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Darden Hood
President

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July 6, 2009

Dr. Solange Bezerra Caldarelli
Scientia Consultoria Cientifica
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Brazil

RE: Radiocarbon Dating Results For Samples BJ8-01, BJ8-02, BREJ-NP-5022, BREJ-NP-5029, BREJ-NP-5032, BREJ-NP-5034, BREJ-NP-5037, BREJ-NP-5038, CAMP-NP-2905, CATI-NP-3004, IGEN-NP-0702, ISAT-NP-3079, ISAT-NP-3913, GARB-NP-3411, GARB-NP-0916, GARB-NP-2327, GARB-NP-4030, MARABA1-01, MN3-01, NEVH-NP-0121, SP8-01, VENZ-NP-0208

Dear Solange:

Enclosed are the radiocarbon dating results for 22 samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses proceeded normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

Thank you for prepaying the analyses. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file



REPORT OF RADIOCARBON DATING ANALYSES

Dr. Solange Bezerra Caldarelli

Report Date: 7/6/2009

Scientia Consultoria Cientifica

Material Received: 6/2/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 260319 SAMPLE : BJ8-01 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1020 to 1200 (Cal BP 930 to 750)	940 +/- 40 BP	-25.2 o/oo	940 +/- 40 BP
Beta - 260320 SAMPLE : BJ8-02 ANALYSIS : Radiometric-Standard delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 930 to 760 (Cal BP 2880 to 2710)	2650 +/- 70 BP	-24.0 o/oo	2660 +/- 70 BP
Beta - 260321 SAMPLE : BREJ-NP-5022 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1210 to 1290 (Cal BP 740 to 660)	770 +/- 40 BP	-25.6 o/oo	760 +/- 40 BP
Beta - 260322 SAMPLE : BREJ-NP-5029 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1030 to 1230 (Cal BP 920 to 720)	910 +/- 40 BP	-26.5 o/oo	890 +/- 40 BP
Beta - 260323 SAMPLE : BREJ-NP-5032 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 900 to 920 (Cal BP 1050 to 1030) AND Cal AD 950 to 1040 (Cal BP 1000 to 920)	1060 +/- 40 BP	-26.4 o/oo	1040 +/- 40 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.



REPORT OF RADIOCARBON DATING ANALYSES

Dr. Solange Bezerra Caldarelli

Report Date: 7/6/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 260324 SAMPLE : BREJ-NP-5034 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 770 to 980 (Cal BP 1180 to 970)	1150 +/- 40 BP	-24.6 o/oo	1160 +/- 40 BP
Beta - 260325 SAMPLE : BREJ-NP-5037 ANALYSIS : Radiometric-Standard delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 890 to 1060 (Cal BP 1060 to 900) AND Cal AD 1080 to 1150 (Cal BP 870 to 800)	1050 +/- 60 BP	-25.3 o/oo	1040 +/- 60 BP
Beta - 260326 SAMPLE : BREJ-NP-5038 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 810 to 1010 (Cal BP 1140 to 940)	1120 +/- 40 BP	-25.2 o/oo	1120 +/- 40 BP
Beta - 260327 SAMPLE : CAMP-NP-2905 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1440 to 1640 (Cal BP 510 to 310)	380 +/- 40 BP	-25.8 o/oo	370 +/- 40 BP
Beta - 260328 SAMPLE : CATI-NP-3004 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1660 to 1960 (Cal BP 290 to 0)	220 +/- 40 BP	-28.5 o/oo	160 +/- 40 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.



REPORT OF RADIOCARBON DATING ANALYSES

Dr. Solange Bezerra Caldarelli

Report Date: 7/6/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 260330 SAMPLE : IGEN-NP-0702 ANALYSIS : Radiometric-Standard delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 980 to 1230 (Cal BP 970 to 720)	950 +/- 70 BP	-24.7 o/oo	950 +/- 70 BP
Beta - 260331 SAMPLE : ISAT-NP-3079 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 6670 to 6470 (Cal BP 8620 to 8420)	7790 +/- 50 BP	-26.9 o/oo	7760 +/- 50 BP
Beta - 260332 SAMPLE : ISAT-NP-3913 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 980 to 1160 (Cal BP 960 to 800)	990 +/- 40 BP	-24.9 o/oo	990 +/- 40 BP
Beta - 260333 SAMPLE : GARB-NP-3411 ANALYSIS : Radiometric-Standard delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 3950 to 3510 (Cal BP 5900 to 5460)	4930 +/- 100 BP	-26.2 o/oo	4910 +/- 100 BP
Beta - 260334 SAMPLE : GARB-NP-0916 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 6650 to 6470 (Cal BP 8600 to 8420)	7780 +/- 50 BP	-27.2 o/oo	7740 +/- 50 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.



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Report Date: 7/6/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 260335 SAMPLE : GARB-NP-2327 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 240 to 420 (Cal BP 1710 to 1530)	1720 +/- 40 BP	-25.5 o/oo	1710 +/- 40 BP
Beta - 260336 SAMPLE : GARB-NP-4030 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1400 to 1460 (Cal BP 550 to 490)	500 +/- 40 BP	-26.2 o/oo	480 +/- 40 BP
Beta - 260337 SAMPLE : MARABA1-01 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1450 to 1650 (Cal BP 500 to 300)	340 +/- 40 BP	-24.4 o/oo	350 +/- 40 BP
Beta - 260338 SAMPLE : MN3-01 ANALYSIS : Radiometric-Standard delivery (with extended counting) MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal BC 400 to 40 (Cal BP 2350 to 1990)	2200 +/- 80 BP	-25.3 o/oo	2190 +/- 80 BP
Beta - 260339 SAMPLE : NEVH-NP-0121 ANALYSIS : Radiometric-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1330 to 1340 (Cal BP 620 to 610) AND Cal AD 1400 to 1460 (Cal BP 560 to 490)	480 +/- 50 BP	-24.4 o/oo	490 +/- 50 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.



REPORT OF RADIOCARBON DATING ANALYSES

Dr. Solange Bezerra Caldarelli

Report Date: 7/6/2009

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 260340 SAMPLE : SP8-01 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1220 to 1300 (Cal BP 730 to 660)	720 +/- 40 BP	-23.6 o/oo	740 +/- 40 BP
Beta - 260341 SAMPLE : VENZ-NP-0208 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1690 to 1730 (Cal BP 260 to 220) AND Cal AD 1810 to 1930 (Cal BP 140 to 20) Cal AD 1950 to beyond 1960 (Cal BP 0 to 0)	90 +/- 40 BP	-26.8 o/oo	60 +/- 40 BP

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "**". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2:lab. mult=1)

Laboratory number: Beta-260319

Conventional radiocarbon age: 940±40 BP

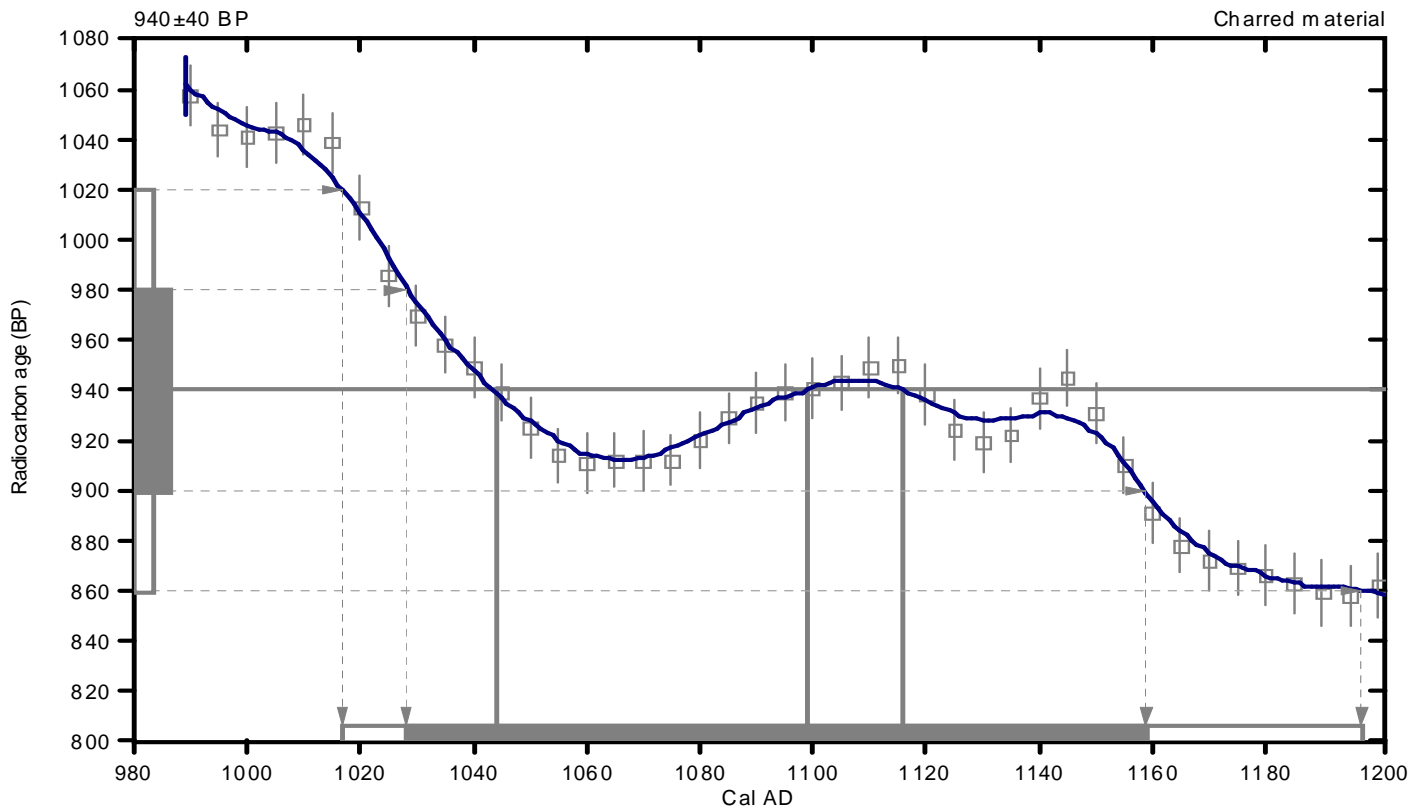
**2 Sigma calibrated result: Cal AD 1020 to 1200 (Cal BP 930 to 750)
(95% probability)**

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal AD 1040 (Cal BP 910) and
Cal AD 1100 (Cal BP 850) and
Cal AD 1120 (Cal BP 830)

**1 Sigma calibrated result: Cal AD 1030 to 1160 (Cal BP 920 to 790)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24:lab. mult=1)

