RADIOCARBON UPDATES

17th International Radiocarbon Conference

The 17th International Radiocarbon Conference has been scheduled for June 18–23, 2000, outside of Jerusalem, Israel. Please see the full-page announcement at the back of this issue for details.

Laboratory Upgrade at Purdue's PRIME Lab

PRIME Lab is a dedicated accelerator mass spectrometry (AMS) facility supported by the US National Science Foundation, Division of Earth Sciences, and operated by Purdue University, West Lafayette, Indiana, 47907, USA. PRIME Lab has recently attained the capability to routinely prepare and measure small radiocarbon samples by AMS. The precision is better than 1% (80 years) for modern samples. The turnaround time is currently under 3 months. Background levels result in a limiting age of about 46,000 years. Sample types currently accepted and preferred quantities are: graphite (2 mg), wood (20 mg), charcoal (15 mg), plant fragments (25 mg), seeds (15 mg), soil samples (200–400 mg), and carbonates (70 mg). Smaller samples can be run, but may result in lower precision. Larger samples should be supplied if there is a high concentration of contaminants or a lower than usual percentage of carbon.

Other nuclides measured at PRIME Lab are ^{10}Be, ^{26}Al, ^{36}Cl, ^{41}Ca and ^{129}I (3–5%). PRIME Lab specializes in surface exposure dating and erosion rate measurements of rocks.

For further information, consult PRIME's web page at http://primelab.physics.purdue.edu/ or contact Pankaj Sharma (+1 765-494-2586; Fax: +1 765-494-0706; Email: sharma@purdue.edu).

Retirements and New Appointments

Prof. Yoshio Onuki has retired as chairman of the committee on the C-14 Dating Laboratory at the University Museum, the University of Tokyo, and retired from the University as of April 1998. Prof. Ichiro Kaneoka is the new chairman of the committee; Dr. Kunio Yoshida is now directing the laboratory (see the new List of Laboratories in this issue for contact information).

New Version of OxCal and ORAU Dates Available

Beta test version 3beta2 of the radiocarbon calibration program OxCal is now available from the Oxford Radiocarbon Accelerator Unit Web server at http://www.rlaha.ox.ac.uk/oxcal/oxcal_h.html. This version runs on Windows® 95 or NT only (users of Windows® 3.1 will need to use the previous version 2.18, available at the same Web address).

Listings of all published dates from the laboratory are also now available at http://users.ox.ac.uk/~orau/dl_index.html.

Publications Received

J. J. Lowe, ed. *Radiocarbon Dating: Recent Applications and Future Potential.* 1991 [reprinted 1996]. Quaternary Proceedings No. 1. Chichester, United Kingdom: John Wiley & Sons. 89 p. ISBN 0-471-95860-3. $60.00.

C. Tuniz, J. R. Bird, D. Fink, and G. F. Herzog. 1998. *Accelerator Mass Spectrometry: Ultrasensitive Analysis for Global Science.* Boca Raton, Florida: CRC Press. 398 p. ISBN: 0-8493-4538-3. $89.95.

Mark Van Strydonck, Laurence Forest, Myriam Landrie, Veerle Hendrix, Klaas van der Borg and Arie F. M. de Jong. 1995. *Royal Institute for Cultural Heritage Radiocarbon Dates XV.* Brussels, IRPA/KIK: 48 p.

Mark Van Strydonck, Myriam Landrie, Veerle Hendrix, Klaas van der Borg, Arie F. M. de Jong, Cees Alder[l]iesten and Eddy Keppens. 1998. *Royal Institute for Cultural Heritage Radiocarbon Dates XVI.* Brussels, IRPA/KIK: 59 p.

Радиоуглерод и Археология (*Radiocarbon and Archaeology*). New journal edited by G. I. Zaitseva, V. A. Dergachev, and V. M. Masson, published by The Institute of the History of Material Culture, Russian Academy of Sciences, St. Petersburg. Articles in Russian with English summaries. For subscription information, contact Thesa Publishing, bi@thesa.spb.su.

