

INFORMATION FOR AUTHORS

Current revision: May 25, 2011

1.0 PURPOSE AND SCOPE OF THE JOURNAL

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 In addition, we present regional compilations of published and unpublished dates along with interpretive text.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 the International Radiocarbon Conferences, we publish occasional special issues that focus on particular themes. Researchers interested in organizing or contributing to such issues should contact the Managing Editor with proposals.

1.1 Regular Articles

Regular articles are generally either 1) research reports, 2) technical descriptions, or 3) date lists.

- *Research reports* usually present data from ^{14}C and/or other isotopic measurements and use these data to advance a hypothesis according to standard scientific procedure. For example, an archaeologist might compile dates from village sites that support a particular model of settlement dates for a region; an oceanographer might use data from ocean water studies to propose corrections in reservoir ages or to support a circulation model for a particular region. Also included under this rubric would be articles on theoretical aspects of cosmogenic isotope production and measurement.
- *Technical descriptions* include articles about new or improved laboratory equipment, measurement procedures, catalysts, computer software, and so on. The main criteria for acceptance of such articles are their originality and utility to other researchers and/or laboratory personnel.
- *Date lists*, strictly speaking, are lists of radiocarbon dates produced by a single laboratory (or researcher), presented not to support a hypothesis but for their value as primary data. *RADIOCARBON* publishes date lists using a special format; see [Section 8.0](#) below for details. Date lists originally formed the main content of the journal, but their proportion has diminished as the journal has increasingly focused on interpretive contributions.

1.2 Other Types of Contributions

RADIOCARBON regularly publishes several other types of notices and features:

- *Notes and Comments*. Brief reports on a very delimited topic, or a specific aspect of a general topic, or responses to previously published articles.
- *Letters to the Editor*. Informal responses, editorials, or other messages to the radiocarbon community that are not primarily scientific in nature.
- *Book Reviews* of recent publications relevant to the scope of the journal. We encourage authors to send us review copies of their own publications, or to propose reviewing books in areas of their expertise.
- *Radiocarbon Updates*. Brief informative notes on awards, hiring, promotions, job announcements, laboratory openings and closings, and other items relevant to the community.
- *Laboratory List*. We publish a complete list of addresses and directors of known active radiocarbon laboratories (conventional and AMS) in the third issue of each year; this list is also maintained and regularly updated on our WWW server.

2.0 SUBMISSION OF MANUSCRIPTS

Manuscripts may be submitted to *RADIOCARBON* at any time, addressed to the Managing Editor. When sending a manuscript by mail, please include 1) a cover letter identifying the communicating author (responsible for further communication) and providing full contact information (mail address, telephone, fax, email); 2) two complete copies of the paper, printed double-spaced throughout, with pages numbered consecutively; 3) diskette(s) containing the text of the paper.

Initial submissions may also be sent as email attachments, addressed to editor@radiocarbon.org. To insure that we duplicate your format precisely, please also send 1 printed copy of the paper by regular mail.

Figures can be submitted either as high-quality originals or in electronic form (or both). See “Manuscript Style and Format” below for information on acceptable figure types and formats.

Please see our separate document, [Submitting Word Processor and Graphics Files](#), for information on word processing and graphics file formats that we can use.

There are no set size limits for length of an article in a regular issue, but except for contributions that present crucial data sets and/or graphic material, we try to keep articles under 20 printed pages in length.

3.0 PROFESSIONAL CONSIDERATIONS

Authors listed on the title page should all have had some involvement in the writing of the article and/or the research and development underlying it. Authors should be listed in descending order of responsibility.

If your submission is substantially similar to a prior publication, we ask that you note this in your cover letter and explain why you feel *RADIOCARBON* should treat it as an original submission. We do not ordinarily accept articles that duplicate previously published work, except in selected cases where the earlier version appeared in a language or format not readily accessible to our readership.

We do not accept articles that are or will be under consideration for publication in another journal (whether in print or online) while being reviewed by *RADIOCARBON* (“dual submission”).