Laboratory number: Beta-260320

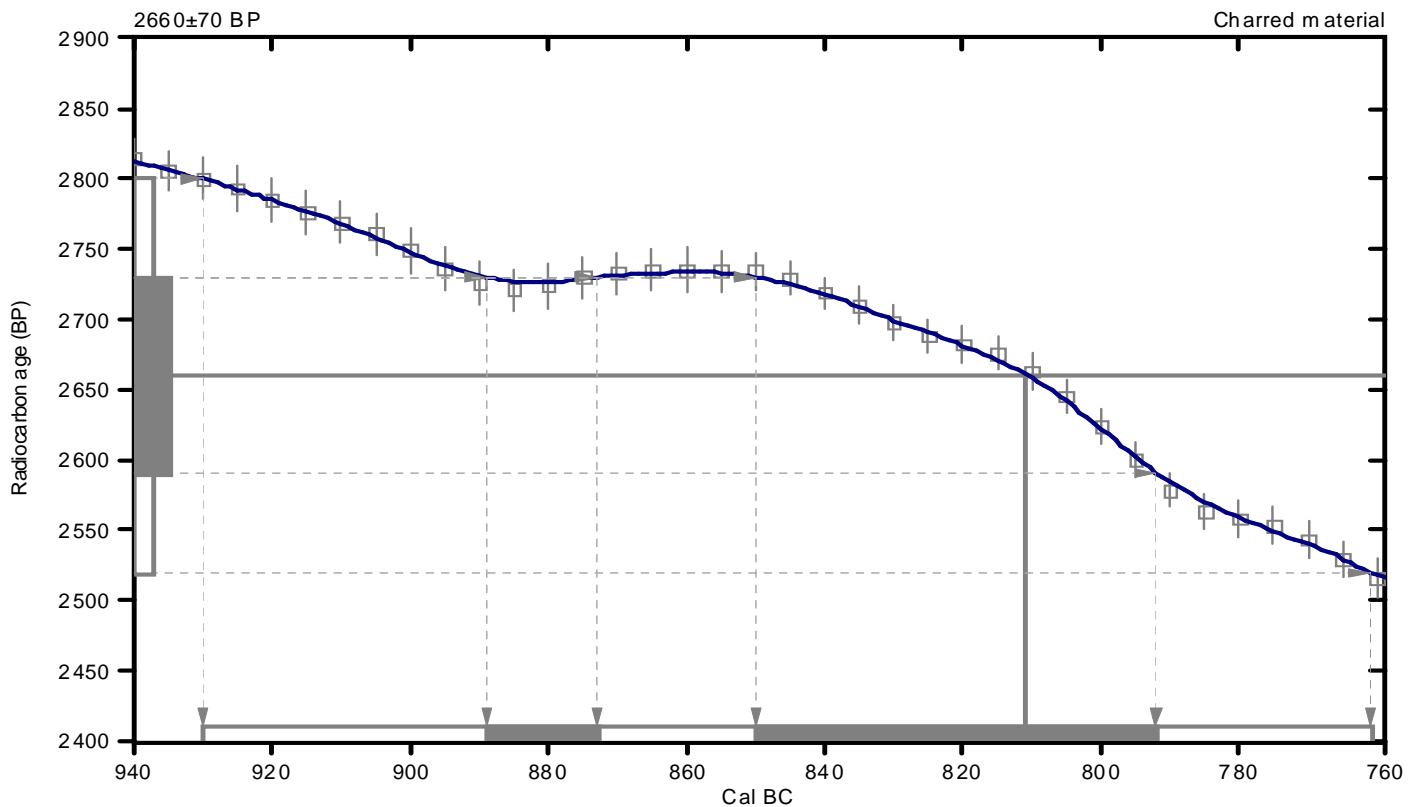
Conventional radiocarbon age: 2660±70 BP

**2 Sigma calibrated result: Cal BC 930 to 760 (Cal BP 2880 to 2710)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 810 (Cal BP 2760)

1 Sigma calibrated results: Cal BC 890 to 870 (Cal BP 2840 to 2820) and
(68% probability) Cal BC 850 to 790 (Cal BP 2800 to 2740)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.6:lab. mult=1)

Laboratory number: Beta-260321

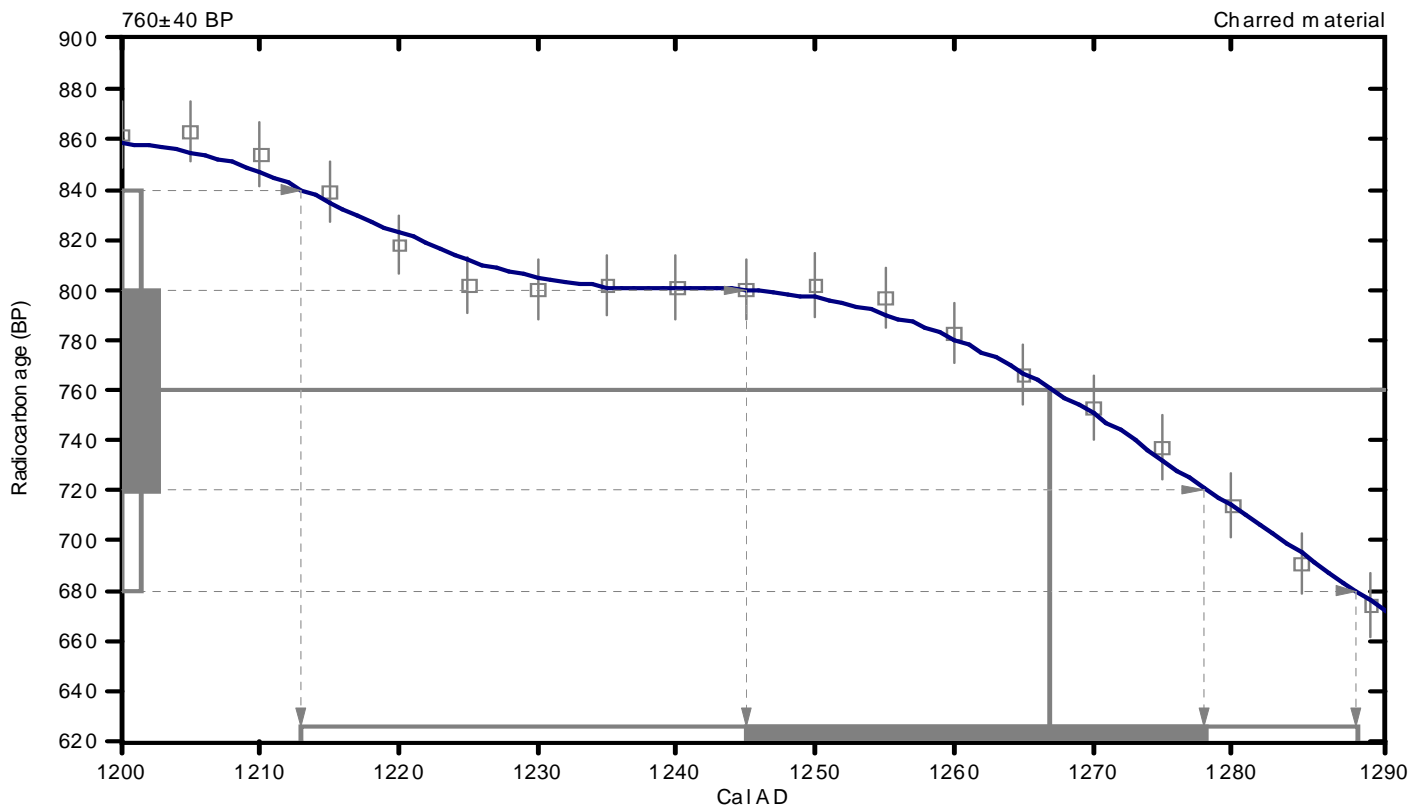
Conventional radiocarbon age: 760±40 BP

**2 Sigma calibrated result: Cal AD 1210 to 1290 (Cal BP 740 to 660)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1270 (Cal BP 680)

1 Sigma calibrated result: Cal AD 1240 to 1280 (Cal BP 700 to 670)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.5:lab. mult=1)

Laboratory number: Beta-260322

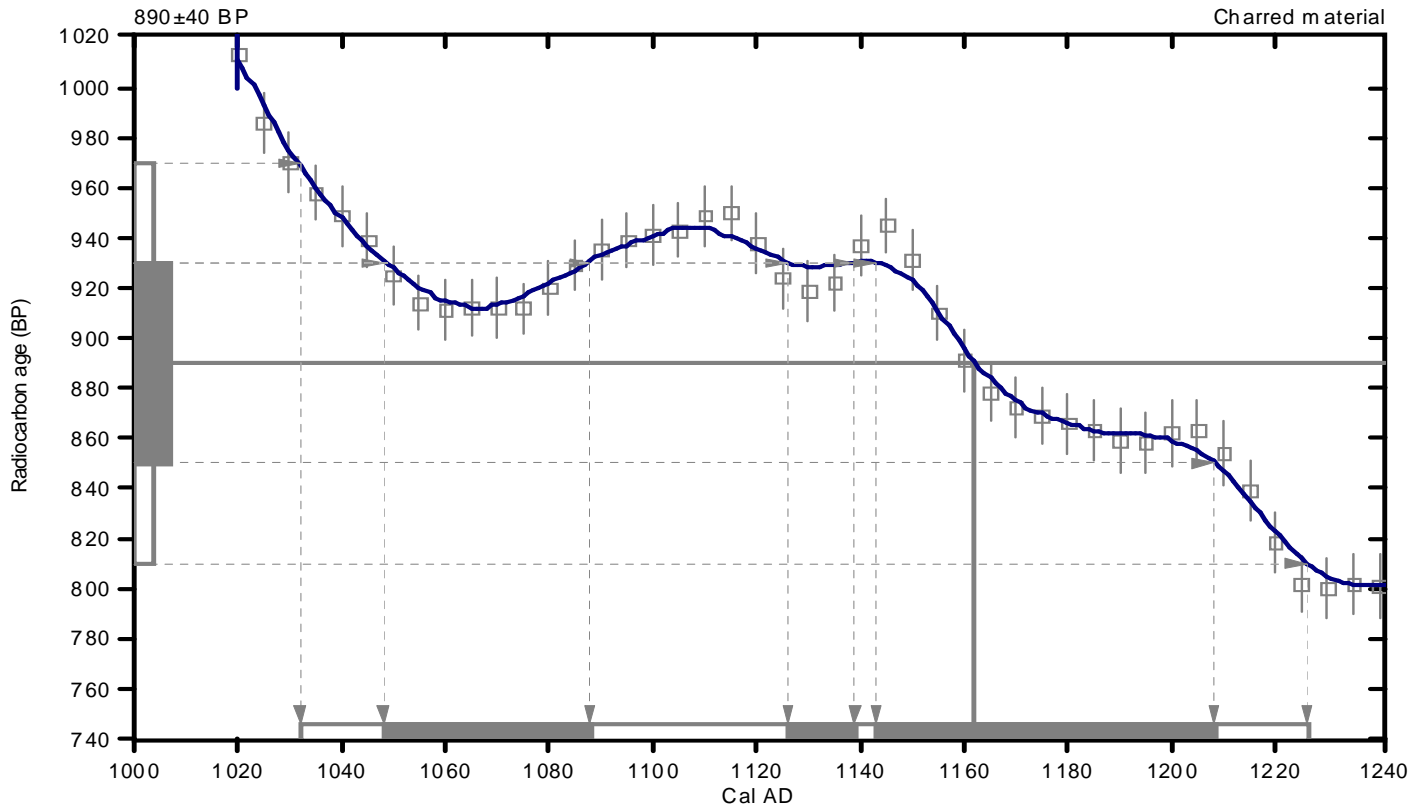
Conventional radiocarbon age: 890±40 BP

**2 Sigma calibrated result: Cal AD 1030 to 1230 (Cal BP 920 to 720)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1160 (Cal BP 790)

1 Sigma calibrated results: Cal AD 1050 to 1090 (Cal BP 900 to 860) and
(68% probability) Cal AD 1130 to 1140 (Cal BP 820 to 810) and
Cal AD 1140 to 1210 (Cal BP 810 to 740)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.4:lab. mult=1)

