HIGH-PRECISION ^{14}C MEASUREMENT OF IRISH OAKS TO SHOW THE NATURAL ^{14}C VARIATIONS FROM AD 1840–5000 BC: A CORRECTION

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We present here ^{14}C data representing previously published material (Pearson *et al.* 1986) with minor corrections. All corrections used for calculations published in Pearson *et al.* (1986) have been re-evaluated, and only one was found to be significantly different. This correction, namely, 'the variation of efficiency with time', being additional to all other corrections for changes in efficiency, was more subjective; the others could be checked and accounted for by experimentation.

The initial correction derived from standards measured between 1981 and 1986, and involved relatively few measurements. Two standards gave a much more pronounced variation than the others, which, taken alone, suggested very little variation. These two standards accounted for practically all the evaluated correction. Subsequent standard analysis, including work on the more sensitive Quantulus counter, supported the hypothesis that this correction was probably unnecessary. The efficiency correction was recalculated, omitting the two suspect standards and using more recent information; this correction was found to be insignificant. Thus, it was removed, and the dates were recalculated. Shifts averaging 16 yr older were obtained for the samples reported in 1986.

It is impossible to account for the losses observed in the two standards omitted, but it is probable that scintillant leakage occurred through the tin foil used for vial sealing. This was not detected as a weight loss, since scintillant was absorbed in other vial cap components. No such change has been observed since the vial caps were sealed with indium foil. It is also possible that samples measured with a tin foil seal were subject to a similar loss, possibly giving an error of up to 20 yr. It cannot be determined if, or to what samples, this happened.

Other basic information previously given is still applicable. The corrected data set (Table 1) is plotted as a ^{14}C age calibration curve in Figure 1A–N.

