2919, 2911, 2876

Sample σ and cal BC(cal BP) ranges:			
σ = 20	998-995(2947-2944)	973-957(2922-2906)	941-901(2890-2850)
σ = 40	1005-896(2954-2845)	863-842(2812-2791)	
σ = 60	1047-1046(2996-2995)	1011-892(2960-2841)	879-835(2828-2784)
σ = 80	1068-1066(3017-3015)	1049-1038(2998-2987)	1018-832(2967-2781)
σ = 100	1078-1063(3027-3012)	1050-830(3000-2780)	
σ = 120	1188-1183(3137-3132)	1127-1125(3076-3074)	1107-1100(3056-3049)
	1080-820(3030-2770)		
σ = 160	1211-1202(3160-3151)	1191-1142(3140-3091)	1130-800(3080-2750)
σ = 200	1287-1286(3236-3235)	1259-1230(3208-3179)	1220-790(3170-2740)

TABLE 3-NN

RADIOCARBON AGE BP 2800 CALIBRATED AGES: cal BC 972, 959, 936
cal BP 2921, 2908, 2885

Sample σ and cal BC(cal BP) ranges:			
σ = 20	1007-920(2956-2869)		
σ = 40	1047-1046(2996-2995)	1012-902(2961-2851)	
σ = 60	1069-1066(3018-3015)	1049-1037(2998-2986)	1019-897(2968-2846)
	862-844(2811-2793)		
σ = 80	1078-1062(3027-3011)	1052-892(3001-2841)	879-835(2828-2784)
σ = 100	1188-1183(3137-3132)	1127-1125(3076-3074)	1107-1099(3056-3048)
	1080-830(3030-2780)		
σ = 120	1209-1204(3158-3153)	1190-1179(3139-3128)	1151-1145(3100-3094)
	1129-1122(3078-3071)	1110-830(3060-2780)	
σ = 160	1239-1235(3188-3184)	1210-810(3160-2760)	
σ = 200	1292-1281(3241-3230)	1260-800(3210-2750)	

RADIOCARBON AGE BP 2820 CALIBRATED AGES: cal BC 1002, 989, 975, 947
cal BP 2951, 2938, 2924, 2896

Sample σ and cal BC(cal BP) ranges:			
σ = 20	1047-1044(2996-2993)	1013-971(2962-2920)	961-931(2910-2880)
σ = 40	1070-1066(3019-3015)	1050-1036(2999-2985)	1020-923(2969-2872)
σ = 60	1079-1062(3028-3011)	1052-903(3001-2852)	
σ = 80	1207-1206(3156-3155)	1188-1183(3137-3132)	1127-1125(3076-3074)
	1107-1098(3056-3047)	1083-897(3032-2846)	861-845(2810-2794)
σ = 100	1209-1204(3158-3153)	1190-1179(3139-3128)	1151-1145(3100-3094)
	1129-1122(3078-3071)	1110-890(3060-2840)	879-835(2828-2784)
σ = 120	1211-1202(3160-3151)	1192-1142(3141-3091)	1130-830(3080-2780)
σ = 160	1287-1286(3236-3235)	1259-1229(3208-3178)	1220-820(3170-2770)
σ = 200	1310-800(3260-2750)		

RADIOCARBON AGE BP 2840 CALIBRATED AGE: cal BC 1010
cal BP 2959

Sample σ and cal BC(cal BP) ranges:			
σ = 20	1074-1064(3023-3013)	1050-973(2999-2922)	957-940(2906-2889)
σ = 40	1187-1186(3136-3135)	1079-971(3028-2920)	960-933(2909-2882)
σ = 60	1207-1206(3156-3155)	1188-1182(3137-3131)	1128-1125(3077-3074)
	1108-1095(3057-3044)	1084-924(3033-2873)	
σ = 80	1209-1204(3158-3153)	1190-1178(3139-3127)	1151-1145(3100-3094)
	1130-1122(3079-3071)	1111-903(3060-2852)	
σ = 100	1212-1202(3161-3151)	1192-1142(3141-3091)	1130-900(3080-2850)
	861-844(2810-2793)		
σ = 120	1240-1235(3189-3184)	1210-890(3160-2840)	879-835(2828-2784)
σ = 160	1292-1281(3241-3230)	1260-830(3210-2780)	
σ = 200	1370-1341(3319-3290)	1320-810(3270-2760)	

TABLE 3-OO

RADIOCARBON AGE BP 2860 CALIBRATED AGES: cal BC 1049, 1039, 1016
cal BP 2998, 2988, 2965

Sample σ and cal BC(cal BP) ranges:

σ = 20	1187-1185(3136-3134)	1081-1005(3030-2954)	984-975(2933-2924)
σ = 40	1207-1206(3156-3155)	1188-1182(3137-3131)	1128-1124(3077-3073)
	1108-974(3057-2923)	957-942(2906-2891)	
σ = 60	1209-1204(3158-3153)	1190-1178(3139-3127)	1152-1144(3101-3093)
	1130-1122(3079-3071)	1111-971(3060-2920)	960-933(2909-2882)
σ = 80	1212-1202(3161-3151)	1192-1142(3141-3091)	1132-925(3081-2874)
σ = 100	1240-1235(3189-3184)	1210-900(3160-2850)	
σ = 120	1288-1285(3237-3234)	1259-1229(3208-3178)	1220-900(3170-2850)
	861-845(2810-2794)		
σ = 160	1310-830(3260-2780)		
σ = 200	1374-1334(3323-3283)	1320-820(3270-2770)	

RADIOCARBON AGE BP 2880 CALIBRATED AGES: cal BC 1078, 1063, 1052
cal BP 3027, 3012, 3001

Sample σ and cal BC(cal BP) ranges:

σ = 20	1208-1205(3157-3154)	1189-1181(3138-3130)	1148-1146(3097-3095)
	1128-1123(3077-3072)	1109-1012(3058-2961)	
σ = 40	1210-1204(3159-3153)	1190-1177(3139-3126)	1153-1144(3102-3093)
	1130-1007(3079-2956)	980-976(2929-2925)	
σ = 60	1212-1202(3161-3151)	1192-1142(3141-3091)	1132-974(3081-2923)
	955-943(2904-2892)		
σ = 80	1241-1234(3190-3183)	1214-972(3163-2921)	959-934(2908-2883)
σ = 100	1288-1285(3237-3234)	1259-1229(3208-3178)	1220-930(3170-2880)
σ = 120	1292-1281(3241-3230)	1260-900(3210-2850)	
σ = 160	1370-1341(3319-3290)	1320-890(3270-2840)	878-835(2827-2784)
σ = 200	1390-830(3340-2780)		

RADIOCARBON AGE BP 2900 CALIBRATED AGES: cal BC 1188, 1184, 1127, 1126, 1107, 1104, 1083, 1059, 1054
cal BP 3137, 3133, 3076, 3075, 3056, 3053, 3032, 3008, 3003

Sample σ and cal BC(cal BP) ranges:

σ = 20	1210-1203(3159-3152)	1191-1177(3140-3126)	1154-1144(3103-3093)
	1130-1050(3079-2999)	1034-1022(2983-2971)	
σ = 40	1212-1014(3161-2963)		
σ = 60	1241-1234(3190-3183)	1214-1008(3163-2957)	977-976(2926-2925)
σ = 80	1288-1285(3237-3234)	1259-1229(3208-3178)	1218-974(3167-2923)
	952-944(2901-2893)		
σ = 100	1292-1281(3241-3230)	1260-970(3210-2920)	959-934(2908-2883)
σ = 120	1310-930(3260-2880)		
σ = 160	1374-1334(3323-3283)	1320-900(3270-2850)	860-846(2809-2795)
σ = 200	1410-830(3360-2780)		

TABLE 3-PP

RADIOCARBON AGE BP 2920 CALIBRATED AGES: cal BC 1209, 1205, 1189, 1179, 1150, 1145, 1129, 1122, 1110
cal BP 3158, 3154, 3138, 3128, 3099, 3094, 3078, 3071, 3059

