



SAS Bulletin

Newsletter of the Society for Archaeological Sciences

Volume 29 number 3

Fall 2006

Should We Clone a Caveman?

“Should we clone a caveman?” is one of the more humorous, but unfortunately serious, questions being asked after the recent announcement of efforts to reconstruct the genome of Neanderthals, the archaic human species that occupied Europe from 300,000 years ago to 30,000 years ago until being displaced by modern humans. Amidst a flurry of catchy headlines, including “Scientists Dig into Neanderthal DNA,” “Scientists Seek the Secret of Our Success from Neanderthal DNA,” and my personal favorite, “Code of the Caveman,” news agencies across the globe reported in July that researchers from the Max Planck Institute for Evolutionary Anthropology in Germany have teamed up with 454 Life Sciences, a U.S. company specializing in DNA sequencing and analysis, to extract and sequence the DNA from 45,000-year-old Neanderthal bones found in Croatia.

The first goal of the project is to sequence three billion units of Neanderthal DNA, corresponding to the full length of the Neanderthal genome. Then the task will be to compare the Neanderthal DNA with the human genome sequence, which was first decoded in 2003. Evidence from the human genome

already suggests some interbreeding with an archaic species, but it is unclear if this was Neanderthal or other early humans.

Recovery of the Neanderthal genome, in whole or in part, would be invaluable for reconstructing many events in human prehistory and evolution. It would help address such questions as whether Neanderthals and humans interbred, whether the archaic humans had an articulate form of language, how the Neanderthal brain was constructed, and the total size of the Neanderthal population. Another longstanding controversy among archaeologists is whether modern humans, who first entered Europe 45,000 years ago, ultimately from Africa, interbred with Neanderthals or forced them into extinction. Interbreeding could have been genetically advantageous to the incoming humans, because the Neanderthals were well adapted to the cold European climate and to local diseases.

As we await the results of this exciting project, sit back and peruse the contents of the latest issue of the *SAS Bulletin*, which features breaking news from our associate editors in other areas of archaeological science, along with the usual buffet of employment opportunities, conference announcements, and book reviews.

E. Christian Wells

off the mark by Mark Parisi
www.offthemark.com



In This Issue

Employment Opportunities	2
Awards, Fellowships, and Training	3
Conference News and Announcements	3
2006 R.E. Taylor Poster Award Winners (A. J. Vonarx)	4
Archaeological Soil Science (J. A. Entwistle)	4
Geoarchaeology (D. D. Kuehn)	5
Archaeological Ceramics (C. C. Kolb)	7
Book Reviews (S. N. Lengyel)	
<i>Climate Change in Prehistory</i> (D. Lubell)	24
<i>Myths of the Archaic State</i> (N. Moragas)	26
<i>Environmental Archaeology</i> (C. Wilson)	27
<i>Images and Artefacts</i> (R. Schon)	28
<i>Interacting with the Dead</i> (A. K. Scherer)	29
Upcoming Conferences (R. S. Popelka-Filcoff)	31

Employment Opportunities

Department of Anthropology, McMaster University, has an Assistant Professor tenure track position in Archaeology, effective July 1, 2007. Candidates must have a Ph.D. in archaeology, a strong research and publication record, and previous university teaching experience. We seek an archaeologist engaged in socioenvironmental studies in the context of a multi-scalar, theoretically-based research program. Area and methodological specialties are open, but our preference is for someone with geographic and topical interests that complement existing faculty strengths. All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be considered first for this position. McMaster University is strongly committed to employment equity within its community and to recruiting a diverse faculty and staff. The University encourages applications from all qualified candidates, including women, members of visible minorities, Aboriginal persons, members of sexual minorities, and persons with disabilities. Applications should include a curriculum vitae, the names and addresses (including email) of three referees, a statement of research interests and plans, and a statement of teaching philosophy and may be sent in electronic or hard copy format. Letters of application should address how candidates are prepared to engage in the supervision of graduate students and involve students in their research. Submit applications to: Aubrey Cannon, Chair, Department of Anthropology, McMaster University, 1280 Main St. West, Hamilton, ON, L8S 4L9 Canada; e-mail: cannona@mcmaster.ca.

The Department of Anthropology at The Field Museum in Chicago invites applications for the position of Head of Collections Management, to begin during fall 2006 (ideally by the start of October). The Head of Collections will coordinate and supervise activities in collections management, registration, and conservation under the direction of the Anthropology curators. He or she will oversee and coordinate all aspects of collections management and provide leadership for developing initiatives related to collections use, including writing and administering collections-related grant activities. We also seek a person who can work well with external parties, such as friends groups, potential donors, and student groups to advance work with the collections. Applicants should have experience in management of anthropology collections as well as administrative and interpersonal skills. An advanced degree in Anthropology or Archaeology is required (Ph.D. preferred). The closing date for receipt of applications is August 21, 2006. Please send CV, list of referees, and a letter of interest and relevant experiences to: Chair, Search Committee, Department of Anthropology, The Field Museum, 1400 S. Lake Shore Drive, Chicago, IL 60605-2496 USA.

R. Christopher Goodwin & Associates is seeking a GIS specialist in their Frederick, Maryland, office. For consideration, all applicants must have, at minimum, a Bachelor's degree in Anthropology, Geography, Geophysics,

Geomatics, or related field. Experience with archeological data is helpful. The candidate will have experience using ESRI GIS (ArcView, ArcGIS) products, and MS Access software. Duties will include cartographic production in GIS, geo-processing, thematic mapping, and predictive modeling. Knowledge of engineering CAD standards, surveying background, 3D modeling (TIN, DTM), and Intergraph Software experience helpful. This is a full-time, salaried, permanent position with benefits. Salary is competitive and commensurate with experience. Please submit a letter of interest, current CV, and three references to GIS Search Committee, R. Christopher Goodwin & Associates, Inc., 241 East 4th Street, Suite 100, Frederick, MD 21701 USA. Email responses may be sent to: Frederick@rcgoodwin.com; Phone 800-340-2724 or Fax 301-695-5237.

The Center for Excellence in Geospatial Technologies at Statistical Research, Inc. seeks a laboratory manager responsible for supervising the day-to-day collection, processing, analysis, interpretation, and presentation of spatial data in a fast-paced production environment. This position requires a Ph.D. in a cultural resource discipline, technical expertise in geospatial technologies and their application to applied problem solving, and excellent management skills and experience. Please send a letter of application (with salary and employment expectations), curriculum vitae, and references with e-mail addresses to Ms. Trish Craig, Director of Human Resources, Statistical Research, Inc., PO Box 31865, Tucson, AZ 85751-1865 USA. More information about the Center can be found at the website, <http://www.sricrm.com/services/>.