Please alert us to any potential conflicts of interest, such as financial interest in a product by one or more authors. (For example, a description of commercial laboratory apparatus written by an employee of the manufacturer.) We do publish technical descriptions of commercial products, but they should be written as scientific reports and not as advertisements.

4.0 EDITORIAL AND REVIEW PROCESS

All submissions are reviewed by at least one outside reviewer who, in the judgement of our editors, is an expert in the subject matter of the paper. Authors may suggest reviewers for their manuscripts, but *RADIOCARBON* retains the right of final decision regarding assignment.

In cases where a review is incomplete or ambiguous, or where an author offers substantive criticism of the review, we may send a submission out to one or more additional reviewers before making a decision on acceptability. We will take under consideration authors’ objections to negative reviews, but in submitting papers to *RADIOCARBON*, authors must understand that final decisions about publication rest with the journal editors alone.

Reviewers may choose anonymity, or may sign their reviews if they wish.

Under ordinary circumstances, we aim to return manuscripts with a decision to accept or decline within three months of first submission by the author.

5.0 PUBLICATION

When an article is accepted, it is scheduled for the next available regular issue of the journal (that is, not a Conference Proceedings or special-topic issue). Normally articles are scheduled for one of the two next issues to appear following acceptance.

In some cases, articles are accepted conditional upon revision that takes into account comments and questions by the reviewer(s) and journal editors. We reserve the right to determine whether a revision adequately incorporates necessary changes.

Page proofs, offprints. Authors will always receive page proofs of their articles for correction prior to publication. We accompany the proofs with a [reprint order form](#).

Page charges. Each institution sponsoring research reported in an article or data list will be asked to pay a charge of US\$50 per printed page. Institutions or authors paying such charges are entitled to 50 free offprints without covers. No charges will be made if the author indicates that the author's institution is unable to pay, and payment of page charges for an article will, in no case, be a condition for its acceptance.

6.0 MANUSCRIPT STYLE AND FORMAT

6.1 Style Manual

Our basic style manual is

Style Manual Committee, Council of Biology Editors. *Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers*. 7th ed. Cambridge: Cambridge University Press.

We recommend that authors refer to this guide for basic information on citation and reference formats, abbreviations, SI units, scientific terminology and conventions, and general issues of style.

Please note the following areas where *RADIOCARBON* differs from CBE Manual recommendations:

Feature	CBE Manual	<i>RADIOCARBON</i>	Rationale
Grouping in numbers of 4 or more digits	Thin space: 47 938.275	Comma: 47,938.275	Standard American form; easier to search for in electronic files
Citation of 3 or more authors	“and others”: (Smith, Jones and others 1990)	“et al.”: (Smith, Jones et al. 1990)	Latin form is familiar and unambiguous (used only in citations)
Journal titles in References	Abbreviated titles: J Geol	Full titles: Journal of Geology	Convenience to reader (note that we italicize titles)

We edit articles to follow American spelling conventions, using the 10th edition of *Merriam-Webster's Collegiate Dictionary* (Springfield, MA; 1993) as our basic authority.

6.2 Manuscript Organization

If a manuscript contains tables and figures, please attach them at the end of the paper, numbered and in consecutive order. Likewise, tables and figure captions should be included at the end of the word processing file corresponding to the article. Graphics and special file formats (for example, Microsoft Excel charts) should

each be in separate files, not included in the text file; see [Submitting Word Processor and Graphics Files](#) for more detail.

Research articles and reports usually contain the following elements and sections (* indicates mandatory elements). (See also CBE Manual.)

