SAS Bulletin

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Ah, Rats!!!

On the heels of Jared Diamond's much-criticized "ecocide" hypothesis (in *Collapse*, 2005) to explain environmental degradation by human agents, the debate over the cause of collapse of premodern Rapa Nui (aka "Easter Island") civilization has heated up recently (*Rapa Nui Journal* 21[2], 2007). With the introduction of new evidence in the form of radiocarbon dates showing that part of the island's prehistory only dates back to ca. AD 1200, and not much earlier as had been believed previously, Terry Hunt and Carl Lipo have suggested that rats, not people, may have had something to do with the collapse of the island's ecosystem. The new dates suggest that there was not enough time for humans to have been responsible for "ecocide."

The idea is that the Pacific rat, introduced to islands by Polynesian colonists, reproduced into a population numbering in the millions over a short period of time, expanding over the landscape and consuming the seeds of native plants as they went. This process eventually halted regrowth of many forest taxa, which led to environmental collapse. Some disagree. Critics say that the new dates only reveal a small portion of the island's occupational history; this chronology cannot be reasonably extended to cover the entire island. Other critiques take aim at how the C14 dates were interpreted to begin with.

Icons of Polynesia, these giant stone moai statues on Rapa Nui were erected in honor of high chiefs, not rats.

Controversy and debate are not departures from science—they are the substance of it. Arguing with the data, and sometimes with each other, provide the context in which new knowledge is created and considered. While the dispute over the role of humans versus rats may linger for the Rapa Nui puzzle, in the end it is probably just as well for the scientific process.

In this issue of the *Bulletin*, we feature two articles on new data from research on Rapa Nui. The first, by Veronica Harper, Hector Neff, and Carl Lipo, uses LA-ICP-MS to track down basalt sources for understanding the distribution of basalt artifacts on the island. In the second article, Kristin Safi and Carl Lipo discuss the results of their geophysical survey using magnetometry and GPR on Anakena Beach—near to where those pesky carbon samples were excavated. In the spirit of science, and debate, enjoy this issue!

E. Christian Wells, Editor

In This Issue

Employment Opportunities

NERC Tied Research Doctoral Studentship: Integration of archaeological and paleo-climate records with isochronous markers, as part of the RESET NERC Consortium Grant. The student will be based at Oxford under the supervision of Christopher Ramsey and will be involved principally in (i) studying all of the records included in the RESET project which are relevant to the timings of the AETs (abrupt environmental transitions), (ii) constructing overall Bayesian models using existing methodologies (Bronk Ramsey 2007), and (iii) developing and testing other Bayesian statistical methods applicable to the integration of chronological records. The student will liaise with the other members of the RESET team to ensure that all information relevant to the overall chronological models is included in the analysis. They will also have the opportunity to be involved in the radiocarbon dating aspects of the project. The studentship is for 36 months commencing on October 1, 2008. Further details are available at: http://c14.arch.ox.ac.uk/vacancies.html.

The **South Carolina Institute for Archaeology and Anthropology** (SCIAA) at the University of South Carolina is seeking an outstanding candidate for an 11-month post-doctoral position in the field of African Diaspora archaeology. The researcher will be expected to organize a conference related to this topic and to prepare an edited volume deriving from the conference. The candidate will also collaborate with the Department of Anthropology, and will teach one course for the department. An ideal candidate will have a broad research background in African Diaspora studies, and must be willing to develop ties with other institutions on campus with a similar focus. Candidates must have the PhD in hand by the start date of August 16, 2008. The application must include (1) CV; (2) names of 3 references; (3) a two-page prospectus outlining the theme of a proposed conference. Applications must be forwarded through the university website (http://uscjobs.sc.edu) under the heading of Postdoctoral Fellow-Archaeology. For full consideration, applications should be received by April 1, 2008. For questions, contact Dr. Charles Cobb, Director, SCIAA, at cobbcr@gwm.sc.edu.

Awards, Fellowships, and Training

R.E. Taylor Student Poster Award competitions at SAA 2008 and ISA 2008 Society for American Archaeology Annual Meeting Austin, Texas, April 2008. The Society for Archaeological Sciences will offer prizes for the best student archaeometric posters presented at the Annual Meeting of the Society for American Archaeology (March 26 through 30: Vancouver, Canada) and the International Symposium on Archaeometry (May 12 through 16: Siena, Italy). One award will be given at each venue. Prizes include a one-year membership in the SAS, including the quarterly *Bulletin*, and a monetary award of $100 (US). The student should be the first author and the presenter of the poster. Criteria for the award are significance of the archaeological problem, appropriateness of the archaeometric methods used, soundness of conclusions, quality of the poster display, and oral presentation of the poster. Students must be present at the meeting in order to compete. To apply, please send a copy of the poster abstract (indicating the student author), a correspondence address, and the name and date of the session in which the poster will be presented. Deadline for SAA entries: Wednesday March 19, 2008 Deadline for ISA entries: Wednesday, April 30, 2008. Email entry information and direct questions to: AJ Vonarx, SAS Membership Development, ajvonarx@email.arizona.edu.

Claude C. Albritton, Jr. Award, Archaeological Geology Division, Geological Society of America. The Albritton Award Fund provides scholarships and fellowships for graduate students in the earth sciences or archaeology for research. Recipients of the award are students who have (1) an interest in achieving a M.S. or Ph.D. degree in earth sciences or archaeology; (2) an interest in applying earth science methods to archaeological research; and (3) an interest in a career in teaching and academic research. Awards in the amount of $650 are given in support of thesis or dissertation research, with emphasis on the field and/or laboratory aspects of the research. Those desiring further information about these scholarships or applying for one should contact: Loren Davis, loren.davis@oregonstate.edu. The deadline for receipt of applications is March 2008.

International School in Archaeology and Cultural Heritage, http://www.3darchaeology.org, May, 2008, Ascona, Switzerland. The School will face the problem of the modern technologies in the heritage field, giving participants the opportunity to obtain a detailed overview of the main methods and applications to archaeological and conservation research and practice. Furthermore, our School will give the chance for participants to enter in a very short time the kernel of the scientific discussion on 3D technologies – surveying methods, documentation, data management and data interpretation - in the archaeological research and practice. The School will be open to approximately 60 participants at graduate level, to those carrying out doctoral or specialist research, to established research workers, to members of State Archaeology Services and to professionals specializing in the study and documentation, modeling and conservation of the archaeological heritage. The grant application and registration form are available online. The deadline for the grant application is 15 February, 2008: http://www.3darchaeology.org/school_grant_application.pdf. Grants provided by UNESCO and ISPRS will be available for students with limited budgets and travel possibilities. The deadline for registration is March 31, 2008: http://www.3darchaeology.org/school_registration.pdf. The School is to be held in the congress centre Centro Stefano Franscini, Monte Verità, Ascona, Switzerland. The centre is an ETH-affiliated seminar complex located in a superb botanical park on the historic and cultural Monte Verità area, which will also be the residence of the participants with its integrated hotel and restaurant. More information, info@3darchaeology.org.

Conference News and Announcements

GLASSAC-08 Congress, to be held at the Aula Magna of Valencia University Historic Building, Valencia, March 5-7, 2008. The aim of this event is to create a focus on the applications of glass science in art and conservation. We hope to enhance communication among scientists belonging to different fields with artists and conservators. The congress will give an opportunity to work together and discuss the latest results in a variety of topics including: Bronze Age glass, Hellenistic glass, Islamic glass, Roman glass, Mould-blown glass, Glass decoration and enamel, Medieval stained glass window, Façon-de-Venise glass, Glass in the 18th and 19th century, Contemporary glass, Glass technology production, Raw materials, Dating and provenance of glass, Restoration and conservation of glass, Glass corrosion and weathering, and Archaeometry of glass. Further information about the meeting is now available in the file attached to this e-mail and it is also available at the conference web site (www.uv.es/glassac). If you would like to attend the congress, and have not yet registered, please, visit the site as soon as possible and send us the registration form. Note there is an early registration fee if you register and pay by January 15th. The conference registration fee includes all open sessions, conference sponsored materials, refreshment breaks, lunch, conference proceedings, and the social dinner.

Paleoanthropology Society Meeting will be held in Vancouver, Canada on Tuesday and Wednesday, March 25 and 26 at the Hyatt Regency Hotel, 655 Burrard Street (Tel: 604-683-1234). The meeting is scheduled in conjunction with the Society for American Archaeology which is also headquartered at the same venue although SAA sessions will take place at the Vancouver Convention and Exhibition Centre 5 blocks away. Useful information can be obtained from the SAA web site http://www.saa.org. US citizens must present a passport to travel between the US and Canada. Registration will be held Tuesday morning from 8:00 a.m. to 9:00 a.m. at the entrance to Georgia A and B where the sessions will convene. The program will begin at 9:00 a.m. Oral presentations will be strictly limited to 15 minutes and a PowerPoint projector and computer will be provided. Participants should arrive before the start of their session to load their presentations. The poster session will take place in Plaza B and C on Tuesday, 4:15 p.m. - 6:00 p.m. and presenters should set up their material on Tuesday before that time. Spaces may be selected by the participants and will not be assigned. The poster display area per poster is 4' high x 8' wide. Mounting supplies are not provided and presenters should bring their own pushpins or double-sided tape. Electricity will not be available. Both the program and poster and oral presentation abstracts will be available on the Society web site: http://www.paleoanthro.org. The registration fee is $15 and annual membership in the Society is $20. Both are payable in three ways (We would be grateful if individuals would use options 1 and 2 to the maximum extent possible):1.Preferred option: Electronically, via Paypal. Go to http://www.paleoanthro.org/membership.htm. It allows the establishment of new accounts and accepts all major credit cards. 2. By check, payable in US dollars to "Paleoanthropology Society." Send to: John Yellen, 810 E Street SE, Washington, DC 20003. 3. By check or US dollars at registration. Again, please only use this method if the others are not possible. You may contact the Society directly by email at jyellen@nsf.gov.

Arctic Palaeoclimate and its Extremes (APEX) - Recent Advances, Tuesday, April 1st to Friday, April, 4th 2008, hosted by The Department of Geography, Durham University, Durham, UK. APEX - "Arctic Palaeoclimate and its Extremes" is a network research program aiming to understand Arctic climatic changes beyond instrumental records. Our particular emphasis is to focus on the magnitude/frequency of the climate variability and, in particular, the "extremes" versus the "normal" conditions of the climate system. It is an interdisciplinary program that integrates marine and terrestrial science and utilizes modeling and field observations. APEX involves scientists from 15 European countries, Canada and the USA, includes geologists, geomorphologists, modelers and palaeo-oceanographers, and is one of the coordinating programs for palaeoclimate research during the International Polar Year (IPY) 2007/2008. The Second APEX Conference will comprise two and a half days of presentations on current Arctic research including that related to the International Polar Year 2007/2008. The conference will be hosted by Durham University, in Durham City, NE England. It is open to all researchers with an interest in Arctic palaeoclimate. The main themes of APEX and the conference are: Arctic marine and terrestrial glacial maxima; Sea level minima and sea-ice; Arctic Ocean palaeoceanography; Ice shelf extent; Past atmospheric circulation; Interglacial and interstadial environments; Fluvial-marine interaction; Freshwater budget and ice-dammed lakes; Permafrost; Glacier and ice sheet dynamics; Arctic marine and terrestrial biosphere; Cryospheric modeling. More information is on the website at: http://www.apex.geo.su.se/meetings/apex2008.html.

"**Historical Links Between Geology and Soil Science**" has been approved for the 2008 joint GSA-SSSA annual meeting. The abstract submission deadline is April 1, 2008. Abstracts can be submitted by going to https://www.acsmeetings.org/ starting January 21, 2008. Potential speakers are asked to contact Ed Landa at erlanda@usgs.gov.

National Park Service's Archaeological Prospection Workshop. The National Park Service's 2008 workshop on archaeological prospection techniques entitled "Current Archaeological Prospection Advances for Non-Destructive Investigations in the 21st Century" will be held May 19-23, 2008, at the Kelly Inn, Fargo, North Dakota, USA. Lodging will be at the Best Western Kelly Inn with the meeting room at O'Kelly Event Center at the Kelly Inn. The field exercises will take place at the Biesterfeldt Site (a protohistoric village site on the Sheyenne River). Co-sponsors for the workshop include the National Park Service, the Archaeological Conservancy, Minnesota State University-Moorhead, and the State Historical Society of North Dakota. This will be the eighteenth year of the workshop dedicated to the use of geophysical, aerial

photography, and other remote sensing methods as they apply to the identification, evaluation, conservation, and protection of archaeological resources across this Nation. The workshop will present lectures on the theory of operation, methodology, processing, and interpretation with on-hands use of the equipment in the field. The workshop this year will have a special focus on the soil magnetism and on the effects of plowing on geophysical signatures and site integrity. There is a tuition charge of $475.00. Application forms are available on the Midwest Archeological Center's web page at http://www.cr.nps.gov/mwac. For further information, please contact Steven L. DeVore, Archeologist, National Park Service, Midwest Archeological Center, Federal Building, Room 474, 100 Centennial Mall North, Lincoln, Nebraska 68508-3873: tel: (402) 437-5392, ext. 141; fax: (402) 437-5098; email: steve_de_vore@nps.gov.

12th International Conference on Ground Penetrating Radar, 15-19 June 2008, University of Birmingham, UK, www.gpr2008.org.uk. In excess of 200 abstracts have been received for the 12th International Ground Penetrating Radar Conference GPR2008 to be held in Birmingham, UK in June 2008 covering the many diverse areas of the technology. Participants may enjoy an exciting journey through the wide range of applications, beginning at their front door with utility detection and moving through many infrastructure areas including roads, railways and structures and to the environment, both ancient and modern, with archaeology and issues of major "green concern," for example glaciology in polar regions, hydrogeology, geology and sedimentology. The journey concludes with sub-surface investigations on the Moon and Mars. The wide range of papers is a perfect illustration of the wide range of disciplines for which Ground Penetrating Radar is indispensable. Although submission of abstracts has now officially closed, late submission may be possible. Please contact Michelle.Webb@pipehawk.com. For full details and to register please visit www.gpr2008.org.uk.

At the upcoming **World Archaeological Congress** (WAC) in Dublin, Ireland (29 June to 4 July 2008), Yannick Devos (Université Libre de Bruxelles), Cristiano Nicosia (Geoarchaeology and soil micromorphology consultant, Italy) and myself will be co-chairing a session entitled "Geoarchaeology and Dark Earths." The aim of this session is to bring together researchers of Amazonian and European dark earths, at first glance completely different types of anthrosols, in order to share their geoarchaeological research experiences. A brief descriptive summary of the session can be found at the WAC website (http://www.ucd.ie/wac-6/programme/148.html). We would like to invite interested researchers to submit paper proposals for the Dark Earth session. You may wish to note that the deadline for submitting paper proposals is February 22, 2008 and that submission consists of registering a title and a 150 word abstract via the Paper Proposal Form (http://www.ucd.ie/wac-6/proposal_papers.html). It is important that you indicate the Theme "Developing International Geoarchaeology" and the session, "Geoarchaeology and Dark Earths [148]." Eventually we will request participants to send an extended (2-3 page) abstract and/or paper draft (early June 2008) in order to increase the cohesion of presentations (pre-circulation), facilitate the role of the discussants (William Woods and Richard Macphail, to be fully confirmed), and ease the way towards future publication. Contact maa27@cam.ac.uk, yadevos@ulb.ac.be, or cristianonicosia@yahoo.it) if you have any queries about the character of the session and/or are interested in submitting a paper proposal. Further details on WAC2008, including registration fees and travel support, can be found on the main webpage of the conference: http://www.ucd.ie/wac-6.

The **39th Annual Binghamton Geomorphology Symposium**, **Fluvial Deposits and Environmental History** (https://webspace.utexas.edu/hudsonpf/binghamton.html) will be held from Friday-Sunday, October 10-11, 2008 on the campus of the University of Texas in Austin (Texas, USA). A pre-symposium field trip is scheduled for October 8 and 9, and extends from the Texas Hill Country to the Gulf of Mexico. The goal of the 2008 Symposium is to bring together a diverse range of scholars to advance our understanding of geomorphology and environmental history in several key areas, particularly in paleohydrology, geoarchaeology, and fluvial adjustment to climate change. For additional information, please see the symposium web site https://webspace.utexas.edu/hudsonpf/binghamton.html.

American Schools of Oriental Research Annual Meeting, November 19-22, 2008, Boston, Massachusetts, USA. Section - Artifacts: The Inside Story. This session welcomes submissions in which the analysis of Near Eastern and Eastern Mediterranean artifacts by means of physical or chemical techniques has led to a new or re-interpretation of the archaeological record. Paper topics include provenance, materials characterization, raw material acquisition, workshop activity, manufacturing techniques, and ancient technology. One session is planned for 4-5 speakers. Papers will be limited to 20-25 minutes. Abstracts are limited to 250 words and should be emailed to the Section Chair: Dr. Elizabeth Friedman at friedman@iit.edu. Deadline for abstracts is March 1st, 2008 but the section chair would welcome them sooner. Please check the ASOR website for membership and participation requirements: http://www.asor.org.

DON'T FORGET TO REGISTER FOR ISA 2008

You must register for access to all sessions, coffee breaks, the welcome party, the abstract volume, the conference proceedings, and the tour of Siena.

Before March 1st, 2008: Symposium Participants: 200 €, Students: 100 € (proof of student status is required). On or after March 1st, 2008: Symposium Participants: 250 €, Students: 125 €.

For details, visit the website: http://www.unisi.it/eventi/isa2008/index.htm.

Developing International Geoarchaeology

Developing International Geoarchaeology (DIG) is the title of a series of very successful international conferences. The goal of DIG is to bring together a wide variety of international researchers, practitioners and students in this diverse and interdisciplinary field in order to facilitate discussion, stimulate research, and promote international scholarship in geoarchaeology.

DIG announces a new, interactive website at www.developinginternationalgeoarchaeology.org. This website is designed to serve as an archive for information on past conferences and as a central entry-point which will facilitate access to information on upcoming conferences.

It is a mechanism for contacting people involved with DIG, including the international steering committee, and to develop it as a forum for discussion on how to promote geoarchaeological research around the world. Below are some announcements from the inaugural website.

We wish to remind you about the International Workshop on Archaeological Soil Micromorphology from the 3rd to 5th of April 2008. Further information can be found at the following webpage: http://www.geo.uni-frankfurt.de/ipg/ag/th/micromorph/index.html.

Canadian Archaeological Association Annual Meeting, May 2008, Trent University, Peterborough, Ontario. See the meeting website for more information: http://www.tuarc.trentu.ca/caa/en_1.html.

Title: Bridging Theoretical Constructs with Archaeometric Data: Integrative Case Studies; Session Organizers: Brandi Lee MacDonald and Rudy Reimer/Yumks; email: macdonbl@mcmaster.ca. Abstract: Advances in high-resolution archaeometric techniques have allowed archaeologists to access a broader range of information than previously possible. However, such advances have proven to be a double-edged sword. Current archaeological discourse discusses the potential pitfalls of the use 'hard scientific data' in the formulation of archaeological constructs. This session focuses on how bridging the gap between high-level archaeological theory and high-resolution archaeometric data is achievable. We draw from examples that integrate methods such as geochemical characterization, isotopic and ancient DNA analyses with theoretical contributions of Indigenous archaeology, historical approaches and perceptions of landscape.