Laboratory number: Beta-260323

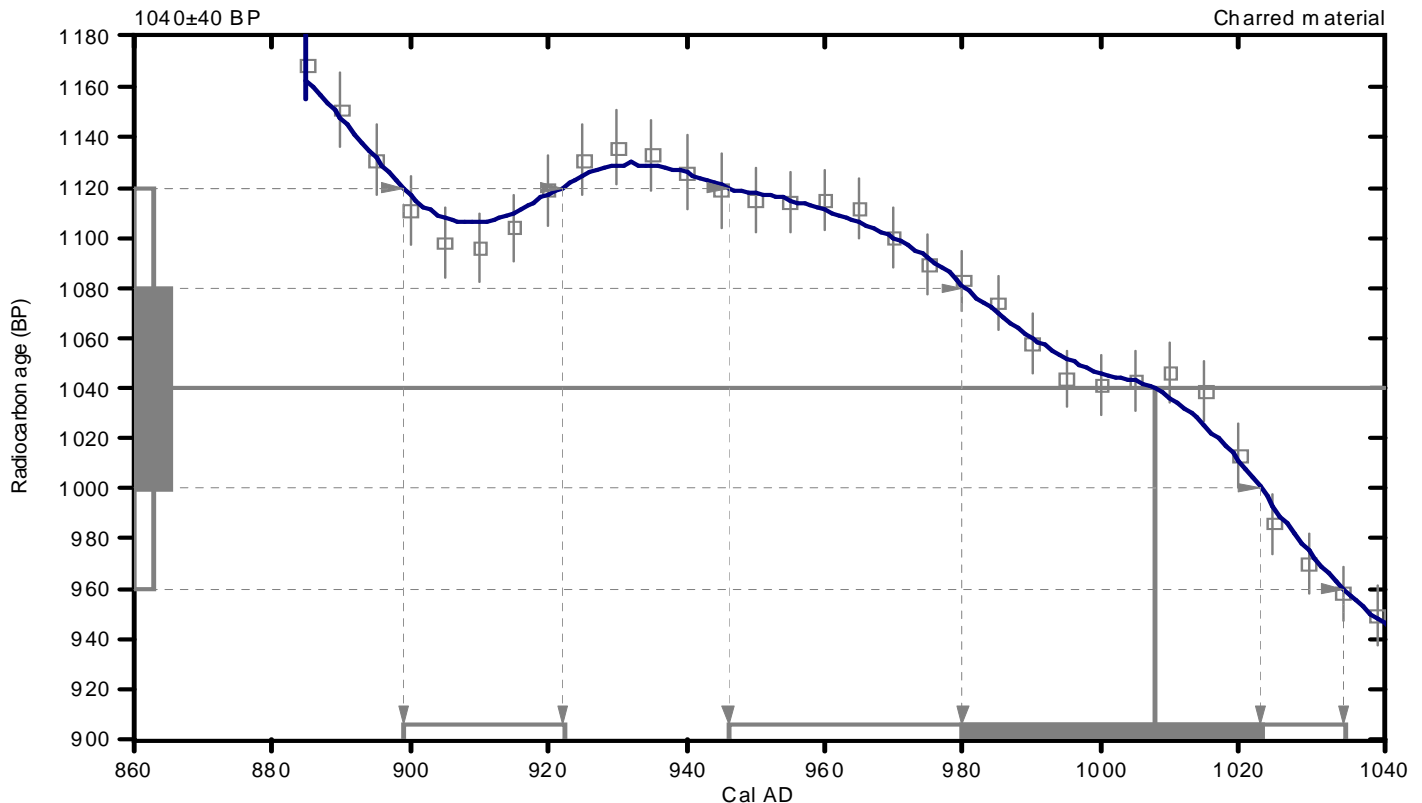
Conventional radiocarbon age: 1040±40 BP

**2 Sigma calibrated results: Cal AD 900 to 920 (Cal BP 1050 to 1030) and
(95% probability) Cal AD 950 to 1040 (Cal BP 1000 to 920)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1010 (Cal BP 940)

1 Sigma calibrated result: Cal AD 980 to 1020 (Cal BP 970 to 930)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.6:lab. mult=1)

Laboratory number: Beta-260324

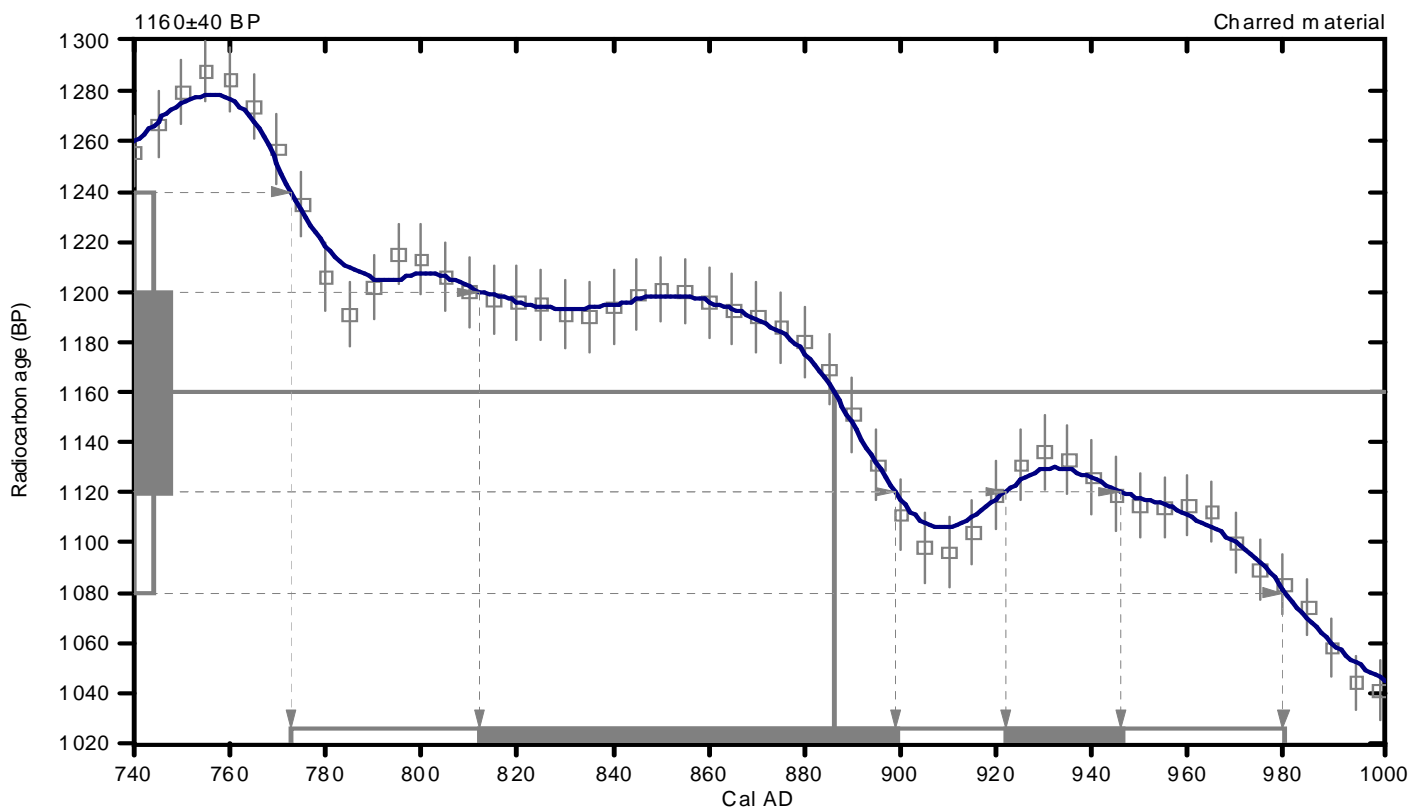
Conventional radiocarbon age: 1160±40 BP

**2 Sigma calibrated result: Cal AD 770 to 980 (Cal BP 1180 to 970)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 890 (Cal BP 1060)

1 Sigma calibrated results: Cal AD 810 to 900 (Cal BP 1140 to 1050) and
(68% probability) Cal AD 920 to 950 (Cal BP 1030 to 1000)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p 317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.3:lab. mult=1)

Laboratory number: Beta-260325

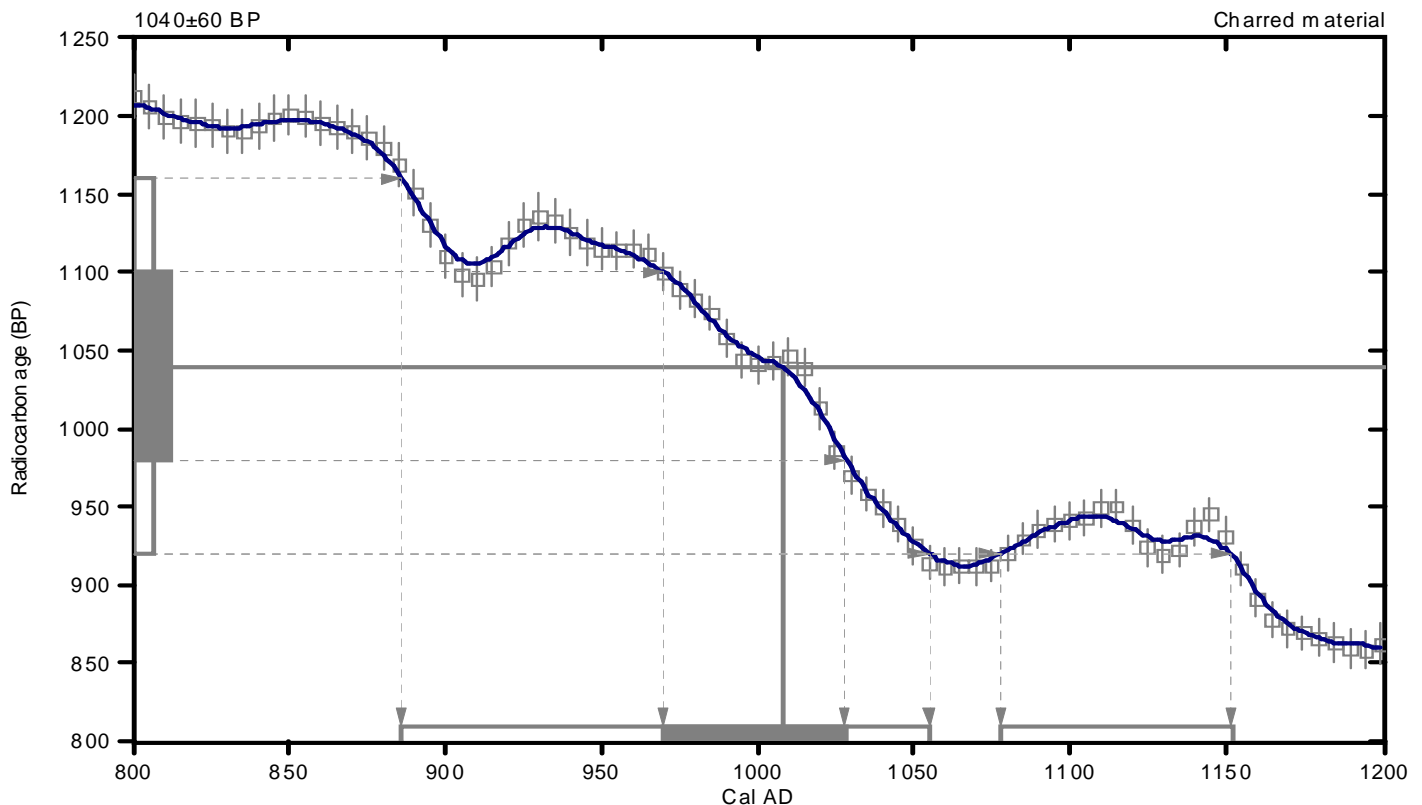
Conventional radiocarbon age: 1040±60 BP

**2 Sigma calibrated results: Cal AD 890 to 1060 (Cal BP 1060 to 900) and
(95% probability) Cal AD 1080 to 1150 (Cal BP 870 to 800)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1010 (Cal BP 940)

1 Sigma calibrated result: Cal AD 970 to 1030 (Cal BP 980 to 920)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2:lab. mult=1)