1. **Title*. See CBE Manual §28-32. Avoid abbreviations unless they are universally known.
2. **Author names and addresses*. CBE Manual §28-33. We prefer full first name plus initials for each author, but two or more initials plus last name are acceptable. Full mailing addresses should be provided for each author, and email address for at least the primary or designated corresponding author.
3. **Abstract*. CBE Manual §28-35. Should be 250 words or less in a single paragraph.
4. *Introduction*. An overview of the article, presenting the problem or context, the design of the experiment or research, and relevant previous publications. For a brief note, a formal introduction may not be necessary.
5. **Methods* or *Descriptive Background*. Articles presenting dating results should include specific detail on sample treatment and measurement methodology. Field procedures for collection of samples should be presented; archaeological papers should include site descriptions.
6. **Results*. See “Appendix” for long data tables. Use subheadings to separate results of different types, from different geographical areas, and so on.
7. **Discussion*. May be combined with “Results” in a brief article or note, or where the content is such that findings and interpretation need to be interwoven.
8. *Conclusion*. Useful in longer articles to summarize the paper. Should contain no new material or references; avoid simple restatements of introductory material.
9. *Acknowledgments*. Include sources of grant funding here.
10. *References*. See CBE Manual, Chapter 30.
11. *Appendix(es)*. Long data tables (over two pages) should be moved to the end of the text to avoid inconveniencing the reader. Give each appendix a title, and refer to it in the appropriate place in the text.

6.3 Special Textual Elements

Tables

Follow guidelines in CBE Manual §31-1–20. Tables should be prepared using the table function of your word processor; if that is not possible, tables with columns separated by tab characters are acceptable. We prefer to set tables in a standard format, using Times Roman type, but tables with complex features or graphical presentation may be reproduced from camera-ready copy or digital files. Refer to each table in the text near the place where it should appear.

Equations

In many cases we must re-set complex equations when they do not translate properly into our software. Please be sure that all symbols are legible and clear on the printed manuscript; carefully drawn handwritten equations are acceptable. If the equations in your word processing file are produced using MathType or the equation editors in WordPerfect or Microsoft Word, we can probably use them directly. You can help by setting equation sizes to 10 point Times Roman type for normal (or “full”) symbols, 7 points for superscripts and subscripts, and 5 points for second-level superscripts and subscripts.

Equations containing symbols that are not part of ordinary computer symbol sets or equation editors should be treated as graphics, with attached high-quality printouts that can be scanned and digitized by us.

Number display equations consecutively throughout the paper.

Figures

See CBE Manual §31.21–27 for general issues. Figures should be used as sparingly as possible, and only when they contribute information or interpretation not already present in the text or data tables. They should be scaled so as to reproduce legibly within a maximum space of 5.5 × 7.75 inches (14 × 19.7 cm) in normal page orientation, or 8 × 5.25 inches (20.3 × 13.3 cm) in landscape orientation (assuming a one-line caption; longer captions will leave even less space for the figure).

For digitized figures, see [Submitting Word Processor and Graphics Files](#). Printed or drawn figures and photographs submitted with articles should be of the highest possible quality. Line drawings, graphs, and charts should be originals on clean, bright white, high-contrast paper; photographs should be sharp black-and-white glossy prints. We can reproduce color line drawings and photographs, but must charge the extra cost to the author. (However, we can print a grayscale version and make a color version available for reference on our website at no charge.)

Detailed *grayscale figures* are difficult for us to reproduce well from laser-printed hardcopy; if at all possible, supply us with the digital files used to produce them. (The reason is that laser-print “grayscale” figures are really halftones, i.e. they are produced using [patterns of tiny black dots](#). At print resolutions over 600 dpi, our scanner cannot differentiate the dots so as to accurately reproduce the halftone pattern.)

Figure captions should be included separately at the end of the manuscript; references to each figure should be placed in the text near the location where they should appear. If a figure is reproduced or modified from a previously published, copyrighted work, it is the author’s responsibility to obtain permission to reprint from the copyright holder, and to pay any necessary fees. (We can supply a permission-request form.)

6.4 Company Names, Products, Trademarks

Give the address of a company, designating the specific branch, after its first use in the text. Quote the exact product name, with model number, if applicable, followed by a trademark (™) or registered trademark (®) symbol. Use the appropriate symbol at each occurrence in the text, including titles, tables and figures.

