Volume 3 - 1961

JUL 19 195

# RADIOCARBON

Published annually by THE AMERICAN JOURNAL OF SCIENCE

Editors RICHARD FOSTER FLINT — EDWARD S. DEEVEY

> Managing Editor HELEN J. ROLFE

QC 798 D3 A48

Published online by Cambridge University Press

ROOM 5, STERLING TOWER YALE UNIVERSITY NEW HAVEN, CONNECTICUT

## RADIOCARBON

### Editors: RICHARD FOSTER FLINT-EDWARD S. DEEVEY Managing Editor: Helen J. Rolfe

#### Published annually by

## THE AMERICAN JOURNAL OF SCIENCE

#### Editor: JOHN RODGERS

Published annually, in June, at Sterling Tower, Yale University, New Haven, Connecticut.

Subscription rate \$4.50. After October 1, 1961, the rate will be \$7. per volume, for all volumes.

#### INSTRUCTIONS TO CONTRIBUTORS

Manuscripts of radiocarbon papers should follow the recommendations in Suggestions to Authors, 5th ed.\* All copy must be typewritten in double space (including the bibliography): manuscripts must be submitted in duplicate.

Descriptions of samples, in date lists, should follow as closely as possible the style shown in this volume. Each separate entry (date or series) in a date list should be considered an *abstract*, prepared in such a way that descriptive material is distinguished from geologic or archaeologic interpretation, but description and interpretation must be both brief and informative. Date lists should therefore not be preceded by abstracts, but abstracts of the more usual form should accompany all papers (e.g. geochemical contributions) that are directed to specific problems.

1. Laboratory number, descriptive name (ordinarily that of the locality of collection), and date expressed in years B.P. (before present). The standard error following the date should express, within limits of  $\pm l_{\sigma}$ , the laboratory's estimate of the accuracy of the radicoarbon measurement, as judged on physicochemical (not geologic or archaeologic) grounds.

2. Substance of which the sample is composed; if a plant or animal fossil, the scientific name if possible; otherwise the popular name; but not both. Also, where pertinent, the name of the person identifying the specimen.

3. Precise geographic location, including latitude-longitude coordinates.

4. Occurrence and stratigraphic position in precise terms.

5. Date of collection and name of collector.

https://doi.org/10.1017/S0033822200020944 Published online by Cambridge University Press

6. Name of person submitting the sample to the laboratory, and name and address of institution or organization with which submitter is affiliated.

7. Reference to relevant publications. Citations within a description should be to author and year, with specific pages wherever appropriate, except that references (e.g. to published date lists that are frequently repeated may be simplified by use of a code (e.g. Groningen III) that is explained in the bibliography. Full bibliographic references are listed alphabetically at the end of the manuscript, in the form recommended in Suggestions to Authors.

8. Comment, usually comparing the date with other relevant dates, for each of which sample numbers and references must be quoted, as prescribed above. Interpretive material, summarizing the significance and implicitly showing that the radiocarbon measurement was worth making, belongs here, as do technical matters, e.g. chemical pretreatment, special laboratory difficulties, etc.

Illustrations, in general, should be originals, but photographic reproductions of line drawings are sometimes acceptable, and should accompany the manuscript in any case, if the originals exceed 9 by 12 inches in size.

*Reprints.* Thirty separate copies of each article will be furnished to each paper, free of cost; these will be without a cover. Additional copies will be furnished at cost. Printed covers can be specially ordered.

\* Suggestion to authors of the reports of the United States Geological Survey, 5th ed., Washington, D. C., 1958 (Government Printing Office, \$1.75).



https://doi.org/10.1017/S0033822200220944 Published online by Cambridge University Press

# Radiocarbon

# CONTENTS

Mass-Spectrometer Analyses of Radiocarbon StandardsHarmon Craig	1
University of Pennsylvania Radiocarbon Dates IV Elizabeth K. Ralph and Robert K. Ackerman	4
Bern Radiocarbon Dates IIChr. Gfeller, H. Oeschger and U. Schwarz	15
Dublin Radiocarbon Dates II. R. McAulay and W. A. Watts	26
British Museum Natural Radiocarbon Measurements III Harold Barker and John Mackey	39
(Abstract) The $CO_2$ -CS <sub>2</sub> Geiger Counter and its Use in C <sup>14</sup> Dating H. R. Crane	46
Isotopes, Inc. Radiocarbon Measurements I Alan Walton, Milton A. Trautman and James P. Friend	47
Cambridge University Natural Radiocarbon Measurements III H. Godwin and E. H. Willis	60
Cambridge University Natural Radiocarbon Measurements IV <i>H. Godwin and E. H. Willis</i>	77
Uppsala Natural Radiocarbon Measurements III Ingrid Olsson, Horacio Cazeneuve, John Gustavsson and Ingvar Karlén	81
U. S. Geological Survey Radiocarbon Dates VI Meyer Rubin and Sarah M. Berthold	86
Carbon-14 Dating In Pisa—II G. Ferrara, G. Fornaca-Rinaldi and E. Tongiorgi	99
University of Michigan Radiocarbon Dates VI H. R. Crane and James B. Griffin	105
Yale Natural Radiocarbon Measurements VI Minze Stuiver and Edward S. Deevey	126
Lamont Natural Radiocarbon Measurements VII Edwin A. Olson and Wallace S. Broecker	141
Lamont Radiocarbon Measurements VIII Wallace S. Broecker and Edwin A. Olson	176
Laboratories—New Listings and Changes	205

a