

RADIOCARBON

*In Association with the American School of Prehistoric
Research, Peabody Museum, Harvard University
announces the publication of*

Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean

Edited by OFER BAR-YOSEF and RENEE S. KRA

This sourcebook results from a workshop convened by the editors at the 14th International Radiocarbon Conference, 24 May 1991, in Tucson, Arizona. *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean* brings together the results of varied radiometric dating techniques into one convenient reference. The volume includes: 1) discussions of TL, ESR and U/Th dating relevant to the hotly debated issues of the origins of modern humans and the fate of the eastern Mediterranean Neanderthals; 2) comprehensive compilations of radiocarbon dates encompassing the past 40,000 years, with special reference to the shift from foraging to agriculture and animal domestication, as well as critical re-evaluations of the available dates; 3) summaries of the paleoclimates of the area during the last 20,000 years as viewed through marine, continental, palynological and paleohydrological sequences. This 377-page book contains 23 articles by international scholars well-known in their respective fields.

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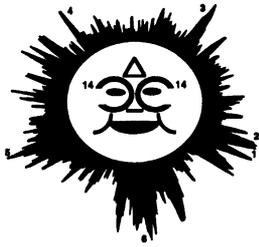
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RADIOCARBON

An International Journal of Cosmogenic Isotope Research

CALIBRATION 1993

A Special Hardcover Edition

Edited by Minze Stuiver, Austin Long and Renee S. Kra

CALIBRATION 1993 amends and extends the time series published in the 1986 Calibration Issue. This special hardcover edition contains tree-ring-derived calibration curves for the radiocarbon time scale, a marine calibration curve employing U/Th coral data, and discussions of atmospheric and marine reservoir influences on measured ¹⁴C ages. Calibration procedures are also reviewed.

A 5¼" diskette of the new IBM-PC based program, CALIB 3.0.3C (M. Stuiver and P. Reimer, University of Washington), is included. The program integrates the new atmospheric and marine data presented in this issue, and allows for calibrations from "conventional radiocarbon years" to calendar dates for the past 18,360 ¹⁴C years.

CALIBRATION 1993 represents the state-of-the art calibration, and provides an essential tool for ¹⁴C research and dating.

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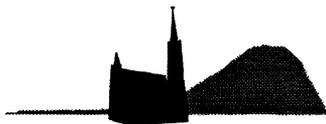
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LSC 92



VIENNA, AUSTRIA
14–18 September 1992

RADIOCARBON

An International Journal of Cosmogenic Isotope Research

LIQUID SCINTILLATION SPECTROMETRY 1992

*Edited by JOHN E. NOAKES,
FRANZ SCHÖNHOFER and HENRY A. POLACH*

Liquid Scintillation Spectrometry 1992 contains papers presented at an international conference, "Advances in Liquid Scintillation Spectrometry", held in Vienna, Austria, 14–18 September 1992. The volume reports state-of-the-art research and technology in the field of liquid scintillation counting. The Methods section contains sample preparation and measurement techniques, scintillators and solvents, alpha measurements and standardization. The Bioscience Applications section is an overview of liquid scintillation spectrometry in molecular biology and implications of epidemiological studies. Environmental Applications include the use of tritium, radon, radium, uranium and other radionuclides in studies of radiation protection, tracer techniques and waste management. The editors are leading scientists from the USA, Austria and Australia, and the authors are international academic scholars and industrial researchers. The 512-page hardcover volume contains extensive bibliographical references and a comprehensive index. It was published in October 1993 by *RADIOCARBON*.

ISBN 0-9638314-0-2

LSC 94 – PROCEEDINGS OF THE INTERNATIONAL CONFERENCE GLASGOW, SCOTLAND 8–12 AUGUST 1994

Liquid Scintillation Spectrometry 1994 continues the series of conference proceedings, most recently from Glasgow. Themes include: New Instrumentation, Advances in Liquid and Solid Scintillators, Bioscience Applications, Environmental Applications, Alpha Counting, Cerenkov Counting, Data Handling Algorithms/Computer Applications and Software, and Sample Handling and Disposal, among others. This volume contains peer-reviewed articles covering a wide range of liquid scintillation topics. It will be available in 1995.

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A. Long and R. S. Kra, *both of The University of Arizona, Tucson*

Here, for the first time, are collected accounts of significant achievements and assessments of historical and scientific importance. **Radiocarbon After Four Decades: An Interdisciplinary Perspective** commemorates the 40th anniversary of radiocarbon dating and documents the major contributions of ^{14}C dating to archaeology, biomedical research, earth sciences, environmental studies, hydrology, studies of the natural carbon cycle, oceanography and palynology.