Title: Identifying Contexts for Deeply Buried Sites. The session organizer is Andrew Stewart; email: andrew.stewart@bellnet.ca. Abstract deadline: 15 February, abstract length: 150 words.

Archaeological Soil Micromorphology Workshop will be held June 27-28th 2008 at University College Dublin. There will be a session for short papers (10 mins each) in the afternoon of the 27th; the remainder of the time will be microscope work. Costs to be announced. Expressions of interest: helen.lewis@ucd.ie. This will be immediately followed by DIG at WAC (www.ucd.ie/wac-6).

New Directions in Experimental Geoarchaeology. Date: Monday 23rd – Tuesday 24th June 2008. Venue: School of Human and Environmental Sciences, University of Reading. Contact information: If you are interested in attending the conference and would like to receive updates on the programme and organisation, please contact Rowena Banerjea (r.y.banerjea@rdg.ac.uk). Further details of the conference (including accommodation information) will be posted at: http://www.shes.rdg.ac.uk/SHESResearch/Archaeology/Science/Experimental.htm.

33rd International Geological Congress, to be held in Oslo, Norway from August 6th to 14th, 2008. Contact information: www.33igc.org. Topic: The Geoarchaeological Perspective: Human Interactions with the Geosphere. Description: Human influence on the Earth System is not a new phenomenon: geoarchaeologists study the traces of human interactions with the geosphere dating back to ancient times, as well as up to and in the present. Geoarchaeological investigations provide the key to recognizing landscape change within a region, as well as reconstructing ancient landscapes and palaeoclimatic regimes. Such an interdisciplinary approach makes it possible to interpret the ways that humans affect the geosphere, through such things as subsistence and resource exploitation activities, settlement location, and local and regional land use patterns. This approach also allows us to determine the effects of environmental change on human societies. The geoarchaeological perspective can thus provide a longer-term view of human/geosphere interactions, and should be a valuable aid to those who try to determine sustainable policies for the future. Abstract submission: Both oral and poster presentation submissions will be considered. Submissions must be made on the IGC website by February 29th, 2008. The organisers of this session are Lucy Wilson and Pam Dickinson.

GAC-MAC Quebec 2008. For more information, see the website, http://quebec2008.net, Special Session 23: Climate and the Quaternary Record of Canada; Jim Teller (University of Manitoba). Contact: tellerjt@ms.umanitoba.ca. For more information, see http://quebec2008.net. Authors are reminded that the deadline for abstract submission has been extended to 30 January, 2008.

International conference: Geoarchaeology and Archaeomineralogy: Impact of Earth Sciences in the Study of Material Culture. Sofia, Bulgaria, 29-30 October 2008. Contact: email rikostov@yahoo.com, niktzankova@abv.bg, http://mgu.bg.docs/CircularEN.doc.

Table-Ronde: Silex et territoires préhistoriques. Avancées des recherches dans le Midi de la France. Musée archéologique de Lattes, France, 13, 14 et 15 juin 2008. Contact: Sophie Grégoire, gregoire@tautavel.univ-perp.fr.

Society for American Archaeology Canada – 2008

The Society for American Archaeology (SAA) is an international organization dedicated to the research, interpretation, and protection of the archaeological heritage of the Americas. With more than 7,000 members, the society represents professional, student, and avocational archaeologists working in a variety of settings including government agencies, colleges and universities, museums, and the private sector.

Since its inception in 1934, SAA has endeavored to stimulate interest and research in American archaeology; advocated and aid in the conservation of archaeological resources; encourage public access to and appreciation of archaeology; oppose all looting of sites and the purchase and sale of looted archaeological materials; and serve as a bond among those interested in the archaeology of the Americas.

The society offers members a number of publications and services, access to outreach programs in education and government, reduced rates on society programs and publications, and opportunities and information for professional development.

The 73rd Annual Meeting of the SAA will take place in Vancouver, British Columbia, Canada, from March 26 - March 30, 2008. Complete details on the meeting are available on the website, http://www.saa.org/meetings/index.html. There are a number of sessions, workshops, and symposia that that will interest archaeological scientists. Below are some of these, thanks to SAS General Secretary, Rob Sternberg.

Thursday morning, March 27: *Symposium* SOUTHWESTERN BIOARCHAEOLOGY IN 2008: CURRENT THEMES, ISSUES, AND RESEARCH TRAJECTORIES (Organizers: Catrina Whitley & Ann L. W. Stodder); *Symposium* OXYGEN ISOTOPES AS TRACERS OF HUMAN MOBILITY (Organizers: James H. Burton & T Douglas Price).

Thursday afternoon, March 27: *Symposium* GEOPHYSICAL ARCHAEOLOGY AT WORLD HERITAGE SITES (Organizers: Lawrence B. Conyers & Chris Gaffney); *Symposium* INTERDISCIPLINARY STUDIES OF ARCHAEOLOGICAL OBJECTS: ARCHAEOLOGY, MATERIAL SCIENCE AND CONSERVATION (Organizers: Laura Filloy & Adrian Velazquez).

Thursday evening, March 27: *General Session* METHODOLOGICAL ADVANCES IN BIO-ARCHAEOLOGY (Chair: Mary J. Norton); *Sponsored Symposium* SOILS AND MAYA ARCHAEOLOGY [Sponsored by the Society for Archaeological Sciences] (Organizers: Timothy Beach, Nicholas P. Dunning & Richard E. Terry); *Poster Session* ARCHAEOMETRY AND ARTIFACT STUDIES IN MESOAMERICA AND MIDDLE AMERICA; *Poster Session* METHODS IN ZOOARCHAEOLOGY.

Friday morning, March 28: *Working Group* CURRENT ARCHAEOMETALLURGICAL RESEARCH IN MESO-AMERICA: NEW APPROACHES, DISCOVERIES AND PERSPECTIVES (Organizers: Scott E. Simmons & Aaron N. Shugar); *Symposium* RECENT APPLICATIONS OF GEOCHEMICAL TECHNIQUES IN POLYNESIAN ARCHAEOLOGY (Organizers: Suzanne L. Eckert & Peter Mills).

Friday afternoon, March 28: *Poster Session* SCIENTIFIC ANALYSES IN OLD WORLD ARCHAEOLOGY (Organizer: Aksel Casson); *Poster Session* TOPICS IN ARCHAEOMETRY; *General Session* METHODOLOGICAL ADVANCES IN GEOARCHAEOLOGY (Chair: Shawn Bubel).

Saturday morning, March 29: *Symposium* CLIMATE, PEOPLE AND BEHAVIOR, A SYMPOSIUM IN HONOR OF REID BRYSON (Organizers: Linda Scott Cummings & R. A. Varney); *Sponsored Symposium* CURRENT STUDIES ON OBSIDIAN SOURCING, TRADE, USE, AND DATING [Sponsored by International Association of Obsidian Studies] (Organizer: Robert Tykot); *Symposium* MOLECULAR ARCHAEOLOGY. PART I: ANCIENT DNA FOR THE ARCHAEOLOGIST (Organizers: Camilla F. Speller & Ursula M Arndt); *Poster Session* BIOARCHAEOLOGICAL STUDIES OF THE KELLIS 2 CEMETERY, DAKHLEH OASIS, EGYPT; *Poster Session* METHODS IN BIO-ARCHAEOLOGY; *Sponsored Symposium* ARCHAEOLOGICAL PERSPECTIVES ON ENVIRONMENTAL CHANGE AND CULTURAL RESPONSE [Sponsored by the SAA Geoarchaeology Interest Group] (Organizers: Mark Tveskov & Loren Davis).

Saturday afternoon, March 29: *Sponsored Symposium* THE MINDS BEHIND THE METAL: ACCESSING PAST METALLURGICAL EXPERIENCE [Sponsored by Institute of Archaeo-Metallurgical Studies and Society for Archaeological Sciences [(Organizers: Claire R. Cohen, Louise Iles & Jane Ellen Humphris); *Sponsored Symposium* SOILS AND SEDIMENTS IN OLDWORLD AND NEW WORLD ARCHAEOLOGICAL SETTINGS: A SYMPOSIUM IN HONOR OF PAUL GOLDBERG [Sponsored by the SAA Fryxell Committee] (Organizer and Chair: Rolfe D. Mandel); *Symposium* MOLECULAR ARCHAEOLOGY PART II: ANCIENT DNA FOR THE ARCHAEOLOGIST (Organizers: Ursula M Arndt & Camilla F. Speller); *Symposium* ADVANCES IN ANDEAN ISOTOPIC RESEARCH: MOVEMENT AND SUBSISTENCE THROUGH SPACE AND TIME (Organizers: Bethany L. Turner & Barbara R. Hewitt).

Sunday morning, March 30: *General Session* COMPUTER MODELLING AND SIMULATION (Chair: Jennifer L. Campbell).

SIUC CAI Visiting Scholar Conference "Human Variation in the New World"

The 2008 VS Conference, "Human Variation in the New World," seeks to bring together archaeologists, skeletal biologists, and anthropological geneticists to discuss human variation in the Americas prior to European colonization. The conference seeks researchers whose investigations cover topics from the entire temporal and geographic range of human occupation in the Americas.

The aim of the conference is to initiate a synthesis of human diversity patterns in the New World. Specifically, there are three goals: 1) the meeting will promote a discourse among archaeologists and biological anthropologists working in similar regions of the Americas; 2) presentations will start a synthetic documentation of biological and cultural diversity in the Americas throughout the Holocene and late Pleistocene; and 3) discussion of these topics will be placed into the context of the environments that shaped the biology and cultures of humans in North and South America.

The conference will take place on Friday, 25 April and Saturday, 26 April 2008 in Carbondale, Illinois. An informal reception is planned for the evening of 24 April, and a formal reception will take place on the evening of 25 April, following the first day's podium session. Registration fees for the conference and events will be announced on this website: http://www.siu.edu/~cai/bma/vsconf.htm. For more details, contact Benjamin M. Auerbach, auerbach@siu.edu.

The Visiting Scholar in Archaeology Program offers support for a motivated scholar to organize and conduct the annual Visiting Scholar Conference which results in an edited volume of selected papers that the Visiting Scholar assembles and edits while in residence at SIUC. The Visiting Scholar also pursues his/her own research during the period of the award, teaches one seminar in his/her specialty, and is expected to interact productively with colleagues and students in the CAI and the Department of Anthropology. For more information, visit the website: http://www.siu.edu/%7Ecai/vsprogram.html.

World Archaeological Congress Ireland – 2008

The World Archaeological Congress (http://www.worldarchaeologicalcongress.org) is a non-governmental, not-for-profit organization and is the only archaeological organisation with elected global representation. Its programs are run by members who give their time in a voluntary capacity. Membership is open to archaeologists, heritage managers, students and members of the public.

WAC seeks to promote interest in the past in all countries, to encourage the development of regionally-based histories and to foster international academic interaction. It is committed to the scientific investigation of the past, ethical archaeological practice and the protection of cultural heritage worldwide. It supports the empirical investigation and appreciation of the political contexts within which research is conducted and interpreted, and promotes dialogue and debate among advocates of different views of the past. WAC is committed to diversity and to redressing global inequities in archaeology through conferences, publications and scholarly programs. It has a special interest in protecting the cultural heritage of Indigenous peoples, minorities and economically disadvantaged countries, and encourages the participation of Indigenous peoples, researchers from economically disadvantaged countries and members of the public.

WAC holds an international Congress every four years to promote the exchange of results from archaeological research; professional training and public education for disadvantaged nations, groups and communities; the empowerment and betterment of Indigenous groups and First Nations peoples; and the conservation of archaeological sites. Past Congresses have been held in England, Venezuela, India, South Africa and the USA. Patrons for past Congresses include Prince Charles (WAC-1), Nelson Mandela (WAC-4) and Harriet Fulbright (WAC-5). Selected papers from these conferences are published in the One World Archaeology Series.

The Sixth WAC Congress, WAC-6, will be held in Ireland at the University College Dublin from June 29 to July 4, 2008. Complete details are available on the website, http://www.ucd.ie/wac-6. There are a number of themes (each of which includes various sessions composed of formal paper presentations) that will interest archaeological scientists. Below are some of these themes along with their abstracts and lists of sessions.

"Critical Technologies: The Making of the Modern World," organized by Alice Gorman (Flinders University of South Australia), Beth O'Leary (New Mexico State University), and Wayne Cocroft (English Heritage). Everyday life in modern industrial nations has been shaped by technologies that have radically altered the nature of travel (cars, trains, airplanes, submarines, spacecraft), communication (telephones, television, telegraphs, radio, computers and satellites), and warfare (rockets, missiles, airplanes, nuclear weapons), among others. These technologies have recreated human geographies through their capacity to transcend distance and time, allowing the traffic of information and material culture across vast spaces, sometimes almost instantaneously. They are the foundation of the globalizing world, and yet the material culture of globalization is rarely examined critically from an archaeological perspective. Given WAC's aim to redress global inequities, it is timely to focus an archaeological gaze on the technologies that support the gap between the 'haves' and 'have-nots' of the 21st century. Sessions are invited to examine the sites, places and artifacts created by critical technologies, including but not limited to such topics as: the Cold War and nuclear confrontation, telecommunications, aerospace, outer space, robotics, technological landscapes, heritage management and

conservation challenges, defense and warfare, indigenous engagement with critical technologies, theoretical issues in contemporary archaeology, capitalism and critical technologies, and the archaeology of the future. Critical technologies are not confined to the 20th century and after; we also encourage papers and session proposals that investigate 17th-19th century antecedents of modern technologies, and their impacts. Sessions: include Archaeologies of Internment: Method and Theory for an Emerging Field; Atomic Archaeology; Method and The Machine: Theorizing an Archaeological Approach to Technical Processes; and Nostalgia for Infinity: Exploring the Archaeology of the Final Frontier.

"Developing International Geoarchaeology," organized by Helen Lewis (University College Dublin, UCD School of Archaeology), Melissa Goodman-Elgar (Washington State University), and Stefania Merlo (University of Botswana). Developing International Geoarchaeology is the title of two very successful recent international conferences bringing together geoarchaeologists from around the world. The goal of DIG is to bring together a wide variety of international researchers, practitioners and students in what is a diverse and interdisciplinary field in order to facilitate discussion, stimulate research, and promote international scholarship in geoarchaeology. This proposal is to expand the DIG remit and audience, by running a series of sessions and poster sessions focused on developing geoarchaeological approaches internationally, as a theme at the World Archaeological Congress, aimed at the world archaeological audience. The intent is to present work interesting to an international and interdisciplinary audience, to elicit discussion of geoarchaeological approaches, and to make new connections between archaeologists from different parts of the world. The theme will also be associated with an international archaeological soil micromorphology workshop, to be run independently at UCD in the 2-3 days prior to WAC. Most sessions will include both oral and poster presentations. We aim to allow as many presentations as possible, but may have to limit the number of oral presentations if there is significant demand. Sessions include Geoarchaeology and Dark Earths; Geoarchaeology of Submerged Archaeological Sites: Studies in Site Characterization and Formation Process; Landuse and Landscape; New Developments in Dating and Age Modeling; Subsistence and Sustainability of Ancient Societies in Arid Environments; The Cultural Use of Caves and Rockshelters; The Geoarchaeology of Houses: and Towards a Social Archaeology; Transatlantic Collaborations and Contributions to Geoarchaeology.

"Land and Archaeology," organized by Alejandro Haber (Universidad Nacional de Catamarca, School of Archaeology) and Martin Wobst (University of Massachusetts, Department of Anthropology). Archaeology is heavily dependent on land-related concepts. Almost every archaeological argument and publication implies relationships to land, and makes assumptions and applies concepts about land. Without those usually implicit and often hidden assumptions one could not talk about archaeological sites, archaeological surveys, or archaeological landscapes, nor settlement patterns, or archaeological cultures. Relationships to land are more or less overtly implied in many archaeological theories and theoretical models, and archaeology is practiced on land, surveying, excavating, measuring and removing data on land. Relationships to land are conceptualized very differently by colonizers and colonized, before and after colonization, by urban and rural people, by lords and peasants, and by the same people in different phases of their history. Many of these relationships differ significantly from those implied by archaeological theories and practices. To some peoples land is a powerful and loving being, with important implications for their relationships to that land. Land is often a very central issue in Indigenous and other peoples' theorizing, in contrast to the concept of territory. Often, land claims are the foremost aims in Indigenous and/or peasants' social and political movements. Particular territories are usually very important in Indigenous and/or local collective identities. This symposium will help expose and critically scrutinize the different discourses on the relationships to land in archaeology, the diversity and richness of relationships to land, and the ways in which archaeology has reinforced or disempowered particular kinds of relationships to land and discourses about land. Under this theme, participants are encouraged to create symposia, strategy sessions toward future interactions, round tables, workshops, counter-posed position papers, or critical analyses of recent practice. Initial planning anticipates the following topics: cultural concepts about land and their material markers, land ownership: history of the concept, and its range of variation in pre-colonial, colonial, and post-colonial contexts, archaeological theory and method on Land and their effect on the land of descendant populations, archaeological practices on land, archaeological metaphors about land, past land uses as resources for the present, archaeology as the hand-maiden of settler societies, decolonizing the landscape: archaeological research to fight colonization, internal colonization, and re-colonization in the age of post-colonial theory?, why has landscape become the buzz-word of this decade?, toward variation, change and diversity in land studies, and the archaeology of low intensity uses of the land. Sessions include Analytical Limitations and Potential in Studying Land Ownership in Prehistory; Archaeologists, Museums, Monuments and Anti-Monuments; Archaeology and Development; Indigenous Peoples' Workshop on Territories and Cultural Heritage: Meetings and Shared Experiences; Inhabiting the World: Reflections on Landscape across National and Disciplinary Boundaries; Landscape Archaeology; Landscape Legacies: Archaeological Approaches to Domestication in the Landscape; 'Neolithic' Landscape in East Asia; New Views of Antiquity: Approaches to Scale and Space in Early Prehistory; Revealing Relict Landscapes in Europe's North Atlantic Fringe; and Taming the Land: The Archaeology of Early Agricultural Field Systems.