Sample σ and cal BC(cal BP) ranges:

σ = 20	1213-1080(3162-3029)	1062-1053(3011-3002)	
σ = 40	1242-1234(3191-3183)	1215-1075(3164-3024)	1064-1051(3013-3000)
	1028-1026(2977-2975)		
σ = 60	1288-1285(3237-3234)	1259-1015(3208-2964)	
σ = 80	1292-1280(3241-3229)	1263-1009(3212-2958)	
σ = 100	1310-970(3260-2920)	951-945(2900-2894)	
σ = 120	1370-1340(3319-3289)	1320-970(3270-2920)	959-935(2908-2884)
σ = 160	1390-900(3340-2850)		
σ = 200	1428-1423(3377-3372)	1410-890(3360-2840)	878-835(2827-2784)

RADIOCARBON AGE BP 2940 CALIBRATED AGES: cal BC 1211, 1203, 1191, 1158, 1156, 1143, 1131, 1119, 1113
cal BP 3160, 3152, 3140, 3107, 3105, 3092, 3080, 3068, 3062

Sample σ and cal BC(cal BP) ranges:

σ = 20	1257-1128(3206-3077)	1092-1108(3041-3057)	1199-1055(3148-3004)
σ = 40	1289-1284(3238-3233)	1260-1081(3209-3030)	1061-1053(3010-3002)
σ = 60	1293-1280(3242-3229)	1263-1076(3212-3025)	1064-1051(3013-3000)
σ = 80	1315-1015(3264-2964)		
σ = 100	1370-1340(3319-3289)	1320-1010(3270-2960)	
σ = 120	1374-1334(3323-3283)	1320-1000(3270-2950)	991-974(2940-2923)
	950-945(2899-2894)		
σ = 160	1410-930(3360-2880)		
σ = 200	1430-900(3380-2850)	859-846(2808-2795)	

RADIOCARBON AGE BP 2960 CALIBRATED AGES: cal BC 1238, 1236, 1214, 1200, 1193, 1140, 1133
cal BP 3187, 3185, 3163, 3149, 3142, 3089, 3082

Sample σ and cal BC(cal BP) ranges:

σ = 20	1290-1283(3239-3232)	1260-1190(3209-3139)	1177-1112(3126-3061)
σ = 40	1293-1280(3242-3229)	1263-1109(3212-3058)	1088-1086(3037-3035)
	1057-1056(3006-3005)		
σ = 60	1367-1366(3316-3315)	1316-1081(3265-3030)	1060-1054(3009-3003)
σ = 80	1370-1340(3319-3289)	1319-1077(3268-3026)	1064-1051(3013-3000)
σ = 100	1374-1334(3323-3283)	1320-1020(3270-2970)	
σ = 120	1390-1010(3340-2960)		
σ = 160	1428-1423(3377-3372)	1410-970(3360-2920)	959-935(2908-2884)
σ = 200	1440-900(3390-2850)		

TABLE 3-QQ

RADIOCARBON AGE BP 2980 CALIBRATED AGES: cal BC 1287, 1286, 1258, 1230, 1216, 1198, 1195, 1138, 1135
cal BP 3236, 3235, 3207, 3179, 3165, 3147, 3144, 3087, 3084

Sample σ and cal BC(cal BP) ranges:

σ = 20	1307-1306(3256-3255)	1294-1279(3243-3228)	1264-1212(3213-3161)
	1202-1192(3151-3141)	1142-1132(3091-3081)	1118-1115(3067-3064)
σ = 40	1367-1366(3316-3315)	1317-1191(3266-3140)	1173-1154(3122-3103)
	1143-1131(3092-3080)	1120-1112(3069-3061)	
σ = 60	1371-1340(3320-3289)	1319-1109(3268-3058)	1057-1056(3006-3005)
σ = 80	1375-1334(3324-3283)	1322-1082(3271-3031)	1060-1054(3009-3003)
σ = 100	1390-1080(3340-3030)	1064-1051(3013-3000)	
σ = 120	1410-1020(3360-2970)		
σ = 160	1430-1000(3380-2950)	990-974(2939-2923)	949-945(2898-2894)
σ = 200	1488-1484(3437-3433)	1450-930(3400-2880)	

RADIOCARBON AGE BP 3000 CALIBRATED AGES: cal BC 1292, 1281, 1262
cal BP 3241, 3230, 3211

Sample σ and cal BC(cal BP) ranges:

σ = 20	1368-1364(3317-3313)	1348-1344(3297-3293)	1318-1215(3267-3164)
	1200-1194(3149-3143)	1139-1134(3088-3083)	
σ = 40	1371-1338(3320-3287)	1320-1213(3269-3162)	1201-1192(3150-3141)
	1141-1133(3090-3082)	1117-1116(3066-3065)	
σ = 60	1375-1333(3324-3282)	1322-1191(3271-3140)	1168-1155(3117-3104)
	1143-1131(3092-3080)	1120-1113(3069-3062)	
σ = 80	1390-1109(3339-3058)	1057-1056(3006-3005)	
σ = 100	1410-1080(3360-3030)	1060-1054(3009-3003)	
σ = 120	1430-1080(3380-3030)	1064-1051(3013-3000)	
σ = 160	1440-1010(3390-2960)		
σ = 200	1492-1478(3441-3427)	1460-970(3410-2920)	959-935(2908-2884)

RADIOCARBON AGE BP 3020 CALIBRATED AGES: cal BC 1313, 1298, 1296, 1277, 1266
cal BP 3262, 3247, 3245, 3226, 3215

Sample σ and cal BC(cal BP) ranges:

σ = 20	1373-1336(3322-3285)	1321-1260(3270-3209)	1228-1221(3177-3170)
	1198-1196(3147-3145)	1137-1136(3086-3085)	
σ = 40	1376-1245(3325-3194)	1232-1215(3181-3164)	1199-1194(3148-3143)
	1139-1135(3088-3084)		
σ = 60	1391-1213(3340-3162)	1201-1193(3150-3142)	1141-1133(3090-3082)
	1117-1116(3066-3065)		
σ = 80	1409-1191(3358-3140)	1165-1155(3114-3104)	1143-1131(3092-3080)
	1120-1113(3069-3062)		
σ = 100	1430-1110(3380-3060)		
σ = 120	1430-1080(3380-3030)	1060-1054(3009-3003)	
σ = 160	1488-1484(3437-3433)	1450-1020(3400-2970)	
σ = 200	1500-1000(3450-2950)	990-974(2939-2923)	949-946(2898-2895)

TABLE 3-RR

RADIOCARBON AGE BP 3040 CALIBRATED AGES: cal BC 1370, 1362, 1351, 1342, 1319
cal BP 3319, 3311, 3300, 3291, 3268

Sample σ and cal BC(cal BP) ranges:

σ = 20	1376-1293(3325-3242)	1280-1263(3229-3212)	
σ = 40	1392-1261(3341-3210)	1197-1196(3146-3145)	
σ = 60	1410-1257(3359-3206)	1247-1246(3196-3195)	1231-1216(3180-3165)
	1199-1194(3148-3143)	1138-1135(3087-3084)	
σ = 80	1429-1213(3378-3162)	1201-1193(3150-3142)	1141-1133(3090-3082)
	1117-1116(3066-3065)		
σ = 100	1430-1190(3380-3140)	1164-1155(3113-3104)	1143-1131(3092-3080)
	1120-1113(3069-3062)		
σ = 120	1440-1110(3390-3060)		
σ = 160	1493-1477(3442-3426)	1460-1080(3410-3030)	1063-1051(3012-3000)
σ = 200	1520-1010(3470-2960)		

RADIOCARBON AGE BP 3060 CALIBRATED AGES: cal BC 1374, 1335, 1322
cal BP 3323, 3284, 3271

Sample σ and cal BC(cal BP) ranges:

σ = 20	1407-1317(3356-3266)		
σ = 40	1410-1295(3359-3244)	1278-1264(3227-3213)	
σ = 60	1429-1261(3378-3210)	1197-1196(3146-3145)	
σ = 80	1433-1258(3382-3207)	1231-1216(3180-3165)	1199-1195(3148-3144)
	1138-1135(3087-3084)		
σ = 100	1440-1210(3390-3160)	1201-1193(3150-3142)	1141-1133(3090-3082)
	1117-1116(3066-3065)		
σ = 120	1488-1484(3437-3433)	1450-1190(3400-3140)	1162-1155(3111-3104)
	1143-1131(3092-3080)	1120-1113(3069-3062)	
σ = 160	1500-1080(3450-3030)	1060-1054(3009-3003)	
σ = 200	1530-1020(3480-2970)		

RADIOCARBON AGE BP 3080 CALIBRATED AGES: cal BC 1388, 1330, 1325
cal BP 3337, 3279, 3274

Sample σ and cal BC(cal BP) ranges:

σ = 20	1411-1372(3360-3321)	1359-1354(3308-3303)	1338-1320(3287-3269)
σ = 40	1429-1318(3378-3267)		
σ = 60	1433-1295(3382-3244)	1278-1265(3227-3214)	
σ = 80	1436-1261(3385-3210)	1197-1196(3146-3145)	
σ = 100	1488-1484(3437-3433)	1450-1260(3400-3210)	1231-1216(3180-3165)
	1199-1195(3148-3144)	1138-1135(3087-3084)	
σ = 120	1493-1477(3442-3426)	1460-1210(3410-3160)	1201-1193(3150-3142)
	1140-1133(3089-3082)	1117-1116(3066-3065)	
σ = 160	1520-1110(3470-3060)		
σ = 200	1599-1569(3548-3518)	1530-1080(3480-3030)	1063-1051(3012-3000)

TABLE 3-SS

RADIOCARBON AGE BP 3100 CALIBRATED AGE: cal BC 1408
cal BP 3357

Sample σ and cal BC(cal BP) ranges:

σ = 20	1430-1376(3379-3325)	1332-1323(3281-3272)	
σ = 40	1433-1373(3382-3322)	1357-1355(3306-3304)	1336-1321(3285-3270)
σ = 60	1436-1318(3385-3267)		
σ = 80	1488-1484(3437-3433)	1454-1296(3403-3245)	1277-1265(3226-3214)
σ = 100	1493-1477(3442-3426)	1460-1260(3410-3210)	
σ = 120	1500-1260(3450-3210)	1231-1216(3180-3165)	1199-1195(3148-3144)
	1138-1135(3087-3084)		
σ = 160	1530-1190(3480-3140)	1161-1156(3110-3105)	1143-1131(3092-3080)
	1120-1113(3069-3062)		
σ = 200	1600-1080(3550-3030)	1060-1054(3009-3003)	

RADIOCARBON AGE BP 3120 CALIBRATED AGES: cal BC 1428, 1424, 1412
cal BP 3377, 3373, 3361

Sample σ and cal BC(cal BP) ranges:

σ = 20	1434-1394(3383-3343)	1327-1326(3276-3275)	
σ = 40	1440-1379(3389-3328)	1331-1324(3280-3273)	
σ = 60	1489-1483(3438-3432)	1454-1373(3403-3322)	1357-1356(3306-3305)
	1336-1321(3285-3270)		
σ = 80	1493-1477(3442-3426)	1464-1318(3413-3267)	
σ = 100	1500-1310(3450-3260)	1300-1296(3249-3245)	1277-1265(3226-3214)
σ = 120	1520-1260(3470-3210)		
σ = 160	1599-1569(3548-3518)	1530-1210(3480-3160)	1201-1193(3150-3142)
	1140-1133(3089-3082)		
σ = 200	1679-1675(3628-3624)	1620-1110(3570-3060)	

RADIOCARBON AGE BP 3140 CALIBRATED AGES: cal BC 1432, 1417, 1416
cal BP 3381, 3366, 3365

Sample σ and cal BC(cal BP) ranges:

σ = 20	1447-1410(3396-3359)		
σ = 40	1489-1483(3438-3432)	1455-1396(3404-3345)	
σ = 60	1493-1477(3442-3426)	1465-1384(3414-3333)	1331-1324(3280-3273)
σ = 80	1498-1373(3447-3322)	1357-1356(3306-3305)	1335-1321(3284-3270)
σ = 100	1520-1320(3470-3270)		
σ = 120	1530-1310(3480-3260)	1300-1296(3249-3245)	1277-1265(3226-3214)
σ = 160	1600-1260(3550-3210)	1230-1216(3179-3165)	1198-1195(3147-3144)
	1138-1135(3087-3084)		
σ = 200	1684-1673(3633-3622)	1657-1656(3606-3605)	1640-1190(3590-3140)
	1160-1156(3109-3105)	1143-1131(3092-3080)	1120-1113(3069-3062)

TABLE 3-TT

RADIOCARBON AGE BP 3160 CALIBRATED AGE: cal BC 1436
cal BP 3385

Sample σ and cal BC(cal BP) ranges:

σ = 20	1490-1481(3439-3430)	1457-1414(3406-3363)	
σ = 40	1493-1411(3442-3360)		
σ = 60	1499-1408(3448-3357)		
σ = 80	1519-1386(3468-3335)	1330-1324(3279-3273)	
σ = 100	1577-1576(3526-3525)	1530-1370(3480-3320)	1335-1321(3284-3270)
σ = 120	1599-1569(3548-3518)	1530-1320(3480-3270)	
σ = 160	1679-1675(3628-3624)	1620-1260(3570-3210)	
σ = 200	1688-1671(3637-3620)	1660-1210(3610-3160)	1201-1193(3150-3142)
	1140-1133(3089-3082)		

RADIOCARBON AGE BP 3180 CALIBRATED AGES: cal BC 1488, 1485, 1452
cal BP 3437, 3434, 3401

Sample σ and cal BC(cal BP) ranges:

σ = 20	1494-1434(3443-3383)		
σ = 40	1499-1431(3448-3380)	1418-1415(3367-3364)	
σ = 60	1519-1412(3468-3361)		
σ = 80	1577-1576(3526-3525)	1527-1408(3476-3357)	
σ = 100	1599-1569(3548-3518)	1530-1390(3480-3340)	1330-1324(3279-3273)
σ = 120	1600-1370(3550-3320)	1335-1321(3284-3270)	
σ = 160	1684-1673(3633-3622)	1657-1656(3606-3605)	1640-1310(3590-3260)
	1299-1296(3248-3245)	1277-1265(3226-3214)	
σ = 200	1690-1260(3640-3210)	1230-1216(3179-3165)	1198-1195(3147-3144)
	1138-1135(3087-3084)		

RADIOCARBON AGE BP 3200 CALIBRATED AGES: cal BC 1492, 1478, 1463
cal BP 3441, 3427, 3412

Sample σ and cal BC(cal BP) ranges:

σ = 20	1501-1448(3450-3397)		
σ = 40	1520-1435(3469-3384)		
σ = 60	1577-1576(3526-3525)	1527-1431(3476-3380)	1418-1416(3367-3365)
σ = 80	1599-1568(3548-3517)	1533-1412(3482-3361)	
σ = 100	1600-1410(3550-3360)		
σ = 120	1679-1675(3628-3624)	1620-1390(3570-3340)	1330-1324(3279-3273)
σ = 160	1688-1671(3637-3620)	1660-1320(3610-3270)	
σ = 200	1727-1711(3676-3660)	1690-1260(3640-3210)	

RADIOCARBON AGE BP 3220 CALIBRATED AGE: cal BC 1496
cal BP 3445

Sample σ and cal BC(cal BP) ranges:

σ = 20	1522-1457(3471-3406)		
σ = 40	1580-1575(3529-3524)	1528-1449(3477-3398)	
σ = 60	1599-1568(3548-3517)	1534-1435(3483-3384)	
σ = 80	1603-1431(3552-3380)	1418-1416(3367-3365)	
σ = 100	1679-1675(3628-3624)	1620-1410(3570-3360)	
σ = 120	1684-1673(3633-3622)	1657-1656(3606-3605)	1640-1410(3590-3360)
σ = 160	1690-1370(3640-3320)	1335-1321(3284-3270)	
σ = 200	1740-1310(3690-3260)	1299-1296(3248-3245)	1277-1265(3226-3214)