REFERENCE

Pearson, G. W., Pilcher, J. R., Baillie, M. G. L., Corbett, D. M. and Qua, F. 1986 High precision ^{14}C measurement of Irish oaks to show the natural ^{14}C variations from AD 1840–5210 BC. *In* Stuiver, M. and Kra, R. S., eds., Proceedings of the 12th International ^{14}C Conference. *Radiocarbon* 28(2B): 911–934.
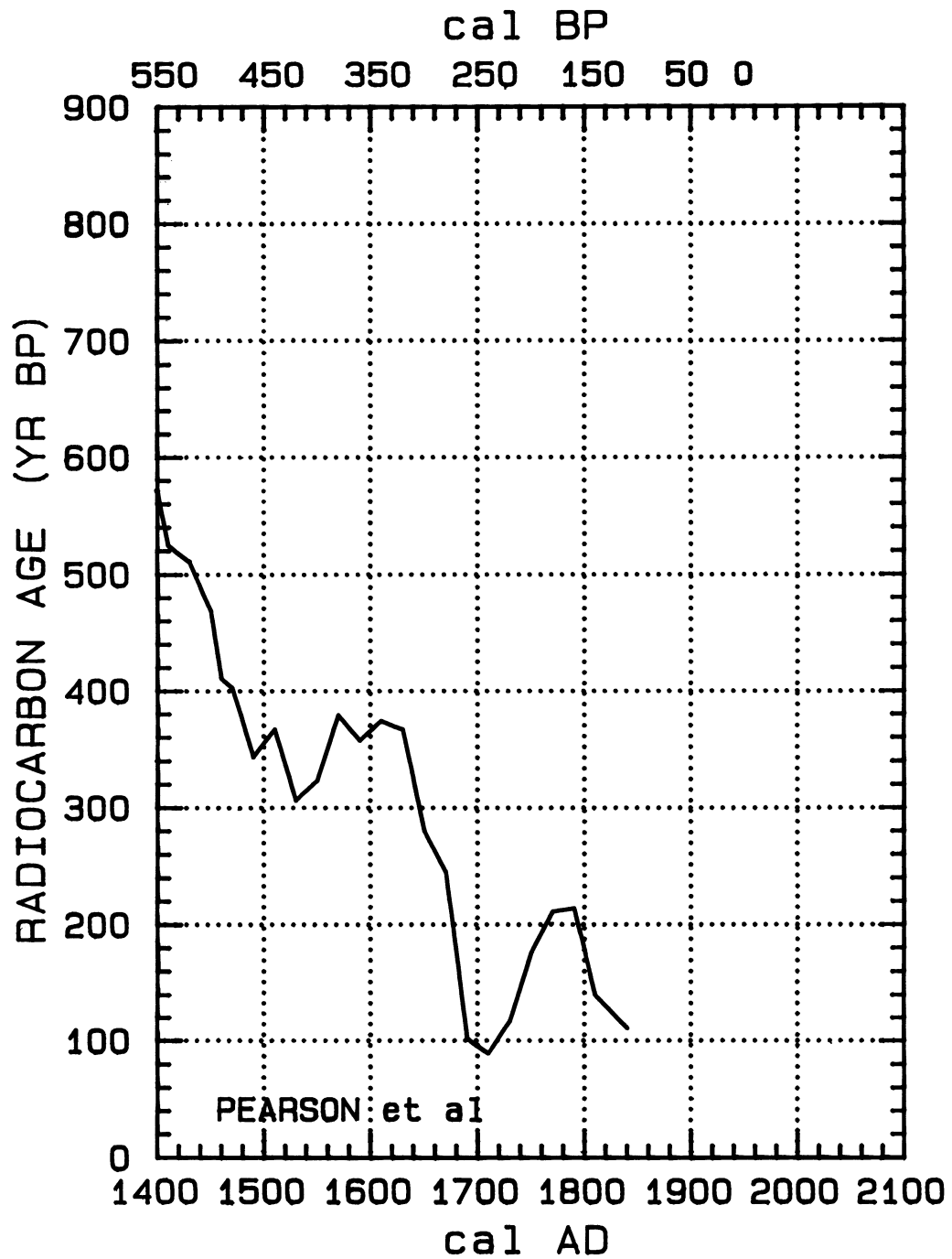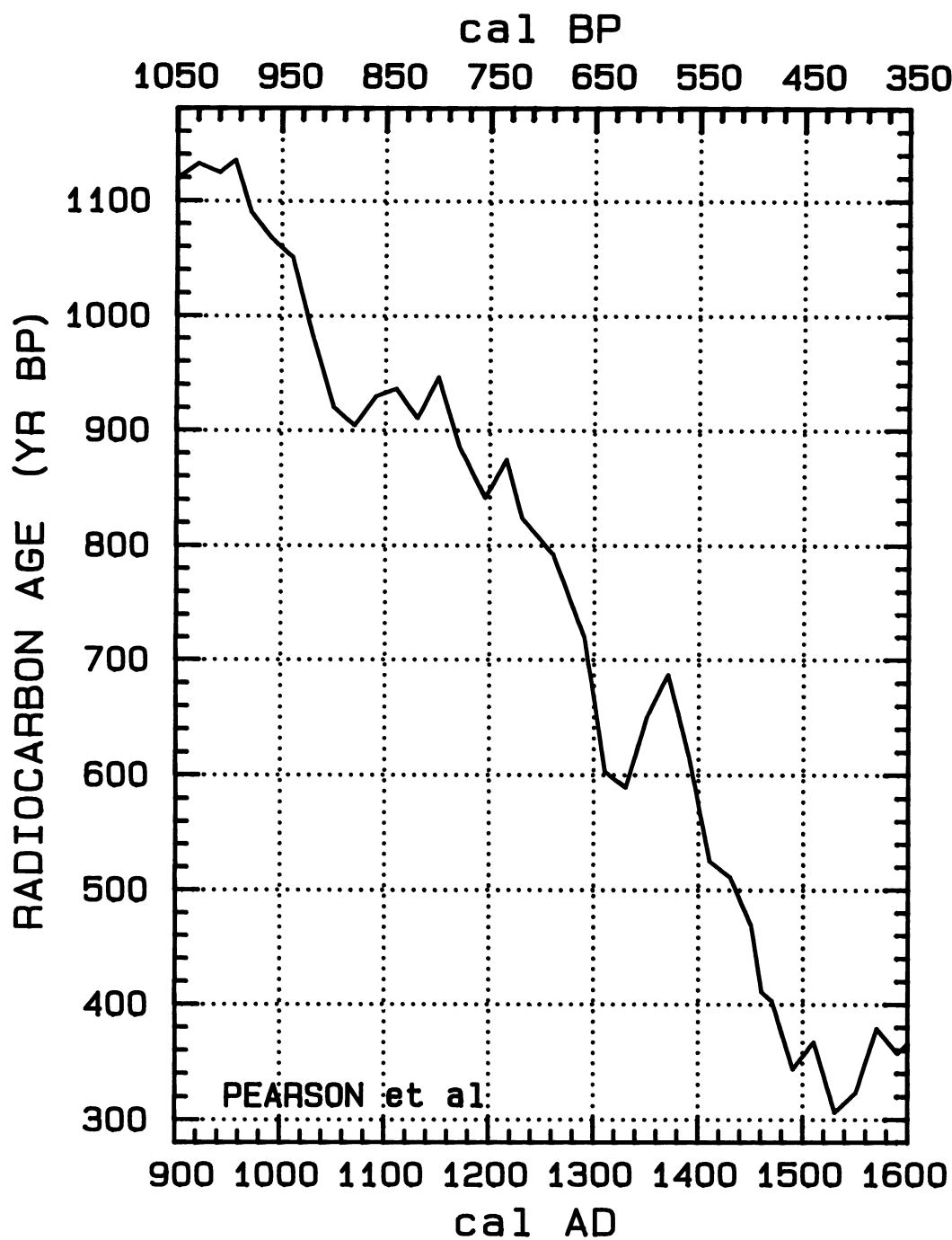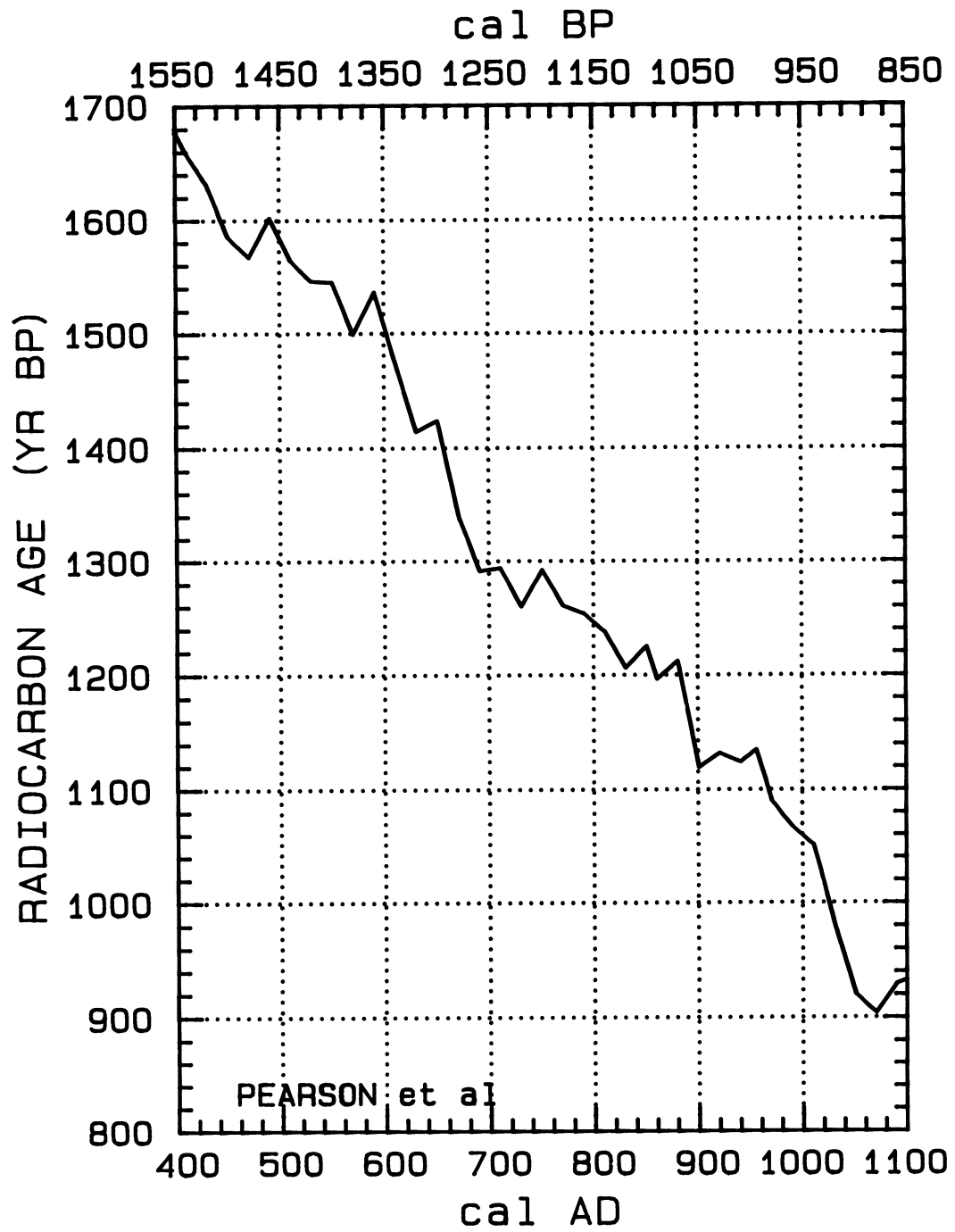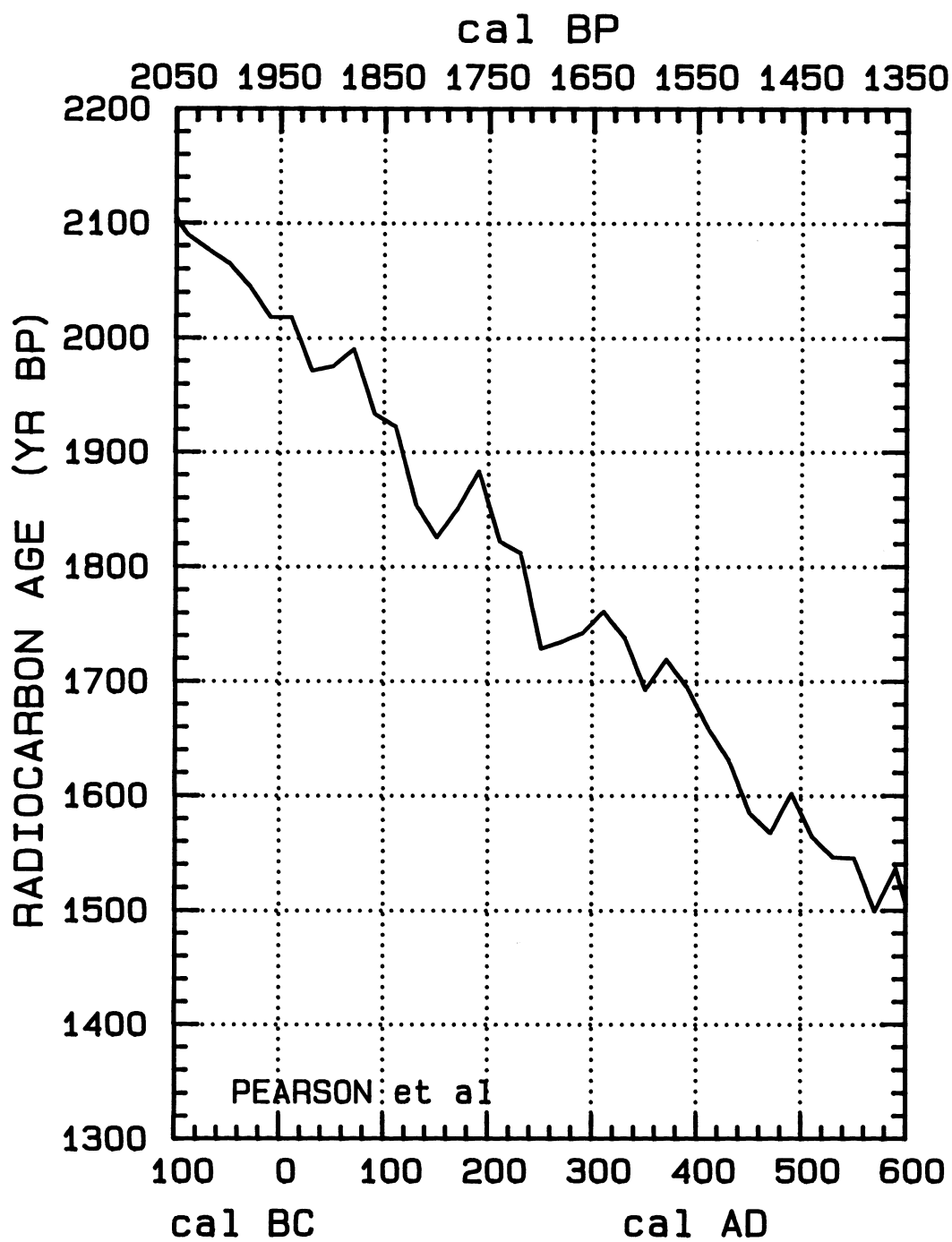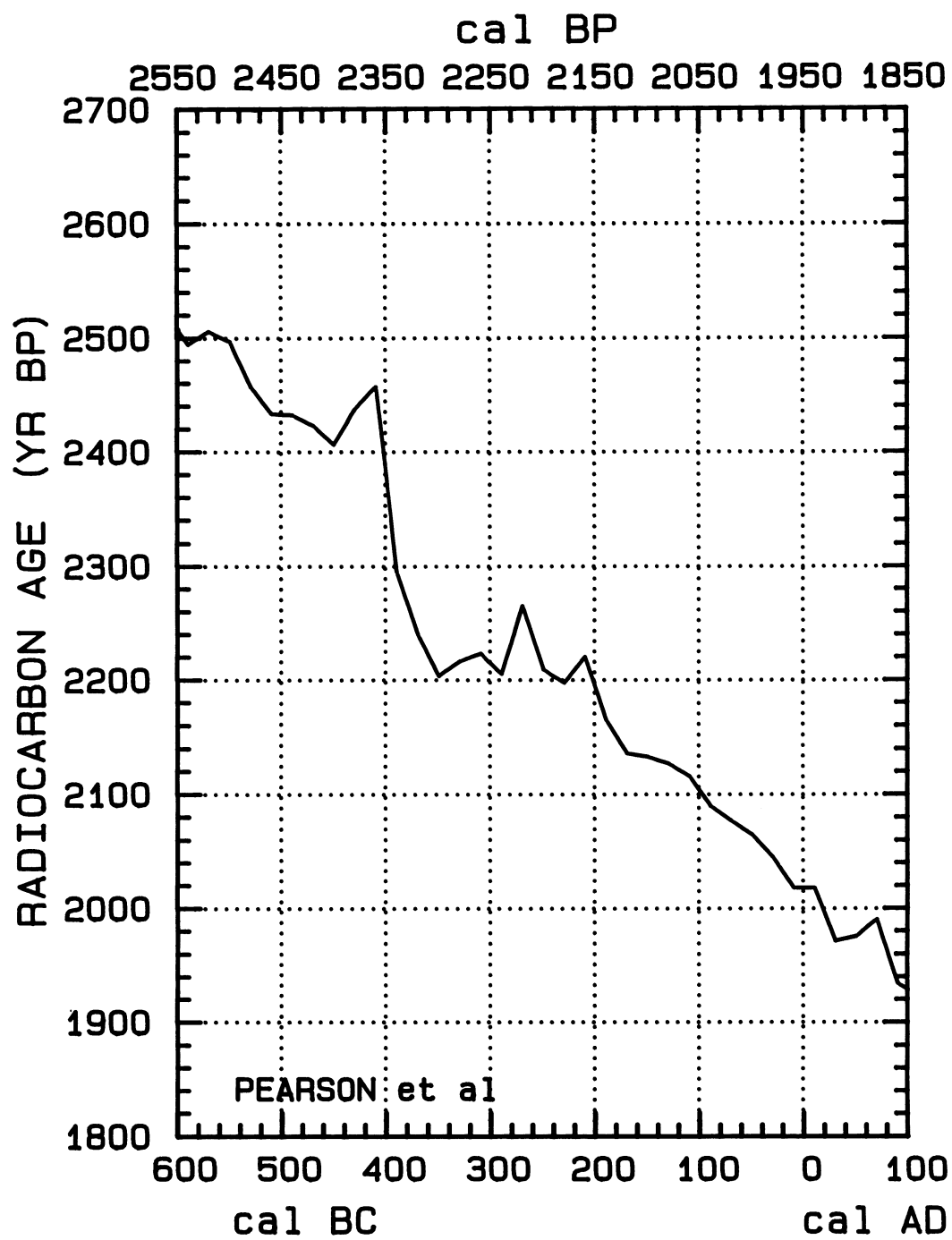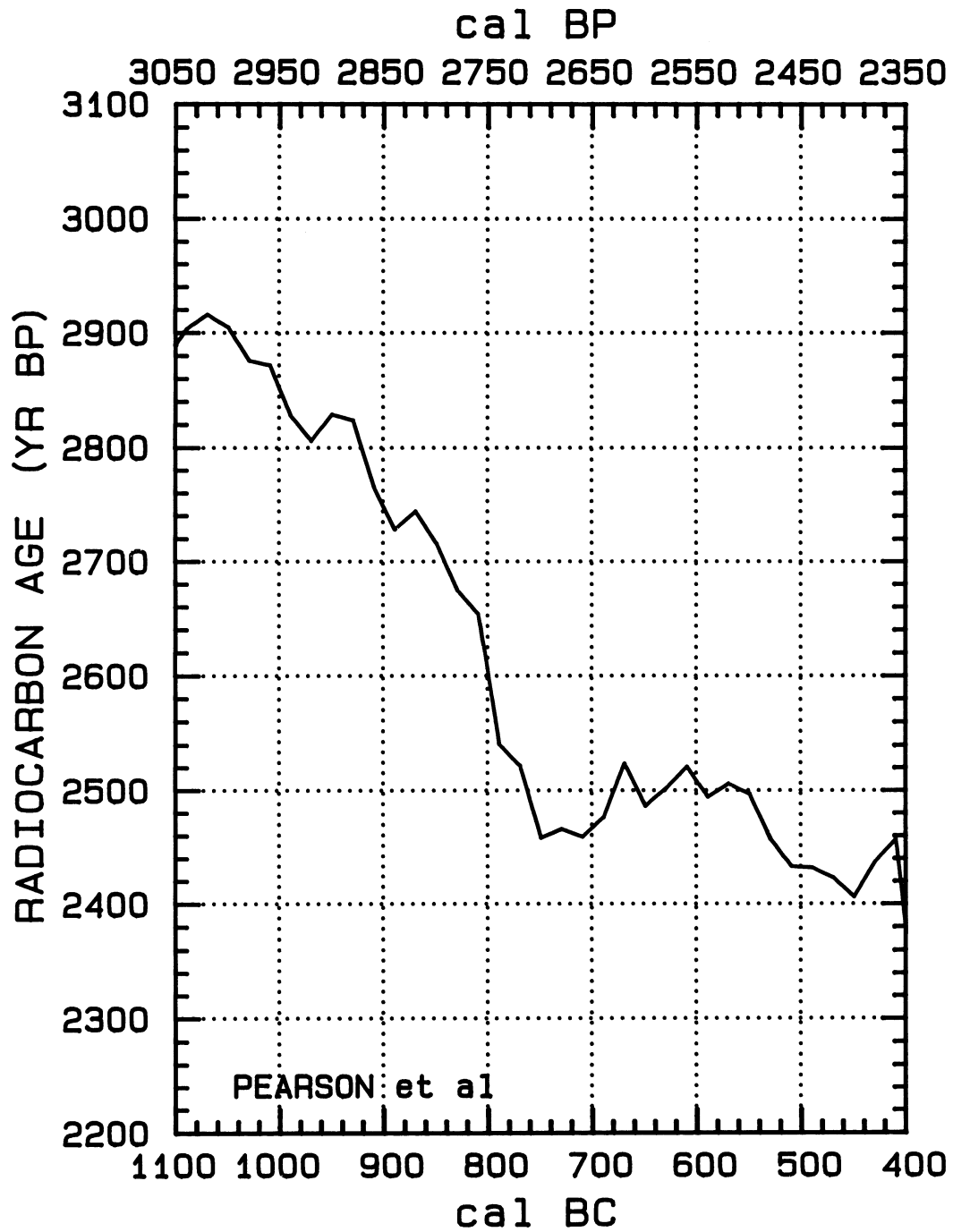