"Our Changing Planet: Past Human Environments in Modern Contexts," organized by Purity Kiura (National Museums of Kenya), Matthew Davies (University of Oxford, St Hugh's College), and Freda Nkirote (National Museums of Kenya). This theme takes as a starting point a broad conception of 'human environments' as comprising physical (both 'natural'

and 'built') and cognitive (social/cultural) elements. It aims to explore how people in the past engaged with and actively shaped these environments and, following this, how the archaeological study of past human environments can contribute to our understanding of modern land-use and environmental management. In particular, it aims to address the potential role of archaeology to understanding contemporary issues of environmental degradation, conflict over land and resources, and effective land management schemes. It also aims to encourage the discussion of key themes such as environmental 'conservation' and 'sustainability' and stimulate engagement with issues of climate change and global warming. In addition, this theme aims to encourage dialogue with cognate disciplines such as physical geography, historical geography, anthropology and ethnohistory and to discuss concepts such as 'historical ecology' and 'landscape history'. A range of both theoretical and research based papers are encouraged. In particular, papers which focus on defining the role of archaeology in understanding human-environment interactions and the theoretical and practical integration of diverse data sources will be viewed favorably. Papers which address issues of the moral and social responsibility of archaeologists, for example in substantiating or refuting land-claims, or assessing anthropogenic land-degradation, are also desired. In addition, we encourage archaeological case-studies and original pieces of research that aim to reconstruct past human-environment interactions and then relate these data to modern environmental concerns. This theme also recognizes that, while disciplines such as cultural ecology and evolutionary ecology often view human-environment interactions in functionalist and adaptionist terms, there is a real need to introduce a more humanistic perspective to such studies. Thus we encourage papers that explore the nature of human-environment interactions and which demonstrate the social/cultural processes whereby humans create their environment by classifying, categorizing, building, manipulating and ascribing value to spaces and places. Both theoretical and practical papers which consider issues such as past and present systems of land-tenure, land/heritage ownership, range-management, and modern land conflicts are encouraged. In addition, papers which include consideration of past ritual and ceremonial landscapes and their impact on past and modern land-use practices/claims will be seen favorably. Sessions include Applied Archaeology and Historical Ecology: Archaeological Approaches to the Definition and Application of Historic Resource Exploitation Strategies; Human Responses to Mid-Late Holocene Climate Changes; Human-environment Relations Past and Present: Theory, Concepts, and Definition; Living with Nature: Heritage Negotiation in the Face of Disasters; People and Plant Resources: Diversity in Practices, Technologies, and Knowledge; Studies of Human-animal Relationships: New Theoretical Approaches; and The Eurasian Steppe and our Changing Planet.

"Peopling the Past, Individualizing the Present: Bioarchaeological Contributions in a Global Context," organized by Pamela Geller (University of Pennsylvania, Museum of Archaeology & Anthropology), Alan Morris (University of Cape Town, Department of Human Biology), and Patrick Randolph-Quinney (University of Dundee, Unit of Anatomy and Forensic Anthropology). The human skeleton is affected by the life experience of the individual in terms of growth and development, nutrition, activity patterns, disease history and health stress, offset against the effects of familial inheritance and ancestry. From a bioarchaeological perspective each individual is unique, but data for groups of individuals can provide a wealth of information about whole populations in the past, as well as providing a framework for the study of individuals and groups in the present. Critical reflection reminds us that historically the study of human remains has overtly or unconsciously evinced racist, ethnocentric, and sexist ideas. Accordingly, more recent outcries from descendant communities and sympathetic scholars have evoked important ideological and/or legal shifts—WAC's Vermillion Accord, the U.S.'s NAGPRA, Australia's ATSIHPA, and England's Working Group on Human Remains being notable upshots. Analyses of human remains, nonetheless, remain a controversial issue, perhaps because the dialogue is often perceived as only being dichotomous and conflicting. The study of human remains can open the door to important aspects of individual and populational life history, which cannot be recovered from other sources. But, how is the knowledge that bioarchaeologists produce important beyond our academic environs? Does this information have direct relevance or utility in the present day? In what way is the information obtained from analyses of human remains of value not just to scientists but descendant communities? Why do we do what we do and for whom? From this basis, we challenge contributors to think reflexively about their bioarchaeological work with regard to its sociopolitical relevance in the present. Contributors may wrestle with these queries in several ways. They can consider how their populational research concerned with growth and development, nutrition, activity patterns, disease, and health impact medical diagnosis or treatment of present day peoples. They may consider how studies of past populations impinge on the identification of individuals in current forensic or mass-disaster contexts. They may explore how knowledge is communicated to the wider public. Or, participants may elaborate upon collaborations between researchers and descendant communities. Seeing that descendant communities should have a significant say in what happens to their ancestors' human remains, what changes have we seen in the past decade with regard to repatriation and scientific research? When scientific research has occurred with descendants' input, what research questions do these communities bring to the fore? And recognizing that descendant communities have diverse histories and experiences that contour their perspectives and wishes how might future collaborations proceed? WAC6 provides an especially unique opportunity for scholars from six continents to collaborate on issues of global significance. The ultimate aim of the theme is to trigger debate on the study of human remains but also unashamedly to show the value of those studies. So as to broaden debate about and understanding of bioarchaeological studies, we encourage considerations from regions—Africa, East Asia, Australasia—and groups historically marginalized or under-represented in previous discussions. In doing so, we anticipate effecting productive and congenial discussion about

this highly sensitive issue. Sessions include A Cast of Thousands: Children in the Archaeological Record; History of Health in Africa; Humanity at the Margins: Osteoarchaeological Perspectives to Life on the Edge; Naming the Dead: and The Application of Bioarchaeological Data to Forensic Anthropology and Human Identification.

"Wetland Archaeology Across the World," organized by Aidan O'Sullivan (University College Dublin, UCD School of Archaeology) and Robert Van de Noort (University of Exeter, School of Geography, Archaeology and Earth Resources). Wetland archaeology has provided some of the most exciting discoveries in world archaeology; from bog bodies, boats, trackways, votive deposits to the waterlogged wetland settlements and landscapes of northern and central Europe, New Zealand, Asia and the Pacific Northwest. Sharing a fascination with watery and wild places of rivers, lakes, bogs and coastal wetlands, those archaeologists who practice in this field also use common methods and techniques in the investigation of these archaeologically-rich landscapes. In recent years, wetland archaeologists have also recognized the need to adopt emerging and changing interpretative approaches to the empirically-rich archaeological data they recover from wetland and waterlogged sites. Most importantly, there is a need to place wetland archaeology across the world, its data and practices, within contemporary debates in theoretical archaeology. This Wetland Archaeology across the World theme seeks to bring together world archaeologists, anthropologists, geographers and palaeoecologists who are interested in past and present wetlands and their communities. Topics to be discussed could include landscape archaeological approaches to wetlands environments; the past perception and understanding of wetlands as more than sources of economic benefit, but as storehouses of traditional knowledge, values and meanings; social identity and the ways that wetlands dwelling and using communities might have built distinctive social worlds through their active daily and embodied engagements with dynamic and ever changing wetland environments; the unique temporal rhythms of past lives and places that can be revealed and interrogated using wetland archaeological evidence and the role(s) of wetland archaeologists – or archaeologists who investigate wetlands – in contemporary political, environmental, ideological and social discourses and conflicts. Session include Managing Wetland Archaeology: In Situ Preservation, Sustainability, and the Heritage Resource—Current Perspectives, Future Potential; New Perspectives on the Social Aspects of Hunter-gatherer Wetland Landscapes; The Archaeology of Depositions in Lakes, Rivers, and Bogs; WARP Forum Session: Wetland Archaeology across the World and the Future of WARP; Wetland Archaeology and Movement I: Travel, Trackways, and Platforms in Bogs, Mires, and Marshes; Wetland Archaeology and Movement II: Travel and Communications along Waterways; Wetland Archaeology and Palaeoenvironment: Moving beyond Environmental Determinism; Wetland Dwellings and Settlements: Living in Wet Environments; and Wetland Politics: Local, National, and International Debates.

New Publishing Partnership for Archaeology, Ethnology, and Anthropology of Eurasia

Rachel Guest
Elsevier, Social Sciences

Elsevier is delighted to announce a new publishing partnership for 2008. The journal *Archaeology, Ethnology and Anthropology of Eurasia* analyzes and presents research relating to the archaeology, ethnology, and anthropology of Siberia and contiguous regions. The journal publishes papers and develops discussions on a wide range of research topics including Quaternary geology; Pleistocene and Holocene paleoecology; evolution of human physical type; ancient art; and the cultures of indigenous populations.

Forthcoming articles include: "The bifacial technique of stone knapping in China" (A.P. Derevianko), "The Kuilyu cult site at Kuchera 1: continuity of irrational experience" (V.I. Molodin and N.S. Efremora), "The history of development of the Russian sledge (functional aspect)" (Vasiliev M.I.), and "Scandinavian traces in anthropological data: population groups of the Russian North and Northwest during the medieval period" (the 11th - 13th cent. AD) (Sankina S.L.). Find out more on the journal homepage: www.elsevier.com/locate/aeae.

Elemental Characterization of Basalt Sources and Artifacts on Easter Island

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Rapa Nui (Easter Island) is a small island located 3700 km off of the west coast of Chile. It is part of a largely-submerged continuous chain of volcanic seamounts along the Easter Line (Deruelle et al. 2002). Rapa Nui is comprised of three volcanoes, each of which contains a unique eruption sequence through time. While numerous geologic and petrographic studies have been conducted to determine the age and composition of the magmas of the island (e.g., Baker et al. 1974; Miki et al. 1988), relatively limited attention has been paid to the analysis of non-obsidian lithic sources. This is surprising, as the majority of artifact classes that exist on Rapa Nui are comprised of basalt.

As part of my MA thesis research, I studied compositional variability in the island's basalt as a first step toward answering questions about patterns of lithic resource acquisition on Rapa Nui. If composition of basalt artifacts could be linked to basalt sources, compositional studies can then measure whether usage was predominately local for any flow or if materials were moved from other areas on the island. In addition, it is possible that provenance varies across artifact classes (e.g., adzes, hand axes, bifaces, fishhooks, and large architectural blocks). These patterns can be resolved if basalt flows are elementally distinct from each other. Since it is known that the eruption sequences

of each Rapa Nui volcano were chronologically distinct, this is a reasonable starting assumption.

Determining the "source" of basalt materials required sampling across the island since no central basalt quarry exists. Using a sample of materials from 144 locations distributed across all previously-identified lava flows, I generated elemental data using the laser ablation-inductively coupled plasma-mass spectrometer (LA-ICP-MS) at the IIRMES lab of California State University Long Beach.

Background

The island of Rapa Nui is composed of three separate volcanoes. In the East corner is Poike, an older stratovolcano. Rano Kau, a caldera, is located in the Southwest corner and the fissure complex of Terevaka is located on the Northern side of the island. K-Ar and Ar-Ar dates place Rapa Nui between 3.0 and 1.3 million years old (Deruelle et al 2002). The oldest volcano, Poike, has a potassium argon age of 3 million years, while Terevaka is only 300,000 years old.

Early on in its geologic history, Poike is suspected to have been a separate island, until it later became a part of Rapa Nui through the lava flows of Terevaka. Up to 30 different basalt flows have been identified in the eastern cliff of Poike. Rano Kau is believed to be of an intermediate age (Baker et al. 1974). Terevaka is the largest volcano, made up of more than 50 pyroclastic cones (Deruelle et al. 2002). The lava from Terevaka spread to the Southwest, South, and Eastern parts of the island forming vast lava fields.

Petrographic analysis has determined that each volcanic eruption sequence created distinct types of basalt. At least two different types of basalt occur on Poike, at least one exists at Rano Kau, and the remainder of the island's flows is attributable to the Terevaka complex (De Paepe and Vergauwen 1997).

The lava flowing from these separate eruptions formed large basalt layers that were used by native peoples to create tools, *ahu* (rectangular ceremonial platforms), and other objects. Baker (1993) points out that various flows on Rapa Nui exhibit "well developed orthogonal joints, smooth surfaces, and a blocky or slabby aspect" (Baker 1993) (Figure 1). Baker argues that rocks such as these were more likely to be easily shaped into the rectangular blocks often used in *ahu* production and suggests that differences among basalt composition led the Rapanui to construct the objects they did in the places they did.

Methods

In the summer of 2005 approximately 130 geological samples were collected from distinct volcanic flows on Easter Island by referencing the 2004 geological map, *Geología del Complejo Volcánico Isla de Pascua Rapa Nui* by Gonzalez-Ferran, Mazzouli, and Lahsen. While taking geologic samples, artifacts were also collected for later comparison (Figure 2).

Figure 1. Potential Basalt Quarry located on the Terevaka volcano.

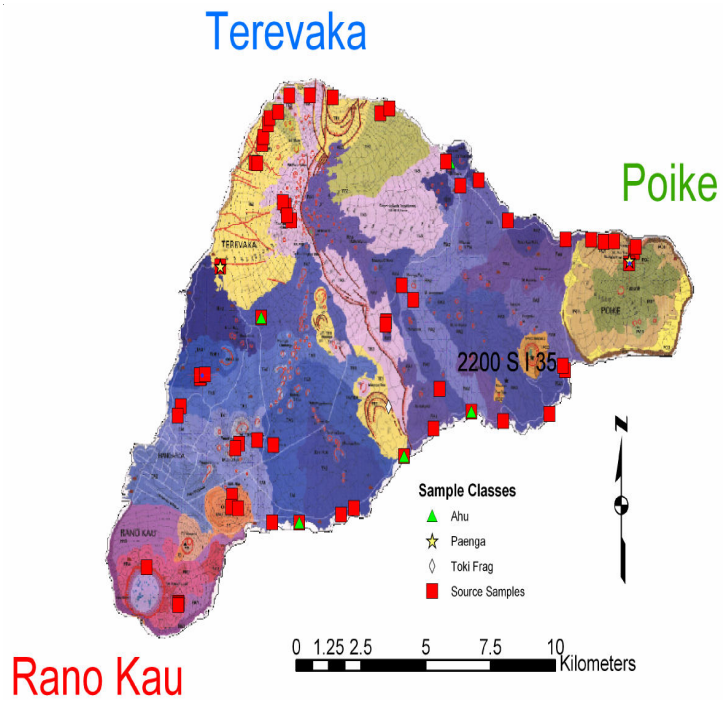

Figure 2. Geologic map with sample collection locations.

The samples were analyzed using the laser ablation inductively coupled plasma mass spectrometer (LA-ICP-MS) at the Institute for Integrated Research in Materials, Environments and Society (IIRMES), CSULB. In LA-ICP-MS a solid sample is vaporized and then transported by a gas stream to the ICP-MS for elemental characterization. As opposed to microwave digestion, laser ablation allows for small archaeological samples to be analyzed with little to no damage to the artifact. When the sample passes from the ablation chamber into the ICP-MS, the argon plasma of the ICP ionizes

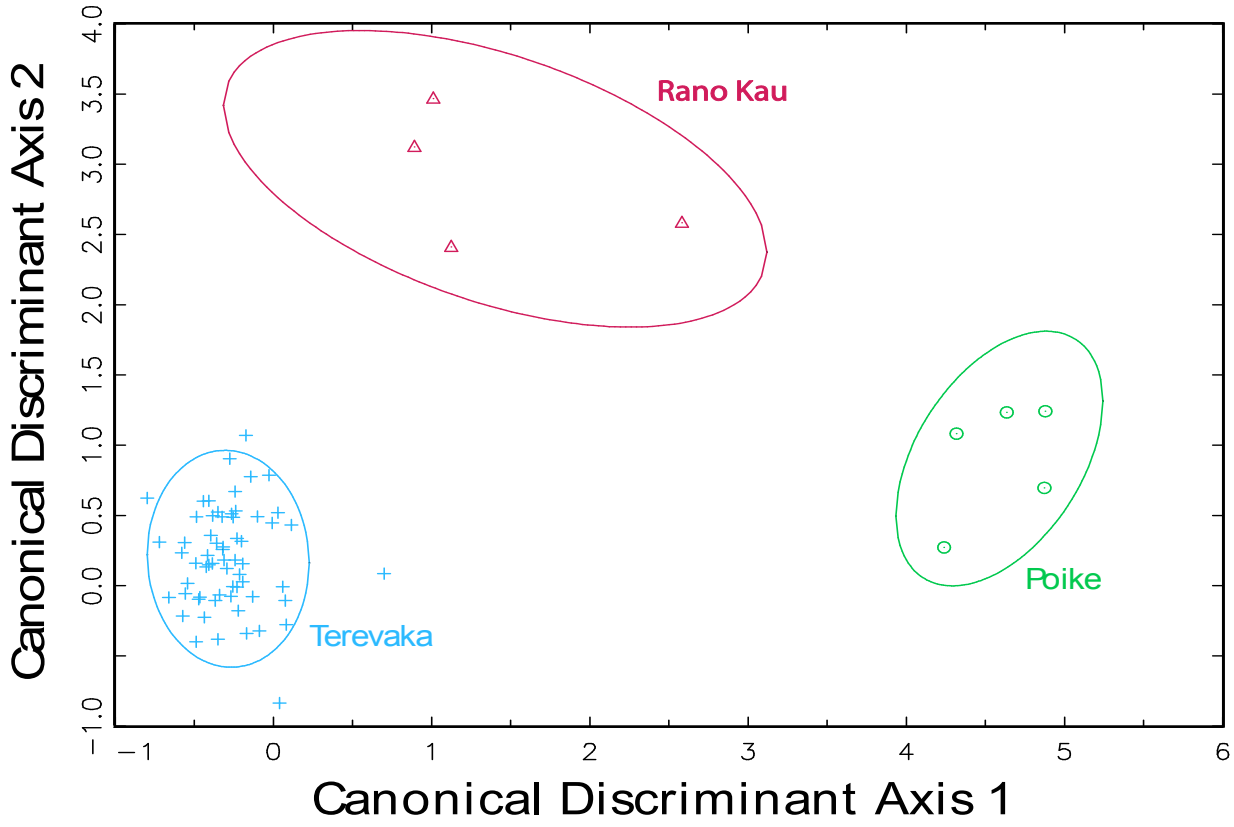

Figure 3. Canonical discriminant function analysis demonstrating the chemical distinctness of the three volcanoes.