TABLE 3-UU

RADIOCARBON AGE BP 3240 CALIBRATED AGE: cal BC 1518
cal BP 3467

Sample σ and cal BC(cal BP) ranges:

σ = 20	1597-1595(3546-3544)	1585-1572(3534-3521)	1530-1494(3479-3443)
σ = 40	1600-1566(3549-3515)	1535-1459(3484-3408)	
σ = 60	1604-1450(3553-3399)		
σ = 80	1679-1675(3628-3624)	1620-1435(3569-3384)	
σ = 100	1684-1673(3633-3622)	1657-1656(3606-3605)	1640-1430(3590-3380)
	1418-1416(3367-3365)		
σ = 120	1688-1670(3637-3619)	1660-1410(3610-3360)	
σ = 160	1727-1710(3676-3659)	1690-1390(3640-3340)	1330-1324(3279-3273)
σ = 200	1740-1320(3690-3270)		

RADIOCARBON AGE BP 3260 CALIBRATED AGE: cal BC 1526
cal BP 3475

Sample σ and cal BC(cal BP) ranges:

σ = 20	1601-1557(3550-3506)	1537-1501(3486-3450)	
σ = 40	1604-1495(3553-3444)		
σ = 60	1680-1675(3629-3624)	1621-1491(3570-3440)	1480-1460(3429-3409)
σ = 80	1684-1673(3633-3622)	1657-1656(3606-3605)	1638-1450(3587-3399)
σ = 100	1690-1440(3640-3390)		
σ = 120	1690-1430(3640-3380)	1418-1416(3367-3365)	
σ = 160	1740-1410(3690-3360)		
σ = 200	1768-1764(3717-3713)	1750-1370(3700-3320)	1335-1321(3284-3270)

RADIOCARBON AGE BP 3280 CALIBRATED AGES: cal BC 1598, 1569, 1533
cal BP 3547, 3518, 3482

Sample σ and cal BC(cal BP) ranges:

σ = 20	1677-1676(3626-3625)	1617-1520(3566-3469)	
σ = 40	1681-1675(3630-3624)	1622-1503(3571-3452)	
σ = 60	1685-1672(3634-3621)	1657-1655(3606-3604)	1638-1495(3587-3444)
σ = 80	1688-1491(3637-3440)	1480-1460(3429-3409)	
σ = 100	1690-1450(3640-3400)		
σ = 120	1728-1710(3677-3659)	1690-1440(3640-3390)	
σ = 160	1740-1410(3690-3360)		
σ = 200	1864-1845(3813-3794)	1828-1824(3777-3773)	1812-1800(3761-3749)
	1780-1390(3730-3340)	1330-1324(3279-3273)	

RADIOCARBON AGE BP 3300 CALIBRATED AGE: cal BC 1603
cal BP 3552

Sample σ and cal BC(cal BP) ranges:

σ = 20	1681-1675(3630-3624)	1622-1584(3571-3533)	1573-1530(3522-3479)
σ = 40	1685-1673(3634-3622)	1657-1655(3606-3604)	1638-1524(3587-3473)
σ = 60	1688-1506(3637-3455)		
σ = 80	1691-1496(3640-3445)		
σ = 100	1727-1711(3676-3660)	1690-1490(3640-3440)	1479-1462(3428-3411)
σ = 120	1740-1450(3690-3400)		
σ = 160	1768-1764(3717-3713)	1750-1430(3700-3380)	1417-1416(3366-3365)
σ = 200	1879-1842(3828-3791)	1830-1410(3780-3360)	

TABLE 3-VV

RADIOCARBON AGE BP 3320 CALIBRATED AGES: cal BC 1679, 1676, 1619
cal BP 3628, 3625, 3568

Sample σ and cal BC(cal BP) ranges:

σ = 20	1686-1672(3635-3621)	1658-1653(3607-3602)	1640-1600(3589-3549)
	1565-1535(3514-3484)		
σ = 40	1689-1585(3638-3534)	1572-1530(3521-3479)	
σ = 60	1691-1524(3640-3473)		
σ = 80	1728-1710(3677-3659)	1694-1506(3643-3455)	
σ = 100	1740-1500(3690-3450)		
σ = 120	1740-1490(3690-3440)	1479-1462(3428-3411)	
σ = 160	1864-1845(3813-3794)	1828-1824(3777-3773)	1812-1800(3761-3749)
	1780-1440(3730-3390)		
σ = 200	1880-1410(3830-3360)		

RADIOCARBON AGE BP 3340 CALIBRATED AGES: cal BC 1684, 1673, 1637
cal BP 3633, 3622, 3586

Sample σ and cal BC(cal BP) ranges:

σ = 20	1689-1605(3638-3554)		
σ = 40	1692-1601(3641-3550)	1557-1538(3506-3487)	
σ = 60	1729-1709(3678-3658)	1694-1597(3643-3546)	1571-1531(3520-3480)
σ = 80	1737-1524(3686-3473)		
σ = 100	1740-1520(3690-3470)	1507-1506(3456-3455)	
σ = 120	1769-1763(3718-3712)	1750-1500(3700-3450)	
σ = 160	1879-1842(3828-3791)	1830-1450(3780-3400)	
σ = 200	1890-1430(3840-3380)	1417-1416(3366-3365)	

RADIOCARBON AGE BP 3360 CALIBRATED AGES: cal BC 1688, 1671, 1660, 1651, 1642
cal BP 3637, 3620, 3609, 3600, 3591

Sample σ and cal BC(cal BP) ranges:

σ = 20	1692-1623(3641-3572)		
σ = 40	1729-1709(3678-3658)	1694-1606(3643-3555)	
σ = 60	1737-1602(3686-3551)	1549-1544(3498-3493)	
σ = 80	1743-1598(3692-3547)	1571-1531(3520-3480)	
σ = 100	1769-1763(3718-3712)	1750-1520(3700-3470)	
σ = 120	1864-1845(3813-3794)	1828-1824(3777-3773)	1812-1800(3761-3749)
	1780-1520(3730-3470)		
σ = 160	1880-1490(3830-3440)	1479-1462(3428-3411)	
σ = 200	1920-1440(3870-3390)		

RADIOCARBON AGE BP 3380 CALIBRATED AGES: cal BC 1691, 1668, 1664
cal BP 3640, 3617, 3613

Sample σ and cal BC(cal BP) ranges:

σ = 20	1731-1705(3680-3654)	1695-1686(3644-3635)	1672-1639(3621-3588)
σ = 40	1738-1624(3687-3573)		
σ = 60	1744-1606(3693-3555)		
σ = 80	1807-1806(3756-3755)	1769-1763(3718-3712)	1751-1602(3700-3551)
	1548-1545(3497-3494)		
σ = 100	1865-1845(3814-3794)	1828-1823(3777-3772)	1812-1799(3761-3748)
	1780-1600(3730-3550)	1571-1532(3520-3481)	
σ = 120	1879-1842(3828-3791)	1830-1520(3780-3470)	
σ = 160	1890-1500(3840-3450)		
σ = 200	2008-2002(3957-3951)	1920-1450(3870-3400)	

TABLE 3-WW

RADIOCARBON AGE BP 3400 CALIBRATED AGES: cal BC 1727, 1712, 1693
cal BP 3676, 3661, 3642

Sample σ and cal BC(cal BP) ranges:

σ = 20	1740-1689(3689-3638)	1670-1661(3619-3610)	1649-1644(3598-3593)
σ = 40	1745-1687(3694-3636)	1672-1640(3621-3589)	
σ = 60	1807-1806(3756-3755)	1770-1762(3719-3711)	1752-1625(3701-3574)
σ = 80	1866-1845(3815-3794)	1828-1823(3777-3772)	1812-1799(3761-3748)
	1776-1606(3725-3555)		
σ = 100	1879-1842(3828-3791)	1830-1600(3780-3550)	1547-1546(3496-3495)
σ = 120	1880-1600(3830-3550)	1570-1532(3519-3481)	
σ = 160	1920-1520(3870-3470)		
σ = 200	2012-1995(3961-3944)	1960-1490(3910-3440)	1479-1462(3428-3411)