Awards

Our consulting editor, **Tim Jull**, is a recipient of the Geological Society of America's Kirk Bryan Award for Research Excellence, awarded to authors of an outstanding publication in Quaternary geology or geomorphology. The 1997 award was for Grant Meyers, Steve Wells, and A. T. J. Jull, "Fire and alluvial chronology in Yellowstone National Park: Climatic and intrinsic controls on Holocene geomorphic process", *Geological Society of America Bulletin*, v. 107, p. 1211–1230.

RADIOCARBON associate editor **Edouard Bard** was one of two scientists awarded the James B. Macelwane medal at the Fall Meeting Honors Ceremony of the American Geophysical Union in San Francisco on 10 December 1997. The Macelwane Medal "recognizes significant contributions to the geophysical sciences by a young scientist of outstanding ability". The citation and Dr. Bard's response will be of interest to anyone using ^{14}C data in environmental research, and we are pleased to reprint them here. (And we add our own "*Bravo et félicitations!*" to the AGU's praise.)

Citation

"The Macelwane Medal has the quality of reassuring the geophysics community that the future of our discipline is in good hands. I wish to report today that Edouard Bard provides that assurance in the fields of geochemistry, oceanography, and climatology. Can more be asked?

"The greatest leaps forward in our discipline occur when several approaches to a problem are yoked in the mind of a clever person. While in France, Edouard learned the power of accelerator mass spectrometry in analyzing terrestrial materials for radiocarbon when applied to deep-sea carbonate deposits. He brought this knowledge to the United States as a postdoc at the Lamont-Doherty Earth Observatory. The happy circumstance of coral drilling off Barbados, led by Rick Fairbanks, and the development of precise uranium and thorium isotope measurements by mass spectrometry at Jerry Wasserburg's Caltech laboratory resulted in the first development of a calibration of variations in atmospheric ^{14}C beyond the range of the tree ring data using data from corals. This calibration not only made possible accurate dating of archaeological artifacts and materials of geological importance but also raised once again the issue of the causes of ^{14}C variations in the atmosphere over time. Edouard's recent study of the coupling of ^{14}C in trees and ^{10}Be in ice cores, (both radionuclides of cosmogenic origin,) over the past 1,000 years shows the controlling effect of solar activity on the production of cosmogenic nuclides. With this relationship established, the extension to the last 20,000 years is now possible based on the coral data described above.

"However Edouard has long had a commitment to the deep ocean record thanks to his association with Jean-Claude Duplessy. A critical problem in deep-sea carbonate oxygen isotope records has been the unraveling of how much the glacial cycle variations are due to the storage of low $\delta^{18}O$ water in the ice caps and how much to changes in the surface temperature of the oceans. This question is most important for the equatorial seas, where marine paleontological temperature records seem to be at odds with the land-based information on temperature that is based on rare gases dissolved in groundwaters and the changing snow lines on equatorial mountains.

"A technique was developed at Bristol by Brassell and Eglinton based on the double-bond record in alkenones found in the cells of the coccolithophoridae that is responsive to the temperature of the aqueous growth environment: the surface ocean. Edouard's commitment to understanding the reliability and significance of the alkenone record preserved in deep-sea sediments will go a long way toward resolving the problem of reservoir versus temperature as $\delta^{18}O$ controls in tropical planktonic foraminiferan deposits.

"I list these two areas of research to show that Edouard is the person to watch if one wants to learn about how the Earth's surface climate is recorded over time and how the cosmos influences the climatic and oceanographic tracers found at our planet's surface.

"Yes indeed, our discipline is in good hands with Edouard Bard. His energy, good thinking, and farsightedness guarantees not only a brilliant future for him but for all of us as well."—*Karl K. Turekian, Yale University, New Haven, Conn.*

Response

"I am deeply honored to receive this AGU Macelwane medal and particularly happy and proud to be cited by Karl Turekian, one of my scientific heroes.

