

PREFACE FROM THE EDITORS

The 5th International Radiocarbon and Archaeology Symposium was held at the ETH Zurich between March 26th and 28th, 2008. A total of 164 participants (including 47 students) from 28 countries attended the symposium. We had presentations of 13 invited speakers who opened 6 thematic/topic sessions that included 31 oral presentations and 49 posters.

We all, archaeologists and radiocarbon specialists alike, enjoyed meeting and talking about what we share, that is, ^{14}C (what is left) in bones, charcoal, wood, soils, iron, mortar. We discussed getting that ^{14}C out of precious archaeological records and also reading the information written by ^{14}C into the archaeological context. Problems that occur when ^{14}C ages are interpreted were at the heart of our discussions.

The discussions continued during 2 receptions that ended days filled with presentations. The scenery for those pleasant events was totally different, the first evening set in 2 laboratories surrounded by accelerators (AMS lab, ETH Zurich) or microscopes and wooden slabs (Dendrolaboratory, Zurich). The next evening we were treated with wine and were able to enjoy the wonderful collection of the Swiss National Museum. Many thanks to these institutions for organizing and sponsoring those charming evenings.

To continue with the acknowledgments, we would like to thank Prof Martin Suter, who supported the idea of organizing the conference, not only taking responsibility for the financial part but most importantly, assigning an organizing “fairy” in the person of Leonore Noll. We would like to thank Leonore for her engagement and work, which ensured that this conference was a great success. Also, we would like to thank the students and staff from our organizations who helped during the conference.

Thanks to our sponsors, we were able to support some speakers and attendees as well as to publish this issue. We are thankful to the *Radiocarbon* editors Prof Tim Jull and Mark McClure for their support. Special thanks to Mark for his amazing work done on this volume, his patience, and friendly attitude.

And finally, we would like to express our gratitude to all participants of the conference, authors, and reviewers who did their excellent work for the proceedings in order for the publication to be available just over a year after the submission deadline.

This proceedings issue presents a picture of recent research projects involving close collaboration of both research fields. The topics of the sessions form the chapters of this issue.

During the conference, the first session was dedicated to the extension of the ^{14}C calibration curve and its impact on the chronology of Upper Paleolithic sites; prospects for the extension of the calibration curve, e.g. marine (Cariaco Basin, marine cores from North Atlantic) and terrestrial records such as tree rings were discussed. These topics were also extensively addressed during the last 2 Radiocarbon Conferences in Oxford (2006) and recently in Hawaii (May 2009), published as special issues of *Radiocarbon*.

In session 2, ^{14}C chronologies and dendrochronological application of calibration tools such as Bayesian analysis and wiggle-match dating were introduced and discussed. The tools are not a solution to all calibration problems, but they might improve many chronologies that are already available. The need for a closer collaboration between both communities was expressed by many participants.

Session 3, entitled “Radiocarbon, Archaeology, and Landscape Change,” combined archaeology and environmental studies. ^{14}C dating of artifacts and/or organic residues in natural or human-influenced soils and sediments is a widely used technique to decipher past human activities and, in combination with additional methods, to help in reconstructing the landscape and climate history. It allows not only the creation of chronological registries of human activity or of geomorphological settings, but also unravels the nature of these activities and landscape changes thereby induced. This session explored the interface between archaeology and landscape research (as perceived by archaeology and earth science). The calibration issues, the conservation of datable materials, the sampling techniques, and the estimation of the *in situ* character of the dated objects are some of the problems that have to be taken into consideration when reconstructing landscape changes. This session included studies of archaeological sites from various geographic locations (e.g. South America, Siberia, Africa, Switzerland, Germany, and many others) that document the development of human settlements and its impact on the environment (for example, fire) as well as the correlation to climatic change (arid/wet periods).

In the session 4, the topics discussed were ^{14}C ages of bone development and improvement of preparation techniques focusing on the removal of potential contamination of the bone as well as specific examples of dating bones. The 10 papers published in this issue present a “state of the art” overview in the dating of bones.

Session 5, “Radiocarbon Chronologies of the Neolithic and Metal Ages,” addressed problems associated with ^{14}C chronologies of archaeological sites from around the globe. The speed of the Neolithic developments in Europe and Russia were the main subject. Because ^{14}C and dendrochronology provide a wealth of data, these can be used to reconstruct the development. The Bayesian approach was recommended as well as the new development of tools that would model movement of people and the spread of cultures.

In the poster session 6, various laboratories presented their tools for ^{14}C dating. New preparation techniques in dating archaeological sites included dating of mortar, direct ^{14}C dating of iron artifacts, as well as new AMS techniques for analyzing samples that contain ~ 10 μg of carbon.

In addition to all the presentations, a meeting of the International Calibration (IntCal) group was held during the lunch break on March 26th with 12 participants present.

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Editors

1. ORGANIZING INSTITUTIONS

Ion Beam Physics, Paul Scherrer Institute and ETH Zurich

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Dendrochronology Laboratory Zurich

Swiss National Museum, Center of Collection, Department of Archaeology

University of Zurich, Department of Prehistory, Department of Geography

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