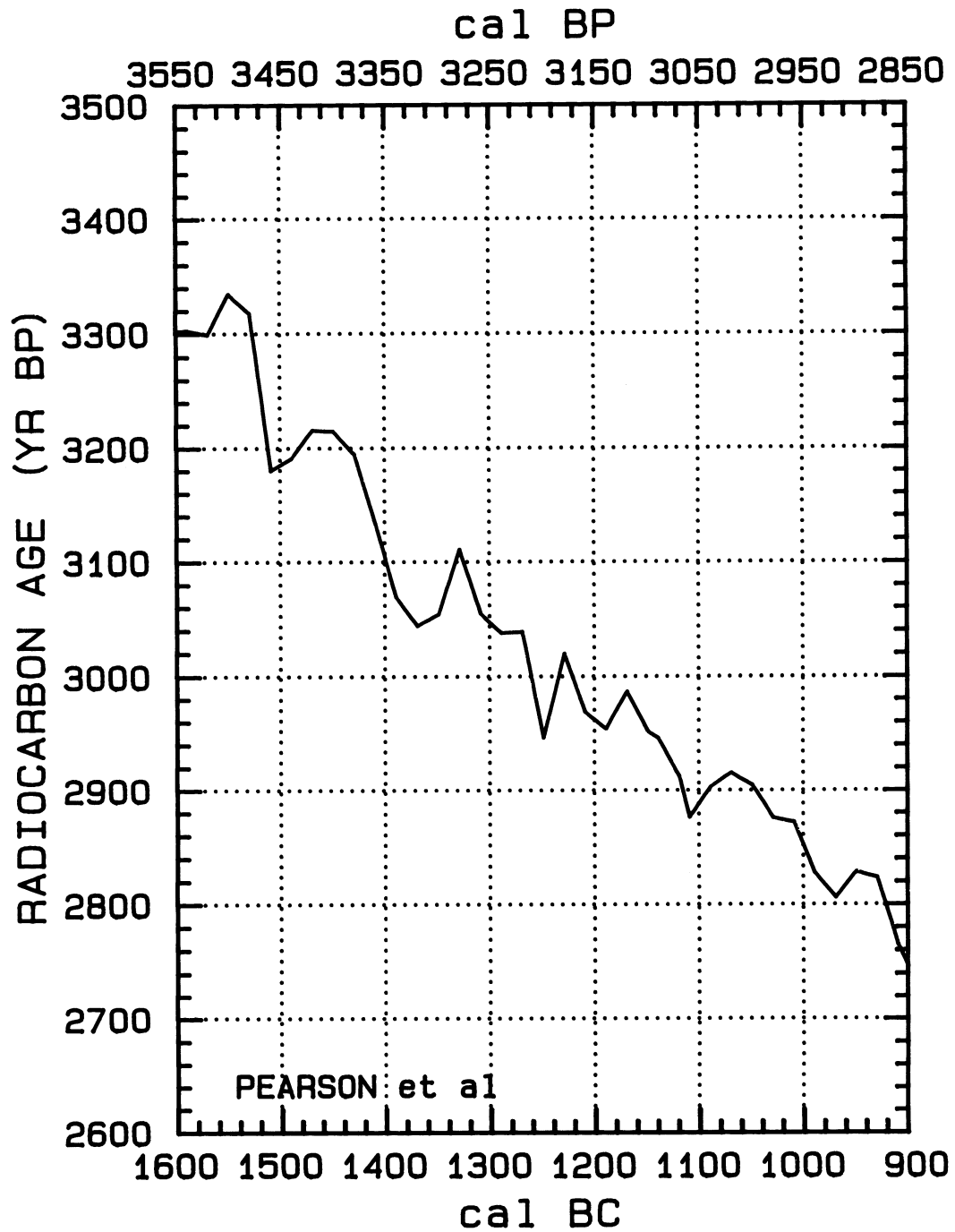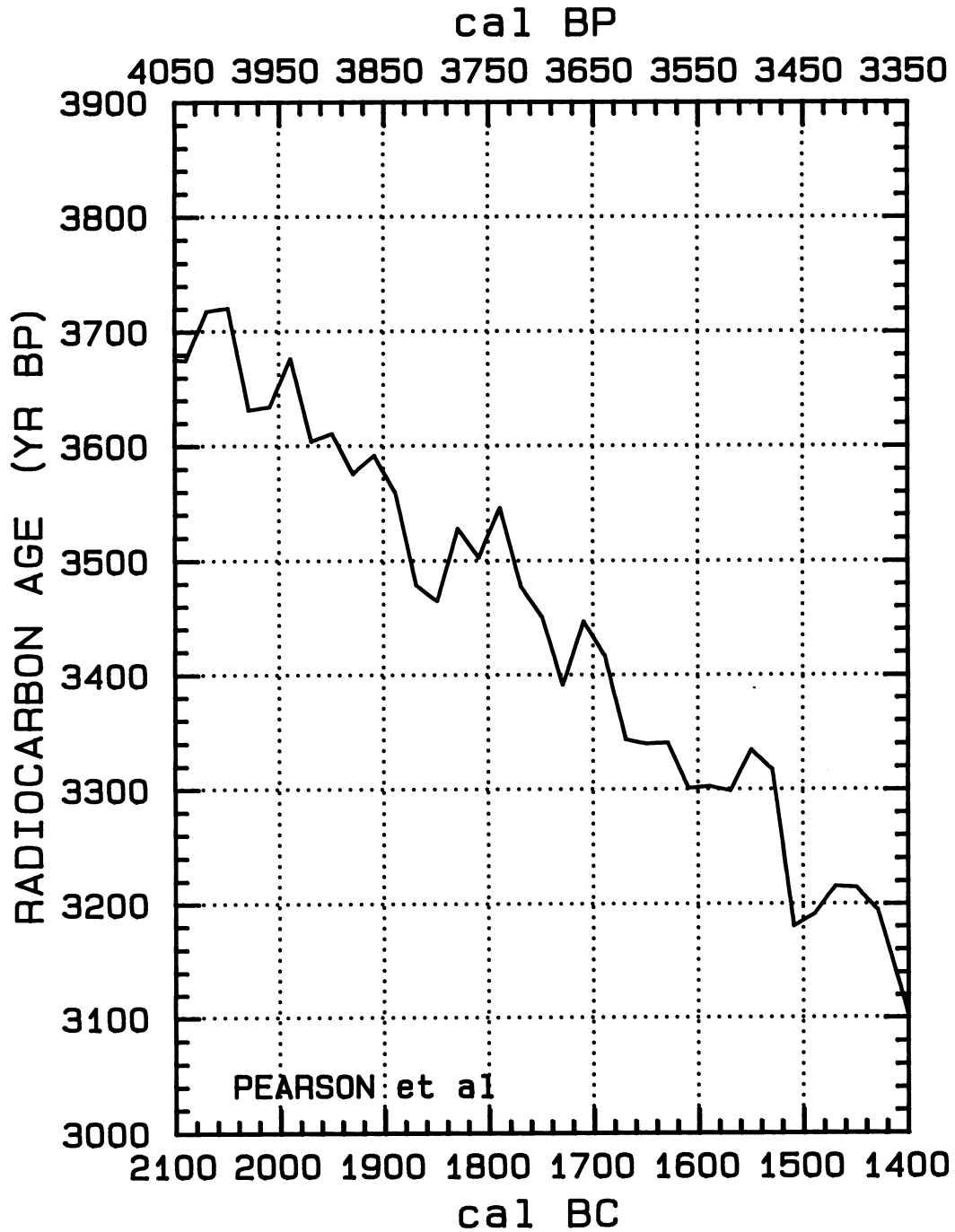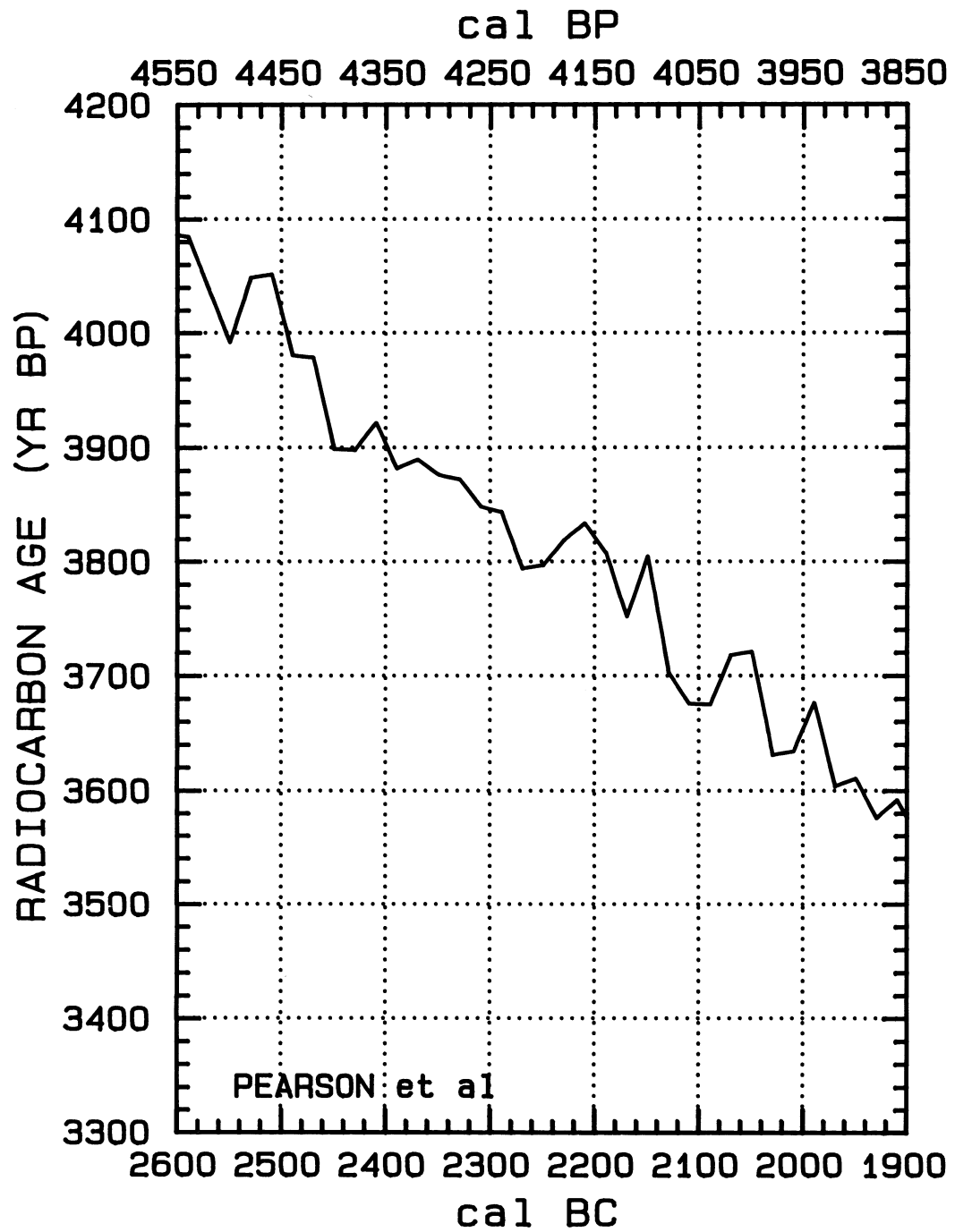Fig. 1A–N. Calibration curve derived from bidecadal samples
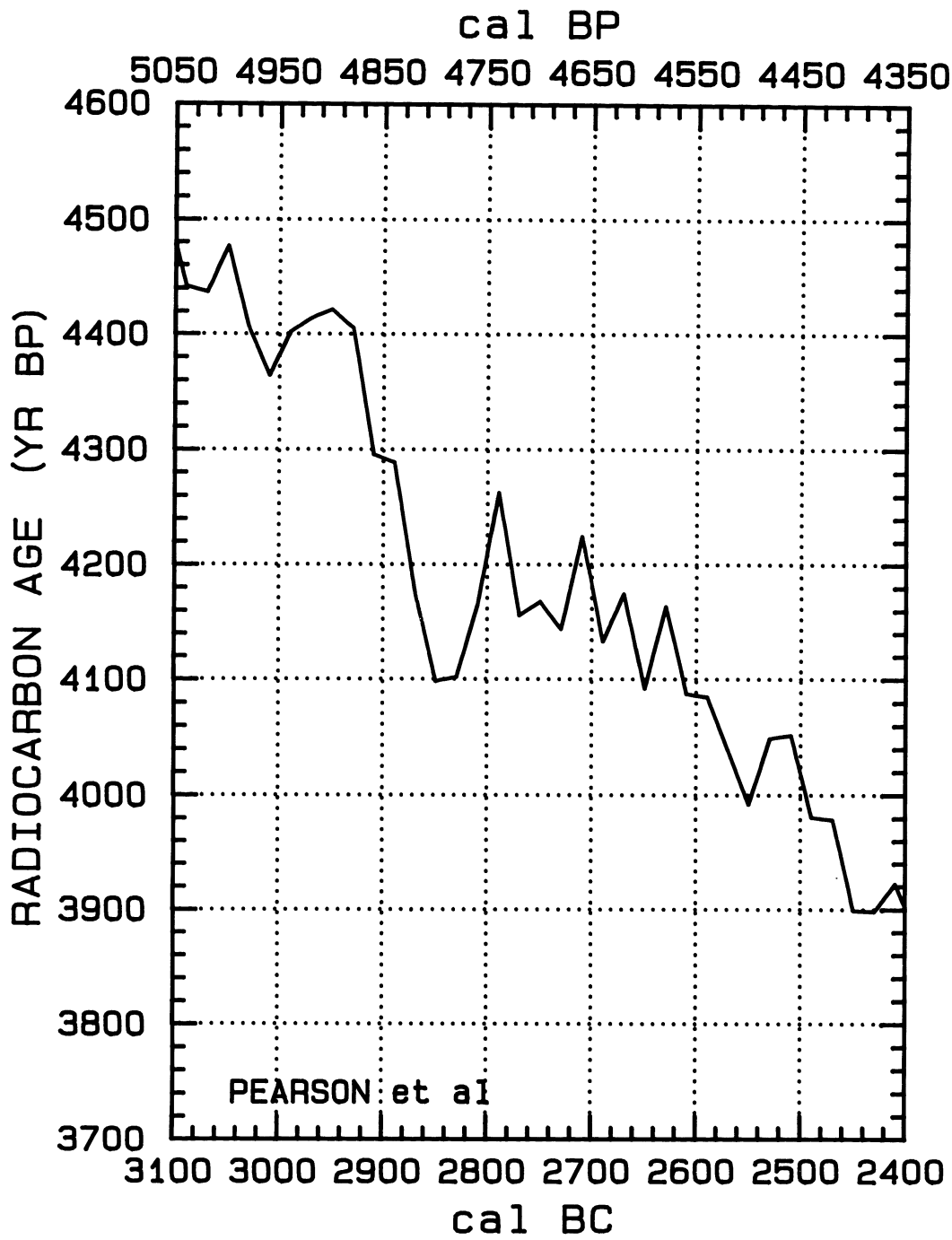
Fig. 1B