7.0 RADIOCARBON CONVENTIONS

7.1 Reporting ¹⁴C Dates

The standard reference on the calculations and terminology that should be used in reporting radiocarbon dates remains [Stuiver and Polach \(1977\)](#). Authors of *RADIOCARBON* articles should be familiar with that document, and should also consult subsequent expansions and agreements on conventions ([Stuiver 1980](#), [1983](#); [Mook 1986](#); [Long 1995](#)),

Calibrated dates should be reported using the latest available international calibration curve (currently IntCal09). If a computer program is used to calibrate dates, include the name and version number of the program when reporting calibrated ages.

7.2 Use of BP, cal BP/BC/AD

Uncalibrated Ages: BP

In a radiocarbon context, **BP** is understood as a symbol meaning precisely “conventional radiocarbon years before AD 1950”. Ordinarily, then, uncalibrated radiocarbon dates are reported in a form of this type:

UtC-2020: 3510 ± 60 BP

UtC-2020 is the laboratory number for the sample, UtC being the laboratory code for the Utrecht van der Graaf Laboratorium. (Laboratories and their corresponding codes are given in our [List of Known Radiocarbon Laboratories](#), including identification of codes for now-inactive laboratories.) **3510 ± 60 BP** is the uncalibrated age of the sample as provided by the laboratory, where 3510 is the age in radiocarbon years before 1950, and 60 is the laboratory's estimate of error at the 1σ (one standard deviation) level. In running text, use an expression such as:

Charcoal from level three dated to 3510 ± 60 BP.

Thousands of years BP may be abbreviated using the form **ka BP**. For example:

The Younger Dryas boundary is generally found between 11 and 10 ka BP.

1 ka BP is precisely synonymous with 1000 BP.

Because **BP** is conventionally understood to mean “years before 1950”, the form “yr BP” is ordinarily redundant. However, it may sometimes be necessary to use the term **¹⁴C yr BP** in a context where radiocarbon dates must be distinguished from results of other types of dating. For example, in an article reporting both radiocarbon and thermoluminescence dates, a sentence like this would be acceptable:

The karst pipe dated to about 27,900 ¹⁴C yr BP, but to 44,000 TL yr BP. *or*
The karst pipe dated to about 27.9 ¹⁴C ka BP, but to 44 TL ka BP

Forms of this type should be confined to running text; in a table or list, a column heading should be used to indicate the dating method in question.

To express a *difference* between conventional ages, use **¹⁴C yr**, not BP:

Wrong: The wood cellulose age is younger than the shell age by 610 BP.
Correct: The wood cellulose age is younger than the shell age by 610 ¹⁴C yr.

Calendar ages may be expressed using the form **calendar yr BP** (that is, absolute years before 1950), but in most cases it is less ambiguous to express such ages as dates AD or BC.

(Note: following CBE Manual recommendations, *RADIOCARBON* now uses full capital letters for “BP”, “BC”, and “AD”.)

Calibrated Ages: cal BC, cal AD, cal BP

The symbol **cal** is used to express calibrated radiocarbon ages. Note that “cal” should be understood as “calibrated”, not “calendar”. A “calendar age” is an absolute date, whether known or guessed; a “calibrated date” is an estimate based on statistical probability, and is therefore properly expressed as one or more ranges of calendar years, accompanied by the appropriate confidence level.

Wrong: The linen sample dated to 780 ± 40 BP, or cal AD 1263
Correct: The linen sample dated to 780 ± 40 BP, or cal AD 1220–1281 (1σ)
Correct: The linen sample dated to 780 ± 40 BP, or cal AD 1220 (1263) 1281 (1σ)

In this example, AD 1263 is the intercept of 780 BP on the dendrochronological calibration curve; it is *not* a calendar equivalent of a conventional ¹⁴C age. The first correct form expresses a calibrated date range at the 1-sigma confidence level; the second form gives the end points of the 1-sigma range with the intercept year in parentheses.