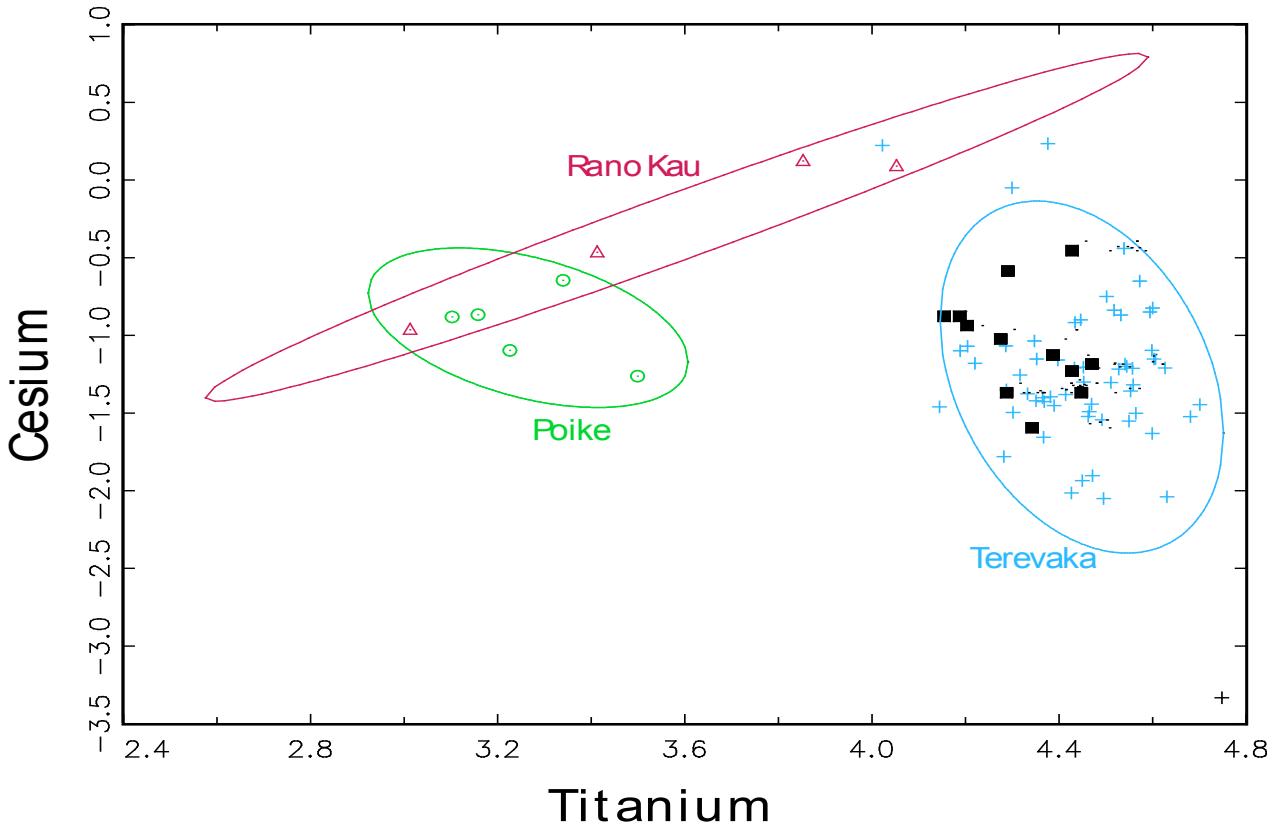

Figure 4. Bivariate plot of the source samples and *ahu* artifacts (black squares), indicating their origins on the Terevaka volcano.

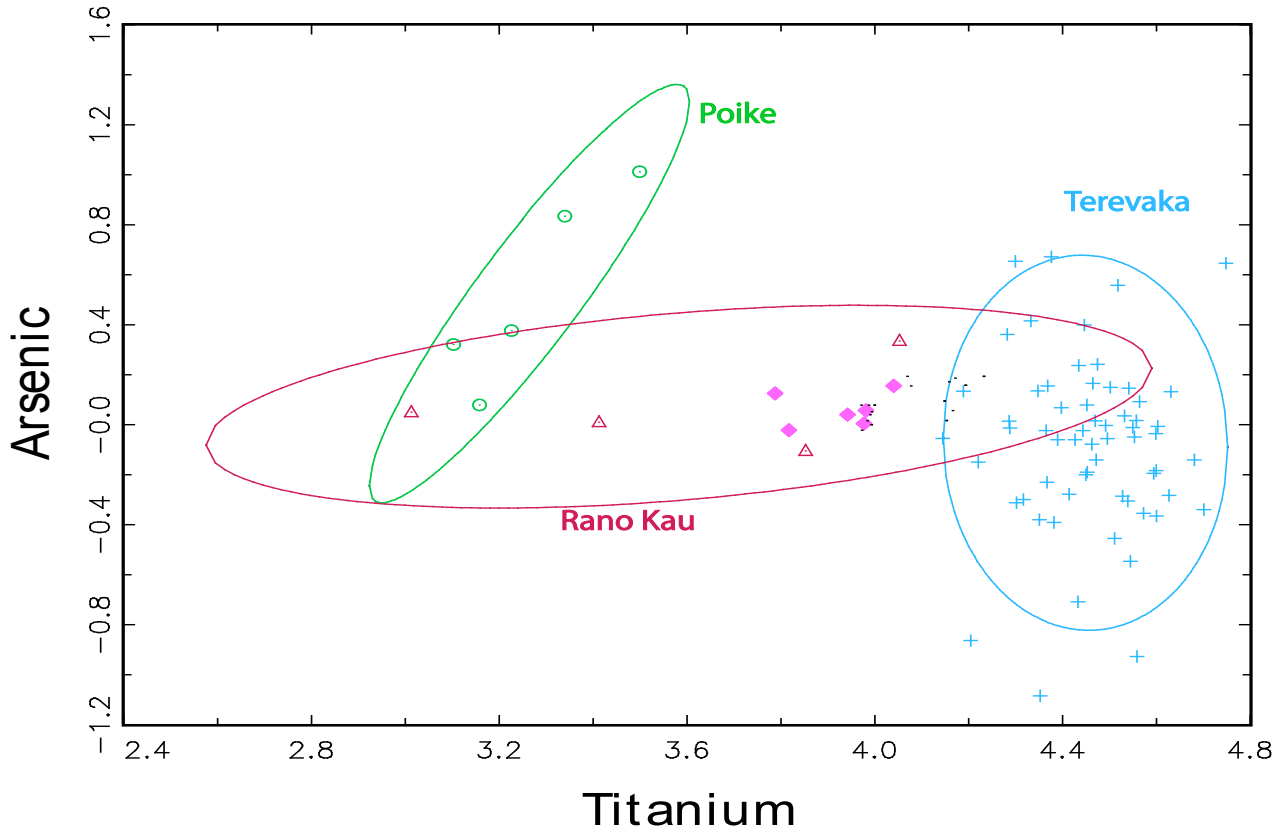

Figure 5. Bivariate plot of the source samples and *toki* artifacts (pink diamonds), indicating their origins on the Rano Kau volcano.

the sample. The resulting ions are then separated according to mass and charge and the quantities of ions of different masses are counted. Following Gratuzes approach, the elemental composition of each sample is then determined. ICP-MS is increasing in popularity for provenance determination for archaeological materials because of its advantages such as a small sample size, lower detection limits on more elements (relative to other techniques), and a lower cost than other techniques (Henderson 2000).

Results

An initial cluster analysis revealed a complex relationship between geologic flows, however it also indicated that Terevaka basalt comprises the majority of the island. This was expected, as previous geochemical research determined that the Terevaka eruption sequence was complex and engulfed previous flows from Rano Kau and Poike (Baker et al. 1974; Gonzalez-Ferran 2004).

The cluster analysis further grouped the source samples for additional statistical analyses. A canonical discriminant function analysis provided evidence that each of the three volcanoes is chemically distinct and well defined (Figure 3).

A Principal Components Analysis (PCA) in the statistical program GAUSS determined that 2 components accounted for 61% of the total variance present within the samples. It also indicates that elements such as the Period 4 transition metals are good discriminators amongst the flows.

After determining the distinctiveness of the volcanoes, I began plotting artifacts to determine their source locations. Two artifact classes were analyzed: *ahu* blocks and basalt adzes (*toki*). Results are encouraging, as the *ahu* blocks are clearly aligning with the Terevaka complex and the *toki* samples are sourcing to Rano Kau (Figures 4-5).

Discussion and Conclusions

The results of the analysis indicate that there is a chemical distinction among the basalts of Easter Island from each volcano. The analysis also confirms that flows along the center of the island are all a part of the Terevaka eruption sequence. Despite the large percentage of Terevaka basalts, initial artifact analyses demonstrate that it is possible to determine their volcanic origins. Because the flows of Terevaka comprise the majority of the island, determining further distinctions from each of these flows will yield a better understanding of the basalt resources used across this landscape.

These conclusions point to further areas of research as part of my on-going master's thesis. If greater distinction among Terevaka basalts are determined this will yield a better

understanding of basalt artifact origins on the island. These results do indicate volcanic origins, but without greater within-region characterization it is not yet possible to 'source' artifacts to individual flows.

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Geophysical Surveys at the Anakena Dune of Easter Island

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During the 2003 and 2006 field seasons, geophysical surveys using magnetometry and ground-penetrating radar (GPR) were conducted at Anakena Beach on Easter Island, Chile. These geophysical surveys were performed to characterize the subsurface composition and structure of archaeological features at Anakena utilizing multiple near surface remote sensing techniques. Each data set informs on a unique part of the electromagnetic spectrum in the subsurface.

Patterns of high and low amplitude readings can indicate the compositional structure of the deposits at Anakena. Recurring anomalies are evaluated by integrating data sets from the two techniques. This study primarily evaluates the data produced from GPR surveys and contrasts that data with information obtained from the magnetometry surveys.

Background

Despite its remote location, Easter Island has a dense material record that is famed for its prehistoric monumental architecture. Around ca. 500 years prior to European contact in AD 1722, the populations of Rapa Nui constructed over 800 multi-ton statues (moai) and transported at least 400 of them up to 15-km across the rocky island. In addition to statues, islanders constructed immense stone platforms known as *ahu* that served as foundations for statues as well as for other unknown ceremonial purposes (Martinsson-Wallin 1994).

Ahu are large stone platforms built from worked and unworked basalt blocks. Their form and function appears to vary through time with elaborations, modifications, and alterations in construction techniques (Love 2000; Martinsson-Wallin 1994, 1996). While form and function seem to vary throughout prehistory, there currently is no data demonstrating whether investment in *ahu* construction also varied over time.

Ahu seem to appear very quickly on the island once colonization occurs (Martinsson-Wallin 2001). Although no definitive date exists for the first ahu, occupation at the Anakena beach area, for example, points to habitation from the earliest point of occupation.

Given the general Polynesian tradition of constructing statues and rectangular stone platforms (e.g., Cochrane 2002) it is reasonable to assume that colonizing populations arrived with statue carving and platform construction techniques and stylistic notions already entrenched in their cultural tradition. Platform construction was likely not an independent invention. Construction in ahu appears, however, to have varied through time. Ahu construction, therefore, does not appear to be part of a single event but part of a settlement pattern that involved continuous and/or episodic reinvestment in construction.

Previous investigations at Anakena (Skjolsvold 1994) indicate those *ahu* underwent several construction events. The Norwegian excavations in the 1990s around the recently restored *Ahu Nau Nau* demonstrate that *ahu* were built over earlier platforms and, at least at Anakena, these platforms occur in an offset pattern from one another (Skjolsvold 1994). The 1990 excavations revealed the *ahu* from different building episodes were super-positioned over one another. The reconstructed *Ahu Nau Nau* was imposed over at least three earlier *ahu* constructions. This information supports ethnohistoric data that suggests multiple *ahu* were built and modified over time across the beach (Rapu 2006). If Anakena was the location of the earliest prehistoric settlement and the colonizing population arrived with statue carving and platform construction technology entrenched in their cultural tradition, it follows that Anakena would be a likely place to look for early *ahu* constructions in order to evaluate changes in construction techniques and levels of investment through time.

While stratigraphic information from the Norwegian excavations reveals a lot about the super-positioning of *Ahu Nau Nau*, it can only inform on those particular constructions revealed in the excavations. The presence of other early constructions is largely unknown. Are previously constructed *ahu* buried under aeolian sand? Did investment in a previous construction increase over time and to what extent? To address these questions, one must construct a research design that effectively characterizes the nature of the subsurface deposits at Anakena in the most cost efficient and timely fashion.

The traditional means of archaeological investigation is through excavations. Information obtained from an excavation unit, while valuable, is limited to characterizing only the space that the unit occupies. It cannot characterize the entire expanse of the beach in any larger, meaningful way. Maximizing subsurface information at Anakena is important because without it the presence/absence of previous *ahu* and their orientations are reliant upon the information obtained from one small area and assumed to represent the rest of the beach. In order to maximize the amount of subsurface sampled, a means of characterization other than excavation should be employed. One method involves the use of near surface remote sensing techniques to generate information about the subsurface on a larger scale than can be practically achieved by excavation.

Near surface remote sensing techniques can effectively increase survey speed and the amount of area surveyed at Anakena. This class of remote sensing techniques uses sensors that are situated on or near the surface of the ground and measure properties of the subsurface without requiring subsurface excavations. Given the cost of excavation and the subsequent destruction to the archaeological record, near surface remote sensing potentially provides an economical means of generating information over large portions of the archaeological record with minimal damage.

Using near surface remote sensing techniques can inform on subsurface deposits including the relative location and depth of buried *ahu*. While geophysical techniques have proven useful in a variety of environments, the range of their applicability at Anakena has not yet been ascertained.

This study aims to characterize a large portion of the subsurface at Anakena. The primary objective is to determine the extent to which two geophysical techniques can resolve the linear alignment and orientation of any early *ahu* at Anakena that were potentially built over by later platforms and/or covered by aeolian deposition. The use of near surface remote sensing techniques is a proactive step to preserve the archaeological record while conducting useful subsurface investigations.

Two techniques useful in archaeological investigation are ground penetrating radar (GPR) and magnetometry (Gaffney and Gater 2003; Kvamme 2001, 2003). Each measures a different portion of the electromagnetic spectrum and provides information on different compositional and distributional aspects about a subsurface deposit. Increased sensitivity in these instruments allows smaller variations within the subsurface to be measured and at greater depths than their early capabilities in archaeological investigation. The speed of data acquisition allows a larger area to be surveyed, thus the potential for characterizing a significant portion of Anakena Beach is increased through the use of these two techniques.

Geophysical Investigation at Anakena

In 2006 six GPR grids were collected at Anakena. The information obtained in these investigations is compared to nine 50X50m magnetometry grids collected in 2003. While the GPR grids overlap with area covered by magnetometry, their shape and size conform to the limitations imposed by the natural topography.

GPR surveys at Anakena were conducted with the GSSI SIR-3000 radar system and a 400MHz antenna. Surveys focused on the areas immediately west, north, and in front of *Ahu Nau Nau*. Transects were bidirectional and spaced 0.33m apart to increase resolution of the subsurface. Data was collected over the course of four weeks. Intermittent rainstorms and equipment failure inhibited data collection particularly during the first two weeks of fieldwork. Subsequently, some grids were collected over the course of multiple days. The amount of water content in the subsurface varied by time and day resulting in significant differences in the quality of data collected within and between grids. Additional computer post-processing in the lab was necessary to account for these issues and too enable comparisons between data sets.

Magnetometry surveys were conducted at Anakena using a Geometrics G-858 Cesium Sensor Magnetometer. Survey transects were unidirectional, oriented with magnetic north, and spaced 1.0m apart. Data was processed each day in the field. A Geometrics G-856 Proton Magnetometer was established as a base station to collect local diurnal information in order to calibrate the data collected by the cesium vapor magnetometer.

In this study, GPR data is examined to determine if relative location and depth information about buried *ahu* to the immediate west of *Ahu Nau Nau* can be ascertained. This is accomplished by comparing the hyperbolic reflections of interest in the processed radargrams to the locations and approximate calculated depth of linear alignments in the nanosecond time-slices. Magnetometry data provides supplementary location data that may correlate with high amplitude reflections in the GPR data. From the comparison between monumental architectural features located through excavation and the areas with interesting electromagnetic signals located during the analysis of the geophysical data, the subsurface of Anakena can potentially be resolved. This information can be used to generate more hypotheses about the nature of the subsurface.

Preliminary Results and Comparisons

The GPR data has undergone a series of processing procedures. Further examination of the data is underway given recent innovations in the processing software GPR-Slice. The preliminary results specifically about the largest open area west of *Ahu Nau Nau* are reported below.

Patterned reflections in the GPR data in Grid 1 (area west of *Ahu Nau Nau*; see Figure 1) align with rock scatter on the surface and indicate the structure extends deeper and farther to the south. Patterns of aeolian deposition in the form indicative of forest beds also are noted within the GPR profiles (Figures 2-4). High amplitude reflections within these defined layers indicate archaeological features of interest. Indications of rubble from a previous *ahu* are detected beneath a strong reflection surface in Grid 1.

The horizontal time slices are equally indicative of at least one previous construction. A rectilinear alignment oriented similar to that of the current *Ahu Nau Nau* is present in several time slices, indicating the subsurface feature has depth. These results support the hypothesis that at least one previous *ahu* was constructed at Anakena and follows a similar orientation to the current platform. Further field investigations may reveal the chronological placement of this *ahu* in Easter Island prehistory.

The high amplitude reflections in the magnetometry data align with low amplitude reflections in the GPR data (Figure 5). The placement of highly magnetic features in the magnetometry data is further to the west (approaching the trees) rather than adjacent to the latest phase of *Ahu Nau Nau* where there is abundant rock scatter. This may relate to less dense aeolian deposition on features closer to the trees or indicate a thick red clay noted in excavations (Stevenson 1993). A number of rectangular and/or linear features are noted in the magnetometry data along the trees. These may represent earlier platforms or more functional settlement constructions such as house foundations or agricultural structures. Extending the GPR surveys to cover more of this area will provide further information on the nature and location of these and additional subsurface structures.

Figure 1. Nanosecond time slices of each grid located around *Ahu Nau Nau.*

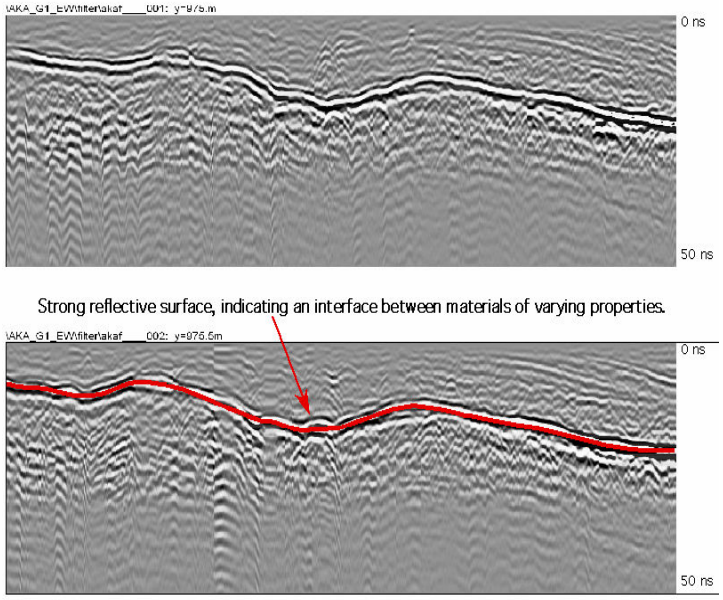

Figure 2. Gray-scale transect profile from Grid 1 illustrating a strong reflective surface adjacent to the west-southwest of *Ahu Nau Nau.*

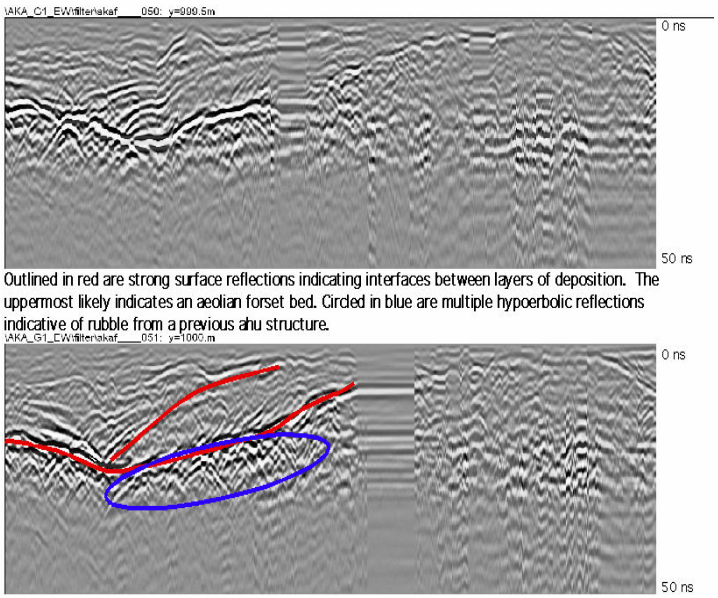

Figure 3. Aeolian forset beds in Grid 1 overlaying multiple strong reflections indicative of rock rubble.