Fig. 1C

Fig. 1D

Fig. 1E

Fig. 1F

Fig. 1G

Fig. 1H

Fig. 1I

Fig. 1J
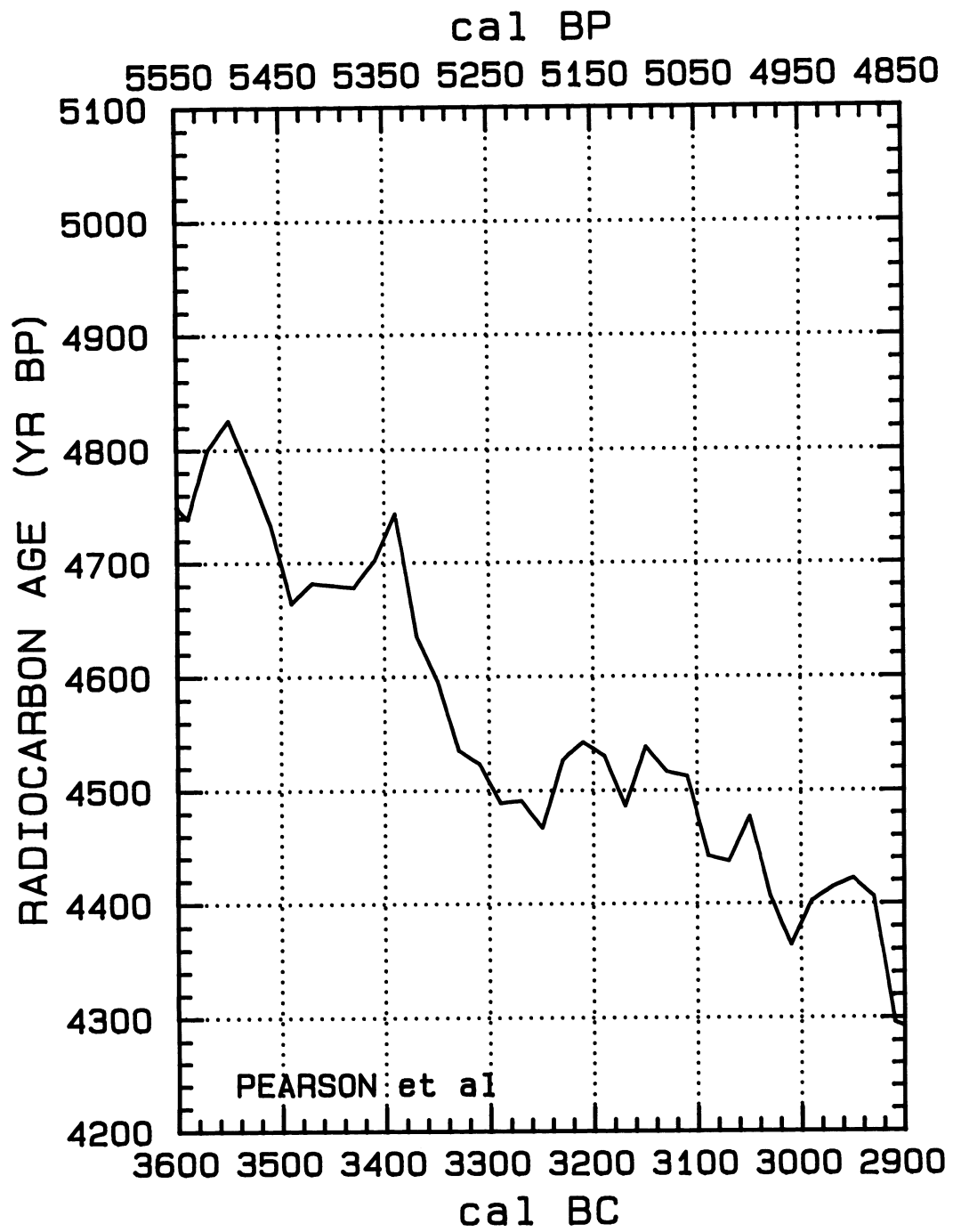
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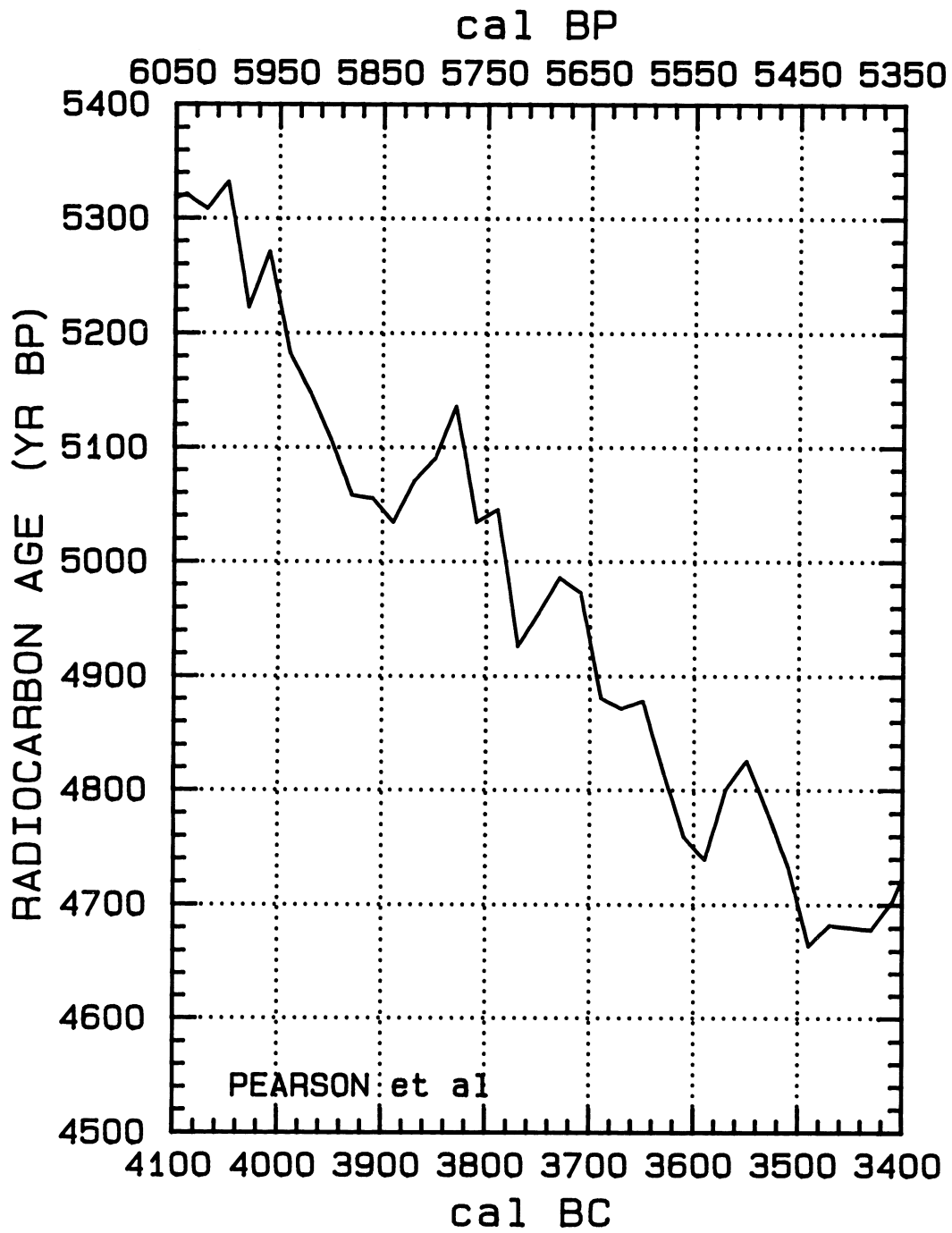
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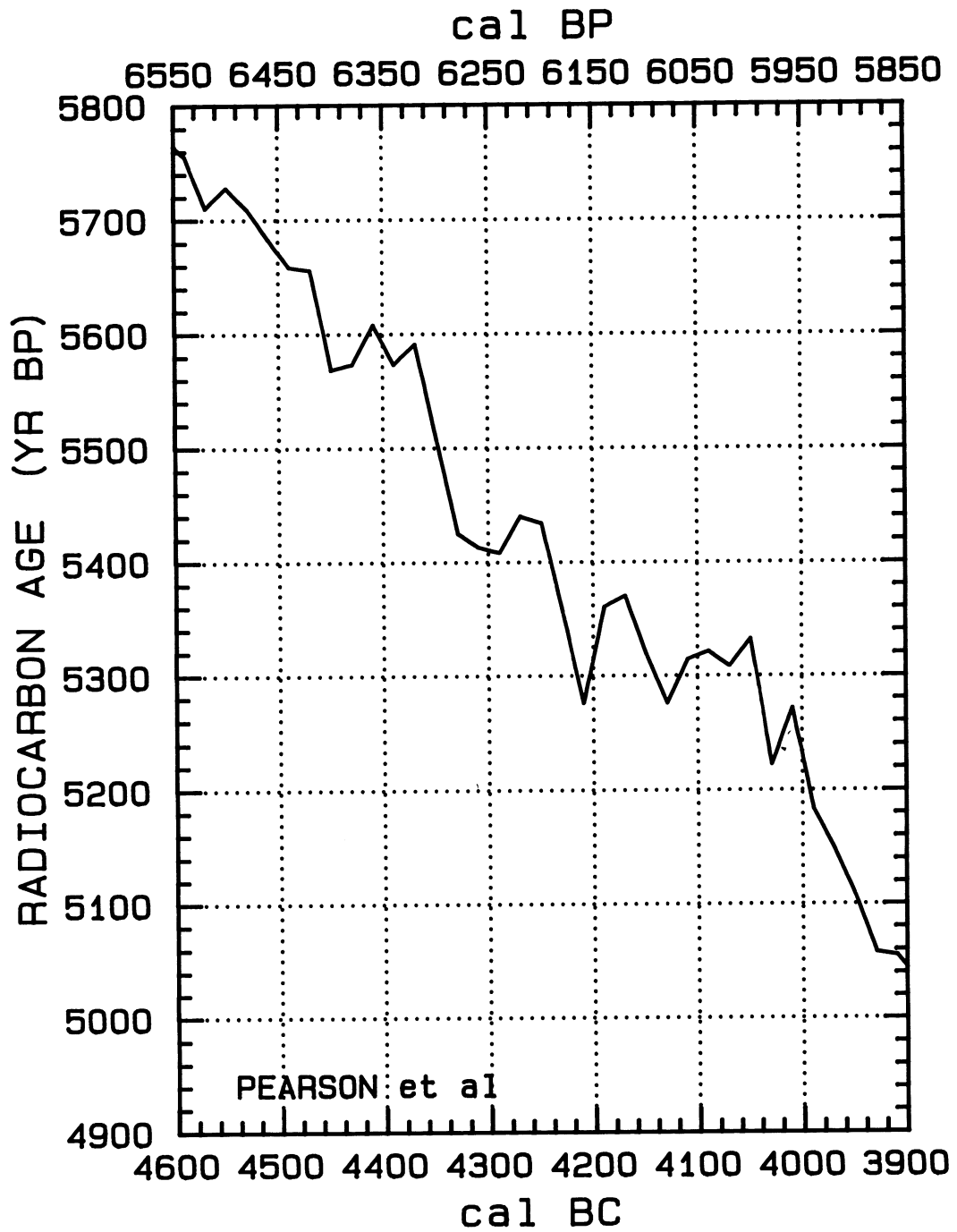
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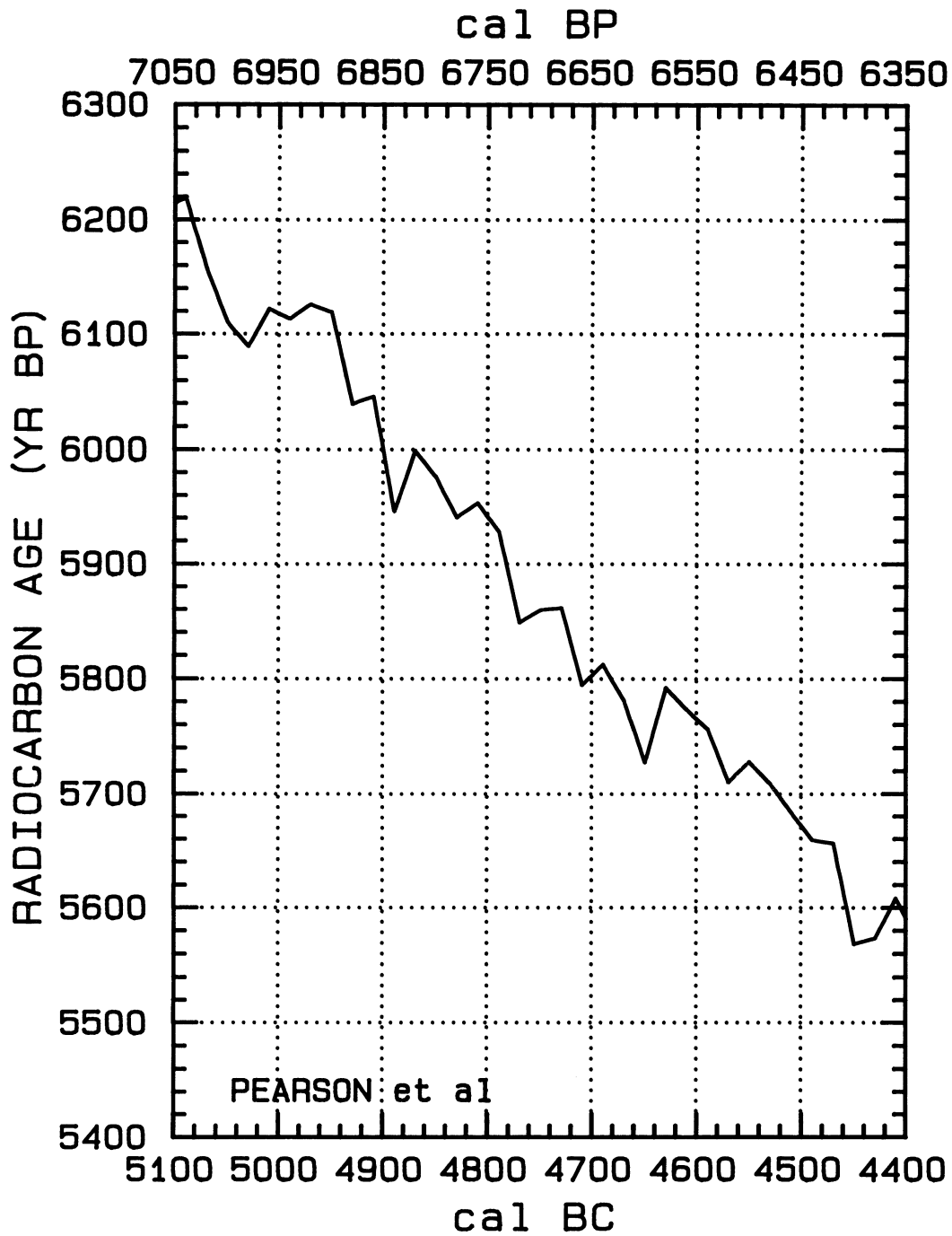
Fig. 1N