There are several valid ways to express calibrated dates; see [Stuiver and Pearson \(1993, p 5–6\)](#) and [Stuiver and Reimer \(1998, Section 4\)](#) for technical details. The method(s) chosen to represent cal dates should always be explicitly mentioned when the dates are presented.

Some in the radiocarbon community object to the term **cal BP** because they feel that BP is properly reserved for conventional radiocarbon ages, which yield BC/AD date ranges when calibrated. However, cal BP is widely used in the literature and has the advantage of providing a scale that does not break at AD 1 / 1 BC. A date expressed as “*N* cal BP” is equivalent to the date (AD 1950 – *N* years).

8.0 DATE LISTS

In general, the format of a date list should follow the style shown in the most recent issue of *RADIOCARBON*. Entries should be brief and precise, yet informative and easily understood by the general reader as well as by the specialist. A *Comment* should follow every sample or series description, in which the submitter(s) of the sample(s) discuss(es) the significance of the result. Authors should make liberal reference to published literature. When this is not available, it is the responsibility of the dating laboratory to collect the pertinent facts, by requiring the submitter to provide them in publishable form. We encourage the use of maps, tables and figures to fully describe the location of sites, the provenience and comprehensive data surrounding the sample(s). Authors should also describe, in some detail, the methods of collection, storage, sample pretreatment and measurement that they have used. Also, we would like to know the standards, protocol for quality assurance and the calibration program that the laboratory uses.

For geochemical measurements, the accepted standards are:

1. 0.95 times the age-corrected (to AD 1950) activity of NBS Oxalic Acid I ($\delta^{13}\text{C} = -19.0\text{‰}$)
2. 0.7459 times the age-corrected activity of Oxalic Acid II ($\delta^{13}\text{C} = -25\text{‰}$); see [Stuiver \(1983\)](#).

Report geochemical measurements as per cent of modern carbon (pMC), but where $^{13}\text{C}/^{12}\text{C}$ assays are available or reasonably assumed, we recommend the Δ notation. See [Stuiver and Polach \(1977\)](#) for further discussion. List values of $\delta^{13}\text{C}$ when known. Laboratories should retain records of $\delta^{14}\text{C}$ values in accessible form, whether or not they are published in the original entries.

Dates should be expressed in years BP (before AD 1950). Report calendar estimates and ranges in the *Comment* as cal AD/BC, citing the specific calibration curve and program used to calculate the estimate. Always cite the laboratory number, *e.g.*, A-1320, when referring to a date in the same list or another publication. If the date has been published previously, give the reference.

Title, authors and affiliations are the same as for general articles. Date lists need no abstracts; they start with an introduction and acknowledgments. Divide date lists into sections, *e.g.*, **ARCHAEOLOGICAL SAMPLES**. Further subdivide dates under geographic headings, *e.g.*, *UNITED STATES, Illinois, etc.* Each sample should have a descriptive name, usually that of the locality of collection, and preferably, a name different from those of all other samples. Each description, for a series or a single sample, should include the following: Laboratory number, descriptive name, date expressed in years BP (all in **boldface**), $\delta^{13}\text{C}$ value (in *italics*), sample material, with identification information, if relevant, specific location, including stratigraphic provenience, geographic coordinates, collector and submitter, with dates and affiliation and *Comment(s)*.
Example:

9750 ± 70
 $\delta^{13}\text{C} = -28.1\text{‰}$

ISGS-1264. Mauvaise Terre Creek paleochannel, MVT 1B

Primarily uncarbonized, nonconiferous (diffuse porous and ring porous) wood and bark, some herbaceous plant debris, 4.67–4.80 m below ground surface in the Illinois Valley; near the base of a stratified and laminated silt unit filling an old meander channel of Mauvaise Terre Creek, incised into the Keach School Terrace; from Scott County, 5 km southwest of Oxville (39°40'50"N, 90°37'00"W). Collected 1983 by D. S. Leigh; submitted by E. R. Hajic, D. S. Leigh and D. L. Asch.