"My love for Earth sciences started early, in fact as long ago as my memory can recall. My parents cultivated my interest in mineralogy and paleontology and, as a teenager, I spent most of my vacations digging in prehistoric sites and searching for minerals and fossils. After hesitating between studying geology at a regular university and applied sciences in one of the French engineering schools, I found a way to compromise, which was to enter the only engineering school in France that includes the word "geology" in its title (Ecole Nationale de Géologie Appliquée et de Prospection Minière) in Nancy. I later realized that it was merely to work for oil and mining industries and in civil, hydrological, and chemical engineering, but this was the only way to reconcile my parents and to satisfy my aspirations in the future. Fortunately, it allowed me to get exposed to painstaking but rigorous tools in applied math, physics, and chemistry, which enable to truly quantify geological processes.

"I decided that isotope geochronology would be the best way to keep one foot in archeology and the other in chemistry. Thus, in 1985, I joined the new team of accelerator mass spectrometry (AMS) at the Centre des Faibles Radioactivités in Gif-sur-Yvette to prepare a thesis using this technique to measure ^{14}C. From those Ph.D. years I particularly want to thank Maurice Arnold, who taught me the basics of AMS and the painful way to become a careful analyst. The work assigned by my advisor, Jean-Claude Duplessy, was twofold: dating deep-sea sediments and using bomb-produced ^{14}C as a transient tracer in modern oceanography. With a Ph.D. project dealing with Quaternary paleoclimates and the fate of CO_2 in the ocean, I inevitably came across the abundant literature of Wally Broecker. The Lamont-Doherty Earth Observatory of Columbia University became the center of my scientific world and, quite naturally, I applied there for a postdoc fellowship.

"My subsequent years at Lamont were very intense, since I was lucky to arrive at a critical time when Rick Fairbanks was planning his drilling off shore Barbados. My second stroke of luck was that there was no accelerator facility at Lamont and thus I was compelled to find something else to do as lab work. At about that time the Caltech isotope geochemistry team published their important papers on Uranium-Thorium dating by mass spectrometry. This was precisely the same approach as using AMS for ^{14}C counting radioactive atoms directly instead of waiting for them to decay. After some discussions, Rick, Wally, Alan Zindler, Bob Anderson, and Bruno Hamelin all agreed that this would make a good postdoc project and that I could use an old Micromass 30 to implement the new technique and use it to date Barbados corals with high precision. Minor isotopes of uranium and thorium are difficult to measure, and I am particularly grateful to Bruno, who spent days teaching me how to separate and purify these elements and how to analyze them with a thermal ionization mass spectrometer. Without his involvement in this collaboration, we would not have produced the numerous ages of fossil corals that allowed us to study past sea levels and to pursue the calibration of ^{14}C.

"Back in France, Bruno, Daniel Nahon, and Annie Michard convinced me to help them build new geochemistry laboratories from scratch in a newly refurbished building located in the pine woods between Marseille and Aix-en-Provence (CEREGE). This has been a difficult experience that inevitably slowed down our research output but proved to be useful, since we had no real limitations. For example, this allowed me to get

involved in applications of organic geochemistry in the field of paleoclimatology. For this recent part of the story I thank my wife and colleague, Frauke Rostek, who now spends most of her working time struggling with gas chromatographs. I also thank Frauke for her love and patience over the years, which allowed her to cope with my torments and anxiety."—*Edouard Bard, Université d'Aix-Marseille and Institut Universitaire de France.*

LAST-MINUTE ITEMS

University of Texas Laboratory Closure

With sadness we convey the following notice from Laboratory Director Ernest L. Lundelius, Jr.:

> The Radiocarbon Laboratory of the University of Texas, Austin will close as of August 31, 1998. No samples can be accepted for dating after June 15, 1998. Every effort will be made to date those samples that were accepted before that date. For additional information contact :
>
> Radiocarbon Laboratory
> University of Texas
> J.J. Pickle Research Campus, Building 21
> 10100 Burnet Road
> Austin, TX 78758-4497
> or e-mail:lfroehlich@mail.utexas.edu
> erniel@mail.utexas.edu

New Internet Domain for RADIOCARBON

As of mid-June 1998, *RADIOCARBON* has registered the new Internet domain **radiocarbon.org**. The following addresses are now in operation:

WWW site: http://www.radiocarbon.org/
Email: user@radiocarbon.org

(where "user" is the username; see addresses at http://www.radiocarbon.org/communicating.html). All of the existing WWW and email addresses at packrat.aml.arizona.edu remain valid as well.