Carnegie Museum of Natural History, Section of Anthropology, seeks an Amazon Basin specialist, whose research is of an interdisciplinary nature, relating human societies to the ecology and biodiversity of Amazonia. The position will be filled at the rank of assistant curator. Applicants knowledgeable of past and present Amazon societies are especially welcome; this could be an archaeologist who is also familiar with indigenous groups or an ethnologist familiar with material culture and regional prehistory, or a biological anthropologist with relevant research interests. A Ph.D. is required. Candidates having a strong record of grants and publications will be given preference. The successful candidate is expected to conduct original research, obtain grants, and disseminate knowledge of research through publications. The candidate is expected to develop strategies for engaging the Section's superb Amazon ethnographic collections with the Museum's public programming efforts. In particular, this includes evaluating the feasibility of developing a major permanent exhibit that explores cultural ecology and biodiversity within a scientific and interdisciplinary framework. Ability to interact with diverse audiences, including educational groups, donors, trustees, fellow curators in the life and earth sciences, and anthropologists in other institutions in Pittsburgh is vital. Further information regarding this position and the Carnegie Museum of Natural History is available at its web site: <http://www.carnegiemnh.org>.

Awards, Fellowships, and Training

American Museum of Natural History: Graduate Student Fellowship Program. The Graduate Student Fellowship Program is an educational partnership with selected universities and is dedicated to the training of Ph.D. candidates in those scientific disciplines practiced at the Museum. The university exercises educational jurisdiction over the Program and awards the degree. The Museum curator serves as a graduate advisor, co-major professor, or major professor. The student benefits by having the staff and facilities of both the university and the Museum in order to carry on his/her training and research program. Joint programs are with Columbia University, providing students opportunities in vertebrate and invertebrate paleontology, astrophysics, earth and planetary sciences, and evolutionary biology; Cornell University in entomology; and City University of New York in the Evolutionary Biology Program. Fellowships cover stipend and health insurance, and awards are for one year, renewable annually for up to a maximum of four years. Both U.S. citizens and non U.S. citizens are eligible to apply. Applicants must have a bachelor's degree and be able to fulfill university admission requirements. These may include TOEFL and Graduate Record Examinations. Applicants should first contact the Office of Grants and Fellowships to discuss their interests, background and eligibility for the Program. This Program is not open to candidates for the Master's Degree. Students must simultaneously apply to the Museum and to one of 4 cooperating universities depending on field of study. Application to the Museum is on prescribed forms, must be postmarked by November 30th. Application to one of the universities should be made based on field of interest and submitted by the university's deadline date. Students should contact the university to request application forms for the Ph.D. program in the appropriate field of study, and to ascertain the university deadline date. Fields of study include: Ecology and Evolutionary Biology, Molecular Biology/Biological Sciences/Evolutionary Biology, Entomology, Paleontology, Earth and Environmental Sciences. For more information, please contact grants@amnh.org.

American School of Classical Studies at Athens, Wiener Laboratory: Research Fellowship. Each year the Wiener Laboratory offers four fellowships in the fields of human skeletal studies, faunal studies, geoarchaeology, and environmental studies. The fellowships are open to scholars with a Ph.D. and those working on a doctoral dissertation; a stipend of approximately US\$15,500 to US\$25,000 will be awarded depending on seniority and experience. Applicants must have a well-defined project addressing significant archaeological questions that can be undertaken in the Wiener laboratory within the academic year. The J. Lawrence Angel Fellowship in Human Skeletal Studies is specifically for the study of human skeletal remains from archaeological contexts in Greece; similarly, the Research Fellowship in Faunal Studies is for the study of faunal remains from archaeological contexts in Greece. The Research Fellowship in Geoarchaeology is for individuals whose projects address significant archaeological questions in areas of study which may include quarried stone,

lithics, building materials, ceramics, and soil and sediment studies. Finally, the Research Fellowship in Environmental Studies is for individuals studying an aspect of the environment such as archaeobotanical studies or specifically the study of seeds, charcoal, phytoliths, pollen, etc. from archaeological contexts in Greece. In addition to the proposed research, the Fellow, as a member of the School, will be expected to contribute to the development of the Lab's comparative or other collections, assist with queries from excavators, offer a lecture on the work undertaken while at the Lab, participate in one School trip, and contribute to seminars on aspects of archaeological science as part of the American School's annual curriculum. The deadline for applications is January 15, 2007; further details are available from the School: Dr. Sherry C. Fox, Director, American School of Classical Studies at Athens, 54 Souidias Street, GR-106 76, Athens, Greece; telephone: (+30) 210-72-36-313; fax: (+30) 210-72-39-281; e-mail: wiener.lab@ascsa.edu.gr.

Conference News and Announcements

The XVII International Union for Quaternary Research Congress will be held in Cairns, Australia, July 28-August 3, 2007. The theme is "Quaternary Research and Global Change." Limited funds are available to assist young scientists and students to attend the Congress. INQUA will preferentially support attendees from developing countries and Eastern Europe, and AINSE (Australian Institute of Nuclear Science and Engineering) and AQUA will be able to assist some Australian and New Zealand postgraduate students. Persons wishing to apply for such financial support will be requested to provide their proposed abstract and other details by January 31, 2007. All abstracts should be submitted by January 31, 2007. Submission will be electronic, via this website, and will be accessible from July 2006. Abstracts will be published as an issue of Quaternary International and will be distributed to delegates at the Congress. A draft program outline is provided on the website and will be continuously updated. The program will include about six major plenary sessions in the main auditorium, together with a series of keynote addresses linked to topical symposia. There will be up to eight parallel sessions of symposia and oral sessions. Except for plenary and keynote addresses, oral presentations will be 15 minutes in length. Poster presentations will be displayed in two 3-day blocks of 400+, separated by the mid-conference excursion. Poster authors will be available for discussion from 1:15 to 2:45 pm each day. For more information, visit the Congress web site, <http://www.inqua2007.net.au> or email inqua2007@icms.com.au.

The Second Developing International Geoarchaeology Conference will be held at the University of Cambridge from April 19-21, 2007. The conference will be preceded by a two-day workshop of the International Archaeological Soil Micromorphology Working Group. Information about the conference is available on the conference

website, at <http://www.arch.cam.ac.uk/dig2007>. Please let us know if you would like us to put you on the mailing list for the second circular of the conference by emailing us directly at: digarch@hermes.cam.ac.uk.

The XVI Groupe des Méthodes Pluridisciplinaires Colloquium, Archéométrie 07, will take place April 18-21, 2007 at the Maison Méditerranéenne des Sciences de l'Homme, Aix-en-Provence, France. The theme is "Diffusions, Migrations, Exchanges: The Mediterranean Basin Influence." Pre-registration and proposed communications must be received by September 29, 2007. For further information, contact the local organization committee at archeometrie07@mms.h.univ-aix.fr and visit the website, <http://gm-pca.u-bordeaux3.fr/planning.html?jour=18&mois=3&annee=2007>.

