

VOLUME 29 / NUMBER 1 / 1987

Radiocarbon

Published by THE AMERICAN JOURNAL OF SCIENCE

Editor

MINZE STUIVER

Associate Editors

To serve until January 1, 1989

STEPHEN C PORTER *Seattle, Washington*

To serve until January 1, 1988

W G MQOK *Groningen, The Netherlands*

HANS OESCHGER *Bern, Switzerland*

To serve until January 1, 1990

ANDREW MOORE *New Haven, Connecticut*

To serve until January 1, 1992

CALVIN J HEUSSER *Tuxedo, New York*

Managing Editor

RENEE S KRA

Kline Geology Laboratory
Yale University
New Haven, Connecticut 06511

ISSN: 0033-8222

NOTICE TO READERS AND CONTRIBUTORS

Since its inception, the basic purpose of *RADIOCARBON* has been the publication of compilations of ^{14}C dates produced by various laboratories. These lists are extremely useful for the dissemination of basic ^{14}C information.

In recent years, *RADIOCARBON* has also been publishing technical and interpretative articles on all aspects of ^{14}C . We would like to encourage this type of publication on a regular basis. In addition, we will be publishing compilations of published and unpublished dates along with interpretative text for these dates on a regional basis. Authors who would like to compose such an article for his/her area of interest should contact the Managing Editor for information.

Another section is added to our regular issues, "Notes and Comments." Authors are invited to extend discussions or raise pertinent questions to the results of scientific investigations that have appeared on our pages. The section includes short, technical notes to relay information concerning innovative sample preparation procedures. Laboratories may also seek assistance in technical aspects of radiocarbon dating. Book reviews will also be included for special editions.

Manuscripts of radiocarbon papers should follow the recommendations in *Suggestions to Authors** and *RADIOCARBON Style Guide* (R, 1984, v 26, p 152–158). Our deadline schedule for submitting manuscripts is:

For	Date
Vol 29, No. 3, 1987	May 1, 1987
Vol 30, No. 1, 1988	Sept 1, 1987
Vol 30, No. 2, 1988	Jan 1, 1988

Half life of ^{14}C . In accordance with the decision of the Fifth Radiocarbon Dating Conference, Cambridge, 1962, all dates published in this volume (as in previous volumes) are based on the Libby value, 5570 ± 30 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, v 195, no. 4845, p 984, 1962), 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, 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 will now be reported as "cal BP" or "cal AD/BC" according to the consensus of the Twelfth International Radiocarbon Conference, Trondheim, Norway, 1985.

Meaning of $\delta^{14}\text{C}$. 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 8th Conference on Radiocarbon Dating, Wellington, New Zealand, 1972). The Ninth International Radiocarbon Conference, Los Angeles and San Diego, 1976, recommended that the reference standard, 0.95 times 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. For the present, therefore, we continue the editorial policy of using Δ notations for samples not corrected for age.

**Suggestions to Authors of the Reports of the United States Geological Survey*, 6th ed, 1978, Supt of Documents, U S Govt Printing Office, Washington, DC 20402.

CONTENTS

	Evaluation and Status of Liquid Scintillation Counting for Radiocarbon Dating <i>Henry A Polach</i>	1
	Scintillation Counter Performance at the SMU Radiocarbon Laboratory <i>James M Devine and Herbert Haas</i>	12
	Radiocarbon Content of Tropospheric CO ₂ at China Lake, California 1977–1983 <i>Rainer Berger, TB Jackson, Robert Michael, and HE Suess</i>	18
	Study of Bone Radiocarbon Dating Accuracy at the University of Arizona NSF Accelerator Facility for Radioisotope Analysis <i>TW Stafford, Jr, AJT Jull, Klaus Brendel, RC Duhamel, and Douglas Donahue</i>	24
	Comparative Study of the Radiocarbon Dating of Different Bone Collagen Preparations <i>DM Gurfinkel</i>	45
	Comparison of Oceanic $\Delta^{14}\text{C}$ Data with Those of GEOSECS: Vertical Profiles in 1973 (GEOSECS) and in 1980 at (30°N, 170°E) in the Northwestern Pacific Ocean <i>Toshitaka Gamo, Yoshio Horibe, and Hiromi Kobayashi</i>	53
	DATE LISTS	
ANTW	<i>R Vanhoorne and AD Dubois</i> Antwerp University Radiocarbon Dates IV.....	57
BM	<i>Janet Ambers, Richard Burleigh, and Keith Matthews</i> British Museum Natural Radiocarbon Measurements XIX.....	61
HAR	<i>AJ Walker, RS Keyzor, and RL Otlet</i> Harwell Radiocarbon Measurements V.....	78
RT	<i>Israel Carmi</i> Rehovot Radiocarbon Measurements III.....	100
Z	<i>Dušan Srdoč, Nada Horvatinčić, Bogomil Obelić, Ines Krajcar Bronić, and Adela Sliepčević</i> Rudjer Bošković Institute Radiocarbon Measurements IX.....	115
Z	<i>Dušan Srdoč, Bogomil Obelić, Adela Sliepčević, Ines Krajcar Bronić, and Nada Horvatinčić</i> Rudjer Bošković Institute Radiocarbon Measurements X.....	135
	NOTES AND COMMENTS	
	Discussion: Comments on Multiple Dating of a Long Flowstone Profile <i>Rainer Grün and Henry P Schwarcz</i>	148
	Reply <i>Mebus A Geyh and GJ Hennig</i>	153
	Drastic Increase of Background in the Gliwice Radiocarbon Laboratory During Late April, 1986, and its Time Changes <i>Mieczysław F Pazdur and Andrzej Zastawny</i>	156