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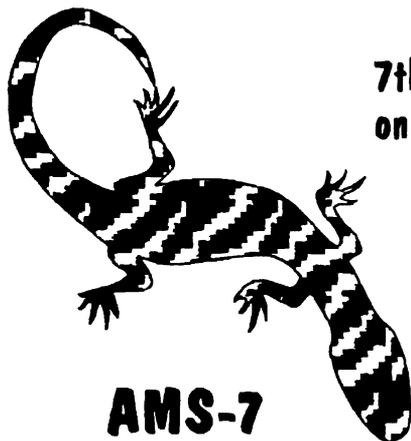
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7th International Conference on Accelerator Mass Spectrometry

Tucson, Arizona
May 20-24, 1996

The 7th International Conference on Accelerator Mass Spectrometry, co-sponsored by The University of Arizona and the Lawrence Livermore National Laboratory, will be held in Tucson on 20–24 May 1996. The University of Arizona is a center for AMS, radiocarbon dating, global change and tree-ring research. We believe this combination is unique, and will give a more interdisciplinary atmosphere to AMS-7. We plan to highlight global change research, new AMS applications and new techniques.

Pre-Conference Workshops: *Applications of AMS to Global Change Research* (Tucson). This workshop will include discussions on the many applications of AMS to global change, and the global change record in many different reservoirs: tree rings, lake and marine sediments, coral and ice. *Geological Applications of AMS* (Tucson or Pasadena, California). This small topical workshop will focus on the applications of AMS dating to the geological record. It will focus in particular on paleoseismicity and the use of AMS measurements of *in-situ*-produced isotopes for geologic applications.

Field Trip: A post-conference field trip highlighting archaeological sites in northern Arizona and the Grand Canyon and Flagstaff areas will be arranged if numbers warrant.

Fees: We expect registration fees to be in the vicinity of \$250–300, with a small charge for associated workshops.

Organizing Committee:

Timothy Jull, Chair
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Steven Leavitt, Tree Ring Lab
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Liquid Scintillation Alpha Spectrometry



W. Jack McDowell and Betty L. McDowell

East Tennessee Radiometric/Analytical Chemicals Inc., Knoxville

Alpha liquid scintillation was developed to obtain accurate analytical determinations of alpha-emitting nuclides where no other methods were sufficiently accurate. With the present emphasis on clean-up of radiation contamination, alpha liquid scintillation has become an important tool in the determination of low concentrations of alpha-emitting nuclides. This book is the first to address the subject of alpha liquid scintillation in its entirety. It also examines how alpha spectrometry by liquid scintillation can be done without interference from beta/gamma radiation. Scientists interested in the analysis of alpha-emitting nuclides for environmental monitoring, remediation clean-up, accountability and research will find this to be a valuable book.

Features

- Describes recently developed methods that avoid interference from beta/gamma radiation, variable quenching, high background, poor energy resolution and a non-calibrated energy scale
- Provides a collection of analytical procedures that have been tested and are ready to use
- Discusses alpha liquid scintillation in its entirety

Contents

Introduction

The Evolution of Alpha-Liquid Scintillation Spectrometry

Factors Influencing the Effectiveness of Liquid Scintillation for Alpha Spectrometry

Available Instrumentation

Accuracy and Reproducibility

Principles of Solvent Extraction

Appendices:

Special Reagents and Equipment

Analytical Procedures

Half-Life and Liquid Scintillation Peak-Shape Properties of Some Alpha-Emitting Nuclides

October 1993

ISBN 0-8493-5288-6

c. 192 pp.

Appx. US \$69.95/Outside U.S. \$84.00

CRC Press, Inc., 2000 Corporate Blvd., N.W., Boca Raton, Florida 33431 (407) 994-0555

NOTICE TO READERS AND CONTRIBUTORS

The purpose of *RADIOCARBON* is to publish technical and interpretive articles on all aspects of ^{14}C and other cosmogenic isotopes. In addition, we present regional compilations of published and unpublished dates along with interpretive text. Besides the triennial Proceedings of Radiocarbon Conferences, we publish Proceedings of conferences in related fields. Organizers interested in such arrangements should contact the Managing Editor for information.

Our regular issues include NOTES AND COMMENTS, LETTERS TO THE EDITOR, RADIOCARBON UPDATES and ANNOUNCEMENTS. Authors are invited to extend discussions or raise pertinent questions regarding the results of investigations that have appeared on our pages. These sections also include short technical notes to disseminate information concerning innovative sample preparation procedures. Laboratories may also seek assistance in technical aspects of radiocarbon dating. Book reviews are encouraged. We include a list of laboratories and a general index for each volume.

Manuscripts. When submitting a manuscript, include three printed copies, double-spaced, and a floppy diskette, single-spaced. We will accept, in order of preference, FrameMaker 4, WordPerfect 6.0 or 5.1, Microsoft Word, Wordstar or any IBM word-processing software program on 3½" or 5¼" IBM disks, or high-density Macintosh diskettes. ASCII files are also acceptable. We also accept E-mail and ftp transmissions of manuscripts. Papers should follow the recommendations in INSTRUCTIONS TO AUTHORS (1994, vol. 36, no. 1). Offprints of these guidelines are available upon request. Our deadlines for submitting manuscripts are:

<i>For</i>	<i>Date</i>
Vol. 37, No. 2, 1995	January 1, 1995
Vol. 37, No. 3, 1995	May 1, 1995
Vol. 38, No. 1, 1996	September 1, 1995

Half-life of ^{14}C . In accordance with the decision of the Fifth Radiocarbon Dating Conference, Cambridge, England, 1962, all dates published in this volume (as in previous volumes) are based on the Libby value, 5568 yr, for the half-life. This decision was reaffirmed at the 11th International Radiocarbon Conference in Seattle, Washington, 1982. Because of various uncertainties, when ^{14}C measurements are expressed as dates in years BP, the accuracy of the dates is limited, and refinements that take some but not all uncertainties into account may be misleading. The mean of three recent determinations of the half-life, 5730 ± 40 yr, (*Nature*, 1962, vol. 195, no. 4845, p. 984), is regarded as the best value presently available. Published dates in years BP can be converted to this basis by multiplying them by 1.03.