Laboratory number: Beta-260326

Conventional radiocarbon age: 1120±40 BP

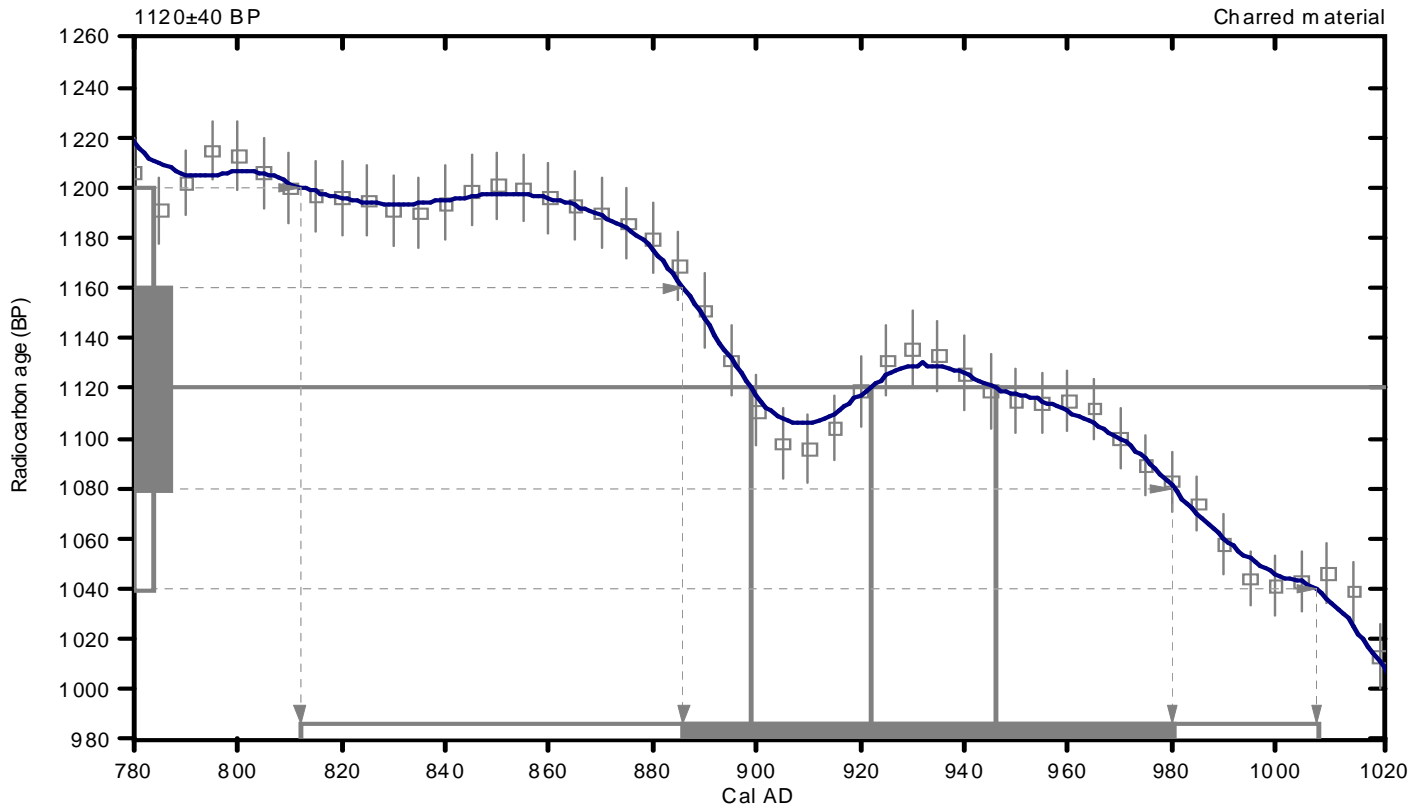
**2 Sigma calibrated result: Cal AD 810 to 1010 (Cal BP 1140 to 940)
(95% probability)**

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal AD 900 (Cal BP 1050) and
Cal AD 920 (Cal BP 1030) and
Cal AD 950 (Cal BP 1000)

**1 Sigma calibrated result: Cal AD 890 to 980 (Cal BP 1060 to 970)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.8:lab. mult=1)

Laboratory number: Beta-260327

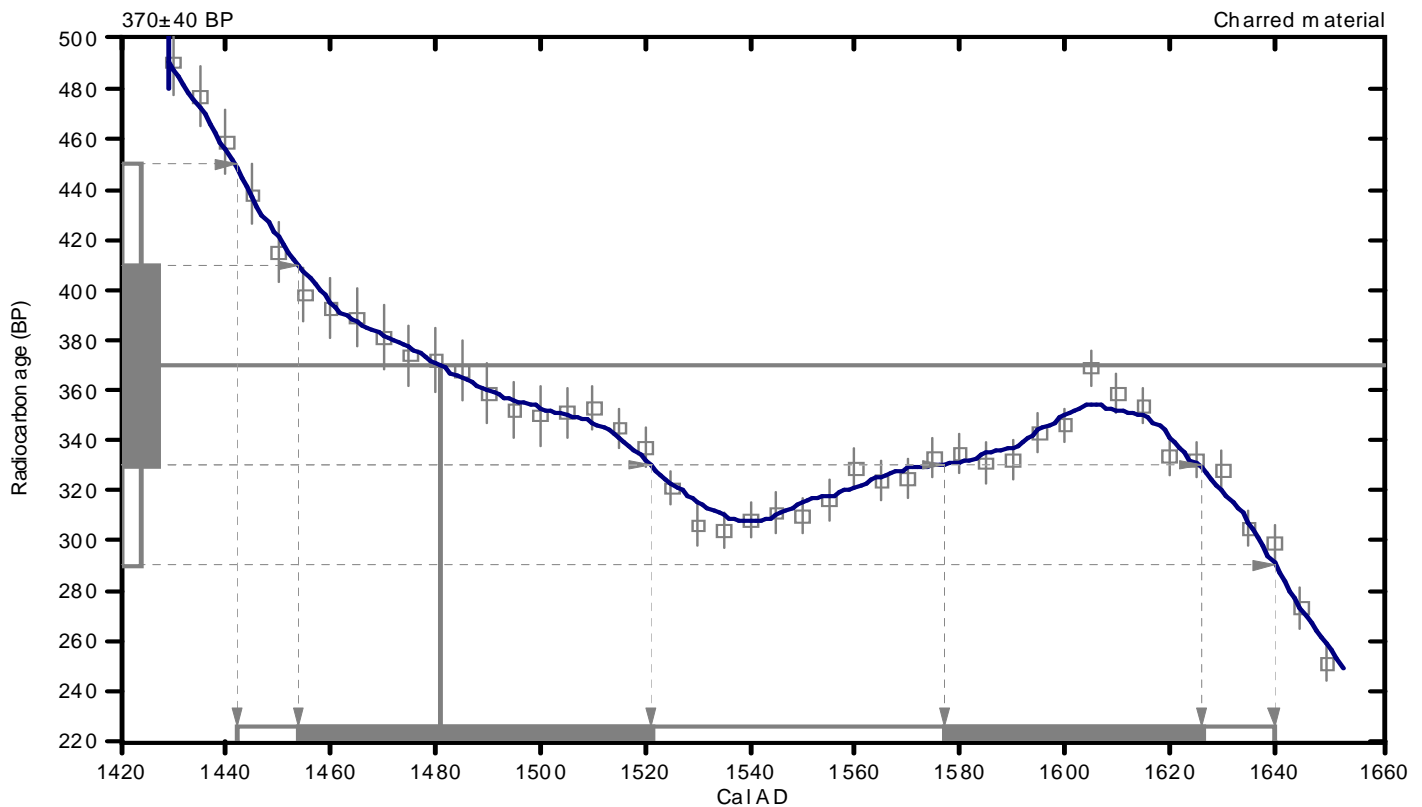
Conventional radiocarbon age: 370±40 BP

**2 Sigma calibrated result: Cal AD 1440 to 1640 (Cal BP 510 to 310)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1480 (Cal BP 470)

1 Sigma calibrated results: Cal AD 1450 to 1520 (Cal BP 500 to 430) and
(68% probability) Cal AD 1580 to 1630 (Cal BP 370 to 320)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-28.5:lab. mult=1)

Laboratory number: Beta-260328

Conventional radiocarbon age: 160±40 BP

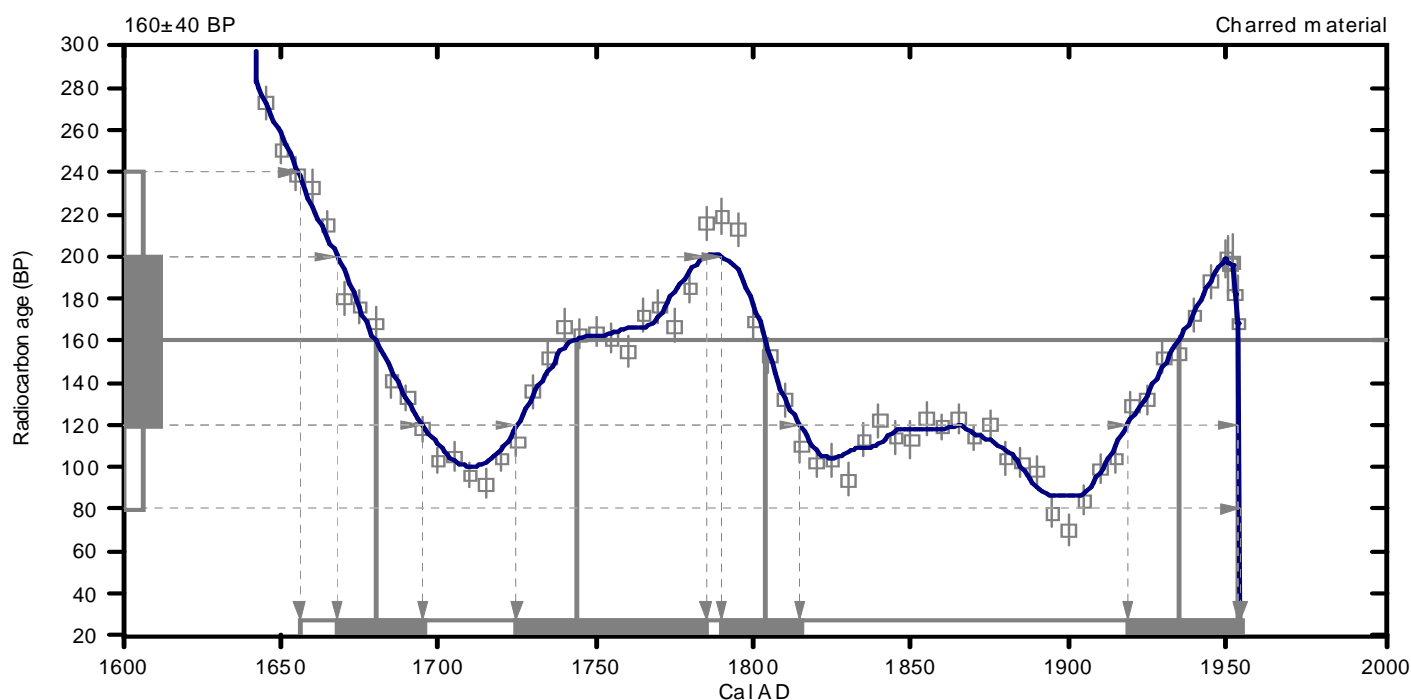
**2 Sigma calibrated result: Cal AD 1660 to 1960 (Cal BP 290 to 0)
(95% probability)**

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal AD 1680 (Cal BP 270) and
Cal AD 1740 (Cal BP 210) and
Cal AD 1800 (Cal BP 150) and
Cal AD 1940 (Cal BP 20) and
Cal AD 1950 (Cal BP 0)

1 Sigma calibrated results: Cal AD 1670 to 1700 (Cal BP 280 to 260) and
(68% probability) Cal AD 1720 to 1780 (Cal BP 220 to 160) and
Cal AD 1790 to 1820 (Cal BP 160 to 140) and
Cal AD 1920 to 1950 (Cal BP 30 to 0)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.7:lab. mult=1)