The Archaeological Geology Division of the Geological Society of America announces its sponsored sessions at the upcoming 59th Annual Scientific Meeting, November 16-20, 2006, in Dallas, Texas, USA. T1. High Resolution Quaternary Records from Cave Environments: Caves are geological time-capsules. When dated, they reveal detailed patterns of climatic, sedimentological, and hydrological changes, and botanical, faunal, and archaeological turnover. Contributions from all disciplines working in caves, rock shelters, or karst fissures welcomed. T2. Alluvial Geoarchaeology of Large River Valleys: This session encourages contributions from scientists that have investigated archaeology sites in large river valley settings. Discussions of soil stratigraphy, correlation, paleoenvironmental reconstruction, post-occupation burial and alteration, and newer techniques and analyses are particularly encouraged. T3. Reconstructing Landscape Contexts of Human Occupation Surrounding Wetlands: This session will provide examples of how valuable information about human activities in wetland and surrounding upland landscapes is obtained from the analysis of soils, sediments and fossils from wetlands (lake, bog, marsh and riparian). T4. Marine Geoarchaeology: New Exploration of Sites from Coast to Shelf. Marine geoarchaeology aims to understand human and environmental interactions during the Holocene in now-submerged settings. New techniques and applications in this new interdisciplinary field will present latest research in reconstruction of coastal and shelf settings. T5. Archaeological and Geoarchaeological Records of Natural and Human-Induced Disasters. This session explores geologic and archaeological data, as well as historical records of catastrophic events and disasters in human history including earthquakes, volcanic eruptions, climate and environmental change, droughts, floods, and crises of cultural origin. T6. Geoarchaeology of Prehistoric Earthworks: This session encourages contributions from researchers who have applied geoscientific methods, such as geophysics, remote sensing, soil stratigraphy, sedimentology, and micromorphological analyses, to the study of prehistoric earthworks, including mounds, mound-ridge complexes, canals, and moats. T61. Geology and America's Early Wars: Geology plays a critical role in every military venture. This session will examine how the American geologic setting, including geomorphology, hydrology, and resources influenced the course of the Revolutionary and Civil wars, and other conflicts.

2006 R.E. Taylor Student Poster Award Winners

A. J. Vonarx, SAS Vice President for Membership Development

Please join me in congratulating the most recent winners of R.E. Taylor Student Poster Awards, sponsored by the Society for Archaeological Sciences.

At the Society for American Archaeology Meetings (in San Juan, Puerto Rico, April 26 through 30, 2006):

Bryan Tucker (The University of Florida, Gainesville, Anthropology) with John Krigham, "Identifying Variation in Oxygen Isotopes from Human Dentition with Implications for Seasonal Resource Use."

Susana Gonzalez (California State University Long Beach, Anthropology and Archaeological Sciences) with Gregory Hodgins, George Burr, Jeffery Dean, and Hector Neff, "Differences in Measureable Radicarbon Due to Latitude and Elevation."

At the International Symposium on Archaeometry (Quebec City, Canada, May 2 through 7, 2006):

Alyson M. Thibodeau (University of Arizona, Geosciences and NSF IGERT Program in Archaeological Sciences) with David J. Killick, Joaquin Ruiz, John T. Chesley, and Mark Baker, "Searching for the Silver Lining: Using Pb Isotopes to Constrain the Source of Argentiferous Galena at La Isabela."

Hannah Koon (University of York, Biology) with M. Collins, T. Covington, and T. O'Connor, "Sorting the Butchered from the Boiled."

Each student will receive a one-year membership to SAS and US\$100. Thanks to all of the entrants who helped to make this year's competition a great success. Special thanks to those who judged at one or both of the events: Rob Tykot, Greg Hodgins, Aaron Shugar, Adrian Burke, and Rob Sternberg.

Archaeological Soil Science

Jane A. Entwistle, Associate Editor

The application of well-established technologies from other disciplines applied to geoarchaeological problems/contexts is one which often provides novel and new capabilities for understanding the past. One such approach is that of Pb isotope analysis by thermal ionization mass spectrometry (TIMS). As Pb isotope ratios are not significantly affected by biological processes, they can provide a useful fingerprint for sourcing both anthropogenic and geogenic Pb.

A team from Stirling (Clare Wilson, Donald Davidson), Aberdeen (Jeffrey Bacon) and York Universities (Malcolm Cresser) have looked at using lead isotope ratios as a means of sourcing anthropogenic lead in archaeological soils. Whilst the use of Pb isotopes in archaeological research is not new (e.g., historic pollution and object provenance studies), in a recent pilot study (paper in preparation) they investigate the possibility that Pb isotope analysis could aid interpretation of the function of structures. Initial findings suggest that analysis of Pb isotope ratios, in combination with Pb concentration data, highlight groupings of samples (the hearth, house overburden and house floor, and the byre, kailyard and arable fields), each relating to known practices and the input and movement of materials across sites. Contact Clare Wilson for more information (c.a.wilson@stir.ac.uk).

Energy dispersive isotope-source X-ray fluorescence (ED-XRF) analysers are another under-utilised instrument in geoarchaeological research, in spite of the fact that they are ideally suited for measuring total concentrations of a wide range of elements (including all those to be considered of geoarchaeological significance such as P, Ca, K, Mg, Fe, Mn, Ni, Cu, Pb, Sr, Pb and several REEs) in soils and sediments. One of the main benefits of using ED-XRF is that it is relatively rapid (>50 samples per day) and non-destructive, requiring no hazardous chemical reagents or time-consuming extraction procedure when samples are run as pressed powders. Speed and accuracy make the technique ideal for initial site prospecting and the technique provides a valuable insight into the sample matrix even if the primary research is based on partial extractions.

Work is currently underway looking at the information to be gained from ED-XRF analysis of soils across a historic landscape in Scotland (Abrahams, P.W., Entwistle, J.A. and Dodgshon, R.A. "The Ben Lawers historic landscape project: preliminary findings following the simultaneous multi-elemental analysis of soils." Paper presented at the Annual Meeting of the Society of American Archaeology, San Juan, Puerto Rico, April, 2006). Given the on-going debate about what constitutes the most appropriate extraction technique for geoarchaeological studies, this project will also compare results gained from this total analysis with a partial extraction procedure and assess the extent to which it is valuable to provide total element information to aid interpretation of partial extraction data. Total compositional analysis, for example, can be of use in determining the extent to which elements, particularly trace elements, may be inherited from parent material.

Furthermore, since partial extractions can be subject to spatial and temporal variation in the potential holding capacity of that soil for any particular fraction, results of fractionation studies in archaeological contexts should be treated with the same degree of caution as 'total' analyses, and it may well be that, in order to improve the technique's profile within the archaeological community, pedologists need to be more rigorous in the application of soil geochemistry, possibly utilising a range of extraction techniques to sufficiently characterise the soils.