RADIOCARBON AGE BP 3420 CALIBRATED AGES: cal BC 1735, 1697, 1696
cal BP 3684, 3646, 3645

Sample σ and cal BC(cal BP) ranges:

σ = 20	1746-1692(3695-3641)	1667-1665(3616-3614)	
σ = 40	1808-1805(3757-3754)	1770-1690(3719-3639)	1669-1662(3618-3611)
	1647-1646(3596-3595)		
σ = 60	1866-1845(3815-3794)	1828-1823(3777-3772)	1812-1799(3761-3748)
	1776-1687(3725-3636)	1671-1641(3620-3590)	
σ = 80	1879-1842(3828-3791)	1831-1625(3780-3574)	
σ = 100	1880-1620(3830-3570)		
σ = 120	1890-1600(3840-3550)		
σ = 160	2008-2002(3957-3951)	1920-1530(3870-3480)	
σ = 200	2027-1992(3976-3941)	1970-1500(3920-3450)	

RADIOCARBON AGE BP 3440 CALIBRATED AGE: cal BC 1742
cal BP 3691

Sample σ and cal BC(cal BP) ranges:

σ = 20	1857-1846(3806-3795)	1810-1803(3759-3752)	1772-1729(3721-3678)
	1708-1694(3657-3643)		
σ = 40	1874-1844(3823-3793)	1829-1797(3778-3746)	1778-1692(3727-3641)
	1667-1666(3616-3615)		
σ = 60	1879-1842(3828-3791)	1831-1690(3780-3639)	1669-1663(3618-3612)
	1647-1646(3596-3595)		
σ = 80	1883-1687(3832-3636)	1671-1641(3620-3590)	
σ = 100	1890-1630(3840-3580)		
σ = 120	1920-1620(3870-3570)	1607-1606(3556-3555)	
σ = 160	2012-1995(3961-3944)	1960-1600(3910-3550)	1570-1532(3519-3481)
σ = 200	2030-1520(3980-3470)		

TABLE 3-XX

RADIOCARBON AGE BP 3460 CALIBRATED AGES: cal BC 1768, 1765, 1749
cal BP 3717, 3714, 3698

Sample σ and cal BC(cal BP) ranges:

σ = 20	1876-1844(3825-3793)	1829-1797(3778-3746)	1778-1739(3727-3688)
σ = 40	1879-1842(3828-3791)	1831-1733(3780-3682)	1702-1696(3651-3645)
σ = 60	1883-1693(3832-3642)		
σ = 80	1886-1690(3835-3639)	1669-1663(3618-3612)	
σ = 100	1920-1690(3870-3640)	1671-1642(3620-3591)	
σ = 120	2008-2002(3957-3951)	1920-1630(3870-3580)	
σ = 160	2027-1992(3976-3941)	1970-1600(3920-3550)	
σ = 200	2110-2103(4059-4052)	2090-2085(4039-4034)	2067-2066(4016-4015)
	2030-1530(3980-3480)		

RADIOCARBON AGE BP 3480 CALIBRATED AGES: cal BC 1862, 1845, 1827, 1824, 1811, 1800, 1775
cal BP 3811, 3794, 3776, 3773, 3760, 3749, 3724

Sample σ and cal BC(cal BP) ranges:

σ = 20	1880-1745(3829-3694)		
σ = 40	1883-1740(3832-3689)		
σ = 60	1886-1733(3835-3682)	1701-1696(3650-3645)	
σ = 80	1920-1723(3869-3672)	1713-1693(3662-3642)	
σ = 100	2008-2001(3957-3950)	1920-1690(3870-3640)	1669-1663(3618-3612)
σ = 120	2012-1995(3961-3944)	1960-1690(3910-3640)	1671-1642(3620-3591)
σ = 160	2030-1620(3980-3570)		
σ = 200	2130-2082(4079-4031)	2070-2062(4019-4011)	2040-1600(3990-3550)
	1570-1532(3519-3481)		

RADIOCARBON AGE BP 3500 CALIBRATED AGES: cal BC 1878, 1842, 1830, 1789, 1785
cal BP 3827, 3791, 3779, 3738, 3734

Sample σ and cal BC(cal BP) ranges:

σ = 20	1884-1771(3833-3720)	1760-1754(3709-3703)	
σ = 40	1886-1747(3835-3696)		
σ = 60	1920-1741(3869-3690)		
σ = 80	2008-2001(3957-3950)	1924-1734(3873-3683)	1700-1696(3649-3645)
σ = 100	2012-1995(3961-3944)	1960-1720(3910-3670)	1713-1693(3662-3642)
σ = 120	2027-1991(3976-3940)	1970-1690(3920-3640)	1669-1663(3618-3612)
σ = 160	2110-2103(4059-4052)	2090-2085(4039-4034)	2067-2066(4016-4015)
	2030-1630(3980-3580)		
σ = 200	2136-2058(4085-4007)	2040-1600(3990-3550)	

TABLE 3-YY

RADIOCARBON AGE BP 3520 CALIBRATED AGES: cal BC 1882, 1840, 1833
cal BP 3831, 3789, 3782

Sample σ and cal BC(cal BP) ranges:

σ = 20	1917-1905(3866-3854)	1889-1873(3838-3822)	1844-1813(3793-3762)
	1797-1778(3746-3727)		
σ = 40	1920-1772(3869-3721)	1758-1755(3707-3704)	
σ = 60	2008-2000(3957-3949)	1924-1747(3873-3696)	
σ = 80	2012-1994(3961-3943)	1962-1741(3911-3690)	
σ = 100	2027-1991(3976-3940)	1970-1730(3920-3680)	1700-1696(3649-3645)
σ = 120	2030-1720(3980-3670)	1713-1693(3662-3642)	
σ = 160	2131-2082(4080-4031)	2070-2062(4019-4011)	2040-1690(3990-3640)
	1671-1642(3620-3591)		
σ = 200	2140-1620(4090-3570)		

RADIOCARBON AGE BP 3540 CALIBRATED AGES: cal BC 1885, 1837, 1836
cal BP 3834, 3786, 3785

Sample σ and cal BC(cal BP) ranges:

σ = 20	1921-1880(3870-3829)	1841-1832(3790-3781)	
σ = 40	2009-1998(3958-3947)	1937-1935(3886-3884)	1925-1877(3874-3826)
	1843-1829(3792-3778)	1819-1815(3768-3764)	1795-1781(3744-3730)
σ = 60	2012-1994(3961-3943)	1963-1858(3912-3807)	1846-1773(3795-3722)
	1757-1756(3706-3705)		
σ = 80	2027-1991(3976-3940)	1973-1748(3922-3697)	
σ = 100	2030-1740(3980-3690)		
σ = 120	2110-2102(4059-4051)	2091-2085(4040-4034)	2067-2066(4016-4015)
	2030-1730(3980-3680)	1700-1696(3649-3645)	
σ = 160	2136-2058(4085-4007)	2040-1690(3990-3640)	1669-1663(3618-3612)
σ = 200	2198-2159(4147-4108)	2140-1630(4090-3580)	

RADIOCARBON AGE BP 3560 CALIBRATED AGES: cal BC 1919, 1902, 1892
cal BP 3868, 3851, 3841

Sample σ and cal BC(cal BP) ranges:

σ = 20	2010-1996(3959-3945)	1942-1883(3891-3832)	1838-1834(3787-3783)
σ = 40	2013-1994(3962-3943)	1964-1881(3913-3830)	1841-1832(3790-3781)
σ = 60	2028-1991(3977-3940)	1974-1877(3923-3826)	1843-1829(3792-3778)
	1818-1815(3767-3764)	1793-1782(3742-3731)	
σ = 80	2031-1859(3980-3808)	1846-1773(3795-3722)	1757-1756(3706-3705)
σ = 100	2110-2102(4059-4051)	2091-2085(4040-4034)	2067-2066(4016-4015)
	2030-1750(3980-3700)		
σ = 120	2131-2082(4080-4031)	2070-2062(4019-4011)	2040-1740(3990-3690)
σ = 160	2140-1720(4090-3670)	1713-1693(3662-3642)	
σ = 200	2200-1690(4150-3640)	1671-1642(3620-3591)	