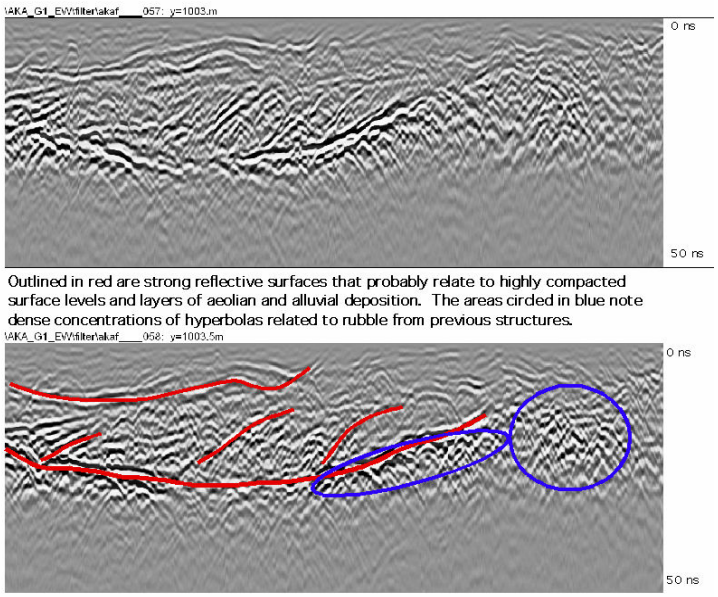

Figure 4. Strong reflective surfaces in the area west of *Ahu Nau Nau* may indicate compacted living surfaces. Additional reflections indicate a dense concentration of rock.

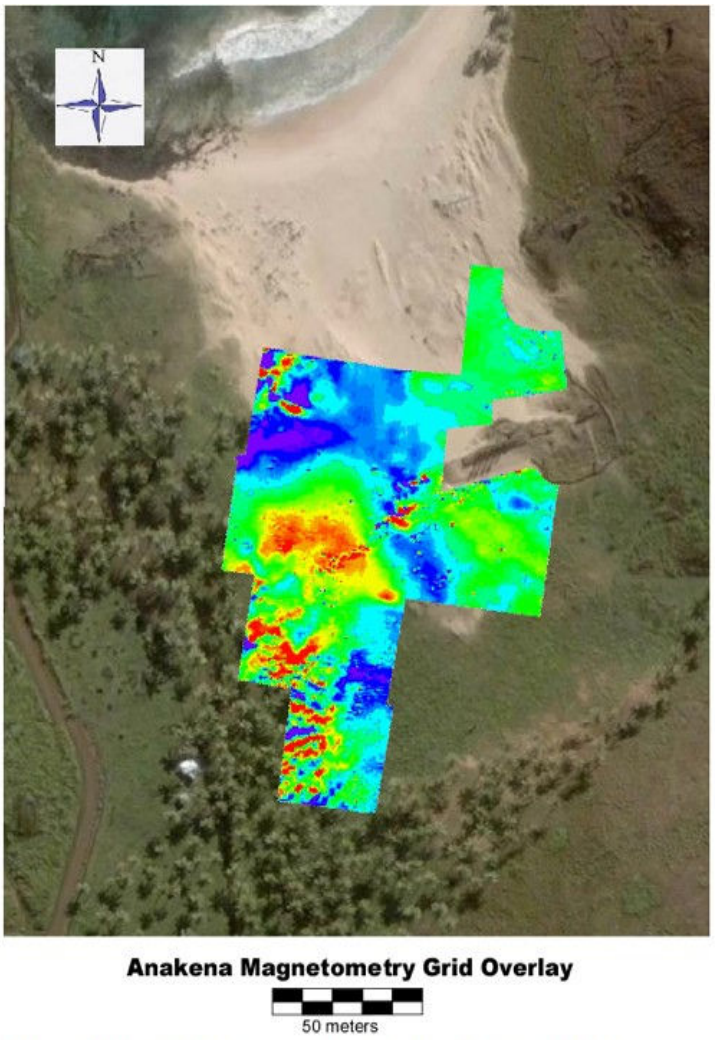

Figure 5. Magnetometry data overlaying Anakena Beach. Strong reflections along the tree line may indicate anthropogenic soils.

Conclusions

Near surface remote sensing techniques have allowed us to generate hypotheses about the structure of the archaeological deposits at Anakena in a non-destructive manner. Using a combination of techniques, interesting features and alignments were detected in the subsurface deposits. Patterns of high and low amplitude reflections indicate the structure and composition of the subsurface at Anakena. Identified features include distinct aeolian depositional events and linear rock alignments within these layers. Some of these features match up with rock scatter on the surface and indicate similar features are present at depth.

The combination of two near surface remote sensing techniques provides information on the structure and placement of archaeological features of interest at Anakena and at a relatively low cost. The data collected during these surveys can be used to generate additional hypothesis about monumental architecture at Anakena. The non-destructive nature of these techniques promotes the preservation of the archaeological record by generating information at a larger scale than can be practically achieved by other traditional methods such as excavation. While these results are still in the early stages of comparisons, they are promising and suggest future geophysical research at Anakena will be equally informative.

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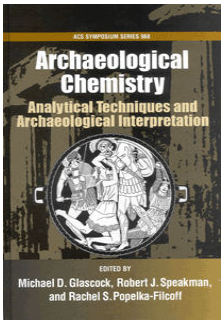
New Book in Archaeological Chemistry

Archaeological Chemistry: Analytical Techniques and Archaeological Interpretation, edited by M. D. Glascock, R.J. Speakman, and R.S. Popelka-Filcoff. Published in 2007 by American Chemical Society, Washington, D.C. (ISBN-10: 0841274134, ISBN-13: 978-0841274136).



Contents: Expanding the Range of Electron Spin Resonance Dating. Anne R. Skinner, Bonnie A. B. Blackwell, Maysun M. Hasan, and Joel I.B. Blickstein; Toward the Classification of Colorants in Archaeological Textiles of Eastern North America. Christel M. Baldia and Kathryn A. Jakes; Infrared Examinaton of Fiber and Particulare Residues from Archaeological Textiles. Kathryn A. Jakes, Christel M. Baldia, and Amanda J. Thompson; Extraction and Analysis of DNA from Archaeological Specimens. Brian M. Kemp, Cara Monroe, and David Glenn Smith; Using Archaeological Chemistry to Investigate the Geographic Origins of Trophy Heads in the Central Andes: Strontium Isotope Analysis at the Wari Site of Conchopata. Kelly J. Knudson and Tiffiny A. Tung; Interpreting Stable Isotopic Analyses: Case Studies on Sardinian Prehistory. Luca Lai, Robert H. Tykot, Jessica F. Beckett, Rosalba Floris, Ornella Fonzo, Elena Usai, Maria Rosaria Manunza, Ethan Goddard, and David Hollander; Bitumen in Neolithic Iran: Biomolecular and Isotopic Evidence. Michael W. Gregg, Rhea Brettell, and Benjamin Stern; Surface Analysis of a Black Deposit from Little Lost River. Reshmi Perumplavil and Ruth Ann Armitage; Shell Bead Sourcing: A Comparison of Two Techniques on Olivella biplicata Shells and Beads from Western North America. Jelmer W. Eerkens, Jeffrey S. Rosenthal, Howard J. Spero, Ryoji Shiraki, and Gregory S. Herbert; Archaeological Soils and Sediments: Application of Microfocus Synchotron X-ray Scattering, Diffraction, and Fluorescence Analyses in Thin-Section. W. Paul Adderley, Ian A. Simpson, Raymond Barrett, and Timothy J. Wess; Quantitative Modeling of Soil Chemical Data from Inductively Coupled Plasma-Optical Emission Spectroscopy Reveals Evidence for Cooking and Eating in Ancient Mesoamerican Plazas. E. Christian Wells, Claire Novotny, and James R. Hawken; Chemical Composition of Song Dynasty, Chinese, Copper-Based Coins via Energy Dispersive X-ray Fluorescence. Jessica Misner, Jeffe Boats, and Mark A. Benvenuto; Elemental Compositions of Herodian Prutah, Copper Coins—of the Biblical "Widow's Mites" Series—via Energy Dispersive X-ray Fluorescence. Meghann Mouyianis, Jeffe Boats, and Mark A. Benvenuto; Chemical Composition of the Isfiya and Qumran Coin Hoards. Michael Notis, Aaron Shugar, Danny Herman, and Donald T. Ariel; Selected Applications of Laser Ablation Inductively Coupled Plasma-Mass Spectrometry to Archaeological Research. Robert J. Speakman, Michael D. Glascock, Robert H. Tykot, Christophe Descantes, Jennifer J. Thatcher, Craig E. Skinner, and Kyra M. Lienhop; Evaluating the Precision Requirements for Isotope Ratio Determination of Archaeological Materials Using Laser Ablation-Time-of-Flight-Inductively Coupled Plasma-Mass Spectrometry Increasing Ratio Precision. John V. Dudgeon, Hector Neff, Andrew "Flynn" Saint, and William Balsanek; Lead Isotope Analysis of Roman Carthage Curse Tablets. Sheldon Skaggs; Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry Analysis of Ancient Copper Alloy Artifacts. Laure Dussubieux; Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry Analysis Applied to the Characterization of Peruvian Wari Ceramics. Laure Dussubieux, Mark Golitko, Patrick Ryan Williams, and Robert J. Speakman; Characterization of Building Materials from the Brick Chapel at Historic St. Mary's City. Ruth Ann Armitage, Leah Minc,

Silas Hurry, and Melissa Doolin; Characterization of 15th-16th Century Majolica Pottery Found on the Canary Islands. Javier Garcia Inanez, Jaume Buxeda i Garrigos, Robert J. Speakman, Michael D. Glascock, and Elena Sosa Suarez; Intraregional Provenancing of Phillistine Pottery from Israel. David Ben-Shlomo; The Technology of Mesopotamian Ceramic Glazes. David V. Hill, Robert J. Speakman, Michael D. Glascock, and Hector Neff; Analysis of Historic Latter-day Saint Pottery Glazes by Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry. Nicole C. Little, Timothy J. Scarlett, Robert J. Speakman, Michael D. Glascock, and Christopher W. Merritt; Fingerprinting Specular Hematite from Mines in Botswana, Southern Africa. Adam V. Kiehn, George A. Brook, Michael D. Glascock, Jonathan Z. Dake, Lawrence H. Robbins, Alec C. Campbell, and Michael L. Murphy; Instrumental Neutron Activation Analysis of Ochre Artifacts from Jiskairumoko, Peru. Rachel S. Popelka-Filcoff, Nathan Craig, Michael D. Glascock, J. David Robertson, Mark Aldenderfer, and Robert J. Speakman; Feasibility of Field-Portable XRF to Identify Obsidian Sources in Central Peten, Guatemala. Leslie G. Cecil, Matthew D. Moriarty, Robert J. Speakman, and Michael D. Glascock; Sources of Archaeological Obsidian in Peru: Descriptions and Geochemistry. Michael D. Glascock, Robert J. Speakman, and Richard L. Burger.

Archaeometallurgy

Thilo Rehren, Guest Associate Editor

PhD Theses

A lot of cutting-edge work in archaeometallurgy is being done as part of doctoral research; and I like to list in this space a few recently completed theses as they come to my attention. I would be very grateful for any information about past and current PhD theses in archaeometallurgy, and even more so for physical copies to be made available to me, for inclusion in the Tylecote Library at the UCL Institute of Archaeology.

Book Publications

Some of you may remember the massive gathering of archaeometallurgists at the British Museum in late April 2005, to honour the contribution Paul Craddock has made to the field over the past several decades, on the occasion of his retirement. In retrospect, one has to say that Paul is bringing the whole concept of retirement in disrepute, by continuing to work and produce as industriously as before. Late last year appeared the book Metals and Mines–Studies in Archaeometallurgy, edited by Susan La Niece, Duncan Hook and Paul Craddock with a selection of some 25 papers from that conference. It is published by Archetype Publications in association with the British Museum, and covers its content under sections titled 'Mining and smelting', 'Copper, tin and bronze', 'Brass and zinc', and 'Iron and steel'. As such, it offers both a balanced view of the field, and combines mostly very up-to-date accounts of recent discoveries and developments. As a contributor to this volume I have to leave the reviewing to others, but I am sure it will be received very well by our community.

Archaeological Ceramics

Charles C. Kolb, Associate Editor

The column in this issue includes five topics: 1) Reviews of Books on Archaeological Ceramics; 2) Publications Online; 3) Previous Meetings; 4) Forthcoming DVD; and 5) Request for Assistance from Tim Scarlett.

John W. Arthur, *Living with Pottery: Ethnoarchaeology among the Gamo of Southwest Ethiopia*. Foundations of Archaeological Inquiry. Salt Lake City: University of Utah Press, 2006. xvi + 154 pp., 82 figs., 45 tables. ISBN-13:978-0-87480-883-4 cloth, ISBN:10:0-87480-883-9 (cloth), $55.00; ISBN-13:978-0-87480-884-1 (paperback), ISBN 1-08480-884-7 (paperback), $25.00. This volume, a welcome addition to the University of Utah Press's "Foundations of Archaeological Inquiry" series, contains an "Introduction" (pp. 1-9), eight chapters, 197 "References," and a four-page double-column index supplemented by 82 figures and 45 tables. A treatise on ceramic ethnoarchaeological, this study was written by John W. Arthur (Department of Anthropology, University of South Florida at St. Petersburg) and is based upon extensive field research that he conducted in southwestern Ethiopia. The work was the basis for his University of Florida at Tallahassee doctoral dissertation, *Ceramic Ethnoarchaeology among the Gamo of Southwestern Ethiopia* (2000).

Pottery still represents a dominant material in the everyday life of the Gamo and has not been altered by the substitution of metal and plastic containers because, in the main, pottery vessels cost less that these substitutes even though clay vessels are less durable. Hence, Arthur's selection of the Gamo for his ceramic ethnoarchaeological studies. He spent 20 months (1996-1998) studying the Gamo, collecting oral histories, and documenting 1,058 vessels from 60 households in three villages. The individuals and families that he studied represented all of the caste and socioeconomic groups in Gamo society. The three villages (Guyla, Zuza, and Etello) are located in different ecozones and Arthur mapped each and conducted a traditional census. Zuza is situated in the lowlands where wooden serving vessels and drinking gourds are used and tobacco smoking is rare in comparison to highland communities; Guyla, a potter-making village in the highlands, and Etello, a non-pottery-producing village also in the highlands.

In "Chapter 1: The Gamo" (pp. 10-28, 16 figs., 1 table) the author characterizes the Gamo an Omotic-speaking agriculturalists inhabiting the mountains of the Rift Valley. About 600,000 Gamo live in districts (further divided into subdistricts and villages within the districts). The environment, subsistence activities, and periodic markets (regional and local) are documented and he focuses on Gamo social organization and the three-level patrilocal endogamous caste system (high to low: *mala*, *mana*, and *degala*); women *mana* caste members are predominantly potters (Table 1.1, p. 20). The Gamo diet consists of a range of foods, predominantly enset, barley, wheat, and potatoes in the highlands, and corn, sorghum, teff, and coffee in lowland region. Meat is not a common food in rural

areas and cattle are raised for milk and butter. He notes that butter "represents a direct measure of status and wealth and is tied to symbolic life" (p. 18). In addition to the ecological zones, the Gamo have complex political, social, and economic structures that influence all aspects of daily life and affects the pottery lifecycle.

"Chapter 2: Pottery Procurement and Production" (pp. 29-54, 22 figs., 9 tables) focuses on the women's learning processes starting with informal instruction from their mothers followed by more formal learning from mothers or mothers-in-law. Moving to new villages necessitates learning new production techniques and the need to conform to local stylistic traditions. He notes the assistance of men in some tasks, such as clay and temper acquisition, and technical factors in the selection of clays and tempers (the Gamo's perceived attributes of these raw materials are noted in Table 2.1, p. 34). Three or four types of clay are mixed to produce all vessel forms (more information on these recipes would be useful for archaeologists specializing in pottery analyses). The potters rely on the *mala* for access to clays and tempers because potters rarely own farmland and are. therefore, dependent on sociopolitical relationships (patron-client) to obtain these resources. Notably, Arthur's research support's Dean Arnold's paradigm that clay and temper resources are procured from within a seven kilometer radius of the potter's village (*Ceramic Theory and Cultural Process*, Cambridge: Cambridge University Press 1985:39-53). Guyla potters mine a volcanic ash that provided strength and elasticity during the firing process and subsequent use.

Fourteen vessel forms are made (seven jar types, bowls, a footed dish, a baking plate, coffee cup, coffee pitcher, and water pipe for smoking tobacco); Arthur provides excellent illustrations of these forms. Potters use hand-building, coil-and-scrape, and paddle-and-anvil method to make from 5 to 70 vessels per week. The author also presents data on drying loci and time for specific vessel forms – most are dried in the house rafters. Burnishing, appliqué, comb-stamping and incision are the common forms of decoration. Gamo potters select particular fuelwoods to prefire and fire their vessels and the selection is determined by the ecological zone in which the village is situated. Postfire vessel treatments are also reported. The chapter also has a section on pottery procurement and production in cross-cultural perspective citing more than a dozen societies from the New and Old Worlds (pp. 51-54).

Cultural and environmental factors influence the types of ceramics found in individual households ("Chapter 3: Pottery Distribution," pp. 55-72, 11 figs., 9 tables), Generally a pottery-producing village obtains a majority of its needs from local potters, while non-producing villages (i.e., Etello) obtain their pottery from a variety of non-local sources, such as the pottery-producing communities of Birbir and Ezo. The patron-client relationships, social obligations, and proximity to markets affect the types of vessels found within each village. Arthur also comments on consumer pottery preferences and – importantly – preference versus actual purchase. Non-technological reasons, in the main proximity to the marketplace, influence buyers. Consumers are also influenced by the types of crops grown and consumed locally; hence, potters specialize in producing for consumer needs and preferences within their village or at the market. He also provides excellent data on vessel types and costs for 804 vessels and examines the effect of two factors, caste and economic rank, on expenditures and the origin of household pottery, and has prepared extensive tabular data. The more expensive vessels are purchased by higher caste and wealthier households.