Geoarchaeology

David D. Kuehn, Associate Editor

Over the last several years, there has been a significant increase in the number of academic departments that offer structured programs in geoarchaeology. Since the early 1990's, the Archaeological Geology Division of the Geological Society of America, initiated by George "Ripp" Rapp, has been compiling a list of these programs at the graduate level (http://rock.geosociety.org/arch/GSA_GRAD.htm).

In 2005, 23 different universities were identified in the directory: Northern Arizona University, University of Arkansas, Baylor University, Boise State University, Boston University, University of Calgary, Cornell University, University of Delaware, University of Georgia, University of Iowa, University of Kansas, University of Maine at Orono, University of Massachusetts at Amherst, McMaster University, University of Michigan, University of North Texas, University of North Texas, Rutgers University, University of Texas, Texas A&M University, Washington University at St. Louis, University of Washington, and Washington State University.

A similar list of graduate programs in geoarchaeology has been compiled by the Geoarchaeology Interest Group of the Society for American Archaeology (<http://www.saa.org/aboutSAA/interestGroups/geoArch/gradDirectory.shtml>). This list of programs contains seven universities that are not included in the GSA guide: University of Arizona, University of Illinois, University of Minnesota at Duluth, University of Minnesota-Twin Cities, University of New York City, Vanderbilt University, and University of Wisconsin.

In addition to graduate-level programs, universities throughout the United States and Canada are continuing a trend toward the development of curricula that combine archaeology and anthropological courses with those in the earth sciences at the undergraduate level.

In this issue of the *Bulletin*, I want to examine undergraduate programs in geoarchaeology. The following information was taken from a review of individual university department web pages. Given the rapid increase in the number of programs offered, I hope to update this list regularly. Individuals or departments with additional information are urged to contact Dr. David D. Kuehn, SAS Associate Editor – Geoarchaeology, #5 Butterfield Trail, Suite F, El Paso, Texas 79906 USA, (915) 771-7887. dkuehn@lone-mtn.com.

Bryn Mawr University (Bryn Mawr, Pennsylvania). The departments of anthropology, classical and Near Eastern archaeology, and geology offer a concentration in geoarchaeology, which allows students majoring in these fields to explore how our human ancestors interacted with past environments, and how traces of human behavior are preserved in the physical environment. Please consult with Professor Magee regarding this program. The geoarchaeology concentration allows students majoring in anthropology,

archaeology or geology to explore the connections among these fields with respect to how our human ancestors interacted with past environments, and how traces of human behavior are preserved in the physical environment. In geology, the geoarchaeology concentration consists of 13 courses: Geology 101 or 102 or 103, 202, 205, 270, 328, another 200- or 300-level Geology course, and 403; Chemistry 101 or 103, and 104; two semesters of math, statistics or computational methods; either classical and Near Eastern archeology 101 or anthropology 101; and one 200- or 300-level elective from among current offerings in anthropology or classical and Near Eastern archaeology. Contract: Department of Classical and Near Eastern Archaeology, Bryn Mawr College, 101 North Merion Avenue, Bryn Mawr, PA 19010-2899, Phone: (610) 526-5053/5334, Fax: (610) 526-7955, <http://www.brynmawr.edu/archaeology/courses.htm>.

Jacksonville State University (Jacksonville, Alabama). Jacksonville State University, Department of Geography offers a concentration in geoarchaeology. This concentration is best suited to students wishing to combine advanced coursework in Physical Geography and/or Geographic Techniques with applied field and lab courses in archaeology. Geoarchaeology Concentration. (18 hours) Combines anthropology/archaeology courses with geography courses. Contact: Dr. Howard Johnson, Department of Geography, College of Physical and Earth Sciences, Jacksonville State University, Jacksonville, Alabama 36265, hjohnson@jsucc.jus.edu, <http://www.jsu.edu/depart/geography/geoarch.html>.

Lakehead University (Thunder Bay, Ontario). The Departments of Anthropology, Geography, and Geology collaborate in offering an undergraduate BSc or HBSoc degree in Geoarchaeology, one of very few such undergraduate programs offered in North America. This program represents the application of geographical and geological concepts as well as methods that aid in the interpretation of the archaeological record of ancient human societies. It involves interdisciplinary studies in areas such as archaeological site formation, paleogeography, paleoenvironmental reconstruction, chronometric dating, as well as physical and natural science applications to archaeological materials. For information on the programs, course descriptions, program committee (Professors), admission requirements and academic regulations, visit the Geoarchaeology Section of the Academic Units Section in the LU Course Calendar. For further information, contact the Program Co-ordinator, Dr. Matthew Boyd, Lakehead University, 955 Oliver Road, Thunder Bay, ON, P7B 5E1 Canada, telephone: (807) 343-8110, fax: (807) 343-8023, website: <http://anthropology.lakeheadu.ca>.

University of Memphis (Memphis, Tennessee). Geoarchaeology & Quaternary Studies (coordinator: David Dye). With the merger, effective with the fall semester of 2004, of Archaeology faculty into the Department of Earth Sciences, we now offer a research focus in Geoarchaeology which interweaves geologic techniques, GIS, remote sensing, and geophysical techniques into Archaeology research. Quaternary

studies branch out to investigate landscape evolution, climate change, paleoecology, and active tectonics over the last two million years. Research activities include field, laboratory, geographic information analysis, and modeling studies that focus on the timing, causes, and mechanisms of natural and anthropogenically forced climate change, and on the effects of past climate changes on the physical, biological, chemical, social, and economic conditions of the earth. Faculty who participate in Geoarchaeology include: David Dye, Dan Swan (Chucalissa Museum), Jerry Bartholomew, Paul Bodin, Randy Cox, Arch Johnston, Dan Larsen, Dave Lumsden, Esra Qzdenrol, Jose Pujol, Buddy Schweig, George Swihart, Roy Van Arsdale, Lensyl Urbano, and Thad Wasklewicz. Contact: David H. Dye, Department of Earth Sciences, 001 Johnson Hall, Memphis, TN 38152, Email: kwilson4@memphis.edu, Department Phone: (901) 678-2177, Fax: (901) 678-2178, http://des.memphis.edu/t_research.htm.

University of Rhode Island (Kingston, Rhode Island). The Department of Geosciences at the University of Rhode Island offers a specialization in geoarchaeology. Two research areas are emphasized: 1. Petrographic and geochemical characterization of archaeological artifacts, debitage, and quarry specimens to constrain sources, distribution patterns, trade routes, and other archaeological issues. 2. Paleoclimate and resulting landscape development in late glacial and early post-glacial time using morphosequence mapping, sedimentologic interpretation of exposures, macrofossil analysis, and dating by radioisotopic methods. Faculty: O. Don Hermes and Jon C. Boothroyd. Collaborative faculty: William A. Turnbaugh, Prof. of Anthropology. We also collaborate with archaeologists and glacial geologists from other academic institutions and the federal government, as well as with contract-archaeologists. Contact: Department of Geosciences, 317 Woodward Hall, 9 East Alumni Avenue Kingston, RI 02881-2019, 401-874-2265, 401-874-2190 Fax, http://www.uri.edu/cels/gel_home/research%20geoarch.htm.