Laboratory number: Beta-260330

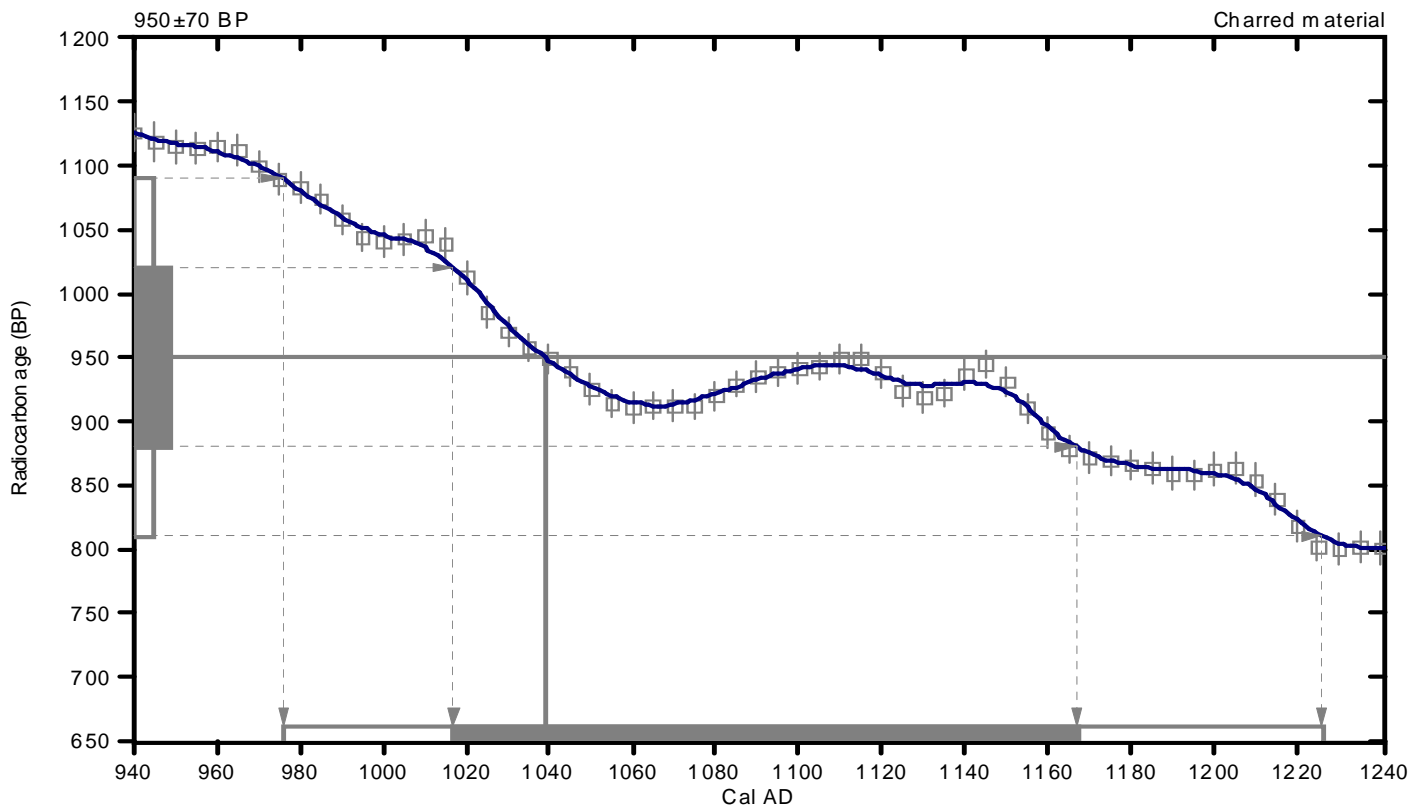
Conventional radiocarbon age: 950±70 BP

**2 Sigma calibrated result: Cal AD 980 to 1230 (Cal BP 970 to 720)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1040 (Cal BP 910)

**1 Sigma calibrated result: Cal AD 1020 to 1170 (Cal BP 930 to 780)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.9:lab. mult=1)

Laboratory number: Beta-260331

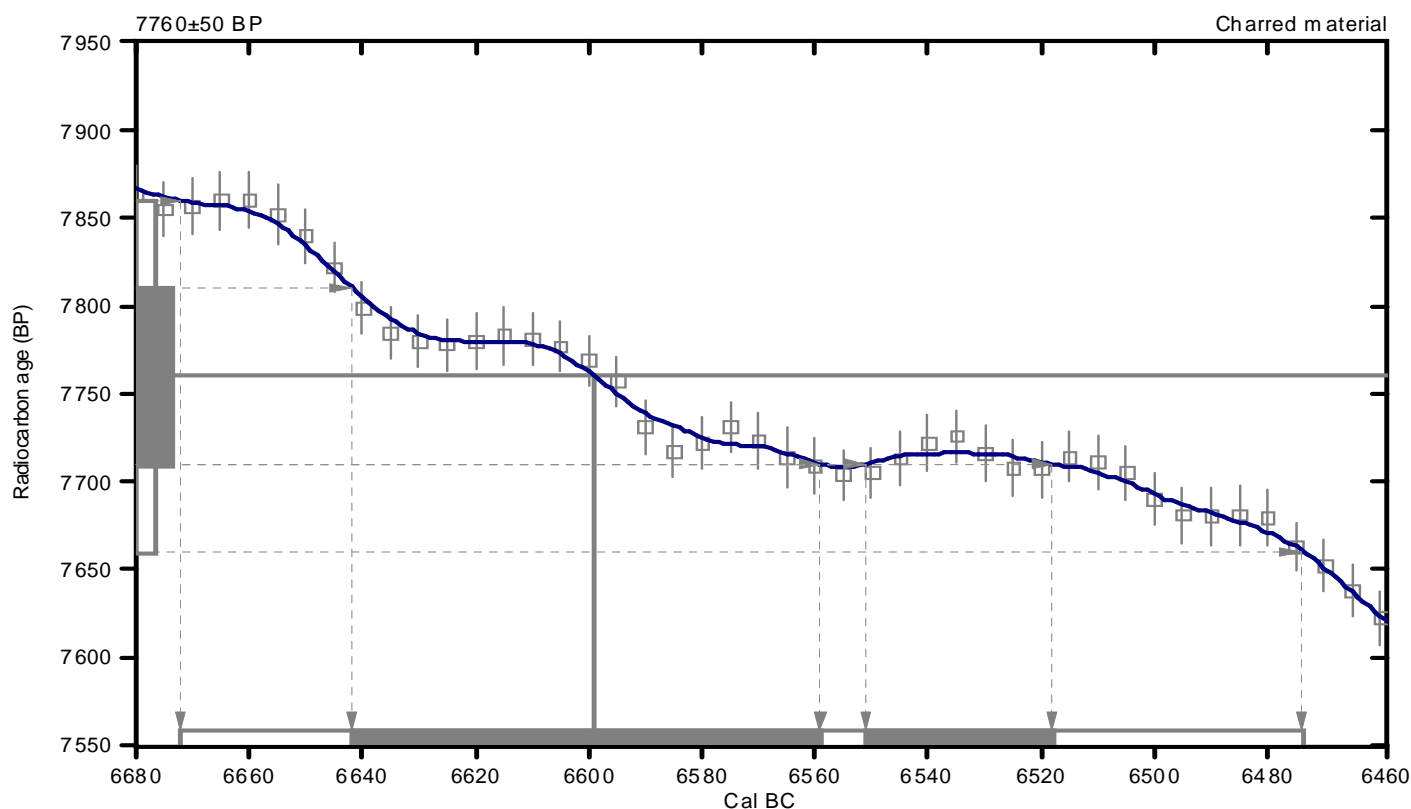
Conventional radiocarbon age: 7760±50 BP

**2 Sigma calibrated result: Cal BC 6670 to 6470 (Cal BP 8620 to 8420)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 6600 (Cal BP 8550)

1 Sigma calibrated results: Cal BC 6640 to 6560 (Cal BP 8590 to 8510) and
(68% probability) Cal BC 6550 to 6520 (Cal BP 8500 to 8470)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.9:lab. mult=1)

Laboratory number: Beta-260332

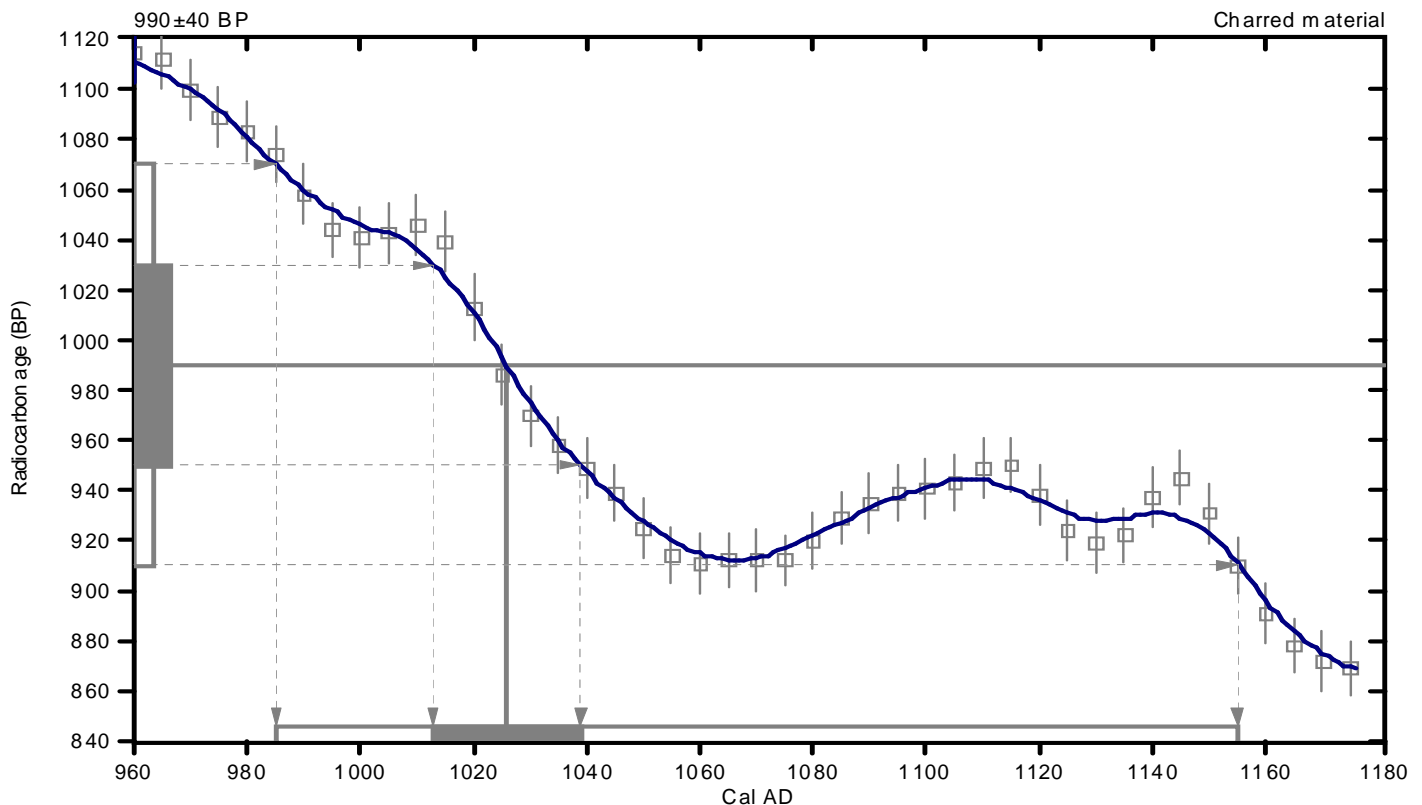
Conventional radiocarbon age: 990±40 BP

**2 Sigma calibrated result: Cal AD 980 to 1160 (Cal BP 960 to 800)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1030 (Cal BP 920)

**1 Sigma calibrated result: Cal AD 1010 to 1040 (Cal BP 940 to 910)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.2:lab. mult=1)