Comment: This date provides a minimum age for the Keach School Terrace. See Hajic (1987).

Some specific guidelines follow:

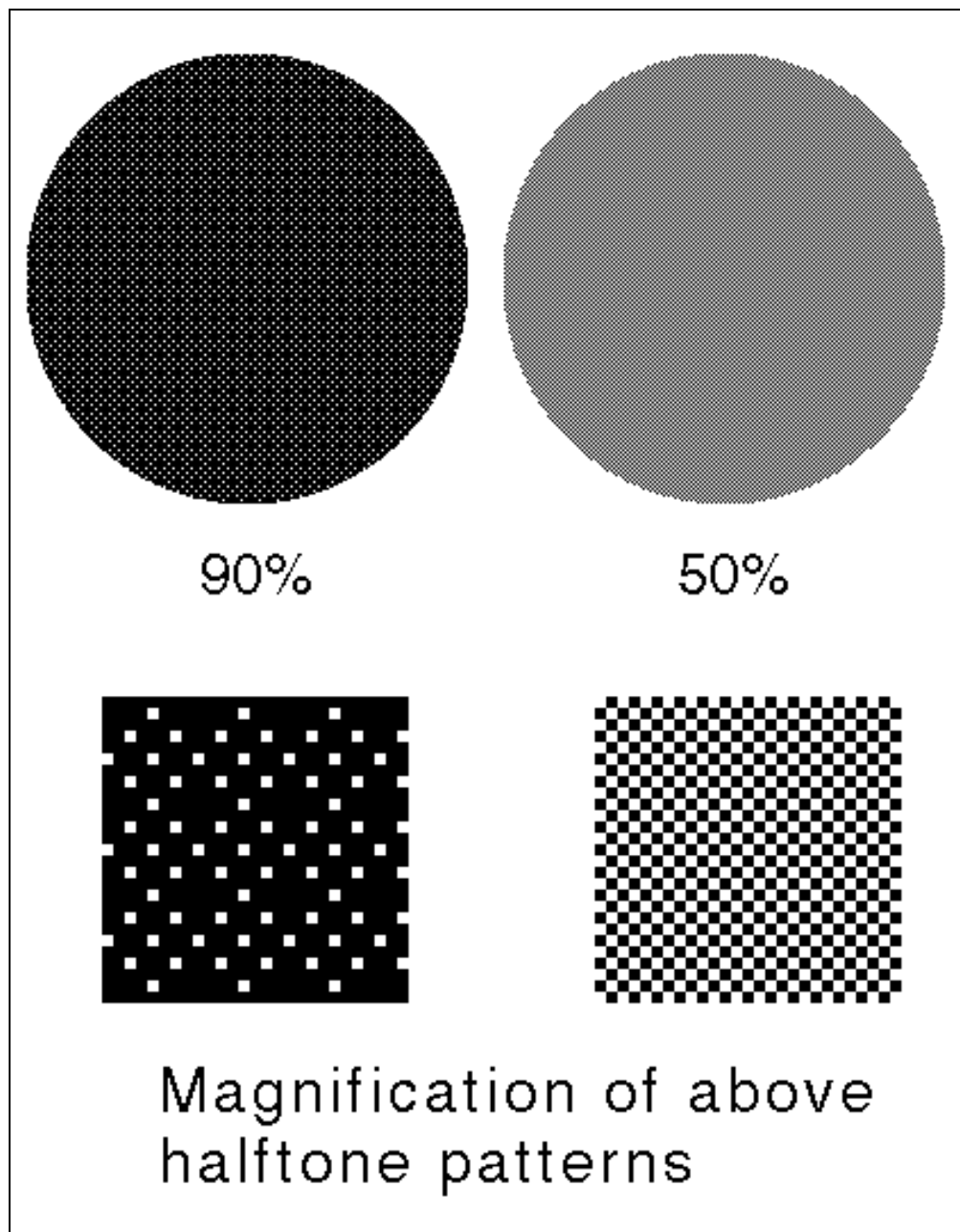
- In a series title, capitalize the “S” in “Series”. Indent sample numbers under the series heading.
- Be as specific as possible when identifying the sample material. Use the Linnaean name in parentheses following the popular name, if the sample is a plant or animal fossil. Include the name of the person who identified the sample. Italicize species names, but not the word “species” or “sp.”.
- Give the precise geographic location, including latitude-longitude coordinates, in parentheses. Do not use Lat and Long; use N, E, S, W (for example: 39°40′50″N, 90°15′50″W), leaving no spaces between units. National Grid References (NGR) should also be included in parentheses.
- Describe occurrence and stratigraphic position (but not stratigraphic sequences), including depth or elevation, or cultural association, including period or name of culture, in precise terms. Explain interpretations of stratigraphic or cultural associations in the *Comment*.
- The *Comment* usually compares the date with other relevant dates, for which the author should provide sample numbers and references. Interpretive material, summarizing the significance of the ¹⁴C measurement belongs here, as do technical matters such as chemical pretreatment, and special laboratory difficulties. Include calendar estimates and calibration information here. We cannot overstate the importance of this section, for it is here that the author should describe the significance of the date. Include initials in parentheses before the colon. *Comment* starts at the left margin. Capitalize the first letter of the first word after the colon. See example, above.