University of Wisconsin at La Crosse (La Crosse, Wisconsin). The Archaeological Studies Program at the University of Wisconsin at La Crosse offers a minor in geoarchaeology. The Geoarchaeology Minor is a 22 credit interdisciplinary minor administered by the Department of Geography and Earth Science, The minor is open to students in the College of Liberal Studies and the College of Science and Allied Health. The course requirements for the minor are ARC 200, ESC 222, ARC 310, GEO/ESC 323, GEO/ESC 426, GEO/ESC 343, and one course from ARC 403 or ARC 404. Geography majors who select the Geoarchaeology Minor must take 18 credits in the courses listed above in addition to the 36 required for the major. Archaeological Studies majors who select the Geoarchaeology Minor must take 19 credits in the courses listed above in addition to the 36 required for the major. For more information contact: Dr. Dean G. Wilder, Department of Geography and Earth Science, University of Wisconsin - La Crosse, La Crosse, Wisconsin 54601, Phone: 608-785-8332, E-mail: wilder.dean@uwlax.edu, <http://perth.uwlax.edu/faculty/wilder/geoarc.htm>.

Archaeological Ceramics

Charles C. Kolb, Associate Editor

The column in this issue includes seven topics: 1) Awards, 2) Reviews of Books on Archaeological Ceramics, 3) New British Archaeological Reports (2005), 4) Previous Meetings, 5) Forthcoming Meetings, 6) Internet Sites, and 7) Exhibition.

Awards

Pamela B. Vandiver: The Archaeological Institute of America named Pamela B. Vandiver as the recipient of the 2006 “Pomerance Award for Scientific Contributions to Archaeology.” She is a pioneer in the scientific analysis of archaeological ceramics, faience, and glass. Her work combines materials science, field archaeological investigations of production sites and materials sources, the ethnographic study of traditional crafters, and the replication of traditional techniques. She is well-known for her studies of East Asian and Southwest Asian ceramics and is the founding organizer of the Materials Issues in Art and Archaeology symposia held regularly at the meetings of the Materials Research Society, and has co-edited all seven of the volumes deriving from these presentations. The award read in part “after an early career as a potter, Professor Vandiver received a Ph.D. in materials science and Near Eastern studies from the Massachusetts Institute of Technology. She then held the post of senior research scientist in ceramics at the Smithsonian Center for Materials Research and Education... Most recently she accepted a position at the University of Arizona as professor of materials science and engineering with a joint appointment in the Department of Anthropology at the University of Arizona... she teaches courses on the materials science of art and archaeological objects, and helped develop a new graduate program in conservation science that fuses architectural history, art history, anthropology, archaeology, and materials science and engineering.”

Michael Brian Schiffer: In San Juan, Puerto Rico, Michael Brian Schiffer (University of Arizona) received the Society for American Archaeology’s 2006 “Award for Excellence in Archaeological Analysis.” Schiffer “has contributed significantly to the rigorous study of ceramics with a fully behavioral context, building upon the work of Anna Shepard and Frederick Matson to fill the lacunae between pottery technology and what have become known as performance characteristics. In doing so, he developed a theory of technological change based on a performance-based life history model. In his Laboratory of Traditional technology, he carried out rigorous experimental studies of factors such as vessel surface treatment, the effects of permeability and evaporative cooling, heating effectiveness, and thermal response of clay cooking pots. These studies have resulted in new insights about firing technology and pottery’s thermal properties. Through his efforts, concepts of performance characteristics, uselives, and artifactual life histories have become part of middle range theory and are helping human behavior to reemerge as a critical element in meaningful studies of archaeological ceramics.”

Reviews of Books on Archaeological Ceramics

Alexandre Livingstone Smith, Dominique Bosquet and Rémi Martineau (editors), *Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001: Pottery Manufacturing Processes: Reconstitution and Interpretation, Colloque/ Symposium 2.1*. Oxford, UK: Archaeopress, British Archaeological Reports International Series BAR S1349, 2005. ISBN 1841716952, £35.00/\$65.00/€54.00 (soft bound); 228 pages; illustrated throughout with figures, maps, plans, tables and plates; nine chapters are in English and eight are in French. The 17 contributions contained in this volume were presented originally at Symposium 2.1: Pottery Manufacturing Processes: Reconstitution and Interpretation at the 14th UISPP [International Union for Prehistoric and Protohistoric Sciences] Congress held in Liège, Belgium in September 2001. Livingstone Smith (Section Préhistoire, Musées royal de l’Afrique Centrale, Tervuren, Belgique), Dominique Bosquet (Section Anthropologie et Préhistoire, Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgique) and Rémi Martineau (“Archaeology, Cultures and Societies,” University of Burgundy, Dijon, France) are to be congratulated for having assembled and edited these significant essays on pottery analysis and interpretation. The session was dedicated to Professor Dean Arnold, Professor of Anthropology at Wheaton College (Illinois, USA), for his long-time contributions to ceramic studies. Livingstone Smith provides an “Introduction” (pp. 5-11, 88 bibliographic citations) in which he discusses the scope of the symposium, namely, to assemble scholars from different backgrounds to explore recent contributions to the study of ceramic technology. He briefly reviews concepts such as ceramic ecology and chaînes opératoires. Among other topics considered are laboratory issues, ceramic ethnoarchaeology, and new analytical tools in ceramic archaeometry. A substantial section of the introductory essay concerns methodological problems in the study and identification of raw materials, paste preparation analyses, shaping techniques, modes of decoration, firing techniques, and post-fire treatments. Livingstone Smith notes that the volume is divided into three unequal parts. The first emphasizes the use of ethnographic data (six essays), the second focuses on technical identification (two chapters), and the last concerns ceramic reconstruction and the interpretation of manufacturing processes seen in archaeological pottery (nine papers).