TABLE 1. ^{14}C Ages Over the Time Period, AD 1840–5000 BC

Cal AD/BC	Δ^{14}C ‰	^{14}C age (BP)	Cal BP	Cal AD/BC	Δ^{14}C ‰	^{14}C age (BP)	Cal BP
AD 1840	0.5 ± 1.3	111 ± 10	BP 110	AD 900	−12.2 ± 1.8	1119 ± 14	BP 1050
AD 1810	1.0 ± 2.2	140 ± 18	BP 140	AD 880	−21.2 ± 1.8	1212 ± 14	BP 1070
AD 1790	−7.3 ± 2.3	214 ± 18	BP 160	AD 860	−16.9 ± 2.1	1196 ± 17	BP 1090
AD 1770	−4.5 ± 2.3	211 ± 18	BP 180	AD 850	−19.3 ± 2.1	1225 ± 17	BP 1100
AD 1750	2.3 ± 2.0	176 ± 16	BP 200	AD 830	−14.5 ± 2.1	1206 ± 17	BP 1120
AD 1730	12.1 ± 2.1	117 ± 16	BP 220	AD 810	−16.1 ± 2.0	1238 ± 16	BP 1140
AD 1710	18.1 ± 1.6	89 ± 12	BP 240	AD 790	−15.7 ± 2.0	1254 ± 16	BP 1160
AD 1690	18.9 ± 2.2	102 ± 17	BP 260	AD 770	−14.1 ± 2.0	1261 ± 16	BP 1180
AD 1670	3.4 ± 2.0	245 ± 16	BP 280	AD 750	−15.6 ± 2.0	1292 ± 16	BP 1200
AD 1650	1.4 ± 1.5	280 ± 12	BP 300	AD 730	−9.3 ± 1.5	1260 ± 12	BP 1220
AD 1630	−7.0 ± 2.2	367 ± 17	BP 320	AD 710	−11.0 ± 1.5	1294 ± 12	BP 1240
AD 1610	−5.4 ± 2.0	374 ± 16	BP 340	AD 690	−8.3 ± 2.3	1291 ± 18	BP 1260
AD 1590	−0.9 ± 1.8	357 ± 14	BP 360	AD 670	−12.0 ± 2.3	1341 ± 18	BP 1280
AD 1570	−1.2 ± 2.0	379 ± 16	BP 380	AD 650	−19.8 ± 1.5	1424 ± 12	BP 1300
AD 1550	8.2 ± 1.4	323 ± 11	BP 400	AD 630	−16.3 ± 2.3	1414 ± 18	BP 1320
AD 1530	12.8 ± 1.3	306 ± 10	BP 420	AD 610	−21.3 ± 2.2	1475 ± 18	BP 1340
AD 1510	7.6 ± 1.2	367 ± 09	BP 440	AD 590	−26.3 ± 2.2	1536 ± 18	BP 1360
AD 1490	13.0 ± 2.2	343 ± 17	BP 460	AD 570	−19.5 ± 2.2	1499 ± 18	BP 1380
AD 1470	7.9 ± 2.3	403 ± 18	BP 480	AD 550	−22.7 ± 2.3	1545 ± 19	BP 1400
AD 1460	8.1 ± 1.3	411 ± 10	BP 490	AD 530	−20.5 ± 2.4	1546 ± 18	BP 1420
AD 1450	2.1 ± 2.2	469 ± 17	BP 500	AD 510	−20.3 ± 2.1	1564 ± 17	BP 1440
AD 1430	−0.7 ± 2.4	511 ± 19	BP 520	AD 490	−22.6 ± 2.1	1602 ± 17	BP 1460
AD 1410	0.0 ± 1.8	525 ± 14	BP 540	AD 470	−15.9 ± 2.1	1567 ± 17	BP 1480
AD 1390	−9.0 ± 1.7	617 ± 13	BP 560	AD 450	−15.7 ± 2.1	1585 ± 17	BP 1500
AD 1370	−15.2 ± 1.8	687 ± 14	BP 580	AD 430	−21.4 ± 2.1	1631 ± 17	BP 1520
AD 1350	−8.3 ± 2.0	650 ± 16	BP 600	AD 410	−20.0 ± 2.1	1659 ± 17	BP 1540
AD 1330	1.7 ± 1.8	589 ± 14	BP 620	AD 390	−22.1 ± 2.1	1695 ± 17	BP 1560
AD 1310	2.4 ± 1.8	603 ± 14	BP 640	AD 370	−22.6 ± 2.1	1719 ± 17	BP 1580
AD 1290	−9.7 ± 1.7	720 ± 13	BP 660	AD 350	−16.9 ± 2.3	1692 ± 18	BP 1600
AD 1260	−15.0 ± 1.3	792 ± 10	BP 690	AD 330	−20.2 ± 2.2	1738 ± 18	BP 1620
AD 1230	−15.4 ± 1.3	824 ± 10	BP 720	AD 310	−20.6 ± 2.1	1761 ± 17	BP 1640
AD 1215	−19.7 ± 2.3	874 ± 18	BP 735	AD 290	−15.9 ± 2.1	1742 ± 17	BP 1660
AD 1195	−13.3 ± 2.3	841 ± 18	BP 755	AD 270	−12.6 ± 2.3	1734 ± 18	BP 1680
AD 1170	−15.8 ± 1.2	886 ± 09	BP 780	AD 250	−9.4 ± 2.3	1728 ± 18	BP 1700
AD 1150	−20 8 ± 1.1	946 ± 09	BP 800	AD 230	−17.4 ± 2.3	1812 ± 18	BP 1720
AD 1130	−14.0 ± 1.5	910 ± 12	BP 820	AD 210	−16.2 ± 2.3	1822 ± 18	BP 1740
AD 1110	−14.8 ± 1.5	936 ± 12	BP 840	AD 190	−21.3 ± 2.2	1883 ± 18	BP 1760
AD 1090	−11.6 ± 1.4	929 ± 11	BP 860	AD 170	−14.9 ± 2.3	1850 ± 18	BP 1780
AD 1070	−6.1 ± 1.3	904 ± 10	BP 880	AD 150	−9.4 ± 2.3	1825 ± 18	BP 1800
AD 1050	−5.6 ± 1.5	920 ± 12	BP 900	AD 130	−10.6 ± 2.3	1854 ± 18	BP 1820
AD 1030	−10.8 ± 1.5	981 ± 12	BP 920	AD 110	−16.7 ± 2.3	1923 ± 18	BP 1840
AD 1010	−17.0 ± 1.4	1051 ± 11	BP 940	AD 90	−15.6 ± 2.3	1934 ± 18	BP 1860
AD 990	−16.6 ± 1.3	1067 ± 10	BP 960	AD 70	−20.0 ± 2.0	1990 ± 16	BP 1880
AD 970	−17.0 ± 1.3	1090 ± 10	BP 980	AD 50	−15.9 ± 2.3	1975 ± 18	BP 1900
AD 955	−20.7 ± 1.8	1135 ± 14	BP 995	AD 30	−13.0 ± 2.0	1971 ± 16	BP 1920
AD 940	−17.7 ± 2.0	1124 ± 16	BP 1010	AD 10	−16.4 ± 2.1	2018 ± 17	BP 1940
AD 920	−16.2 ± 1.8	1132 ± 14	BP 1030	10 BC	−14.0 ± 2.3	2018 ± 18	BP 1960