In recent issues, we have been publishing site-specific interpretive literature on ¹⁴C dating of a particular area or site. These papers represent combinations of research articles and date lists (comprising results from several laboratories) that carefully analyze and explore the ramifications of ¹⁴C results. Prepared by consumers rather than producers of ¹⁴C dates, these articles are extremely valuable for a wide range of scientific disciplines, and we encourage contributions of this nature. For examples, refer to Mead and Agenbroad (1992); Clark (1993); Allen (1994).

9.0 REFERENCES

- Allen MS. 1994. The chronology of coastal morphogenesis and human settlement on Aitutaki, Southern Cook Islands, Polynesia. *Radiocarbon* 36(1):59–71.
- Clark JT. 1993. Radiocarbon dates from American Samoa. *Radiocarbon* 35(2):323–30.
- Long, A. 1995. From the editor [editorial]. *Radiocarbon* 37(1):iii–iv.
- Mead JI, Agenbroad LD. 1992. Isotope dating of Pleistocene dung deposits from the Colorado Plateau, Arizona and Utah. *Radiocarbon* 34(1):1–19.
- Mook, WG. 1986. Business meeting: recommendations/resolutions adopted by the Twelfth International Radiocarbon Conference. *Radiocarbon* 28(2A):799.
- Stuiver, M. 1980. Workshop on ¹⁴C data reporting. *Radiocarbon* 22(3):964–6.
- Stuiver, M. 1983. Business meeting: international agreements and the use of the new oxalic acid standard. *Radiocarbon* 25(2):793–5.
- Stuiver M, Pearson GW. 1993. High-precision bidecadal calibration of the radiocarbon time scale, AD 1950–500 BC. *Radiocarbon* 35(1):1–23.
- Stuiver M, Polach HA. 1977. Discussion: reporting of ¹⁴C data. *Radiocarbon* 19(2):355–63.
- Stuiver M, Reimer PJ. 1998. CALIB 4.0 Manual [WWW document]. Seattle: Quaternary Research Center, University of Washington. URL: <<http://calib.qub.ac.uk/calib/manual/>>. Accessed 1999 Feb 17.
- Stuiver M, Reimer PJ, Bard E, Beck JW, Burr GS, Hughen KA, Kromer B, McCormac G, van der Plicht J, Spurk M. 1998. INTCAL98 radiocarbon age calibration, 24,000–0 cal BP. *Radiocarbon* 40(3):1041–83.

10.0 APPENDIX: Example of “Grayscale” Figure



At normal magnification, the circles appear to be composed of solid shades of gray. Magnification shows that they are in fact composed of black-and-white dot patterns.