“Part I: Technical Identification and Technical Variation in Ethnographic Data” begins with Dean Arnold’s chapter entitled “Linking Society with the Compositional Analyses of Pottery” (pp. 15-21, 8 figures, 28 references) in which he reminds us that chemical analyses of pottery (INAA etc.) are commonly believed to reveal the provenance of pottery, but the data from these analyses are, in reality, far removed from the actual behaviors of potters and the societies in which they live and work. He cautions that chemical analyses frequently utilize terminology such as “source,” “reference group,” and “fingerprint” but he points out that the first term is geological and the second is statistical, while “fingerprint” conveys no social or behavioral information. Arnold uses a corpus of 845

INAA analyses of ethnographic pottery and raw materials collected from seven distinct communities in the Mexican Yucatan and Guatemala and challenges ad hoc interpretations that employ intuitive, traditional, and physical science-based concepts to interpret INAA data. He offers valuable cautionary tales and expresses concerns about potential biases in interpretation. The data used was assembled from his 32 years of ethnographic research on Mesoamerican potters; 25 of the 28 references are to his own published research results. “Transactional Politics and the Local and Regional Exchange of Pottery Resources in the Ecuadorian Amazon” by Brenda Bowser (pp. 23-32, 9 figures, 32 references) focuses on women’s domestic pottery and social identity in the community of Conambo comprised of Achuar, Quichua, and Zapara peoples. Bowser was at Washington State University at Pullman but has recently become a member of the faculty at California State University at Fullerton. Following Arnold’s (1985) ceramic ecological treatise on the costs of obtaining raw material resources for pottery production, she delves into the areas of social costs and benefits, rights of ownership, and access to resources that influence the selection of clays and pigment sources. Bowser examines individual transactions to evaluate the significance of social and spatial distance that structure access to resources. she notes that while geographic distance may predict the ranges of resources employed in pottery-making, the procurement of the resources and the transactions must be understood as strategic actions in the structuring of social boundaries and, especially, political boundaries.

Olivier Gosselain (Université Libre de Bruxelles) and Alexandre Livingstone Smith (Musée royal de l’Afrique Centrale, Tervuren, Belgique) prepared “The Sources: Clay Selection and Processing Practices in Sub-Saharan Africa” (pp. 33-47, 15 figures, 80 references). They pay tribute to Dean Arnold’s seminal works and focus on the complexity and variability of behaviors related to clay selection and processing, examining spatial and temporal factors of technical traditions in the manufacturing process. Initially, they provide an overview of the tools, techniques, and recipes observed in Sub-Saharan Africa. Four modes of clay extraction are detailed and four main categories of clay processing are discussed. They also consider the strategies that potters have devised in selecting specific clay sources, and why clays are processed in specific ways. Lastly, they explore behaviors in space and time by considering the dynamics and distribution of technical traditions and how individual potters become innovators and modify these behaviors. The authors clearly demonstrate that technical processes, strategies, and the dynamics of technical behavior are linked in complex ways.

“Variabilité technique et identité culturelle: un cas d’étude ethnoarchéologique en Andhra Pradesh” by Laure Degoy (pp. 49-56, 4 figures, 32-item bibliography) documents the interrelationships between technical traditions and cultural identity in the Indian Subcontinent by considering pottery-making communities in the state of Andhra Pradesh located in east central India. The communities have linguistic and dialectical distinctions, and a number of subcastes are represented. Degoy

(Laboratoire de Préhistoire et technologie, Maison de l’Archéologie et de l’Ethnologie, Nanterre) employs la chaîne opératoire and examines the sociocultural contexts of production; the study reflects previous methodologies employed by Arnold, Hegmon, and Miriam Stark. Despite social and linguistic diversities, technological homogeneity is seen in thrown vessels but the study of hand-made pottery reveals technical diversity that are related to learning networks. Degoy notes that ceramic ethnoarchaeology needs to examine more closely the relationships of geopolitical contexts, potters’ motor habits, specific learning pattern related to each production step, and the social and symbolic values associated with the techniques and the vessel that are fabricated.

Moustapha Sall (Dakar, Sénégal) contributed “Cultural Contacts and Technical Heritage in Senegambia” (pp. 57-66, 8 figures, 74 references) in which he demonstrates that a meticulous analysis of shaping techniques illustrates a technical relationship between Sereer and Diola peoples living, respectively, in central and south Senegal. Sall, who studied 200 potters from 40 villages, concludes that this relationship derives from a cultural inheritance bequeathed by the ancestors of the Baïnock peoples who live on the south. Ethnographic and historic data confirms Wolof cultural interbreeding and demonstrates the influence of Mandé culture on peoples inhabiting western Senegambia. He also presents information on the status of potters, transmission of knowledge, shaping and decoration, and technical variations. Ceramic specialization is evident since the 13th century and the artisans who had a production monopoly on pottery production belonged to the blacksmith caste in Mandé; the Wolof apparently borrowed the technique of coiling from their Sereer neighbors. A paper by Agnès Gelbert (Département d’Anthropologie et d’Ecologie, Université de Genève, Suisse) also focuses on West Africa – “Reconnaissance des techniques et des méthodes de façonnage par l’analyse des macrotraces: étude ethnoarchéologique dans la vallée du Sénégal (pp. 67-78, 14 figures, 2 tables, 19-item bibliography). She notes that two ceramic traditions coexist in the Senegal River Valley and that these are characterized by different techniques and methods of fabrication. In order to define macroscopic criteria that permit the identification of these different processes on the finished vessels, she devised a field experiment in which diagnostic surface features were defined: hollowing a lump of clay or molding over an inverted pottery vessel. In addition, specific methods for fashioning the body and coiled rim were defined; 39 photographs illustrate these processes.

“Part II: Methods of Technical Identification” has two chapters. The initial contribution, “Utilisation du dégraissant végétal en contexte néolithique: hypothèses technologiques et Expérimentation” by Claude Sestier (Noisiel, France) (pp. 81-94, 7 figures, 2 tables, 67-item bibliography), focuses on the fabrication of fiber tempered pottery which dates from the Neolithic to the present. He rightly notes that very few researchers have studied fiber tempering and he presents research on the effects of vegetal temper on the workability of clay and argillaceous loess, and kinetics of drying. Sestier

concludes that the use of vegetal tempering is a useful strategy in coping with the natural variability of raw clays, especially when the natural properties are problematic for pottery fabrication. He has assembled archaeological and ethnographic information about the use of fiber temper in Table 1 and presents unpublished data on his experimental research on the workability of various clay and fiber combinations; the microphotographs are particularly revealing. Bruce Velde (Laboratoire de Géologie, École Normale Supérieure, CNRS, Paris) prepared a brief paper entitled "Use of Image Analysis in Determining Multi-Source Ceramic Materials" (pp. 95-99, 3 figures, 4-item bibliography). He demonstrates how very simple imaging techniques employing photographs of petrographic thin sections of ceramic sherds allows an observer to determine the homogeneity of "grit" distribution in a ceramic body and discern grain size populations. His method uses grain size distribution curves that show regular, natural distributions and additions of grits by other methods. The information derived from this procedure can assist in determining if possible multi-source clays were used to produce a ceramic artifact. The method was applied to ceramics from the workshop of Bernard Palissy in Paris and third century Gaulo-Roman table ware from a kiln excavated in Paris.

