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Consistent Accuracy . . .
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Darden Hood
President

Ronald Hatfield
Christopher Patrick
Deputy Directors

February 17, 2014

Dr. Barbro I. Dahl
Arkeologisk museum, Universitetet i Stavanger
Stavanger, N-4036
Norway

RE: Radiocarbon Dating Result For Sample 2013/15-36

Dear Dr. Dahl:

Enclosed is the radiocarbon dating result for one sample recently sent to us. The sample provided plenty of carbon for accurate measurement and the analysis proceeded normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

The web directory containing the table of all your results and PDF download also contains pictures including, most importantly the portion actually analyzed. These can be saved by opening them and right clicking. Also a cvs spreadsheet download option is available and a quality assurance report is posted for each set of results. This report contains expected versus measured values for 3-5 working standards analyzed simultaneously with your sample.

The reported result is accredited to ISO-17025 standards and the analysis was performed entirely here in our laboratories. Since Beta is not a teaching laboratory, only graduates trained in accordance with the strict protocols of the ISO-17025 program participated in the analyses. When interpreting the result, please consider any communications you may have had with us regarding the sample.

If you have specific questions about the analyses, please contact us. Your inquiries are always welcome.

The cost of analysis was previously invoiced. 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

BETA ANALYTIC INC.
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REPORT OF RADIOCARBON DATING ANALYSES

Dr. Barbro I. Dahl

Report Date: 2/17/2014

Arkeologisk museum, Universitetet i Stavanger

Material Received: 2/10/2014

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 372620	3340 +/- 30 BP	-25.6 o/oo	3330 +/- 30 BP

SAMPLE : 2013/15-36
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 1690 to 1520 (Cal BP 3640 to 3470)

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.

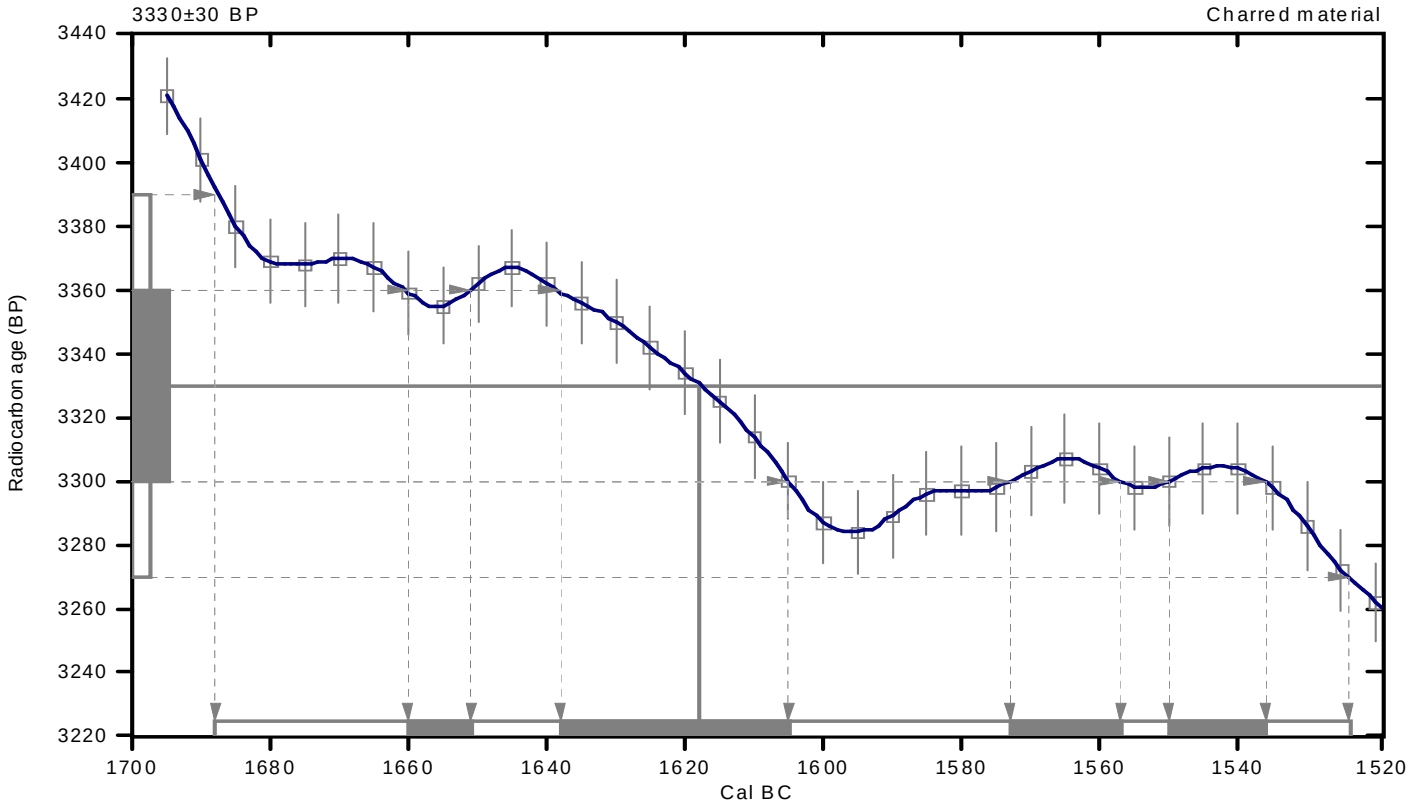
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

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

Laboratory number:	**Beta-372620**
Conventional radiocarbon age:	**3330±30 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 1690 to 1520 (Cal BP 3640 to 3470)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal BC 1620 (Cal BP 3570)
1 Sigma calibrated results: (68% probability)	Cal BC 1660 to 1650 (Cal BP 3610 to 3600) and Cal BC 1640 to 1600 (Cal BP 3590 to 3560) and Cal BC 1570 to 1560 (Cal BP 3520 to 3510) and Cal BC 1550 to 1540 (Cal BP 3500 to 3490)



References:

Database used

INTCAL09

References to INTCAL09 database

Heaton,et.al.,2009, Radiocarbon 51(4):1151-1164, Reimer,et.al, 2009, Radiocarbon 51(4):1111-1150, Stuiver,et.al,1993, Radiocarbon 35(1):1-244, Oeschger,et.al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

Beta Analytic Radiocarbon Dating Laboratory

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