TABLE 1. (Continued)

Cal AD/BC	$\Delta^{14}C$ ‰	^{14}C age (BP)	Cal BP	Cal AD/BC	$\Delta^{14}C$ ‰	^{14}C age (BP)	Cal BP
30 BC	−15.0 ± 2.3	2045 ± 18	BP 1980	970 BC	−3.6 ± 1.4	2806 ± 11	BP 2920
50 BC	−15.0 ± 2.1	2065 ± 17	BP 2000	990 BC	3.6 ± 1.5	2828 ± 12	BP 2940
70 BC	−14.1 ± 2.0	2077 ± 16	BP 2020	1010 BC	0.5 ± 1.1	2872 ± 8	BP 2960
90 BC	−13.3 ± 2.0	2090 ± 16	BP 2040	1030 BC	2.4 ± 1.5	2876 ± 12	BP 2980
110 BC	−14.1 ± 1.8	2116 ± 14	BP 2060	1050 BC	1.3 ± 1.3	2905 ± 10	BP 3000
130 BC	−13.1 ± 2.0	2127 ± 16	BP 2080	1070 BC	2.3 ± 1.3	2916 ± 10	BP 3020
150 BC	−11.4 ± 2.0	2133 ± 16	BP 2100	1090 BC	6.4 ± 1.6	2903 ± 12	BP 3040
170 BC	−9.4 ± 1.5	2136 ± 12	BP 2120	1110 BC	12.2 ± 1.6	2876 ± 12	BP 3060
190 BC	−10.6 ± 1.5	2165 ± 12	BP 2140	1120 BC	8.8 ± 1.9	2913 ± 15	BP 3070
210 BC	−15.0 ± 1.6	2220 ± 13	BP 2160	1140 BC	7.1 ± 1.9	2946 ± 15	BP 3090
230 BC	−9.7 ± 2.1	2197 ± 17	BP 2180	1150 BC	7.5 ± 2.0	2952 ± 16	BP 3100
250 BC	−8.8 ± 2.0	2209 ± 16	BP 2200	1170 BC	5.6 ± 1.8	2987 ± 14	BP 3120
270 BC	−3.3 ± 2.0	2265 ± 16	BP 2220	1190 BC	12.2 ± 2.0	2954 ± 16	BP 3140
290 BC	−3.5 ± 2.3	2205 ± 18	BP 2240	1210 BC	12.7 ± 2.0	2969 ± 16	BP 3160
310 BC	−3.4 ± 1.7	2223 ± 13	BP 2260	1230 BC	8.8 ± 1.8	3020 ± 14	BP 3180
330 BC	−0.1 ± 2.3	2216 ± 18	BP 2280	1250 BC	20.6 ± 1.8	2946 ± 14	BP 3200
350 BC	4.0 ± 2.0	2203 ± 16	BP 2300	1270 BC	11.3 ± 2.2	3039 ± 17	BP 3220
370 BC	1.8 ± 1.4	2240 ± 13	BP 2320	1290 BC	13.8 ± 2.2	3038 ± 17	BP 3240
390 BC	−2.6 ± 1.9	2295 ± 15	BP 2340	1310 BC	14.1 ± 2.2	3055 ± 17	BP 3260
410 BC	−20.2 ± 2.2	2457 ± 18	BP 2360	1330 BC	9.5 ± 2.0	3111 ± 16	BP 3280
430 BC	−15.4 ± 1.4	2437 ± 11	BP 2380	1350 BC	19.2 ± 2.0	3054 ± 16	BP 3300
450 BC	−9.2 ± 1.5	2406 ± 12	BP 2400	1370 BC	22.9 ± 2.3	3044 ± 18	BP 3320
470 BC	−8.9 ± 1.4	2423 ± 11	BP 2420	1390 BC	22.2 ± 1.9	3069 ± 15	BP 3340
490 BC	−7.6 ± 1.7	2432 ± 13	BP 2440	1410 BC	16.6 ± 1.8	3133 ± 14	BP 3360
510 BC	−5.3 ± 1.3	2433 ± 10	BP 2460	1430 BC	11.2 ± 2.0	3195 ± 16	BP 3380
530 BC	−5.9 ± 1.3	2457 ± 10	BP 2480	1450 BC	11.1 ± 1.3	3215 ± 10	BP 3400
550 BC	−8.4 ± 1.2	2497 ± 9	BP 2500	1470 BC	13.4 ± 1.9	3216 ± 15	BP 3420
570 BC	−7.1 ± 1.3	2506 ± 10	BP 2520	1490 BC	19.1 ± 2.0	3191 ± 16	BP 3440
590 BC	−3.2 ± 1.4	2494 ± 11	BP 2540	1510 BC	22.9 ± 2.0	3180 ± 16	BP 3460
610 BC	−4.2 ± 1.3	2521 ± 10	BP 2560	1530 BC	7.9 ± 1.9	3318 ± 15	BP 3480
630 BC	0.6 ± 1.3	2502 ± 10	BP 2580	1550 BC	8.2 ± 2.3	3335 ± 18	BP 3500
650 BC	5.0 ± 1.8	2486 ± 14	BP 2600	1570 BC	15.2 ± 2.0	3299 ± 16	BP 3520
670 BC	2.7 ± 1.5	2524 ± 12	BP 2620	1590 BC	17.2 ± 1.8	3303 ± 14	BP 3540
690 BC	11.2 ± 1.6	2476 ± 12	BP 2640	1610 BC	19.9 ± 1.9	3301 ± 15	BP 3560
710 BC	15.8 ± 1.6	2459 ± 15	BP 2660	1630 BC	17.3 ± 1.9	3341 ± 15	BP 3580
730 BC	17.3 ± 1.7	2466 ± 13	BP 2680	1650 BC	19.9 ± 1.7	3340 ± 13	BP 3600
750 BC	19.2 ± 1.7	2458 ± 13	BP 2700	1670 BC	21.9 ± 1.9	3344 ± 15	BP 3620
770 BC	15.2 ± 2.1	2522 ± 16	BP 2720	1690 BC	15.0 ± 2.0	3417 ± 16	BP 3640
790 BC	15.2 ± 1.6	2541 ± 12	BP 2740	1710 BC	13.7 ± 2.4	3447 ± 19	BP 3660
810 BC	3.5 ± 2.3	2654 ± 18	BP 2760	1730 BC	23.3 ± 1.7	3391 ± 13	BP 3680
830 BC	3.3 ± 2.3	2675 ± 18	BP 2780	1750 BC	18.1 ± 1.9	3451 ± 15	BP 3700
850 BC	0.6 ± 2.0	2716 ± 16	BP 2800	1770 BC	17.2 ± 1.8	3478 ± 14	BP 3720
870 BC	−0.5 ± 1.8	2744 ± 14	BP 2820	1790 BC	11.0 ± 2.2	3546 ± 17	BP 3740
890 BC	3.9 ± 1.3	2728 ± 14	BP 2840	1810 BC	18.9 ± 2.4	3503 ± 19	BP 3760
910 BC	1.8 ± 1.7	2765 ± 13	BP 2860	1830 BC	18.2 ± 2.4	3528 ± 19	BP 3780
930 BC	−3.2 ± 2.4	2824 ± 19	BP 2880	1850 BC	28.7 ± 1.8	3465 ± 14	BP 3800
950 BC	−1.4 ± 2.4	2829 ± 19	BP 2900	1870 BC	29.4 ± 1.8	3479 ± 14	BP 3820

TABLE 1. (Continued)