"Part III: Reconstruction and Interpretation of Pottery Manufacturing Processes in Archaeological Contexts" contains nine contributions. In "La chaîne opératoire de la céramique rubanée: première tentative de reconstitution" (pp. 103-114, 9 figures, 2 tables, 41-item bibliography), Dominique Bosquet (Section Anthropologie et Préhistoire, Institut royal des Sciences naturelles de Belgique), Heike Fock (Direction de l'Archéologie de la Région wallonne, Herstal, Belgique), and Alexandre Livingston Smith (Section Préhistoire, Musées royal de l'Afrique Centrale, Tervuren, Belgique) focus on data collected from six newly excavated LBK Neolithic sites located on the Bruxelles-Liège TGV high-speed railway right-of-way. The data permitted the reconstruction of the pottery chaîne opératoire (utilizing ethnographic and archaeological paradigms) and provided new insights into Neolithic ceramic production. The initial research results reported here focus on chaîne opératoire ceramic reconstruction based on materials from a single pit from an isolated house at the LKB site of Remicourt "En Bia Flo" II (Liège Province). The authors characterize 18 distinct chaînes opératoires using raw material selection and preparation methods along with some shaping elements (Table 1). There are 38 excellent cross-section images of pastes and inclusions that also detail firing cores. They also present a series of thoughtful questions regarding their observations. "Techno-Functional Aspects of a Middle Neolithic Pottery Assemblage (Spiere "De Hel", Belgium)" (pp. 115-125, 6 figures, 1 table, 34 references) by Bart Vanmontfort (Laboratorium voor Prehistoire, Katholieke Universiteit Leuven, Leuven, Belgium) presents an analysis of temper types and choices made by Middle Neolithic potters. In general, flint and fibrous organics were employed as temper. Vanmontfort also looks at techno-functional and morpho-technological variability using data derived from 350 kg of pottery (and 62 identified vessels and 10 morphological groups) from Spiere "De Hel"; radiocarbon

dates are also provided. He finds a close relationship between temper selection and morphological characteristics and actual vessel use. The absence of a link between vessel types and the kind and amount of temper that was added to the paste suggests that techno-functional constraints did not influence the specific temper choice made by these Middle Neolithic potters.

Gwenaëlle Hamon and Guirec Querre (both Laboratoire d'Anthropologie, CNRS, Rennes, France) and Jean-Gabriel Aubert (Laboratoire Arc' Antique, Nantes, France) coauthored "11) Techniques de fabrication de céramiques du Néolithique moyen I en Armorique (France)" (pp. 127-138, 5 figures, 2 tables, 33-item bibliography). Employing data from Middle Neolithic I funerary contexts, they report on rounded bottom pots, bowls, and beakers – all of which have a similar morphology with an elliptical shape and ovoid mouth. Using chaîne opératoire analytical techniques, the authors examine data on the acquisition and processing of raw materials and the fabrication processes employed by the Neolithic potters. Petrographic thin section analyses of sherds was undertaken and summarized (detailed results are not presented) and digital radiographs were created (seven images are depicted). Their analyses confirmed the use of coil building, paddle and anvil, and molding techniques separately and in combination. "Exemples de reconstitutions des chaînes opératoires des poteries du Néolithique Moyen II dans la moitié nord de la France: (pp. 139-146, 8 figures, 9-item bibliography) was prepared by Caroline Colas (INRAP/UMR, Archéologie et Sciences de l'Antiquité, section Protohistorique européenne, Vendresse-Beaulne, France). Based on her analysis of 1,000+ vessels (primarily from coastal west-central and northwestern France), the author focuses on the reconstruction of several Middle Neolithic II pottery manufacturing traditions with full knowledge that choices of materials and behaviors are interdependent. The research results demonstrate new insights on the relationships of chaîne opératoire variables and group cohesion and enlighten us as to the potters' technical knowledge and the choices they made during the fabrication processes. The disappearance of impressed decoration and the selection of specific tempers may reveal relationships between site clusters that are not readily discerned.

"Identification of the Beater and Anvil Technique in Neolithic Context: Experimental Approach" (pp. 147-156, 11 figures, 26-item bibliography) by Rémi Martineau ("Archaeology, Cultures and Societies," University of Burgundy, Dijon, France) presents a summary of pottery forming techniques and then focuses on the beater and anvil technique for Neolithic and Protohistoric pottery fabrication. The chaîne opératoire approach is employed to discern methods for the identification of pottery forming techniques in 640 vessels; macro- and microscopic observations are made on internal and external surfaces and cross-sections. Data from two Neolithic contexts, Clairvaux/ Ferrières culture (Jura, France), and the Cèze-Ardèche facies of Ferrières culture (Ardèche, France), are employed. In some instances, primarily in secondary forming, beating was applied to vessels without using the anvil.

Simonpietro di Pierro (Géosciences, Minéralogie et Pétrographie, Université de Fribourg, Fribourg, Suisse), Robert Michel (Service Archéologique Cantonale de Neuchâtel, Neuchâtel, Suisse), and Rémi Martineau (“Archaeology, Cultures and Societies”; University of Burgundy, Dijon, France) contributed “Matériaux et types céramiques à Saint-Blaise, station néolithique suisse (2770-2626 av. J.-C.). Poterie exogène et production locale” (pp. 157-177, 10 figures, 11 tables, 44-item bibliography). The authors focus on 92 Neolithic ceramic specimens from Saint Blaise, Neuchâtel Lake, western Switzerland that date 2770-2626 BCE. Thin section ceramic petrography and chemical analyses (n = 101) by XRD and XRF were undertaken and permitted the identification of three pottery groups. Splendid thin section illustrations are included in the chapter. A specific group of ten vessels corresponded to a specific house at the settlement and were characterized for Sr and Ba chemical content. This group is consistent with the exploitation of a specific clay source. Another group of 15 vessels was characterized by MgO content. and related to the “Corded Ceramic” culture which is centered in eastern Switzerland. However, the petrographic and chemical composition of this group is also similar to contemporary pottery made in Portalban, located 15 km from the excavation site. The results suggest patterns of exchange between Neolithic communities of the “Corded Ceramic” culture.

“Perception stylistique et technologie céramique: reconstitution et interprétation des techniques de façonnage des poteries archéologiques de Koumbi Saleh (Mauritanie, IX^{ème} -XV^{ème} siècles)” (pp. 179-199, 16 figures, 5 tables, 83-item bibliography) was authored by Barbara van Dooselaere (UMR, Arscan Recherches sur l’Afrique, Nanterre, France). Ceramics from the urban center of Koumbi Saleh, Mauritania, west Africa were traditionally studied using chronotypological methods and published previously (Berthier 1997), but van Dooselaere now reports her new stylistic analysis of a reference group of ceramics from the site utilizing chaîne opératoire. She reviews the characteristics of the site and the ceramic assemblage, and details her methodological procedures (macro- and microscopic). Chaînes opératoires are presented for three distinct chronological phases and for the overall timeframe. “Identifying Social Entities at a Macro-Regional Level: Chalcolithic Ceramics of South Levant as a Case Study” (pp. 201-214, 7 figures, 3 tables, 39 references) by Valentine Roux (Maison de l’Archéologie et de l’Ethnologie, Nanterre, France) and Marie-Agnès Courty (CNRS-IPH, Centre Européen de Recherches Préhistoriques, Tautaval, France). The authors sorted a Levantine Chalcolithic ceramic assemblage dating 3800-3500 BCE from ten sites into, successively, technical, techno-petrographic, and morpho-stylistic criteria and then compared these classifications at a macro-regional scale. Two distinct technological traditions were defined; a predominant one that is indicative of inter-site variability and a minor one that shows homogeneity across the sites. They contend that these two technical entities correspond to distinct social entities characterized by a specific status of the finished products and specific modalities of production. Sedentary versus itinerant potters are also potentially identified. Elena A.