In "Chapter 4: Pottery Primary Use" (pp. 73-91, 9 figs., 3 tables), Arthur presents a village analysis of vessel types, primary use, vessel capacities, and frequencies in the three villages. The vessel assemblages in the three villages are distinct because of variations in local ecology, proximity to water and woodlands, agricultural products, diets, population density, and sociocultural factors. A spatial analysis of Gamo household primary use pottery is related to ecological factors, social status, and wealth. He also illustrates low caste and poor versus high caste and wealthy households, as well as in potter households. Caste group analysis of pottery frequencies, types, and space are compared and he has prepared an analysis of rank using the same variables. The latter part of the chapter focuses on cross-cultural perspectives on primary use (pp. 89-91).

"Chapter 5: Pottery Use-Life" (pp. 92-101, 10 tables) focuses on a village analysis of use life in terms of vessel expenditure, volume, and typology before turning to an assessment by caste group and economic rank for these variables. Use-life is influenced by a number of factors including manufacturing materials and production techniques, vessel function and size, frequency of use, household social status and economic status, and vessel costs. Lower status and poorer household have fewer vessels and use them more frequently, thereby causing a reduced use-life. Cooking vessels have the shortest use-life because of thermal stress and shock from exposure to fire, whereas storage vessels have the longest use-life because of their lack of movement and not being exposed to the stresses of fire. Larger pots have longer use-lives that smaller ones but vessel size only influences use-life when controlling for vessel function. Vessel use-life influences the cost of pots except for communities that are dependent on weekly markets (i.e., Etello).

Relatively few ceramic ethnoarchaeologists have provided data on the mending and reuse of pottery vessels. The work of Michael Deal on the Tzeltal Maya, reported in *Pottery Ethnoarchaeology in the Maya Highlands* (Salt Lake City: University of Utah Press, Salt Lake City, 1998), based on his 1983 dissertation, is a major exception. Arthur's chapter entitled "Pottery Mending and Reuse" (pp. 102-134, 11 figs., 12 tables) contains exceptionally rich information on these significant activities. Larger and more expensive vessels are mended more frequently because of their economic value and the households in the non-pottery-making village of Etello mend more vessels that in the other two villages because it is more difficult in terms of efficiency (time and energy) for the Etello consumers

to obtain replacement vessels. Arthur also reports his important analysis of why vessels break; there are 28 reasons why 380 pots broke. He notes that only 21 of 487 broken vessels were mended and that the mending was done with a variety of materials (n = 17). There is important data on the frequency of reused pots and Arthur has detailed two distinct methods of reuse – reusing the vessel for a new function after it broke or using the vessel for the same function as before it broke. One-third of the Gamo vessels inventories are in a reuse stage, indicating that the reuse of vessels is a significant component of the life cycle of a vessel (this contrasts with 21% among the Tetzel Maya). The highland village of Guyla reuses a higher percentage of broken vessels than lowland Zuza, notably for the storage of surplus grain. Reuse versus discard is also influenced by vessel form and function. Arthur presents salient analyses of vessel reuse by caste group and economic status, assessing types of vessels, volume, and spatial parameters. Again, as in other chapters, there is a cross-cultural comparison (pp. 119-120).

"Chapter 8: Pottery Discard" (pp. 121-134, 13 figs., 1 table) begins with a village-by-village analysis of discarded vessels focusing on caste and economic statuses each documenting vessel types, volumes, and spatial factors. Small orifice vessels (coffee pitchers) and cooking vessels with major breaks are less likely to be reused and are generally discarded. In addition, the most common cooking vessel — narrow-mouth medium jars – are the most discarded vessel type. When pots reach the discard stage, the inhabitants of the three communities store them informally throughout the household property, some in "dead" storage. Lower caste households tend to store these vessels in restricted areas because they have spatially smaller households containing a single building. Higher status households with several structures distribute the discards throughout the household landscape rather than a restricted area. Notably, large sherds may be used to transport fire from household to household but smaller fragments are deposited in footpaths to add traction during the rainy season or the sherds may be discarded in agricultural fields. Arthur also provides a cross-cultural comparison (pp. 132-134). Lastly, the author provides a synopsis of his major findings and relates these to archaeology: "Chapter 8: Gamo Pottery and Its Implications for Ethnoarchaeology and Archaeology" (pp. 135-140).

John Arthur's ceramic ethnoarchaeological study reemphasizes the need for archaeologists to examine pottery in terms of its lifecycle: raw material procurement, production, distribution, use, use-life, mending, reuse, and discard. Ceramic ethnoarchaeology has matured greatly since David and Hennig's *The Ethnography of Pottery: A Fulani Case Seen in Archaeological Perspective* (McCaleb Module in Anthropology 21, Reading, MA: Addison-Wesley, Reading, 1972) and the late Carol Kramer's "Ceramic Ethnoarchaeology," *Annual Review of Anthropology* 14:77-102, 1985). Arthur's assessment of pottery-making in a caste society takes its place along with Kramer's *Pottery in Rajasthan: Ethnoarchaeology in Two Indian Cities* (Washington, DC: Smithsonian Institution Press, 1997; expanding her 1991 and 1994 book chapters) as an account of production in baste-based societies; see H-Net REVIEWS/H-ASIA (Asian History), an electronic review, 1998, http://www.h-net.msu.edu/reviews/showrev.cgi?path=19892891016105 , by Charles Kolb.

A number of the same parameters Arthur details in his study of the Gamo are covered by Deal (1986) and Philip Arnold in *Domestic Ceramic Production and Spatial Organization: A Mexican Case Study in Ethnoarchaeology* (Cambridge: Cambridge University Press, 1991), see *La Tinaja: A Newsletter of Archaeological Ceramics* 12(1):7-10 (1999). Nonetheless, Arthur's assessment and comparison and contrasting of three communities from different ecozones provided a unique perspective and his discussion of mending and reuse sets his research apart from most other analyses. J. Theodore Peña's *Roman Pottery in the Archaeological Record* (New York: Cambridge University Press, 2007), also provides a comprehensive assessment of the pottery lifecycle from a state rather than "tribal" rural agricultural society such as the Gamo. See my review of Peña's book in *SAS Bulletin* 30(3):15-16 (2007). These older and more recent researches on ceramic ethnoarchaeology are adding to our understanding of the ceramic lifecycle. and Arthur's extensive and detailed evaluation is a most welcome addition. In his discussions of raw material procurement, production, distribution, and primary use, Arthur's research provides a significant parallel to the work done by Olivier Gosselain in Cameroon such as "Skimming Through Potter's Agendas: An Ethnoarchaeological Study of Clay Selection Strategies in Cameroon," in S. T. Childs (ed.), *Society, Culture, and Technology in Africa*, MASCA Research Papers in Science and Archaeology, Supplement to Vol. 11, Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 1994:99-107; and Gosselain and A Livingston Smith, "The Ceramics and Society Project: An Ethnographic and Experimental Approach to Technological Choices," in A. Lindhal and O. Stileborg (eds.), *The Aim of Laboratory Analyses of Ceramics in Archaeology*, Konferenser 34, Kungl, Stockholm: Vitterhets Historie och Antikvitets Akademien, 1995:147-160.

Robert Hunter (editor), *Ceramics in America 2007*. Milwaukee, WI: The Chipstone Foundation, distributed by the Antique Collectors' Club, Ltd., Easthampton, MA and Woodbridge, Suffolk, UK. xvi + 314 pp., 303 color images, 2 tables, 15 appendices. ISSN 1433-7154, ISBN 0-9767344-0-0, $65.00 (hardcopy). The editor, Robert Hunter, is also an archaeologist and historian of ceramics who resides il Williamsburg, Virginia and was the founding director of the Center for Archaeological Research at The College of William and Mary, He also served on the curatorial staff at the Colonial Williamsburg Foundation and edited the six previous annual issues of *Ceramics in America* which were published as paperbound copies by the Chipstone Foundation, Milwaukee, and distributed by University Press of New England. Several have been reviewed in the *SAS Bulletin* 27(4):17-18 (Winter 2004), 29(2):20-21 (Summer 2006), and 30(1):24-25 (Spring 2007). The 2007 annual has a new publisher and a thematic format oriented to translucent soft paste porcelains produced, in the main, by the

Bonin and Morris manufactory. In December 1969, Gousse Bonnin and George Anthony Morris opened their china manufactory in Philadelphia, Pennsylvania but closed by 1772. Only 19 surviving examples of their work and numerous archaeological specimens have survived along with scattered historical accounts. Until the publication of this major synthesis, it was assumed that Bonnin and Morris fabricated the first porcelain in the United States beginning in 1770. However, Stanley South's excavations of ceramics made by John Bartlam at the Cain Hoy site in South Carolina clearly document that Bartlam was making soft paste porcelains between 1765 and 1770.

The 2007 volume has an "Introduction" (pp. xi-xvi) by Robert Hunter, 14 articles of varying length, a "Checklist of Articles and books on Eighteenth-Century Porcelain in America" by Amy C. Earls, with 107 entries, and a ten-page triple-column index. (pp. 305-314). The 2007 volume of *Ceramics in America* begins with a reprinting of Graham Hood's brief volume published in 1972 on the Bonnin and Morris Philadelphia porcelain factory with new color images of the wares and some of the excavations conducted by Garry W. Stone and Paul Huey. This is supplemented by a reprint of a significant article by Michael Brown that documents the history of the factory. These initial contributions are: "Bonin and Morris *Redivivis*" (pp. 2-5) by Graham Hood; "Bonnin and Morris of Philadelphia: The First American Porcelain Factory, 1770-1772" (pp. 6-75, 63 figs., 15 appendices) by Graham Hood (published originally in 1972); and "Piecing Together the Past: Recent Research on the American China Manufactory, 1760-1772" (pp. 76-93, 11 figs.) by Michael K. Brown (published in 1989 in the *Proceedings of the American Philosophical Society*). The pursuit of the secret of how to make porcelain is closely related to alchemy and the alchemists who sought to turn base metals into gold. The *arcanum* was the secret of how to make porcelain that was highly sought by European and English potters. "The American *Arcanum*: Porcelain and the Alchemical Tradition" (pp. 94-119, 15 figs.) by Glenn Adamson is a splendid but brief summary of the history of the quest and how it relates to a changing knowledge of the chemistry involved in porcelain production. He argues that the secrets of porcelain manufacture in the Western world were closely linked to the mysticism surrounding alchemy: part philosophy, part chemistry, and part spirituality (p. xiii).

"A New Classification Scheme for Eighteenth-Century American and British Soft-Paste Porcelains" (pp. 120-140, 11 figs.) by geologist J. Victor Owen provides a splendid technical analysis of the ware, documenting the chemical compositions of glassy, bone, soapstone and hybrid soft paste porcelains and provides information on the mix of these ingredients of porcelains from a large number of English factories as well as the porcelains from John Bartlam and Bonnin and Morris factories. Owen notes that "ceramics are essentially synthetic rocks" (p. 125) and he begins by characterizing the traditional soft-paste porcelain groupings: 10 glassy (frit), 2) soapstone (steatite), 3) bone-ash, and 4) bone china (developed by Josiah Spode in the 1790s.) In the new classification he presents a series of compositional diagrams, four-dimensional depictions, and seven-field diagrams, the latter for four porcelain groups: 1) phosphatic; 2) calcic and plumbic; 3) calcic, siliceous, and aluminous; and 4) early (likely experimental) aluminous and plumbic sherds. In Figure 9 he presents a flowchart illustrating the selection of porcelain compositions of American and British soft-past porcelains for the 18th century. In addition, he critiques his own research and microbeam techniques. In this pathbreaking research, Owen demonstrates the need to reconsider the broad groupings of these wares as originally defined by Herbert Eccles and Bernard Rackham in *Analyzed Specimens of English Porcelain* (London: Victoria and Albert Museum, 1922).

Owen is a frequent contributor to the journal *Geoarchaeology* on the scientific analysis of archeological porcelains, and also authored "On the Earliest Products (ca. 1751-1752) of the Worcester Pottery Manufactory: Evidence from Sherds from the Warmstry House Site, England" *Historical Archaeology* 32:63-75 (1998). His major contributions include "Geochemical and Mineralogical Distinctions between Bonnin and Morris (Philadelphia, 1770-1772) Porcelain and Some Contemporary British phosphatic wares," *Geoarchaeology* 16:785-802 (2001); "Antique Porcelain 101: A Primer on the Chemical Analysis and Interpretation of Eighteenth-century British Wares," *Ceramics in America* 2:39-61 (2001); and Owen, Adams, and Stephenson, "Nicholas Crisp's "Porcellien": A Petrological Comparison of Sherds from the Vauxhall (London, ca. 1751-1764) and Indeo Pottery (Bovey Tracey, Devonshire; ca. 1767-1774) Factory Sites," *Geoarchaeology* 15:43-78 (2000).

"Making a Bonnin and Morris Pickle Stand" (pp. 141-164, 36 figures) by Michelle Erickson and Robert Hunter recreated the process of producing a Bonnin and Morris pickle stand. There is a detailed description of this intricate process and an excellent set of Gavin Ashworth photographs depicting the making of the various molds and assembling this multicomponent vessel. Other contributions to the volume include "English Porcelain in America: Evidence from Williamsburg" (pp. 165-184, 39 figs.) by Roderick Jellico with Robert Hunter in which a detailed analysis of archaeological specimens excavated at Williamsburg, Virginia shows that English products competed with domestic-produced wares in America. Short articles related to the overall theme include: "A Bonnin and Morris Waste Bowl" (pp. 185-187, 5 figs.) by Robert Hunter and Jeffrey Ray; "Bonnin and Morris Revisited" (pp. 188-192, 3 figs.) by Diana Stradling and J. Garrison Stradling; "John Bartlam: America's First Porcelain Manufacturer" (pp. 193-196, 1 fig.) by Robert Hunter; "John Bartlam's Porcelain at Cain Hoy, 1765-1770" (pp. 196-203, 7 figs.) by Stanley South; and "John Bartlam's Porcelain at Cain Hoy: A Closer Look" (pp. 203-208, 7 figs.) by Lisa R. Hudgins. Of special interest to *SAS Bulletin* readers is "Geochemistry of High-Fired Bartlam Ceramics" (pp. 209-218, 9 figs.) by J. Victor Owen. Stanley South provided a sample of six porcellaneous sherds for Owen's assessment. Using electron microprobe, Owen analyzed the Bartlam porcelain chemical

composition and compared the results with other British and American wares. Among the data he reports are bulk compositions, phase compositions (melt), and glaze compositions. Owen determined that Bartlam used lead-rich glazes on his phosphatic porcelains, and that the compositions correlate with several British counterparts, see J. V. Owen and T. E. Day, "Estimation of the Bulk Composition of Fine-grained Media from Microchemical and Backscatter-image Analysis: Application to Biscuit Wasters from the Bow Factory Site, London," *Archaeometry* 36:217-226 (1994). Owen also states that the compositional analysis that he conducted on earthenware sherds will be reported in a subsequent issue of *Ceramics in America*.

The volume concludes with an excellent "Catalogue Raisonné of Bonnin and Morris Porcelain" (19 plates [96 separate images], 2 tables) by Alexandra Alevizatos Kirtley who has prepared a catalog of all the known surviving Bonnin and Morris pieces and their histories. Gavin Ashworth rephotographed each these vessels.

Ceramics in America 2007 is a very important volume containing a variety of thematic essays that illuminate the American China Manufactory of Bonnin and Morris that helps to rewrite the early history of American porcelain manufacture. The exquisite photographs and clear, informative narratives provide evidence of this early history. The two essays by J, Victor Owen (pp. 120-140 and 209-218) add significant information to the geochemistry of these wares and deserve careful attention. Discount book chains carry the volume for considerably less than $65.00.

Heather Margaret-Louise Miller, *Archaeological Approaches to Technology*, Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Singapore, Sydney, Tokyo: Academic Press, an imprint of Elsevier, 2007. xxi + 298 pp., 63 figures (line drawings and halftones), ISBN: 978-0-12-496951-3, ISBN10: 0-12-496951-8, $79.95 (hardback). Miller (Department of Anthropology, University of Toronto) has prepared a volume designed as an introduction to studies in archaeological technology for upper-level undergraduates and graduate students and as a reference work for archaeologists and material culture specialists. The text is supplemented by 63 illustrations, 395 references that are generally current, and a useful index.. Following a contextualizing "Preface and Acknowledgments," she has prepared seven chapters of varying length that serve to document the major ancient technologies. She emphasizes that this work does not pretend to be a comprehensive assessment of *all* preindustrial technologies. Miller's prefatory remarks document her exclusion of the Classic Greek and Roman worlds as well as Medieval to industrial period Europe (p. xvii). She notes that this volume owes much in concept to her graduate advisor at the University of Wisconsin-Madison, Jonathan Mark Kenoyer. Miller obtained her doctorate from that university in 1999 based on her dissertation entitled *Pyrotechnology and Society in the Cities of the Indus Valley*. She cites influences of Henry Hodges, Carla Sinopoli, Rita Wright, and John Shea.

The organization of the text is innovative and refreshing, unlike traditional patterns of analysis that proceed from one form of material object to another (i.e., ceramics, lithic, metals, etc.), and she covers the range from stone tool production to the manufacture of glass. She divides crafts into extractive-reductive and transformational types, and employs a variety of case studies. Pottery production and metallurgy are well covered but the focus is on Old World manufacture and case studies (reflecting Miller's training and dissertation topic). On the topic of metallurgy, she focuses on Southwest Asia and the Indian Subcontinent and less so on Far East bronze and iron production, East African iron working, and native copper working by prehistoric Upper Great Lakes populations. The production of metal objects by western Mesoamerican and Lower Central and western South American peoples (Mexico, Panama, Ecuador, Peru, Bolivia, and Chile) is not elaborated.

My review is an overview of the complete volume but will focus on pottery and ceramics rather than other aspects of material culture. Chapters 3 and 4 are based organizationally on Henry Hodges's *Artifacts: an Introduction to Early Materials and Technology* (London: John Baker; Atlantic Highlands, NJ: Humanities Press, 1981), which has a distinctly European flavor, while Chapters 5 and 6 are modeled on Carla Sinopoli's *Approaches to Archaeological Ceramics* (New York: Plenum Press, 1991).

"Chapter 1: Introduction: Archaeological Approaches to Technology" (pp 1-12) covers the traditional, obligatory materials on terminology and provides the context of how Miller views archaeology and technology studies. In "Chapter 2: Methodology: Archaeological Approaches to the Study of Technology" (pp. 13-39), she considers archaeological field methods emphasizing discovery and recovery and comments on survey and the examination of archaeological remains focusing on visual examination of context and basic measurement. She then turns to an assessment of the more complex examination of physical structure and composition, and ordering and data analysis before discussing the reconstruction of production processes, the concept of *chaîne opératoire*, and analogies and interpretation from the perspective of how these terms are employed by archaeologists and can result in sociocultural interpretations. Experimental archaeology, ethnographic studies, ethnoarchaeology, and historical accounts are also considered briefly. Miller's "Chapter 3: Extractive-Reductive Crafts" (pp. 41-100) begins with a classification of crafts (notably stone/lithic), methodologies of collection and preliminary processing and shaping and finishing methods, and she also discusses the organization of production. Fiber-related products (cordage, basketry, and textiles) are reviewed along with the procurement and preliminary processing of fibers, the production of strands and cordage, the ornamentation of fabrics, and the organization of production and scheduling demands. For wood, bone, and other sculpted organics (in the main, antler, horn, ivory, and shell), she also reviews the collection and basic processing, shaping and finishing methods, the organization of production, and the use and re-use of "hard" organic objects.