Laboratory number: Beta-260333

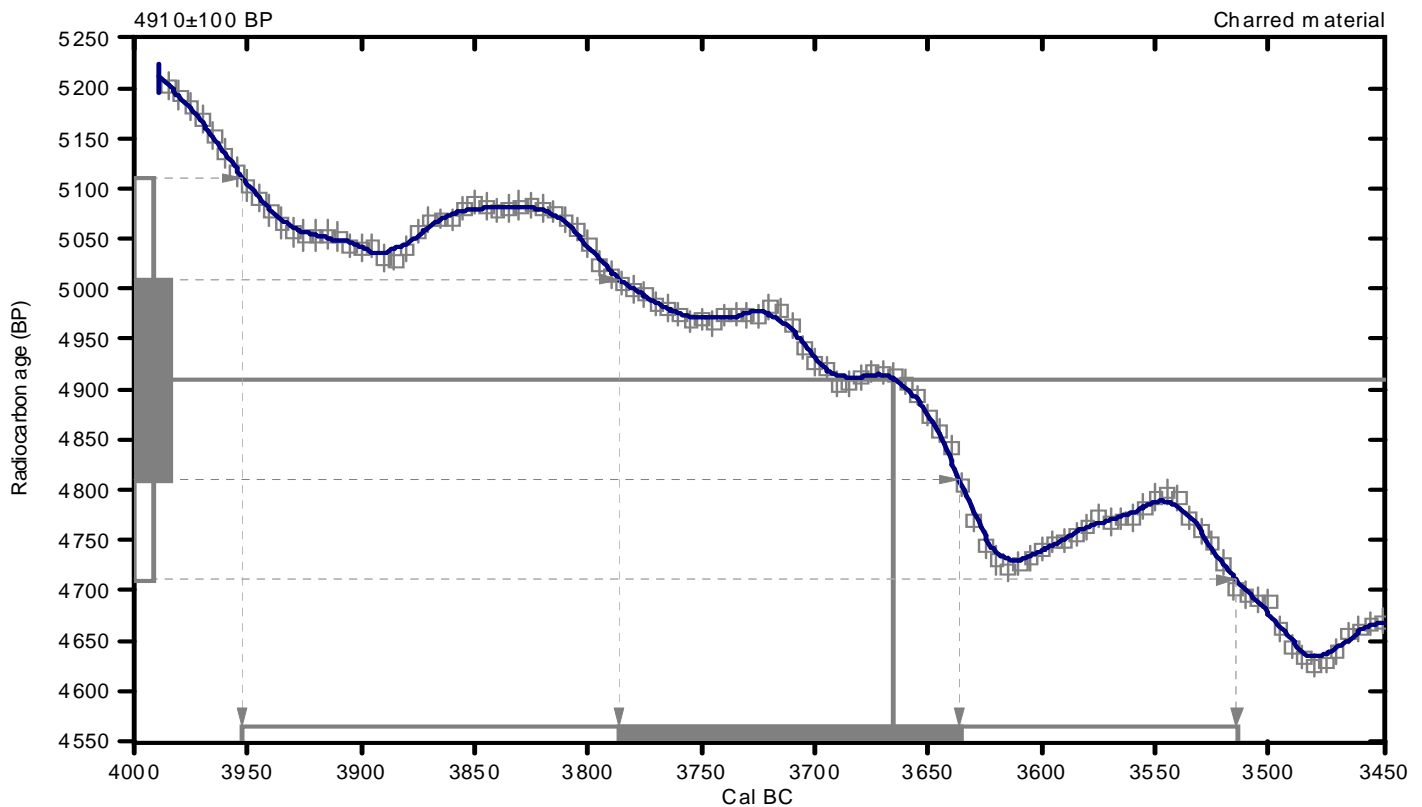
Conventional radiocarbon age: 4910±100 BP

**2 Sigma calibrated result: Cal BC 3950 to 3510 (Cal BP 5900 to 5460)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 3660 (Cal BP 5620)

**1 Sigma calibrated result: Cal BC 3790 to 3640 (Cal BP 5740 to 5590)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.2:lab. mult=1)

Laboratory number: Beta-260334

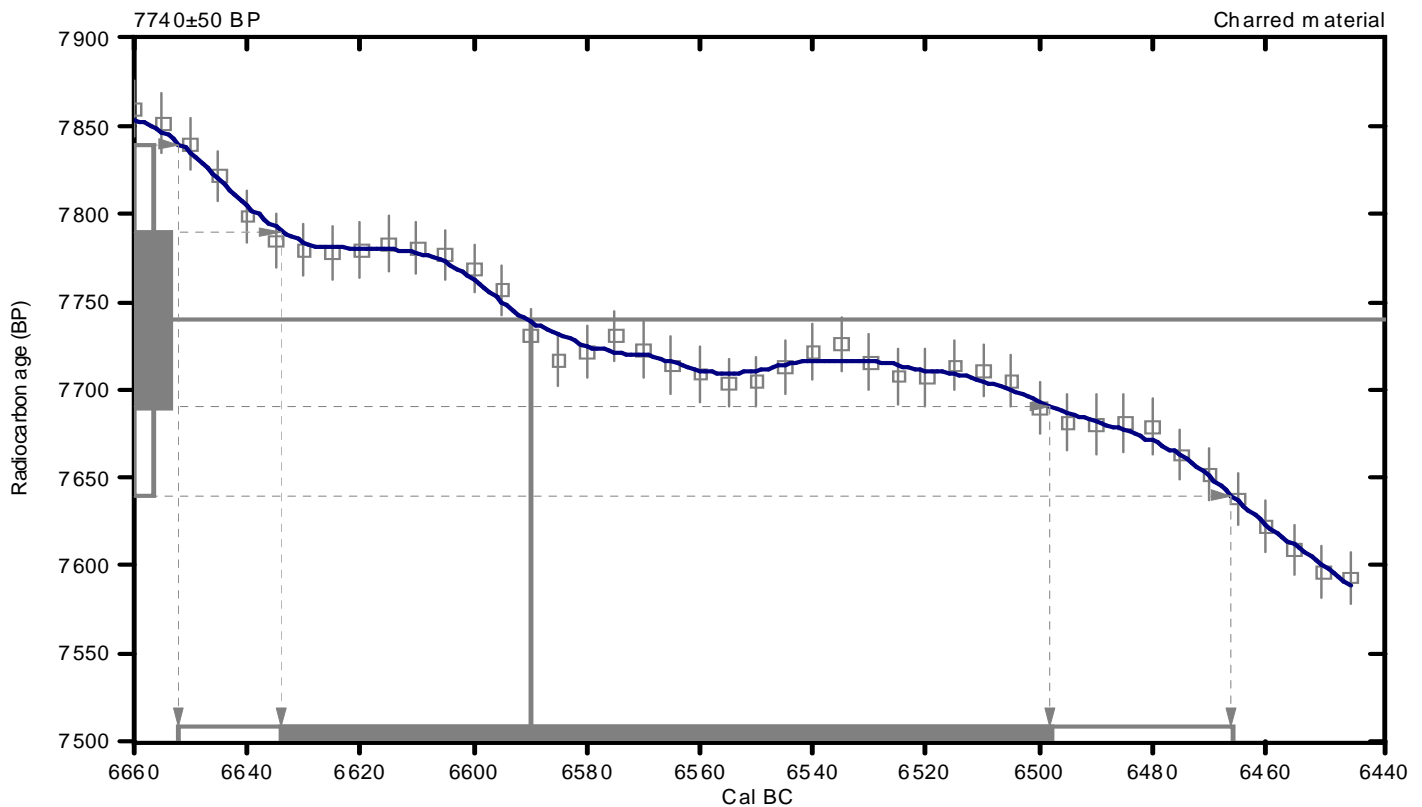
Conventional radiocarbon age: 7740±50 BP

**2 Sigma calibrated result: Cal BC 6650 to 6470 (Cal BP 8600 to 8420)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 6590 (Cal BP 8540)

**1 Sigma calibrated result: Cal BC 6630 to 6500 (Cal BP 8580 to 8450)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p 317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.5:lab. mult=1)

Laboratory number: Beta-260335

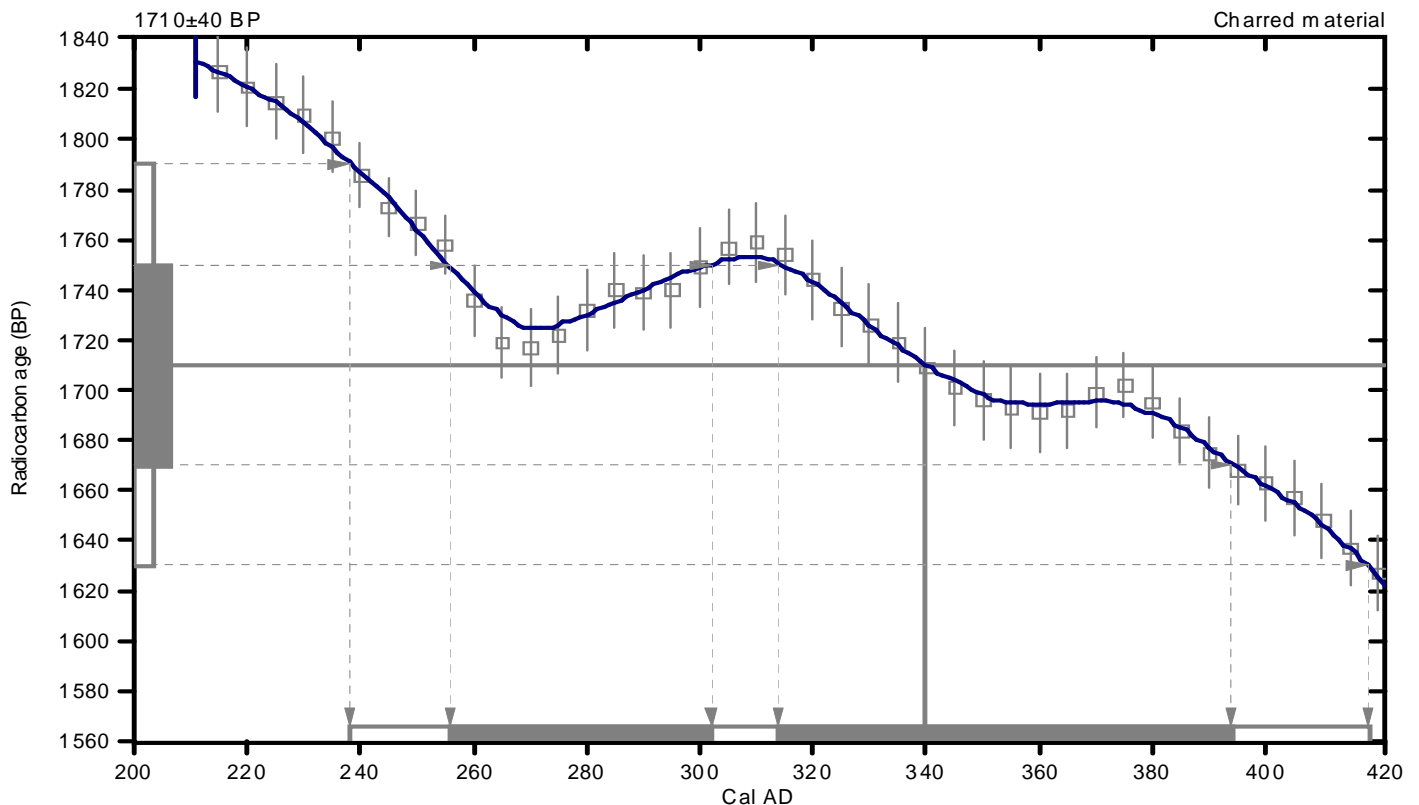
Conventional radiocarbon age: 1710±40 BP

**2 Sigma calibrated result: Cal AD 240 to 420 (Cal BP 1710 to 1530)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 340 (Cal BP 1610)

1 Sigma calibrated results: Cal AD 260 to 300 (Cal BP 1690 to 1650) and
(68% probability) Cal AD 310 to 390 (Cal BP 1640 to 1560)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p 317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.2:lab. mult=1)