AD/BC Dates. In accordance with the decision of the Ninth International Radiocarbon Conference, Los Angeles and San Diego, California, 1976, the designation of AD/BC, obtained by subtracting AD 1950 from conventional BP determinations is discontinued in *RADIOCARBON*. Authors or submitters may include calendar estimates as a comment, and report these estimates as cal AD/BC, citing the specific calibration curve used to obtain the estimate. Calibrated dates should be reported as "cal BP" or "cal AD/BC" according to the consensus of the Twelfth International Radiocarbon Conference, Trondheim, Norway, 1985.

Measuring ^{14}C . In Volume 3, 1961, we endorsed the notation Δ , (Lamont VIII, 1961), for geochemical measurements of ^{14}C activity, corrected for isotopic fractionation in samples and in the NBS oxalic-acid standard. The value of $\delta^{14}\text{C}$ that entered the calculation of Δ was defined by reference to Lamont VI, 1959, and was corrected for age. This fact has been lost sight of, by editors as well as by authors, and recent papers have used $\delta^{14}\text{C}$ as the observed deviation from the standard. At the New Zealand Radiocarbon Dating Conference it was recommended to use $\delta^{14}\text{C}$ only for age-corrected samples. Without an age correction, the value should then be reported as percent of modern relative to 0.95 NBS oxalic acid (Proceedings of the 8th Conference on Radiocarbon Dating, Wellington, New Zealand, 1972). The Ninth International Radiocarbon Conference, Los Angeles and San Diego, California, 1976, recommended that the reference standard, 0.95 NBS oxalic acid activity, be normalized to $\delta^{13}\text{C} = -19\text{‰}$.

In several fields, however, age corrections are not possible. $\delta^{14}\text{C}$ and Δ , uncorrected for age, have been used extensively in oceanography, and are an integral part of models and theories. Thus, for the present, we continue the editorial policy of using Δ notations for samples not corrected for age.

CONTENTS

FROM THE EDITORS – To Our Friends

<i>Austin Long, Renee S. Kra and A. J. T. Jull</i>	iii
----------------------------------------------------------	-----

ARTICLES

¹⁴ C Age Corrections in Antarctic Lake Sediments Inferred from Geochemistry <i>Rolf Zale</i>	173
Radiocarbon Chronology of Late Glacial and Holocene Sedimentation and Water-level Changes in the Area of the Gościąg Lake Basin <i>Anna Pazdur, M. F. Pazdur, Tomasz Goslar, Bogumił Wicik and Maurice Arnold</i>	187
Radiocarbon and Uranium-Series Dating of the Plitvice Lakes Trävertines <i>Dušan Srdoč, J. K. Osmond, Nada Horvatinčić, Adel A. Dabous and Bogomił Obelić</i>	203
Radiocarbon Calibration Curve Variations and Their Implications for the Interpretation of New Zealand Prehistory <i>B. G. McFadgen, F. B. Knox and T. R. L. Cole</i>	221
The Rapid Preparation of Seawater ΣCO ₂ for Radiocarbon Analysis at the National Ocean Sciences AMS Facility <i>A. P. McNichol, G. A. Jónes, D. L. Hutton and A. R. Gagnon</i>	237
AMS ¹⁴ C Age Determinations of Tissue, Bone and Grass Samples from the Ötztal Ice Man <i>Georges Bonani, Susan D. Ivy, Irena Hajdas, Thomas R. Niklaus and Martin Suter</i>	247

DATE LISTS

CH Physical Research Laboratory (Chemistry) Radiocarbon Date List I <i>Ravi Bhushan, Supriya Chakraborty and Seth Krishnaswami</i>	251
Gd Gliwice Radiocarbon Dates XI <i>Mieczysław F. Pazdur, Romuald Awiśiuk, Tomasz Goslar, Anna Pazdur, Adam Wałanus and Andrzej Zastawny</i>	257
Gd Gliwice Radiocarbon Dates XII <i>Anna Pazdur, Mieczysław F. Pazdur and Andrzej Zastawny</i>	281
Z Rudjer Bošković Institute Radiocarbon Measurements XIII <i>Bogomił Obelić, Nada Horvatinčić, Dušan Srdoč, Ines Krajcar-Bronić, Adela Šliepčević and Sanja Grgić</i>	303

RADIOCARBON UPDATES	325
---------------------------	-----