Pottery is considered as a part of the subsequent chapter (notably pp. 101-144) of "Chapter 4: Transformative Crafts" (pp. 101-166) which provides an overview of the basic production processes of three craft products (ceramics, metals, and glass) all of which are pyrotechnologies, chemically transforming materials by the use of fire. Ceramic materials include fired clay and vitreous silicates (overlapping categories of glazes, faiences, and glass) both of which are fine-grained materials shaped in an additive rather than a reduction fashion, and which are hardened by heating. Her distinction follows basic materials science usage and is, therefore, not interchangeable with either "terracotta" or "pottery" (p. 102). Likewise, she observes that her processual descriptions "do incorporate some descriptions of the social and economic settings in which craftspeople might make production choices" and she "does not examine selected aspects of [the] organization of production and consumption" for the three craft groups considered in this chapter (p. 103). In Chapter 5 she includes information on pottery production as an example of craft specialization and vitreous silicates are an example of value and status discussed in Chapter 6.

Miller refers to the standard literature (Shepard 1976, Rice 1996, Rye 1981, Sinopoli 1991, Orton et al. 1993) but, in the main, follows Hodges's (1981) useful outline and adds substantial information from a materials science perspective. She defines sintering point, fluxes, vitrification, terracotta, earthenware, stoneware, and porcelain and notes eight steps in the production of fired clay objects which also appear diagramically as "Production Process Diagram for Fired Clay (pottery)" (Fig. 4.3, p. 108). These eight are further elaborated in subsequent sections of the chapter as: 1) clay collection, 2) preliminary processing, 3) formation of the clay body, 4) shaping or the fabrication of clay objects, 5) drying the objects, and 6) firing objects. The other two options (not illustrated in her diagram) are 7) further (i.e., post-firing) surface treatments and 8) the second firing of objects (for glazed wares and porcelains). The collection of tempers (aplastics), materials for surface treatments (mineral pigments, clays and sand for slips and pigments), and fuels are noted briefly. The "common" types of pottery turning tools are discussed and illustrated and the basic surface treatments noted (slips, pigments, smoothing, polishing, incision, impressing, etc.) and the distinction between painting and forms of slipping (true slips and self slips) explained. Open air firing, pit kilns, and updraft kilns are illustrated and their distinctions elaborated. Atmospheres (oxidation, reduction, and neutral) are also explained as are sooting, smudging, and carbon deposition; firing "accidents" are not detailed. Post firing surface treatments and second firings explain biscuit or bisque firing and mention glazing. The latter is fully discussed in a subsequent section, "Vitreous silicates: glazes, faiences, and glass," which is accompanied by a diagram, "Production Process Diagram for Vitreous Silicates" (Fig. 4.9, p. 131). This splendid essay, generally not found in other overviews designed as texts, includes discussions of collection and preliminary processing, creating vitreous silicate mixtures (fritting, glass melting, and glass making), the shaping of faience and glass objects, the application of glazes to faience and other materials, the firing of faience and glazed objects, the annealing of glass, and post-firing surface treatments (abrasion, cutting, etc.).

The subsequent section on metals in Chapter 4 focuses on copper and iron, although Miller notes that other metals (gold, silver, and lead) are not given the space they deserve. She discusses the post-firing surface treatments of metals (especially copper and iron), the collection and processing of ores and native copper (including ancient mining), fuel and fluxes, smelting, refining and alloying, shaping and finishing methods, and casting and fabrication (including forging).

In "Chapter 5: Thematic Studies in Technology" (pp. 167-201), Miller comments on technological systems, using the fabrication of reed boats and their uses as a focus and elaborates the use of these watercraft in exchange networks in the Arabian Sea. The construction and use of plank and reed boats and exchange networks in coastal southern California is also documented. She also considers innovation and the organization of labor, and presents a case study of grain harvesting machines. In a discussion of the divisions of labor, women's roles, specialization, and mass production, she refocuses on pottery (pp. 185-191) before turning to style and technological style and technological traditions of metal working and the fabrication of bone artifacts among peoples of North America.

"Chapter 6: Thematic Studies in Technology" (pp. 203-235) details the topics of value, status, and social relations using a case study "The Role of New Artificial Materials in the Indus Valley Tradition." Another analysis focuses on the uses of artificial materials, status differentiation, and the development of vitreous materials that serve to determine social relations; this case study emphasizes Indus talc-faience materials. In addition, Miller examines artificial materials and cultural value systems in a study entitled "Technologies of Religious Ritual in the American Southwest." Religious mural construction, use, and discard are reviewed as are issues of the archaeological identification of religious ritual. The final, brief contribution, "Chapter 7: The Analysis of Multiple Technologies" (pp. 237-245), focuses on cross-craft perspectives and technological style and cross-craft interactions (tools, production and organization are emphasized). Weaving, metallurgy, and pottery production serve as examples but the latter includes a very useful "Production Process Diagram for Copper and Iron" (Fig. 7.1, p. 243) and "Production Process Diagram for Fired Clay (pottery)" (Fig. 7.2, p. 244) which appears initially in Chapter 4 and illustrate four levels within the process: raw material procurement, materials preparation, primary production, and production.

Miller's book provides a useful summary of the current status of studies in ancient technology on *some* major artifact categories by focusing on procedures and methodologies of production. Basketry, weaving, and textile production, and bone working are not detailed. She demonstrates the ways in which technology studies can be employed by archaeologists – according to the publisher's blurb – "working anywhere, on any type of society and it embraces an orientation toward the

practical, not the philosophical." The case studies illustrate how technological changes affect and are affected by social, political, economic values. The sections on ceramics and vitreous materials are adequate and reflect Miller's personal knowledge of this form of material culture. Unfortunately, the cross-craft and multi-craft technologies are slighted in her treatise — see, for example, the essays in *Ceramics and Civilization, Vol. IV: Cross-Craft and Cross-Cultural Interactions in Ceramics* (edited by P. E. McGovern [sr. ed.], M. D. Notis [ed.], and W. D. Kingery [series ed.], Westerville, OH: The American Ceramic Society, Inc., 1989) and papers from the 2003 Society for American Archaeology symposium, "Rethinking Craft Production: The Nature of Producers and Multi-Craft Organization," organized and chaired by Izumi Shimada. Miller was a presenter in this symposium. The papers have just been published: Izumi Shimada (ed,), *Craft production in Complex societies: Multicraft and Producer Perspectives* (Salt Lake city: University of Utah Press, 2007). With some supplementary materials, this volume is a useful and up-to-date summary of many archaeological approaches to technology.

Ward Chesworth (editor), *Encyclopedia of Soil Science*, Encyclopedia of Earth Sciences Series, Heidelberg: Springer, 2008. xxvi + 902 pp., 510 illustrations (50 in color). ISBN: 978-1-4020-3994-2 (hardcover), 42.60. €. This book provides a comprehensive, alphabetical treatment of basic soil science in a single volume. It constitutes a wide ranging and authorative collection of about 160 key academic articles covering the salient aspects of soil physics, chemistry, biology, fertility, technology, genesis, morphology, classification and geomorphology. The editor is Professor Emeritus of Geochemistry at the University of Guelph, Ontario, Canada. He co-edited *Weathering, Soils and Paleosols*, and three volumes of the annual Hammond Lecture Series broadcast in part by the Canadian Broadcasting Corporation: *Malthus and the Third Millennium*, *Sustainable Development*, and *The Human Ecological Footprint*. Chesworth co-wrote *Perspectives on Canadian Geology* and in 2003 received the Halbouty Prize of the Geological Society of America, of which he is a Fellow. In this work, he has assembled more than 160 key articles by leading authorities from around the world and added a glossary of 430 common terms in soil sciences. The goal of the work – an encyclopedia rather than a dictionary — is to provide a complete single volume encyclopedia on soil science for faculty, students, and professionals. The longer articles by leading authorities from around the world are supplemented by some of the definitions of common terms.

The key entries are: Acid Deposition.- Acid Rock Drainage.- Acid Soils.- Acid Sulfate Soils.- Acidity.- Acrisols.- Activity Ratio.- Aggregate Stability .- Aggregation.- Agrogeology.- Agronomy.- Albeluvisols.- Alisols.- Algae.- Alkaline Soils.- Andosols.- Anthrosols.- Arenosols.- Applied Soil Geochemistry.- Base Saturation.- Biogeochemical Cycles.- Biospheric Role of Soil.- Buffers.- Bulk Density.- Calcareous Soils.- Calcisols.- Cambisols.- Capillary Pressure.- Carbon Cycle.- Carbon Sequestration.- Carbonates.- Chemical Analyses.- Chemical Composition.- Chernozems.- Chronology of Soils.- Classification of Soils: Basics.- Classification of Soils: FAO.- Classification of Soils: Soil Taxonomy.- Classification of Soils: World Reference Base.- Clay Mineral Decomposition.- Clay Mineral Formation.- Clay Mineral Structures.- Clay Minerals: Hydrous Oxides.- Clay Minerals: Non- & Para-Crystalline.- Clay Minerals: Silicates.- Clay-Organic Interactions.- Compaction.- Computer Modelling.- Computerized Tomogaphy.- Conductivity: Electrical.- Conductivity: Hydraulic.- Conductivity: Thermal.- Conservation.- Crusts.- Cryosols.- Denitrification.- Diffusion Processes.- Duricrust.- Durisols.- Earth Cycles.- Edaphic Constraints.- Edaphology.- Energy Balance.- Envelope-Pressure Potential.- Enzyme Activity.- Enzymes and Proteins.- Erosion.- Evaporation.- Farming by Soil.- Fauna.- Ferralsols.- Fertilizer Raw Materials.- Fertilizers: Inorganic.- Fertilizers: Organic.- Field pH.- Flocculation.- Flow Theory.- Forest Soils.- Geography of Soils.- Geochemistry in Soil Science.- Gleysols.- Gypsisols.- Heat Capacity.- Histosols.- Horizon Designations: FAO.- Humus.- Hydric Soils.- Hydrologic Cycle.- Hydrophility, Hydrophobicity.- Hygroscopicity, Hygroscopic Constant.- Imbibition.- Infiltration.- Ionic Activities.- Iron Oxides.- Irrigation.- Journals of Soil Science.- Kastanozems.- Kinetics of Solute Sorption.- Labile Pool.- Landscape and Soils.- Law of The Minimum.- Leptosols.- Lime, Liming.- Lixisols.- Luvisols.- Macronutrients.- Management of Soils.- Metal Complexing .- Microbial Ecology and Clay Minerals.- Microbiology.- Microhabitats.- Micrometeorology.- Micromorphology.- Micronutrients.- Microstructure Manipulation.- Mineral Analysis.- Mire.- Moisture Management.- Near Neutral Soils.- Neolithic Revolution.- Nitisols.- Nitrification.- Nitrogen Cycle.- Nitrogen Fixation.- Nutrient Cycling.- Nutrient Potential.- Organic Fertilizers.- Organic Matter.- Particle Density.- Particle Size Distribution.- Peat.- Pedology.- Pedogenesis.- Pedogenesis: Redox-pH Aspects.- Pedogenic Grid.- Pedoturbation.- Percolation.- Periodic Table.- Permeability.- Phase Rule.- Phaeozems.- Phosphorus Cycle.- Physical Chemistry.- Planosols.- Plant Nutrients.- Plant Roots.- Plinthosols.- Podzols.- Pollution.- Pore Size Distribution.- Pore Space, Drainable.- Pore-Size Distribution.- Profile: Physical Modification.- Puddling.- Radiocarbon Dating.- Radioisotopes.- Redox Chemistry of Soils.- Redox-pH Diagrams for Soils.- Regosols.- Rhizosphere.- Root Soil Interface.- Salt Affected Soils.- Saprolite.- Silicates.- Simulation of Soil Systems.- Sludge Disposal.- Soil.- Soil and Health Problems.- Soil Biology.- Soil Chemistry.- Soil Color.- Soil Conservation Service.- Soil Drainage.- Soil Engineering.- Soil Fertility.- Soil Forming Factors.- Soil Health.- Soil Mapping and Survey.- Soil Mechanics.- Soil Microbiology.- Soil Mineralogy.- Soil Physical Conditions.- Soil Physics.- Soil Pores.- Soil Quality.- Soil Reaction.- Soil Root Interface.- Soil Salinity and Salinization.- Soil Science.- Soil Science and Society.- Soil Solution.- Soil Stabilization.- Soil Variation.- Soil Water.- Soil Water Management.- Soils: Non Agricultural Uses.- Soils of Coastal Environments.- Soil-Solvent Interactions.- Soil-Water Management.- Solonchaks.- Solonetz.- Sorption Phenomena.- Sorption-Desorption Kinetics.- Surface Soil Water Content.- Sulfur Transformations and Fluxes.- Tests and Testing.- Thermal Regime.- Thermodynamics of Soil Water.- Thionic Soils.- Thixotropism.-

Tillage.- Trace Elements.- Transport Processes.- Tropical Soils.- Umbrisols.- Ventifacts.- Vertisols.- Water Budget in Soil.- Water Content and Retention.- Water Erosion.- Water Fluxes.- Water Movement.- Weathering Systems.- Wetting Front.- Wind Erosion.- Zeta Potential.

The volume is user-friendly and comparable to the two-volume *Encyclopedia of Soil Science*, 2nd ed. edited by Rattan Lal (New York: Taylor and Francis, 2006, ISBN 0849350530. One advantage of the Chesworth volume is the inclusion of multiple Classifications of Soils: FAO, Soil Taxonomy, and World Reference Base.

Publications Online

Roman Tile Kilns. In October 2007, Phil Mills, MIFA (28 Park Road, Anstey, Leicester, LE7 7AX; email CBMPhil@aol.com) has placed a map of 169 Roman tile kilns in England, gleaned from Archaeological Data Service (ADS lists), onto the Google forum page: http://bbs.keyhole.com/ubb/showthreaded.php/Number/866894 The maps can be downloaded into Google Earth or Google Maps. There are links to the ADS entries for the different kilns, and in one instance a link to his flikr photograph of the fabrics. ADS is a digital archiving resource in the UK, see http://ads.ahds.ac.uk.

Ancient Chalcatzingo, edited by David C. Grove (Austin: University of Texas Press, 1987) is a monograph detailing a highly significant Middle Formative period site (700-500 BCE) in the state of Morelos, Mexico. Because of its elaborate and precocious bas-relief rock art the site has long been recognized as one of Mexico's most important Formative period archaeological sites. This volume is now available in its entirety in both the original English and a new Spanish editions on the FAMSI website; individual chapters, entire sections, or the whole volume may be downloaded gratis: http://www.famsi.org/research/grove/chalcatzingo/index.html and http://www.famsi.org/spanish/research/grove/chalcatzingo/index.html Four chapters and two appendices concern ceramic materials: Chapter 13: "Ceramics" (pp. 200-251) by Ann Cyphers Guillén (3.14 MB); Chapter 14: "Chalcatzingo's Formative Figurines" (pp. 252-263) by Mark Harlan (902 KB); Chapter 15: "Distributional Analysis of Chalcatzingo Figurines" (pp. 264-270) by Susan Gillespie (360 KB); Chapter 16: "Other Ceramic and Miscellaneous Artifacts" (pp. 271-294) by David Grove (1.49 MB); Appendix D: "Ceramic Charts and Illustrations" (pp. 481-490) by Ann Cyphers Guillén (402 KB); and Appendix E: "Descriptions of Chalcatzingo Figurine Attributes" (pp. 491-497) by Mark Harlan (505 KB).

The New World Archaeological Foundation, a primary source for site reports and Formative period Mesoamerican ceramics, has made 88 publications available on–line for browsing and printing. Among these are: *Ceramic Sequence of the Upper Grijalva Region, Chiapas, Mexico* (2 parts); *Ceramic Stratigraphy at Santa Cruz, Chiapas, Mexico*; *Some Ceramics from Mirador Chiapas, Mexico*; *The Archaeological Ceramics of Chinkultic, Chiapas, Mexico*; *The Ceramic History of Santa Rosa, Chiapas, Mexico*; *The Ceramic History of the Central Highlands of Chiapas, Mexico*; *The Ceramics of Aguacatal, Campeche, Mexico*; and *The Ceramics of El Mirador, Peten, Guatemala*. Visit http://www.lib.byu.edu/dlib/spc/nwaf.

Out-of-print issues of the Precolumbian publications at Dumbarton Oaks are also available on-line and include a number that have chapters on ceramics: *Olmec Art at Dumbarton Oaks*, *Gold and Power in Ancient Costa Rica, Panama, and Colombia*, *Archaeology of Formative Ecuador, Gender in Pre-Hispanic America*, *Dumbarton Oaks Conference on the Olmec*, *The Cult of the Feline*, *Ecology and the Arts in Ancient Panama: On the Development of Social Rank and Symbolism in the Central Province*, *The Burial Theme in Moche Iconography*, *Social Patterns in Pre-Classic Mesoamerica*, *Function and Meaning in Classic Maya Architecture*, *Andean Art at Dumbarton Oaks*, *Native Traditions in the Postconquest World*, and *Intercambio, política y sociedad en el siglo XVI*, among others. See http://www.doaks.org/Etexts.html.

Expedition, the University of Pennsylvania Museum of Archaeology and Anthropology's flagship publication, is also available online. All back issues, from 1958 to the current issue, are now available to the public online as low-res pdfs. The museum wanted to create an easily accessible archive of *Expedition's* back issues in the hope of increasing the awareness of *Expedition* around the world and make the scholarship found in its pages universally available. To find an article among *Expedition*'s back issues, a user may search for an author's name or any word in the article's title. To narrow a search, enclose strings of text within quotations. Articles may also be searched by the year in which they were published. There is also a complete listing of all of *Expedition*'s past content. A user can download the index (at the bottom of the left navigation bar) as either a PDF or Word file. For further information, please visit http://www.museum.upenn.edu/new/Zine/back_issues.shtml There are 19 articles on "pottery" and one on "ceramics" in the titles.

Digital facsimiles of 1,494 important publications in archaeology, Assyriology, and ceramics are accessible through ABZU http://www.etana.org/abzu/ as of November 2007. Among these are the three Robert McCormick Adams survey volumes: *Land Behind Baghdad: A History of Settlement on the Diyala Plains, The Uruk Countryside: The Natural Setting of Urban Societies* (1965), and other volumes that include Erich F. Schmidt's *Persepolis I: Structures, Reliefs, Inscriptions* and *Persepolis II: Contents of the Treasury and Other Discoveries* (1953 ff.), both of which contain contributions by Fred Matson.