TABLE 3-ZZ

RADIOCARBON AGE BP 3580 CALIBRATED AGES: cal BC 2008, 2003, 1923
cal BP 3957, 3952, 3872

Sample σ and cal BC(cal BP) ranges:

σ = 20	2013-1993(3962-3942)	1967-1887(3916-3836)	
σ = 40	2028-1991(3977-3940)	1975-1884(3924-3833)	1838-1835(3787-3784)
σ = 60	2032-1881(3981-3830)	1840-1833(3789-3782)	
σ = 80	2111-2102(4060-4051)	2091-2085(4040-4034)	2067-2066(4016-4015)
	2035-1878(3984-3827)	1843-1830(3792-3779)	1818-1816(3767-3765)
	1792-1783(3741-3732)		
σ = 100	2131-2082(4080-4031)	2070-2062(4019-4011)	2040-1860(3990-3810)
	1846-1773(3795-3722)	1757-1756(3706-3705)	
σ = 120	2136-2057(4085-4006)	2040-1750(3990-3700)	
σ = 160	2198-2159(4147-4108)	2140-1730(4090-3680)	1699-1696(3648-3645)
σ = 200	2270-2256(4219-4205)	2228-2223(4177-4172)	2210-1690(4160-3640)
	1669-1663(3618-3612)		

RADIOCARBON AGE BP 3600 CALIBRATED AGES: cal BC 2011, 1995, 1960
cal BP 3960, 3944, 3909

Sample σ and cal BC(cal BP) ranges:

σ = 20	2029-1990(3978-3939)	1978-1920(3927-3869)	1899-1894(3848-3843)
σ = 40	2032-1917(3981-3866)	1905-1889(3854-3838)	
σ = 60	2111-2084(4060-4033)	2067-2065(4016-4014)	2035-1884(3984-3833)
	1837-1835(3786-3784)		
σ = 80	2131-2082(4080-4031)	2070-2061(4019-4010)	2039-1881(3988-3830)
	1840-1833(3789-3782)		
σ = 100	2136-2057(4085-4006)	2040-1880(3990-3830)	1843-1830(3792-3779)
	1818-1816(3767-3765)	1792-1783(3741-3732)	
σ = 120	2187-2186(4136-4135)	2140-1860(4090-3810)	1846-1774(3795-3723)
σ = 160	2200-1740(4150-3690)		
σ = 200	2274-2251(4223-4200)	2230-1720(4180-3670)	1712-1693(3661-3642)

RADIOCARBON AGE BP 3620 CALIBRATED AGES: cal BC 2027, 2026, 2015, 1992, 1971
cal BP 3976, 3975, 3964, 3941, 3920

Sample σ and cal BC(cal BP) ranges:

σ = 20	2107-2106(4056-4055)	2088-2086(4037-4035)	2033-2009(3982-3958)
	1998-1925(3947-3874)		
σ = 40	2127-2126(4076-4075)	2112-2084(4061-4033)	2067-2065(4016-4014)
	2036-1922(3985-3871)		
σ = 60	2131-2082(4080-4031)	2070-2061(4019-4010)	2039-1918(3988-3867)
	1904-1890(3853-3839)		
σ = 80	2136-2057(4085-4006)	2043-1885(3992-3834)	1837-1836(3786-3785)
σ = 100	2187-2186(4136-4135)	2140-1880(4090-3830)	1840-1833(3789-3782)
σ = 120	2198-2158(4147-4107)	2140-1880(4090-3830)	1843-1830(3792-3779)
	1817-1816(3766-3765)	1791-1783(3740-3732)	
σ = 160	2270-2256(4219-4205)	2228-2223(4177-4172)	2210-1750(4160-3700)
σ = 200	2290-1730(4240-3680)	1699-1696(3648-3645)	

Table 3-AAA

RADIOCARBON AGE BP 3640 CALIBRATED AGES: cal BC 2031, 1989, 1981
cal BP 3980, 3938, 3930

Sample σ and cal BC(cal BP) ranges:

σ = 20	2128-2124(4077-4073)	2113-2084(4062-4033)	2068-2064(4017-4013)
	2037-2013(3986-3962)	1994-1965(3943-3914)	
σ = 40	2132-2082(4081-4031)	2070-2061(4019-4010)	2040-2010(3989-3959)
	1996-1942(3945-3891)	1929-1926(3878-3875)	
σ = 60	2137-2057(4086-4006)	2043-1922(3992-3871)	
σ = 80	2187-2185(4137-4134)	2139-1918(4088-3867)	1903-1890(3852-3839)
σ = 100	2198-2158(4147-4107)	2140-1880(4090-3830)	1837-1836(3786-3785)
σ = 120	2200-1880(4150-3830)	1840-1833(3789-3782)	
σ = 160	2275-2251(4224-4200)	2230-1860(4180-3810)	1845-1774(3794-3723)
σ = 200	2336-2323(4285-4272)	2310-1740(4260-3690)	

RADIOCARBON AGE BP 3660 CALIBRATED AGES: cal BC 2109, 2103, 2090, 2085, 2034
cal BP 4058, 4052, 4039, 4034, 3983

Sample σ and cal BC(cal BP) ranges:

σ = 20	2133-2081(4082-4030)	2071-2060(4020-4009)	2040-2028(3989-3977)
	1990-1976(3939-3925)		
σ = 40	2137-2057(4086-4006)	2043-2014(3992-3963)	1993-1968(3942-3917)
σ = 60	2188-2184(4137-4133)	2140-2010(4089-3959)	1996-1945(3945-3894)
σ = 80	2198-2158(4147-4107)	2142-1923(4091-3872)	
σ = 100	2200-1920(4150-3870)	1903-1891(3852-3840)	
σ = 120	2270-2256(4219-4205)	2228-2223(4177-4172)	2210-1890(4160-3840)
	1837-1836(3786-3785)		
σ = 160	2290-1880(4240-3830)	1843-1830(3792-3779)	1817-1816(3766-3765)
	1790-1784(3739-3733)		
σ = 200	2393-2383(4342-4332)	2350-1750(4300-3700)	

RADIOCARBON AGE BP 3680 CALIBRATED AGES: cal BC 2130, 2119, 2115, 2097, 2096, 2083, 2069, 2062, 2038
cal BP 4079, 4068, 4064, 4046, 4045, 4032, 4018, 4011, 3987

Sample σ and cal BC(cal BP) ranges:

σ = 20	2138-2032(4087-3981)	1987-1985(3936-3934)	
σ = 40	2190-2180(4139-4129)	2168-2166(4117-4115)	2140-2029(4089-3978)
	1990-1978(3939-3927)		
σ = 60	2198-2157(4147-4106)	2143-2014(4092-3963)	1992-1969(3941-3918)
σ = 80	2202-2011(4151-3960)	1995-1946(3944-3895)	
σ = 100	2270-2256(4219-4205)	2228-2223(4177-4172)	2210-1920(4160-3870)
σ = 120	2287-2286(4236-4235)	2275-2251(4224-4200)	2230-1920(4180-3870)
	1902-1891(3851-3840)		
σ = 160	2336-2323(4285-4272)	2310-1880(4260-3830)	1840-1833(3789-3782)
σ = 200	2451-2444(4400-4393)	2432-2422(4381-4371)	2402-2378(4351-4327)
	2350-1860(4300-3810)	1845-1811(3794-3760)	1801-1774(3750-3723)

Table 3-BBB

RADIOCARBON AGE BP 3700 CALIBRATED AGES: cal BC 2135, 2080, 2072, 2058, 2042
cal BP 4084, 4029, 4021, 4007, 3991

Sample σ and cal BC(cal BP) ranges:

σ = 20	2193-2164(4142-4113)	2140-2112(4089-4061)	2100-2036(4049-3985)
σ = 40	2199-2156(4148-4105)	2143-2033(4092-3982)	
σ = 60	2202-2030(4151-3979)	1989-1979(3938-3928)	
σ = 80	2270-2256(4219-4205)	2228-2222(4177-4171)	2205-2014(4154-3963)
	1992-1969(3941-3918)		
σ = 100	2287-2286(4236-4235)	2275-2251(4224-4200)	2230-2010(4180-3960)
	1995-1958(3944-3907)	1947-1946(3896-3895)	
σ = 120	2290-1920(4240-3870)		
σ = 160	2393-2383(4342-4332)	2350-1890(4300-3840)	1837-1836(3786-3785)
σ = 200	2470-1880(4420-3830)	1843-1830(3792-3779)	1817-1816(3766-3765)
	1790-1784(3739-3733)		

RADIOCARBON AGE BP 3720 CALIBRATED AGES: cal BC 2139, 2077, 2075, 2048, 2046
cal BP 4088, 4026, 4024, 3997, 3995

Sample σ and cal BC(cal BP) ranges:

σ = 20	2199-2155(4148-4104)	2143-2133(4092-4082)	2081-2071(4030-4020)
	2060-2040(4009-3989)		
σ = 40	2267-2266(4216-4215)	2202-2113(4151-4062)	2099-2094(4048-4043)
	2083-2037(4032-3986)		
σ = 60	2271-2256(4220-4205)	2228-2222(4177-4171)	2206-2034(4155-3983)
σ = 80	2287-2286(4236-4235)	2275-2251(4224-4200)	2232-2030(4181-3979)
	1989-1979(3938-3928)		
σ = 100	2290-2010(4240-3960)	1992-1970(3941-3919)	
σ = 120	2337-2323(4286-4272)	2310-2010(4260-3960)	1995-1958(3944-3907)
σ = 160	2451-2444(4400-4393)	2432-2422(4381-4371)	2402-2378(4351-4327)
	2367-2366(4316-4315)	2350-1920(4300-3870)	1902-1891(3851-3840)
σ = 200	2470-1880(4420-3830)	1840-1833(3789-3782)	

RADIOCARBON AGE BP 3740 CALIBRATED AGES: cal BC 2197, 2160, 2142
cal BP 4146, 4109, 4091

Sample σ and cal BC(cal BP) ranges:

σ = 20	2267-2264(4216-4213)	2203-2137(4152-4086)	2079-2074(4028-4023)
	2054-2044(4003-3993)		
σ = 40	2271-2255(4220-4204)	2228-2221(4177-4170)	2206-2134(4155-4083)
	2081-2072(4030-4021)	2059-2041(4008-3990)	
σ = 60	2287-2251(4236-4200)	2232-2114(4181-4063)	2098-2095(4047-4044)
	2083-2037(4032-3986)		
σ = 80	2293-2034(4242-3983)		
σ = 100	2337-2322(4286-4271)	2310-2030(4260-3980)	1989-1980(3938-3929)
σ = 120	2393-2383(4342-4332)	2350-2010(4300-3960)	1992-1970(3941-3919)
σ = 160	2470-1920(4420-3870)		
σ = 200	2470-1890(4420-3840)	1837-1836(3786-3785)	

Table 3-CCC

RADIOCARBON AGE BP 3760 CALIBRATED AGES: cal BC 2201, 2151, 2145
cal BP 4150, 4100, 4094

Sample σ and cal BC(cal BP) ranges:

σ = 20	2272-2255(4221-4204)	2229-2219(4178-4168)	2206-2194(4155-4143)
	2164-2141(4113-4090)		
σ = 40	2287-2250(4236-4199)	2232-2138(4181-4087)	2078-2075(4027-4024)
	2051-2045(4000-3994)		
σ = 60	2293-2135(4242-4084)	2080-2072(4029-4021)	2059-2041(4008-3990)
σ = 80	2337-2322(4286-4271)	2312-2114(4261-4063)	2098-2095(4047-4044)
	2083-2038(4032-3987)		
σ = 100	2393-2383(4342-4332)	2350-2030(4300-3980)	
σ = 120	2451-2444(4400-4393)	2432-2422(4381-4371)	2402-2378(4351-4327)
	2367-2366(4316-4315)	2350-2030(4300-3980)	1989-1980(3938-3929)
σ = 160	2470-2010(4420-3960)	1995-1959(3944-3908)	
σ = 200	2470-1920(4420-3870)	1902-1891(3851-3840)	

RADIOCARBON AGE BP 3780 CALIBRATED AGES: cal BC 2270, 2257, 2227, 2224, 2205
cal BP 4219, 4206, 4176, 4173, 4154

Sample σ and cal BC(cal BP) ranges:

σ = 20	2289-2249(4238-4198)	2233-2199(4182-4148)	2155-2143(4104-4092)
σ = 40	2307-2306(4256-4255)	2293-2196(4242-4145)	2162-2141(4111-4090)
σ = 60	2338-2138(4287-4087)	2078-2075(4027-4024)	2051-2045(4000-3994)
σ = 80	2394-2382(4343-4331)	2348-2135(4297-4084)	2080-2072(4029-4021)
	2059-2041(4008-3990)		
σ = 100	2450-2040(4400-3990)		
σ = 120	2470-2030(4420-3980)		
σ = 160	2470-2010(4420-3960)	1992-1970(3941-3919)	
σ = 200	2490-1920(4440-3870)		

RADIOCARBON AGE BP 3800 CALIBRATED AGES: cal BC 2274, 2252, 2231
cal BP 4223, 4201, 4180

Sample σ and cal BC(cal BP) ranges:

σ = 20	2309-2203(4258-4152)	2147-2146(4096-4095)	
σ = 40	2339-2200(4288-4149)	2154-2144(4103-4093)	
σ = 60	2395-2382(4344-4331)	2349-2197(4298-4146)	2162-2141(4111-4090)
σ = 80	2453-2443(4402-4392)	2432-2422(4381-4371)	2403-2138(4352-4087)
	2078-2075(4027-4024)	2051-2045(4000-3994)	
σ = 100	2470-2130(4420-4080)	2080-2072(4029-4021)	2059-2042(4008-3991)
σ = 120	2470-2110(4420-4060)	2098-2095(4047-4044)	2083-2038(4032-3987)
σ = 160	2470-2030(4420-3980)	1989-1980(3938-3929)	
σ = 200	2490-2010(4440-3960)	1995-1959(3944-3908)	

Table 3-DDD

RADIOCARBON AGE BP 3820 CALIBRATED AGES: cal BC 2292, 2246, 2235
cal BP 4241, 4195, 4184

Sample σ and cal BC(cal BP) ranges:

σ = 20	2388-2386(4337-4335)	2342-2272(4291-4221)	2254-2229(4203-4178)
	2219-2207(4168-4156)		
σ = 40	2427-2426(4376-4375)	2395-2382(4344-4331)	2349-2204(4298-4153)
σ = 60	2454-2421(4403-4370)	2403-2200(4352-4149)	2153-2144(4102-4093)
σ = 80	2467-2197(4416-4146)	2161-2141(4110-4090)	
σ = 100	2470-2140(4420-4090)	2078-2075(4027-4024)	2050-2045(3999-3994)
σ = 120	2470-2130(4420-4080)	2080-2072(4029-4021)	2059-2042(4008-3991)
σ = 160	2490-2030(4440-3980)		
σ = 200	>2500-2010(>4450-3960)	1992-1971(3941-3920)	

RADIOCARBON AGE BP 3840 CALIBRATED AGES: cal BC 2334, 2323, 2311
cal BP 4283, 4272, 4260

Sample σ and cal BC(cal BP) ranges:

σ = 20	2429-2425(4378-4374)	2398-2380(4347-4329)	2351-2276(4300-4225)
	2250-2233(4199-4182)		
σ = 40	2456-2421(4405-4370)	2405-2273(4354-4222)	2253-2230(4202-4179)
	2217-2215(4166-4164)		
σ = 60	2467-2204(4416-4153)		
σ = 80	2469-2200(4418-4149)	2152-2144(4101-4093)	
σ = 100	2470-2200(4420-4150)	2161-2141(4110-4090)	
σ = 120	2470-2140(4420-4090)	2078-2075(4027-4024)	2050-2045(3999-3994)
σ = 160	2490-2110(4440-4060)	2097-2096(4046-4045)	2083-2038(4032-3987)
σ = 200	>2500-2030(>4450-3980)	1989-1980(3938-3929)	

RADIOCARBON AGE BP 3860 CALIBRATED AGES: cal BC 2392, 2383, 2347
cal BP 4341, 4332, 4296

Sample σ and cal BC(cal BP) ranges:

σ = 20	2459-2420(4408-4369)	2406-2295(4355-4244)	
σ = 40	2467-2290(4416-4239)	2248-2234(4197-4183)	
σ = 60	2469-2273(4418-4222)	2253-2230(4202-4179)	
σ = 80	2471-2269(4420-4218)	2259-2204(4208-4153)	
σ = 100	2470-2200(4420-4150)	2152-2144(4101-4093)	
σ = 120	2490-2200(4440-4150)	2161-2142(4110-4091)	
σ = 160	>2500-2140(>4450-4090)	2080-2072(4029-4021)	2058-2042(4007-3991)
σ = 200	>2500-2030(>4450-3980)		

RADIOCARBON AGE BP 3880 CALIBRATED AGES: cal BC 2450, 2445, 2431, 2423, 2402, 2378, 2354
cal BP 4399, 4394, 4380, 4372, 4351, 4327, 4303

Sample σ and cal BC(cal BP) ranges:

σ = 20	2468-2341(4417-4290)	2319-2314(4268-4263)	
σ = 40	2469-2309(4418-4258)	2299-2296(4248-4245)	
σ = 60	2471-2290(4420-4239)	2248-2234(4197-4183)	
σ = 80	2473-2273(4422-4222)	2252-2231(4201-4180)	
σ = 100	2490-2270(4440-4220)	2259-2204(4208-4153)	
σ = 120	2490-2200(4440-4150)	2152-2145(4101-4094)	
σ = 160	>2500-2140(>4450-4090)	2078-2075(4027-4024)	2049-2046(3998-3995)
σ = 200	>2500-2110(>4450-4060)	2097-2096(4046-4045)	2083-2038(4032-3987)

Table 3-EEE

```
RADIOCARBON AGE BP 3900   CALIBRATED AGES:  cal BC 2467, 2417, 2414
                                            cal BP 4416, 4366, 4363
Sample σ and cal BC(cal BP) ranges:
σ =  20   2470-2397(4419-4346)  2381-2350(4330-4299)
σ =  40   2472-2344(4421-4293)  2317-2316(4266-4265)
σ =  60   2473-2310(4422-4259)  2297-2296(4246-4245)
σ =  80   2489-2291(4438-4240)  2247-2234(4196-4183)
σ = 100   2490-2270(4440-4220)  2252-2231(4201-4180)
σ = 120   >2500-2270(>4450-4220)  2259-2204(4208-4153)
σ = 160   >2500-2200(>4450-4150)  2160-2142(4109-4091)
σ = 200   >2500-2140(>4450-4090)  2080-2072(4029-4021)  2058-2042(4007-3991)
```

```
RADIOCARBON AGE BP 3920   CALIBRATED AGE:   cal BC 2469
                                            cal BP 4418
Sample σ and cal BC(cal BP) ranges:
σ =  20   2472-2458(4421-4407)  2440-2434(4389-4383)  2420-2406(4369-4355)
σ =  40   2474-2399(4423-4348)  2380-2352(4329-4301)
σ =  60   2489-2345(4438-4294)  2317-2316(4266-4265)
σ =  80   2493-2310(4442-4259)
σ = 100   >2500-2290(>4450-4240)  2247-2235(4196-4184)
σ = 120   >2500-2270(>4450-4220)  2252-2231(4201-4180)
σ = 160   >2500-2200(>4450-4150)  2152-2145(4101-4094)
σ = 200   >2500-2140(>4450-4090)  2078-2075(4027-4024)  2049-2046(3998-3995)
```

```
RADIOCARBON AGE BP 3940   CALIBRATED AGE:   cal BC 2471
                                            cal BP 4420
Sample σ and cal BC(cal BP) ranges:
σ =  20   2487-2486(4436-4435)  2474-2468(4423-4417)
σ =  40   2490-2462(4439-4411)  2438-2435(4387-4384)  2419-2409(4368-4358)
σ =  60   2493-2400(4442-4349)  2379-2352(4328-4301)
σ =  80   >2495-2346(>4444-4295)
σ = 100   >2500-2310(>4450-4260)
σ = 120   >2500-2290(>4450-4240)  2247-2235(4196-4184)
σ = 160   >2500-2270(>4450-4220)  2258-2205(4207-4154)
σ = 200   >2500-2200(>4450-4150)  2160-2142(4109-4091)
```

```
RADIOCARBON AGE BP 3960   CALIBRATED AGE:   cal BC 2473
                                            cal BP 4422
Sample σ and cal BC(cal BP) ranges:
σ =  20   2491-2470(4440-4419)
σ =  40   2494-2468(4443-4417)
σ =  60   >2495-2464(>4444-4413)  2437-2436(4386-4385)  2418-2410(4367-4359)
σ =  80   >2495-2400(>4444-4349)  2379-2353(4328-4302)
σ = 100   >2500-2350(>4450-4300)
σ = 120   >2500-2310(>4450-4260)
σ = 160   >2500-2270(>4450-4220)  2252-2231(4201-4180)
σ = 200   >2500-2200(>4450-4150)  2151-2145(4100-4094)
```

Table 3-FFF

```
RADIOCARBON AGE BP 3980   CALIBRATED AGES:  cal BC 2489, 2482, 2475
                                            cal BP 4438, 4431, 4424
Sample σ and cal BC(cal BP) ranges:
σ =  20   2494-2472(4443-4421)
σ =  40   >2495-2470(>4444-4419)
σ =  60   >2495-2468(>4444-4417)
σ =  80   >2495-2465(>4444-4414)  2418-2411(4367-4360)
σ = 100   >2495-2400(>4444-4349)  2379-2353(4328-4302)
σ = 120   >2500-2350(>4450-4300)
σ = 160   >2500-2290(>4450-4240)  2247-2235(4196-4184)
σ = 200   >2500-2270(>4450-4220)  2258-2205(4207-4154)
```

```
RADIOCARBON AGE BP 4000   CALIBRATED AGE:   cal BC 2492
                                            cal BP 4441
Sample σ and cal BC(cal BP) ranges:
σ =  20   >2495-2474(>4444-4423)
σ =  40   >2495-2472(>4444-4421)
σ =  60   >2495-2470(>4444-4419)
σ =  80   >2495-2468(>4444-4417)
σ = 100   >2495-2465(>4444-4414)  2418-2411(4367-4360)
σ = 120   >2495-2400(>4444-4349)  2379-2353(4328-4302)
σ = 160   >2500-2310(>4450-4260)
σ = 200   >2500-2270(>4450-4220)  2252-2231(4201-4180)
```

```
RADIOCARBON AGE BP 4020   CALIBRATED AGE:   cal BC 2496
                                            cal BP 4445
Sample σ and cal BC(cal BP) ranges:
σ =  20   >2495-2490(>4444-4439)  2478-2476(4427-4425)
σ =  40   >2495-2474(>4444-4423)
σ =  60   >2495-2472(>4444-4421)
σ =  80   >2495-2470(>4444-4419)
σ = 100   >2495-2468(>4444-4417)
σ = 120   >2495-2465(>4444-4414)  2418-2412(4367-4361)
σ = 160   >2500-2350(>4450-4300)
σ = 200   >2500-2290(>4450-4240)  2247-2235(4196-4184)
```