Laboratory number: Beta-260336

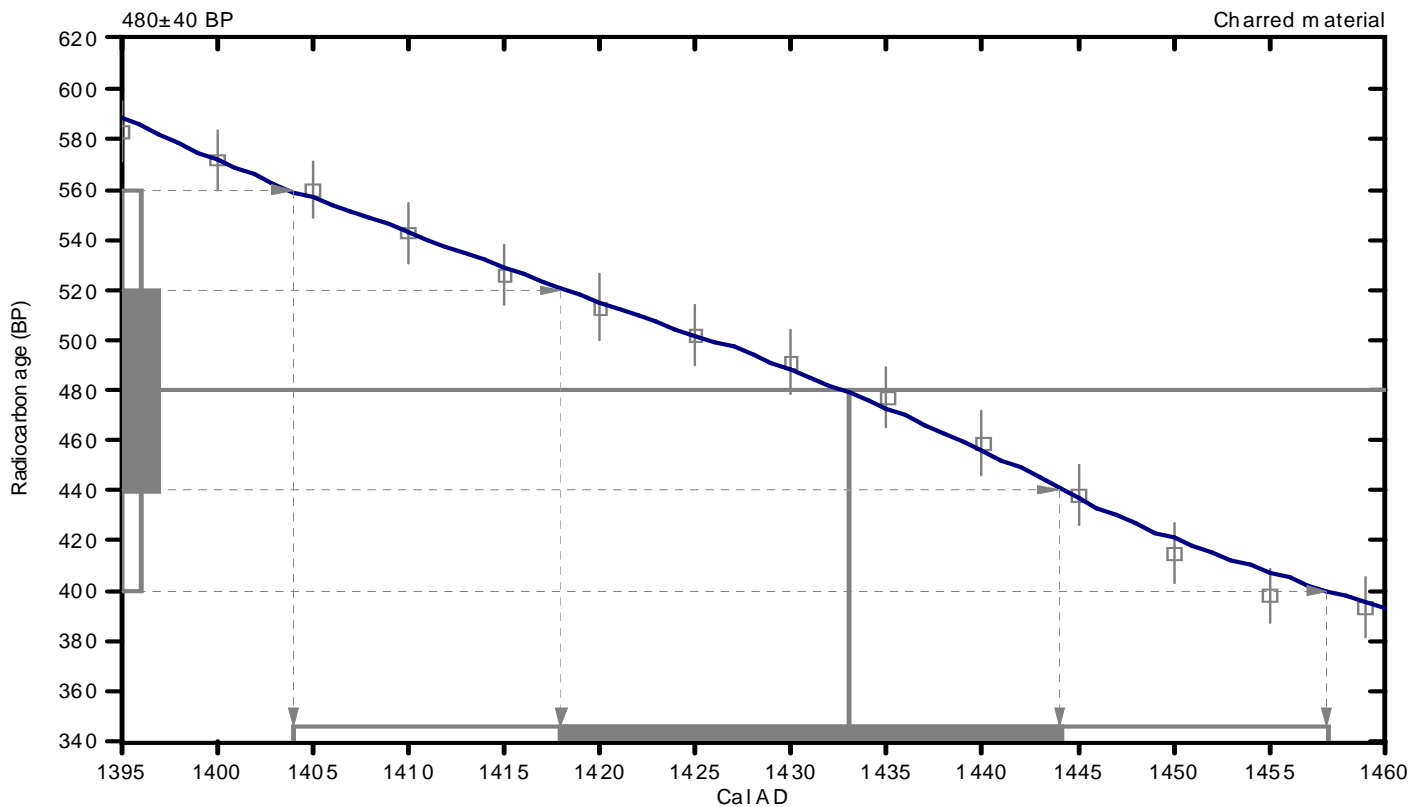
Conventional radiocarbon age: 480±40 BP

**2 Sigma calibrated result: Cal AD 1400 to 1460 (Cal BP 550 to 490)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1430 (Cal BP 520)

1 Sigma calibrated result: Cal AD 1420 to 1440 (Cal BP 530 to 510)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.4:lab. mult=1)

Laboratory number: Beta-260337

Conventional radiocarbon age: 350±40 BP

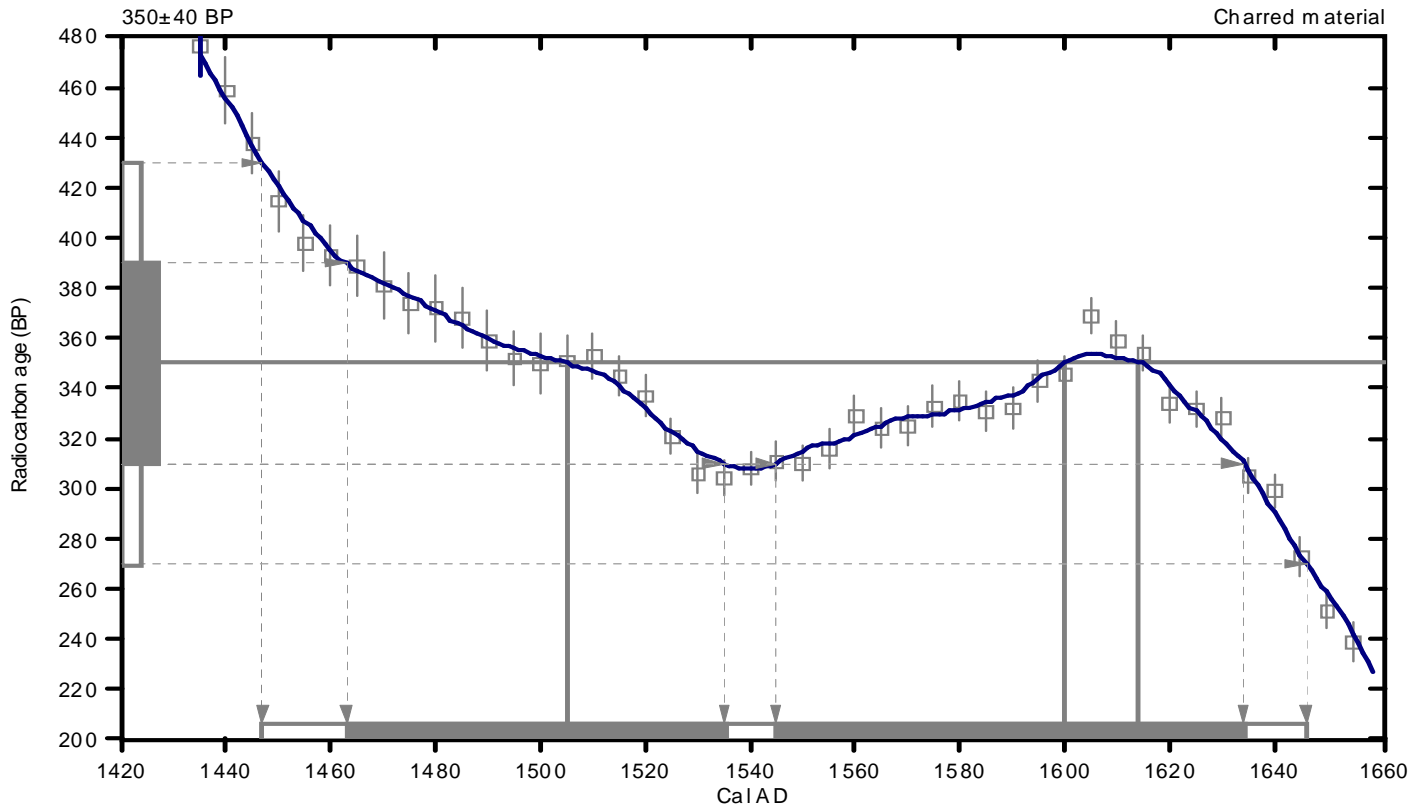
**2 Sigma calibrated result: Cal AD 1450 to 1650 (Cal BP 500 to 300)
(95% probability)**

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal AD 1500 (Cal BP 440) and
Cal AD 1600 (Cal BP 350) and
Cal AD 1610 (Cal BP 340)

1 Sigma calibrated results: Cal AD 1460 to 1540 (Cal BP 490 to 420) and
(68% probability) Cal AD 1540 to 1630 (Cal BP 400 to 320)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.3:lab. mult=1)

Laboratory number: Beta-260338

Conventional radiocarbon age: 2190±80 BP

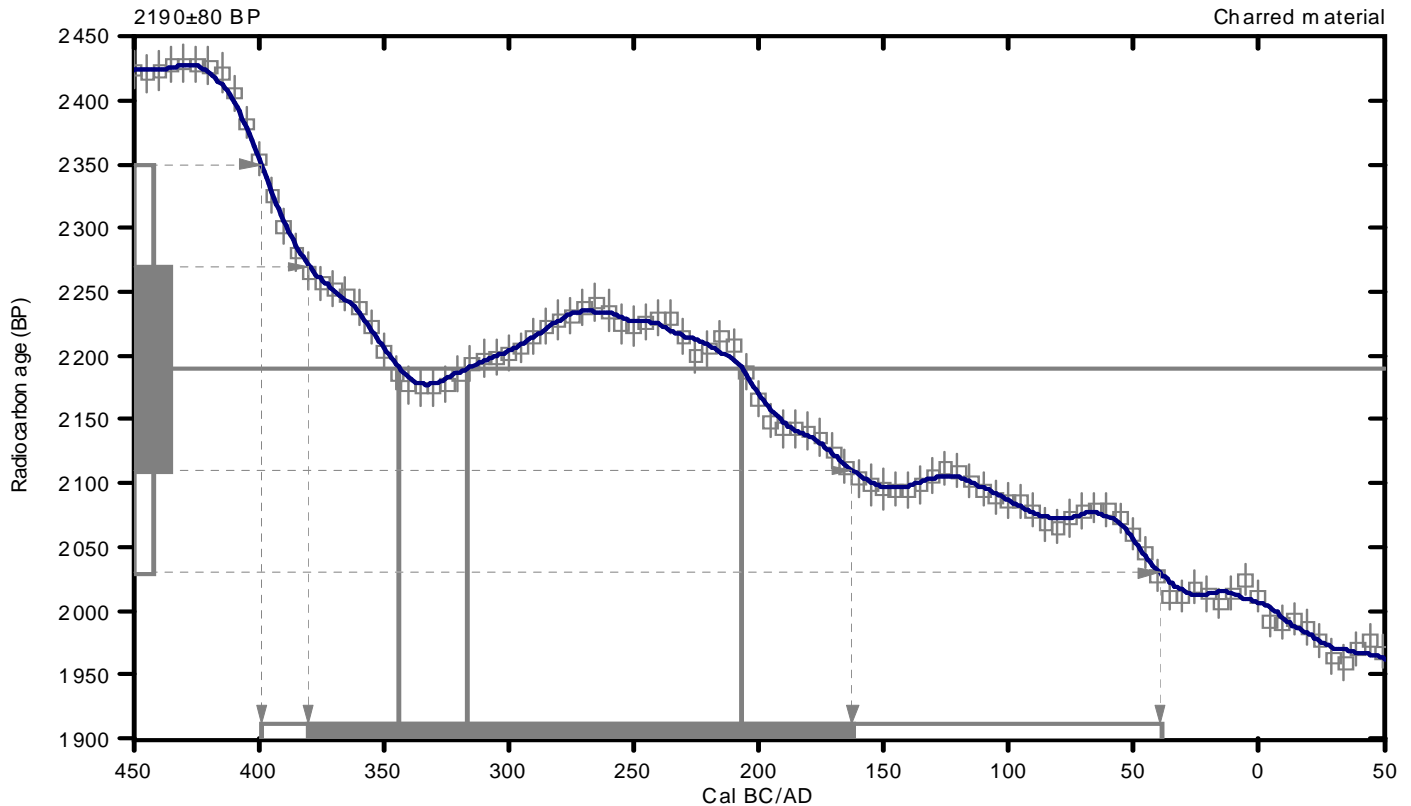
**2 Sigma calibrated result: Cal BC 400 to 40 (Cal BP 2350 to 1990)
(95% probability)**

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal BC 340 (Cal BP 2290) and
Cal BC 320 (Cal BP 2270) and
Cal BC 210 (Cal BP 2160)

**1 Sigma calibrated result: Cal BC 380 to 160 (Cal BP 2330 to 2110)
(68% probability)**



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.4:lab. mult=1)