Cal AD/BC	Δ^{14}C ‰	^{14}C age (BP)	Cal BP	Cal AD/BC	Δ^{14}C ‰	^{14}C age (BP)	Cal BP
1890 BC	21.6 ± 1.7	3560 ± 13	BP 3840	2830 BC	69.9 ± 1.1	4102 ± 8	BP 4780
1910 BC	20.0 ± 2.3	3592 ± 18	BP 3860	2850 BC	73.0 ± 1.5	4098 ± 11	BP 4800
1930 BC	24.5 ± 1.8	3576 ± 14	BP 3880	2870 BC	62.5 ± 1.8	4176 ± 13	BP 4820
1950 BC	22.5 ± 1.7	3611 ± 13	BP 3900	2890 BC	52.9 ± 1.8	4289 ± 13	BP 4840
1970 BC	25.9 ± 2.3	3604 ± 17	BP 3920	2910 BC	54.5 ± 1.6	4296 ± 12	BP 4860
1990 BC	19.0 ± 1.4	3677 ± 11	BP 3940	2930 BC	42.7 ± 1.7	4406 ± 13	BP 4880
2010 BC	27.0 ± 2.0	3634 ± 15	BP 3960	2950 BC	43.1 ± 1.7	4422 ± 13	BP 4900
2030 BC	30.0 ± 2.1	3631 ± 16	BP 3980	2970 BC	46.7 ± 2.4	4414 ± 18	BP 4920
2050 BC	20.9 ± 2.1	3721 ± 16	BP 4000	2990 BC	50.8 ± 2.2	4402 ± 14	BP 4940
2070 BC	23.7 ± 2.3	3718 ± 18	BP 4020	3010 BC	58.4 ± 1.9	4364 ± 14	BP 4960
2090 BC	31.7 ± 2.1	3675 ± 15	BP 4040	3030 BC	55.4 ± 1.8	4406 ± 13	BP 4980
2110 BC	34.1 ± 2.4	3676 ± 18	BP 4060	3050 BC	48.6 ± 1.7	4477 ± 13	BP 5000
2130 BC	33.1 ± 2.3	3703 ± 18	BP 4080	3070 BC	56.4 ± 1.9	4437 ± 14	BP 5020
2150 BC	22.5 ± 1.7	3805 ± 13	BP 4100	3090 BC	58.3 ± 2.2	4442 ± 16	BP 5040
2170 BC	31.8 ± 2.4	3752 ± 18	BP 4120	3110 BC	51.5 ± 2.7	4513 ± 20	BP 5060
2190 BC	27.1 ± 1.8	3808 ± 14	BP 4140	3130 BC	53.6 ± 2.0	4517 ± 15	BP 5080
2210 BC	26.3 ± 1.8	3834 ± 14	BP 4160	3150 BC	53.2 ± 1.9	4539 ± 14	BP 5100
2230 BC	30.7 ± 2.1	3819 ± 16	BP 4180	3170 BC	62.8 ± 2.4	4486 ± 18	BP 5120
2250 BC	36.0 ± 1.7	3797 ± 13	BP 4200	3190 BC	59.4 ± 2.0	4531 ± 15	BP 5140
2270 BC	38.9 ± 2.1	3794 ± 16	BP 4220	3210 BC	60.4 ± 2.2	4543 ± 16	BP 5160
2290 BC	35.0 ± 2.1	3844 ± 16	BP 4240	3230 BC	64.9 ± 1.6	4527 ± 12	BP 5180
2310 BC	36.8 ± 2.1	3849 ± 16	BP 4260	3250 BC	75.7 ± 1.8	4467 ± 13	BP 5200
2330 BC	36.2 ± 1.7	3873 ± 13	BP 4280	3270 BC	75.0 ± 2.3	4491 ± 17	BP 5220
2350 BC	38.2 ± 2.1	3877 ± 16	BP 4300	3290 BC	77.9 ± 1.9	4489 ± 14	BP 5240
2370 BC	39.1 ± 1.7	3890 ± 13	BP 4320	3310 BC	75.8 ± 1.9	4524 ± 14	BP 5260
2390 BC	40.7 ± 2.1	3882 ± 16	BP 4340	3330 BC	76.8 ± 1.9	4536 ± 14	BP 5280
2410 BC	39.9 ± 1.6	3922 ± 12	BP 4360	3350 BC	71.4 ± 1.9	4596 ± 14	BP 5300
2430 BC	45.6 ± 1.0	3898 ± 7	BP 4380	3370 BC	68.7 ± 2.4	4636 ± 18	BP 5320
2450 BC	48.0 ± 1.4	3899 ± 10	BP 4400	3390 BC	57.1 ± 2.2	4743 ± 16	BP 5340
2470 BC	40.1 ± 1.7	3979 ± 13	BP 4420	3410 BC	65.1 ± 2.4	4702 ± 18	BP 5360
2490 BC	42.4 ± 1.7	3981 ± 13	BP 4440	3430 BC	70.8 ± 2.4	4678 ± 18	BP 5380
2510 BC	35.7 ± 1.3	4052 ± 10	BP 4460	3450 BC	73.2 ± 2.3	4680 ± 17	BP 5400
2530 BC	38.6 ± 2.0	4049 ± 15	BP 4480	3470 BC	75.5 ± 2.5	4682 ± 18	BP 5420
2550 BC	48.5 ± 1.9	3992 ± 14	BP 4500	3490 BC	80.5 ± 2.6	4664 ± 19	BP 5440
2570 BC	44.9 ± 1.5	4039 ± 11	BP 4520	3510 BC	73.9 ± 2.6	4733 ± 19	BP 5460
2590 BC	41.5 ± 1.5	4085 ± 11	BP 4540	3530 BC	70.1 ± 2.6	4781 ± 19	BP 5480
2610 BC	43.6 ± 2.4	4088 ± 18	BP 4560	3550 BC	66.7 ± 2.6	4826 ± 19	BP 5500
2630 BC	36.3 ± 1.3	4164 ± 10	BP 4580	3570 BC	72.7 ± 2.7	4800 ± 20	BP 5520
2650 BC	48.2 ± 1.9	4092 ± 14	BP 4600	3590 BC	83.5 ± 2.7	4739 ± 20	BP 5540
2670 BC	39.9 ± 1.6	4175 ± 12	BP 4620	3610 BC	83.4 ± 2.7	4759 ± 20	BP 5560
2690 BC	47.9 ± 1.6	4133 ± 12	BP 4640	3630 BC	78.5 ± 2.7	4815 ± 20	BP 5580
2710 BC	38.5 ± 1.6	4225 ± 12	BP 4660	3650 BC	72.7 ± 2.7	4878 ± 20	BP 5600
2730 BC	51.5 ± 1.2	4144 ± 9	BP 4680	3670 BC	76.2 ± 2.7	4871 ± 18	BP 5620
2750 BC	50.9 ± 1.6	4168 ± 12	BP 4700	3690 BC	77.5 ± 2.4	4881 ± 18	BP 5640
2770 BC	55.0 ± 2.1	4156 ± 16	BP 4720	3710 BC	67.8 ± 2.4	4973 ± 18	BP 5660
2790 BC	43.6 ± 1.7	4263 ± 13	BP 4740	3730 BC	68.6 ± 2.4	4986 ± 18	BP 5680
2810 BC	59.0 ± 1.8	4165 ± 13	BP 4760	3750 BC	75.4 ± 2.5	-4955 ± 18	BP 5700

TABLE 1. (Continued)

Cal AD/BC	Δ¹⁴C ‰	¹⁴C age (BP)	Cal BP	Cal AD/BC	Δ¹⁴C ‰	¹⁴C age (BP)	Cal BP
3770 BC	81.9 ± 2.3	4926 ± 17	BP 5720	4390 BC	75.9 ± 2.2	5573 ± 16	BP 6340
3790 BC	68.5 ± 2.4	5045 ± 18	BP 5740	4410 BC	73.8 ± 2.2	5608 ± 16	BP 6360
3810 BC	72.6 ± 2.3	5034 ± 17	BP 5760	4430 BC	81.1 ± 2.2	5573 ± 16	BP 6380
3830 BC	61.6 ± 2.0	5136 ± 15	BP 5780	4450 BC	84.4 ± 2.2	5568 ± 16	BP 6400
3850 BC	70.3 ± 1.5	5090 ± 11	BP 5800	4470 BC	75.2 ± 2.2	5656 ± 16	BP 6420
3870 BC	75.6 ± 1.8	5070 ± 13	BP 5820	4490 BC	77.4 ± 2.2	5659 ± 16	BP 6440
3890 BC	84.3 ± 1.8	5034 ± 13	BP 5840	4510 BC	76.8 ± 2.3	5683 ± 17	BP 6460
3910 BC	82.8 ± 1.7	5055 ± 12	BP 5860	4530 BC	75.9 ± 2.3	5709 ± 17	BP 6480
3930 BC	85.0 ± 1.7	5058 ± 12	BP 5880	4550 BC	75.9 ± 2.3	5728 ± 17	BP 6500
3950 BC	81.0 ± 1.7	5107 ± 12	BP 5900	4570 BC	81.0 ± 2.5	5710 ± 18	BP 6520
3970 BC	78.1 ± 1.7	5148 ± 12	BP 5920	4590 BC	77.4 ± 2.3	5756 ± 17	BP 6540
3990 BC	76.1 ± 2.1	5183 ± 15	BP 5940	4610 BC	77.7 ± 2.2	5773 ± 16	BP 6560
4010 BC	66.9 ± 1.9	5271 ± 14	BP 5960	4630 BC	77.8 ± 2.2	5792 ± 16	BP 6580
4030 BC	76.0 ± 1.8	5222 ± 13	BP 5980	4650 BC	89.2 ± 2.6	5727 ± 19	BP 6600
4050 BC	64.0 ± 1.8	5332 ± 13	BP 6000	4670 BC	84. ± 2.3	5781 ± 17	BP 6620
4070 BC	69.8 ± 1.9	5308 ± 14	BP 6020	4690 BC	82.9 ± 2.2	5812 ± 16	BP 6640
4090 BC	70.6 ± 1.9	5321 ± 14	BP 6040	4710 BC	88.0 ± 2.2	5794 ± 16	BP 6660
4110 BC	74.1 ± 2.5	5314 ± 18	BP 6060	4730 BC	81.6 ± 2.5	5861 ± 18	BP 6680
4130 BC	82.0 ± 2.5	5275 ± 18	BP 6080	4750 BC	84.5 ± 2.5	5859 ± 18	BP 6700
4150 BC	78.7 ± 2.9	5319 ± 21	BP 6100	4770 BC	88.6 ± 2.5	5848 ± 18	BP 6720
4170 BC	73.9 ± 2.2	5370 ± 16	BP 6120	4790 BC	80.4 ± 2.6	5928 ± 19	BP 6740
4190 BC	78.4 ± 2.6	5360 ± 19	BP 6140	4810 BC	79.7 ± 2.5	5953 ± 18	BP 6760
4210 BC	92.5 ± 2.4	5275 ± 17	BP 6160	4830 BC	84.0 ± 1.9	5940 ± 14	BP 6780
4230 BC	84.2 ± 2.2	5356 ± 16	BP 6180	4850 BC	81.8 ± 2.5	5976 ± 18	BP 6800
4250 BC	76.3 ± 2.2	5434 ± 16	BP 6200	4870 BC	81.3 ± 2.6	5999 ± 19	BP 6820
4270 BC	78.1 ± 2.3	5440 ± 17	BP 6220	4890 BC	91.2 ± 2.5	5945 ± 18	BP 6840
4290 BC	85.0 ± 2.3	5408 ± 17	BP 6240	4910 BC	80.2 ± 2.1	6046 ± 15	BP 6860
4310 BC	87.0 ± 2.1	5413 ± 15	BP 6260	4930 BC	83.8 ± 1.4	6039 ± 10	BP 6880
4330 BC	88.0 ± 2.2	5425 ± 16	BP 6280	4950 BC	75.6 ± 1.6	6119 ± 12	BP 6900
4350 BC	75.9 ± 2.1	5507 ± 15	BP 6300	4970 BC	77.3 ± 1.6	6126 ± 12	BP 6920
4370 BC	70.9 ± 1.9	5591 ± 14	BP 6320	4990 BC	81.7 ± 1.6	6113 ± 12	BP 6940