For those who use Pei-Yuan Chen (1977) *Table of Key Lines in X-ray Powder Diffraction Patterns of Minerals in Clays and Associated Rock*s (Occasional Paper 21, Bloomington, IN: Department of Natural Resources, Geological Survey, 77 pp.) as a reference, the Indiana Geological Survey

has posted it as a free pdf download (errata are included). Go to http://igs.indiana.edu/ and click on Bookstore in the upper right hand corner, in the search box type OP21 or go to http://igs.indiana.edu/survey/bookstore/bookstoresearch.cfm and type in OP21 or the title.

Previous Meetings

The Third Annual Southeast Conference on Mesoamerican Archaeology and Ethnohistory was held 26-27 October 2007 at the University of South Carolina at Columbia. Organized by Laura Cahue (cahue@gwm.sc.edu), Jessica Boulware, William Stevens, and Margret Trimble (Department of Anthropology, University of South Carolina at Columbia), this year's conference featured ten papers which included one contribution on ceramic studies: Amy J. Hirshman (West Virginia University) and Helen P. Pollard (Michigan State University), "Firing Variability and Paste Construction in Tarascan Fine Ware Ceramics: a Preliminary Assessment."

The 2008 Annual Meeting of the Society for Historical Archaeology and the 2008 Conference on Historical and Underwater Archaeology was held 9-13 January 2008 in Albuquerque, New Mexico. One symposium focused on archaeological ceramics, "Archaeological Science and Historic-Era Ceramics: A Conversation about Current Understanding and Emergent Perspectives," chaired by Timothy Scarlett (Michigan Technological University, Houghton, MI). This was an electronic symposium and the names of the presenters, their paper titles and their abstracts follow. Participants were from Canada, Mexico, and the United States. The presenters gave 5-10 minute summary presentations and reserved the remaining time of their 15 minute block to address queries from the audience; at the end of the session, 30 minutes were devoted to a general discussion among presenters and members of the audience. The full papers and additional materials may be downloaded at http://www.ss.mtu.edu/faculty/Scarlett/research/sha08.htm. The authors, titles, and abstracts of the presentations follow.

"Archaeological Science and Historic-era Ceramics" by Timothy James Scarlett. Abstract: In the past 15 years, historical archaeologists have collaborated in an unprecedented effort to bring the materials scientist's perspective into discussions of ceramic artifacts. Collaboration has brought well-established, "tried-and-true" tools to help expand our understanding of ceramics in the rise of the modern world. The annual meeting provides an opportunity to overview the results of individual and collaborative research programs, reflecting upon progress in what we have learned. What have the material sciences contributed to our understanding of ceramic and pottery traditions in different places? How have the archaeometric efforts related to larger trends in ceramic analyses? What have been our successes? Where are our shortcomings? What do these trajectories indicate regarding our future challenges?

Paper withdrawn in January 2008: "Four Centuries of Production and Trade in Majolica Ceramics" coauthored by M. James Blackman, Patricia Fournier-Garcia, Russell K. Skowronek, and Ronald L. Bishop." Abstract: Manufacture of majolica pottery began during the late sixteenth century in Puebla and by the end of the century at least three workshops were in production. During the seventeenth century this number had increased to perhaps 60, with at least 100 workshops in production during the eighteenth century. An extensive research program of chemical characterization by INAA of majolica ceramics from Spanish colonial sites in the southeastern U.S., California, and many locals in Mexico has included several hundred pottery samples stylistically attributable to Puebla. This paper will examine variations in compositional groups linked chemically to Puebla with the goal of identifying the products of different workshops.

"Technical Considerations in Distinguishing Historical Ceramic Variants in a Global Context" by Allan S. Gilbert and Meta F. Janowitz. Abstract: Historic sites, especially of the past four centuries, exist within a complex web of worldwide interconnections. Because ceramics can be recovered very far from home, recognizing the extent of their movement, and by implication the commerce or migration that moved them, requires objective standards of comparison (documentary research and detailed descriptions of vessel characteristics) and reliable means of sourcing (scientific studies). Small-scale projects charting the flow of pottery locally or between a limited number of regions have been pursued with relative success, but on a global level, challenges arise due to the greater logistical difficulties and overwhelming commitment to data collection and analysis. Pottery descriptions found in archaeological reports are not always suitable for cross-site comparisons, and variable scientific methods applied by different excavators yield unstandardized, incompatible data. This paper will discuss some of the minimum prerequisites for the kind of international research collaboration that might accumulate information, share it, and effectively use it to obtain deeper insights into trade networks of the largest scale.

"Clay Recipes and the Spread of European Kiln Technology in Peru" authored by Melissa Chatfield. Abstract: Understanding commerce, both global and local, is a crucial step in tracing the movement of material culture from Europe to the New World. Researchers use excavated pottery to study trade routes by analyzing the geographic distribution of decorative styles, vessel shapes and surface treatments or by determining geological sources of raw materials using petrographic or trace element methods. This study demonstrates the utility of tracking technical knowledge of immigrant potters, who were well-versed in European kiln technologies, and the adaptation of their craft to material resources present in the Americas. By comparing performance characteristics of clay recipes formulated for short duration, low-temperature firing procedures with those suited for long duration, moderate-temperature firings, such as those used for lead-based glazes, it is possible to characterize the mode of firing originally used for archaeological potsherds. Such distinctions make it possible to differentiate between prehistoric and historic strata at indigenous sites.

"Southern Québec Pottery Production from 17th to late 19th Century: Chemical Characterization and Compositional Data Interpretation" by Yves Monette and Marc Richer-LaFlèche. Abstract: Over 300 pottery samples recovered on 16 Southern Québec production sites were submitted to ICP-AES for paste chemical analysis. Multivariate statistical analysis has enabled the distinction of compositional groups and production series that can now serve for provenance studies. Moreover, since the pottery was made in 'terre franche', the compositional data was interpreted in a novel way using a chemical index of alteration and a normative mineralogical composition software. The calculation of the alteration state of the ceramics clay materials are indicative of the paleoclimatic environment under which the clay minerals were formed; the normative mineralogical composition gives complementary information about the paste mineralogy and enables the distinction of raw material sources. The combination of these complementary data allows a very fine interpretation of pottery compositional data for the determination of chemical groupings and a full understanding of a ceramic paste composition that enables precise linkage of pottery to local geology.

The Archaeological Society of New Jersey held its 2008 annual meeting in Trenton on 19 January 2008. Among five papers presented were two on ceramics: "Artisan Choices and Technology in Native American Pottery Production" by R. Michael Stewart and George L. Pevarnik (both, Department of Anthropology, Temple University); and "Instrumental Neutron Activation Analysis of Middle Woodland Pottery from the Delaware Valley" by George L. Pevarnik.

Forthcoming DVD

Continuity and Innovation: Matrilineal Pottery Manufacture among the Coastal Akan is the title of a 35-minute DVD by Tara Tetrault (Department of Anthropology and the Paul Peck Humanities Program, Montgomery College, Rockville, Maryland, USA) that should be available in mid-2008. In this moving image, mothers and daughters fabricate clay vessels in the traditional Asante style and Ewe method of manufacture. The narrative compares pottery manufacture from villages in central region of Ghana, West Africa, and the images include potters from Elmina, located on the Ghana coast, as well as the village of Pomadze in the Fante region. There is additional footage that provides background to the Akan culture and there narrative includes ethnographic interviews from the past and present to illustrate the matrilineality of pottery fabrication and use. This work is based upon a previous film version by Tetrault and Chris DeCorse (1997) entitled *Continuity and Innovation in Pottery Manufacture among the Coastal Akan*. For additional information, please contact Tara via e-mail Tara.Terault@montgomerycollege.edu.

Request for Assistance from Tim Scarlett

In the past 15 years, historical archaeologists have collaborated in an unprecedented effort to bring the materials scientist's perspective into discussions of ceramic artifacts. Collaboration has brought well-established, "tried-and-true" tools to help expand our understanding of ceramics in the rise of the modern world. The annual meeting provides an opportunity to overview the results of individual and collaborative research programs, reflecting upon progress in what we have learned. What have the material sciences contributed to our understanding of ceramic and pottery traditions in different places? How have the archaeometric efforts related to larger trends in ceramic analyses? What have been our successes? Where are our shortcomings? What do these trajectories indicate regarding our future challenges?

At the 41st annual Conference on Historical and Underwater Archaeology, Members of the Society for Historical Archaeology gathered to discuss these issues on 9-12 January 2008, in Albuquerque, New Mexico. The session was designed as an electronic symposium and the speakers' comments, notes, outlines, and more formal essays will be posted on-line, along with links to other related on-line publications. Several of those papers are on-line at http://www.ss.mtu.edu/faculty/Scarlett/research/sha08.htm.

When I convened this session, I wanted to start an assessment of what we have learned and the problems scholars are now encountering. This session was intended to inspire more conversation. I am extending an invitation to expand the website and the conversation, seeking scholars who can overview research in Asia, Africa, and Europe; using particular classes of ceramic artifacts; archaeometric techniques; and/or grappling with anthropological or historical research questions. Could someone provide a circum-Indian Ocean perspective, for example? Islamic or Byzantine ceramics of the early modern world? A summary of the technological development of Chinese stonewares or their international trade? The current papers, offered by volunteers, are focused upon research in the Americas. I hope authors will build upon this to consider ceramics from around the globe. Please contact Timothy Scarlett at scarlett@mtu.edu to discuss possibilities.

SOCIETY *for* HISTORICAL ARCHAEOLOGY

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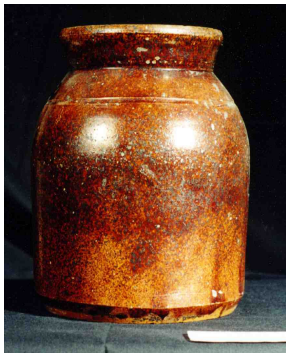

Book Reviews

Deborah L. Huntley, Associate Editor

Huts and History: The Historical Archaeology of Military Encampment during the American Civil War. Clarence R. Geier, David G. Orr, and Matthew B. Reeves (editors), University Press of Florida: Gainesville, FL, 2006, xviii + 279 pp., 82 figures, three tables, index. Price: $65.00 (cloth). ISBN:0-8130-2941-4.

Reviewed by John P. McCarthy, RPA, S&ME, Inc., 620 Wando Park Blvd., Mt. Pleasant, SC, 29464, USA

There is an axiom that goes something like this: "War is hours of unrelenting boredom punctuated by brief moments of abject terror." It is certainly a truism that soldiers spend much more of their time training and sitting in camps awaiting deployment than they do actually fighting. This was certainly the case during the American Civil War, and this volume takes as its focus the archaeological study of the encampments that were the setting for those long hours of boredom during the War Between the States. It is a collection of essays, organized into five sections, consisting of 1) an introduction and historic background, 2) a discussion of methods for identifying and preserving these resources, 3) a discussion of their layout and organization, 4) case studies in the material remains of these sites, and 5) a concluding statement discussing future research directions. The editors introduce each section with a brief synopsis of the included papers.

A foreword by the former Chief Historian at Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (that includes Fredericksburg, Chancellorsville, Wilderness, and Spotsylvania battlefields), Robert Krick, notes the importance of encampments to the soldiers on both sides of the conflict and the role each of the editors have had in investigating and protecting such sites. In the introductory section, editors Clarence R. Geier, David G. Orr, and Matthew B. Reeves explain why these sites are important and the sorts of information they may contain. General Phillip Sheridan's winter camp in the Shenandoah Valley is offered as an example. Joseph A. Whitehorne then provides a brief history of the regulations that gov-erned camp layout and organization from the American Revolutionary War to the Civil War.

The second section takes on the issue of relic hunters. Bryan L. Corle and Joseph Balicki discuss their expe-riences with local relic hunters in northern Vir-ginia, detailing the skepticism with which most relic hunters view professional archaeologists and pointing out how methods used by relic hunters are effective and should be integrated into the archaeological guidelines issued by State Historic Preservation Officers. In contrast, Brandon Bies demon-strates the negative effects that relic hunters can have with respect to a site in Maryland that was in the process of being nominated to the National Register of Historic Places, when local relic hunters heard about it and compromised the site's integrity. In the end, however, the damage was not sufficiently severe to prevent the site's listing and the protections, slight as they are, that National Register-listing affords.

The third section is concerned with camp organization and layout. A short-term Confederate encampment and a longer-term Union encampment are presented as examples. Joseph Balicki examines several camps in the canton-ment associated with the Confederate blockade of the Potomac River in 1861–1862. He assigns most of the camps to specific units and draws conclusions concerning the soldiers' familiarity with and adherence to pertinent regulations. Stephen McBride and Kim McBride, discuss the Union depot at Camp Nelson in Kentucky, paying special attention to the United States Colored Troops and African-American refugees housed there. They describe the chang-ing uses of space over time.

The material remains of Civil War encampments are the focus of the fourth section. Dean E. Nelson first provides an overview of the architecture of camp life during the Civil War, describing the various military-issue tents available to the average sol-dier and how these were adapted to create more substantial and comfortable dwellings, including such improvised improvements as heating systems. Reeves and Geier discuss the architecture of the Confederate encamp-ments at James Madison's Montpelier in Orange, Virginia. Garrett R. Fesler, Matthew B. Laird, and Hank D. Lutton discuss excavations at an encampment in Yorktown, Virginia, a site that is poorly known from documentary sources and is located in areas that changed hands several times during the war. Orr then describes General Grant's City Point headquarters and how it was "moved" from City Point, Virginia, to Philadelphia, Pennsylvania, and back to City Point, including the efforts to archaeologically locate its former location at City Point.

The collection concludes with a brief summary that touches on future research directions for the study of Civil War encampments by Orr and Geier. Orr's training as a classicist comes to the fore in referencing the importance that none other than Gaius Julius Caesar placed on securing defensible winter quarters for his legions in Gaul. They lament that the camps, by far the greatest sources of archaeological information about the war-time experiences of common soldiers, have been largely overlooked by the major preservation institutions resulting in an alarming lost of resources as suburban sprawl devourers more and more of the landscape. They clearly feel that the volume's papers, while just skimming the surface of this potentially broad topic, have demonstrated the ability to make meaningful contributions not only to the understanding of the Civil War, but also to postbellum American culture that was affected by the war-time experiences of so many.

Clearly, this is an important and timely introduction to an aspect of historical archaeology that has been under-reported in the professional literature. The specific results may seem rather particularistic at this stage in the enterprise, but there

does seem to be considerable potential for comparative analyses and deeper contextualization in future. The volume lacks, for example, an essay explicitly comparing and contrasting Union and Confederate encampments and the material lives of their inhabitants.

Overly prescriptive approaches to archaeological survey that fail to recognize that military encampments are a special property type that will likely be missed by conventional archaeological survey strategies deserve the criticism that is offered. The professional community needs to find ways to work with the hobbyists who know how to find these sites if they are to be protected from development. The lack of appropriate methods has clearly resulted in the loss of encampment sites in the Mid-Atlantic region and similar experiences are likely elsewhere.

Obviously those interested in the archaeology of military life, and the American Civil War in particular, will want to read this volume. In addition, readers of this newsletter who are concerned with the effectiveness of archaeological survey methods will want to take a look at several of the essays, especially those in the second section.

Upcoming Conferences

Rachel S. Popelka-Filcoff, Associate Editor

2008

21-24 February. International Specialized Workshop: The Dating and Provenance of Obsidian and Ancient Manufactured Glasses, Delphi, Greece. General information: http://www.rhodes.aegean.gr/tms/delphiobsidian2008/index.htm.

5-7 March. GLASSAC-08 Congress, Valencia, Spain. General information: www.uv.es/glassac.

25-26 March. Paleoanthropology Society Meeting, Vancouver, BC Canada. General information: http://www.paleoanthro.org.

26-30 March. SAA 73rd Annual Meeting, Vancouver, BC Canada. General information: http://www.saa.org/meetings/index.html.

2-6 April. 36th Annual Conference on Computer Applications and Quantitative Methods in Archaeology: "On the Road to Reconstructing the Past," Budapest, Hungary. General information: http://www.caa2008.org.

5-10 April. 45th Annual Meeting of the Clay Materials Society: "Clays of Demeter." New Orleans, LA, USA. General information: http://www.cottey.edu/clay. Contact: Brenda Ross, Symposium Organizer: bross@cottey.edu.

6-10 April. 235th National Meeting and Exposition, American Chemical Society, New Orleans, Louisiana, USA. General information: http://www.acs.org.

13-18 April. European Geosciences Union General Assembly, Vienna, Austria. General information: http://meetings.copernicus.org/egu2008.

25-26 April. 25th Center for Archaeological Investigations Visiting Scholar Conference: "Human Variation in the New World," Carbondale, Illinois USA. General information: http://www.siu.edu/~cai/bma/vsconf.htm.

27 April-1 May. American Association of Museums National Meeting. Denver, CO, USA. General information: http://www.aam-us.org/am/08/index.cfm.

12-16 May. International Symposium on Archaeometry in Siena, Italy. General information: http://www.unisi.it:80/eventi/isa2008.

25-30 May. 9th International Conference on ART2008, Jerusalem, Israel. General information: http://www.isas.co.il/art2008.

26-28 May. GAC-MAC-SEG-SGA Joint Annual Meeting. General information: http://quebec2008.net.

2-7 June. Clay Minerals Society, Santa Fe, NM, USA General information: http://www.sandia.gov/clay. Contact: Eric Blinman, Office of Archaeological Studies, PO Box 2087, Santa Fe, NM 87504-2087, eric.blinman@state.nm.us.

15-19 June. GPR2008:12th International Conference on Ground Penetrating Radar, Birmingham, UK. General information: www.gpr2008.org.uk.

22-27 June. 7th International Topical Meeting on Industrial Radiation and Radioisotope Measurement Application, Prague, Czech Republic. General information: http://irrma7.fjfi.cvut.cz/scope.html.

29 June-4 July. Sixth World Archaeological Congress. Dublin, Ireland. General information: http://www.ucd.ie/wac-6.

4-8 August. Denver X-ray Conference, Colorado Springs, CO USA. General information: http://www.dxcicdd.com.

6-14 August. 33rd International Geological Congress. Oslo, Norway. General information: http://www.33igc.org.

17-28 August. 236th National Meeting and Exposition, American Chemical Society, Philadelphia, PA, USA. General information: http://www.acs.org.

23-27 August. Sixth meeting of the Bird Working Group (BWG) of ICAZ (International Council for ArchaeoZoology), Groningen Institute of Archaeology, Rijksuniversiteit Groningen, Netherlands. General Information: http://www.alexandriaarchive.org/icaz/icazForum/viewtopic.php?t=887.

22-26 September. ICOM (International Council of Museums) Committee for Conservation New Delhi, India. Theme: "Diversity in Heritage Conservation: Tradition, Innovation and Participation." General information: http://icom-cc.icom.museum/TriennialMeetings.

8-11 October. Fluvial Deposits and Environmental History, 39th Annual Binghamton Geomorphology Symposium Austin, TX USA. General information: https://webspace.utexas.edu/hudsonpf/binghamton.html.

19-23 November. Ceramic Ecology XXII (as part of the American Anthropological Association meetings). San Francisco, CA, USA. General information: http://www.aaanet.org/mtgs/mtgs.htm.

15-19 December. American Geophysical Union Fall Meeting, San Francisco, CA, USA. General information: www.agu.org/meetings.

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