Laboratory number: Beta-260339

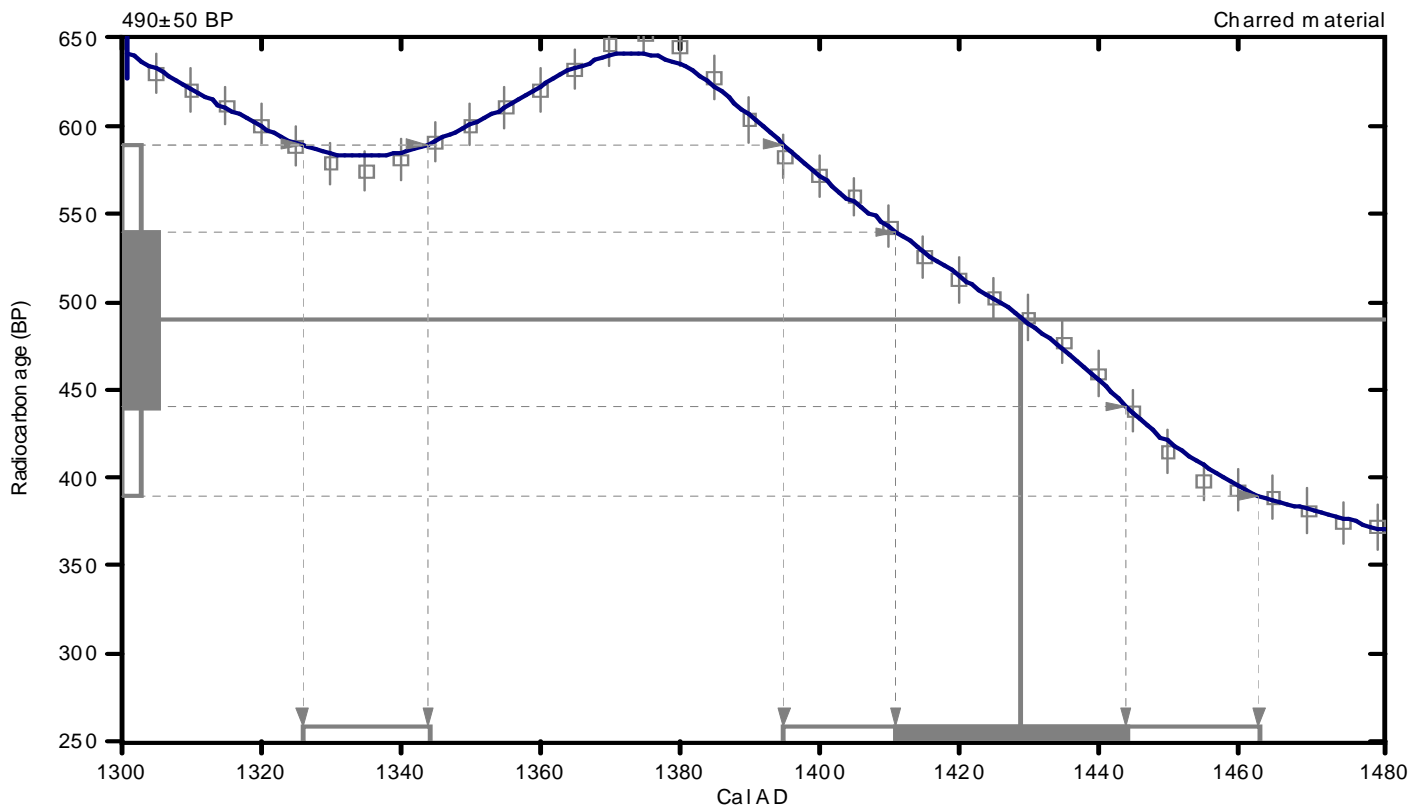
Conventional radiocarbon age: 490±50 BP

**2 Sigma calibrated results: Cal AD 1330 to 1340 (Cal BP 620 to 610) and
(95% probability) Cal AD 1400 to 1460 (Cal BP 560 to 490)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1430 (Cal BP 520)

1 Sigma calibrated result: Cal AD 1410 to 1440 (Cal BP 540 to 510)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.6:lab. mult=1)

Laboratory number: Beta-260340

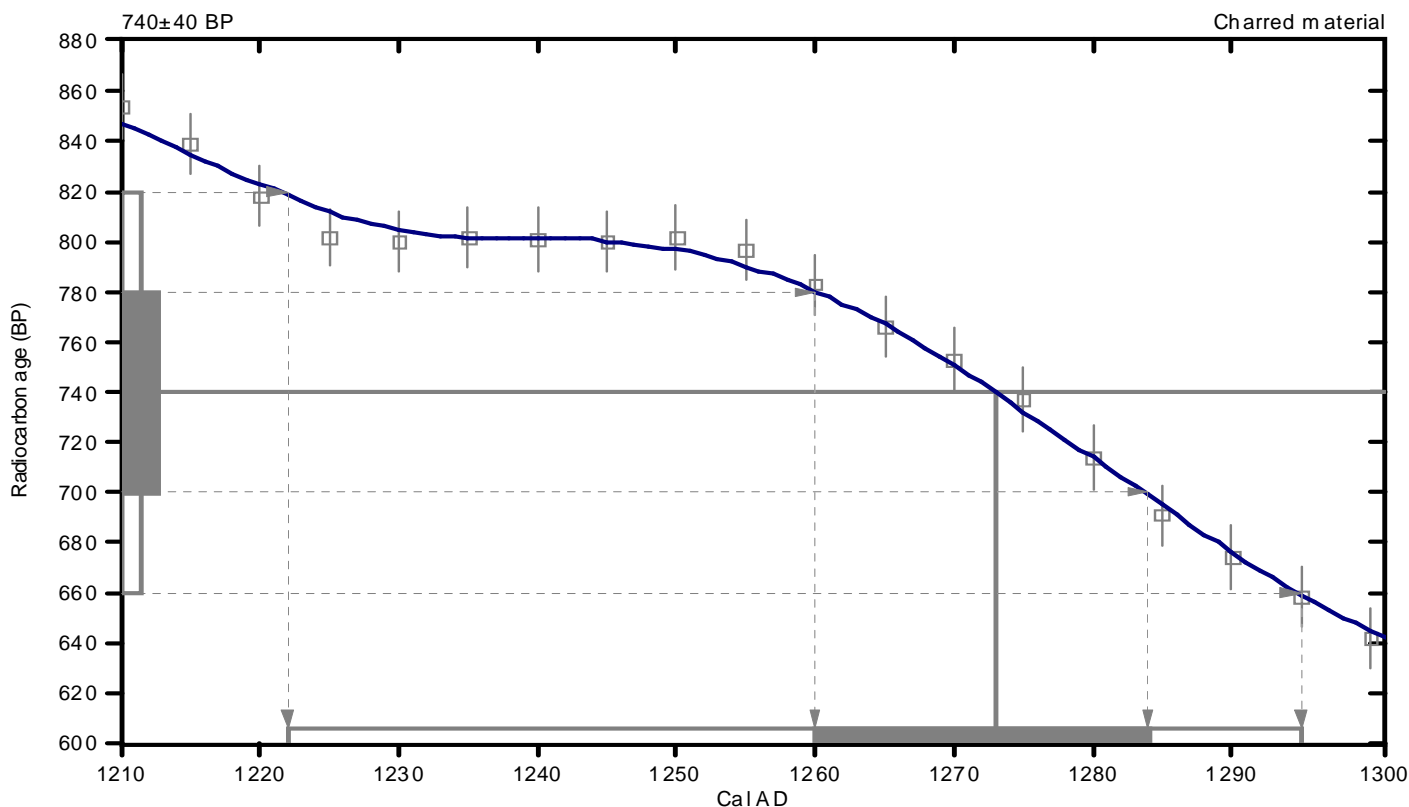
Conventional radiocarbon age: 740±40 BP

**2 Sigma calibrated result: Cal AD 1220 to 1300 (Cal BP 730 to 660)
(95% probability)**

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1270 (Cal BP 680)

1 Sigma calibrated result: Cal AD 1260 to 1280 (Cal BP 690 to 670)
(68% probability)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.8:lab. mult=1)

Laboratory number: **Beta-260341**

Conventional radiocarbon age: **60±40 BP**

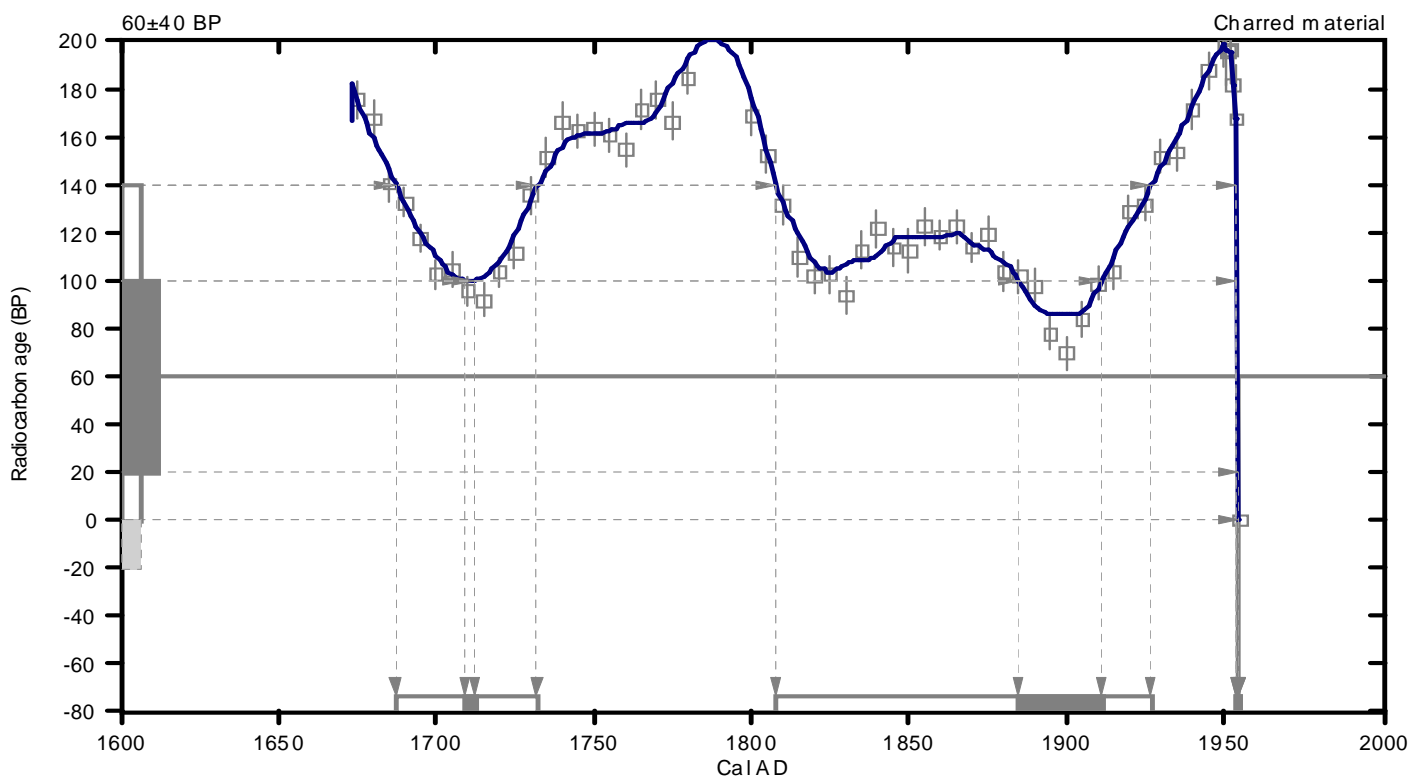
**2 Sigma calibrated results²: Cal AD 1690 to 1730 (Cal BP 260 to 220) and
(95% probability) Cal AD 1810 to 1930 (Cal BP 140 to 20) and
Cal AD 1950 to beyond 1960 (Cal BP 0 to 0)**

² 2 Sigma range being quoted is the maximum antiquity based on the minus 2 Sigma range

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1960 (Cal BP 0)

1 Sigma calibrated results: Cal AD 1710 to 1710 (Cal BP 240 to 240) and
(68% probability) Cal AD 1880 to 1910 (Cal BP 60 to 40) and
Cal AD 1950 to 1960 (Cal BP 0 to 0)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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