A. Garcea ((Università di Cassino, Laboratorio di Archeologia, Cassino, Italy) prepared “Comparing Chaînes Opératoires: Technological, Cultural and Chronological Features of Pre-Pastoral and Pastoral Ceramic and Lithic Production” (pp. 215-228, 3 figures, 2 tables, 57-item bibliography). Garcea employs data from prehistoric contexts in the Libyan Sahara to compare and contrast ceramic and lithic raw materials and production techniques, and discern chaînes opératoire. Raw material procurement, assessment, preparation, production, finishing, use and discard are defined. Petrographic analysis determined two ceramic groups: granite-derived and sandstone-derived inclusions. The lithics were fine-grained sandstone, black chert, schist, and quartz. Major variations are noted in the chaînes opératoires when a pastoral subsistence economy is adopted. Parallel behaviors and traditions in the production of ceramics and lithics were observed, and chronological and cultural diversities were discerned in the Late Acacus and Pastoral cultural horizons, and different needs and traditions are recognizable in technological production.

The initial two papers, presented by Arnold and Bowser, exemplify ceramic ethnoarchaeological approaches and the use of the ceramic ecological paradigm. Arnold offers important cautions for archaeological ceramic interpretations based on more than three decades of research; Bowser takes Arnold distance to resources data and injects a compelling assessment of social costs and benefits, issues of ownership, and access to resources that influence the selection of raw material resources. Four other papers in this ethnographic section (Gosselain and Livingstone Smith, Degoy, Sall, and Gelbert) often reference Arnold’s contributions and provide useful ceramic ethnographic perspectives on Sub-Saharan and West Africa and eastern India. All of these essays provide important new data on contemporary pottery-making in traditional contexts. The two technical papers (Sestier and Velde) are, likewise, valuable contributions. Sestier provides salient and compelling information on fiber tempering, a notably understudied but important topic. Velde provides a novel approach to the potential identification of ceramic sources in an assemblage. In the section on reconstructing and interpreting the manufacturing processes used in fabricating vessels, six of the nine papers focus on the Neolithic in Western Europe (two contributions relate Belgian materials, two others focus on French contexts, and one documents a Swiss perspective). The authors (Bosquet et al., Vanmontfort, Hamon et al., Colas, Martineau, and Di Pierro et al) emphasize chaînes opératoires in their approaches, demonstrating the influences of Livingstone Smith. The other contributions by van Dooselaere (Islamic-era Mauritania), Roux and Courty (the Chalcolithic Levant), and Garcea (“Neolithic” southwestern Libya) employ chaînes opératoires with a touch of ceramic ecology (Arnold and Balfet) in two of the essays. The more we read about the application of and resulting analyses using chaînes opératoires, the more this reviewer sees the similarities and overlap with ceramic ecology. The latter seems to take into account more diverse environmental factors (see C. C. Kolb, “The Symposium ‘Technological Choices in Ceramic Production’-Perspectives from Ceramic Ecology, Archaeology and Ethnoarchaeology,” *Archaeometry* 43(2):273-277, 2001).

The editors' goal was assemble scholars from different backgrounds to explore recent contributions to the study of ceramic technology and in this regard, the symposium and resulting publication is successful; examples using ceramic ecology and chaînes opératoires are presented, but it is only in Gosselain and Livingstone Smith's essay that the two are somewhat blended. The papers are very readable and thought-provoking, providing much new data and valuable assessments. However, some of the papers methodologically might be characterized as "preaching to the choir." To diversify the presentations on the reconstruction and the interpretation of manufacturing processes seen in archaeological pottery a future colloquium might include practitioners of archaeo-ceramics who published in *The Leiden Journal of Pottery Studies* (since 2004), a continuation of the former *Newsletter of the Department of Pottery Technology* (Leiden University), notably Abraham van As. In addition, ceramics researchers from the Laboratory for Ceramic Research, Department of Quaternary Geology University of Lund, such as Anders Lindahl and Ole Stilborg who edited *The Aim of Laboratory Analyses in Archaeology, Conference proceedings, Lund, April 7-9 1995*. Kungl. Vitterhets Historie och Antikvitets Akademien, Konferenser 34. Uppsala: Lund University. J. M^a. Gurt i Esparraguera, J. Buxeda i Garrigós, and M. A. Cau Ontiveros who edited *LRCW I: Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry* (Oxford, UK: British Archaeological Reports BAR S1340, 2005) or some participants from that conference might also enliven such a symposium. A few researchers who study ceramics from the Puebloan area of the North American Southwest might also be added to the mix.

A minor issue: there is a lack of standardization and consistency in the use of citation methods, inconsistent capitalization, the completeness of references cited (missing volume or page numbers), and obvious typographical errors mostly in the bibliographies or references cited (for example, Neft, p. 21 should be is Neff), but these are readily discerned. Nonetheless, despite the few caveats, the volume is a splendid contribution to our understanding of ceramics and the diverse methods we employ to study this unique material culture. The symposium and resulting volume remain well-deserved tribute to our colleague Dean Arnold (a friend for four decades).

The Maya Vase Conservation Project by Lynn A. Grant with contributions by Elin C. Danien. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2006. 128 pp., 96 text figures, glossary, references, index; 280 CD-ROM color figures; ISBN 1-931707-87-1, \$29.95 (hardbound). The author and her colleague are both on the staff of the University Pennsylvania Museum of Archaeology and Anthropology, and collaborated in producing this unique volume. Conservator Lynn A. Grant, who holds a B.A. in Classical Studies from Mount Allison University (Sackville, New Brunswick) and a degree in Archaeological Conservation from the Institute of Archaeology, University of London, came to the University of Pennsylvania Museum's Conservation Laboratory in 1988. She has worked as a conservator in

Canada, England, and Hong Kong, and conducted on-site conservation at the Museum's Early Copan Acropolis Project in Honduras, and previously at Tille Höyük and Troy (Turkey) and 'Ain Ghazal and Tell el-Hayyat (Jordan). Research Associate Elin C. Danien is in the American Section of the University of Pennsylvania Museum and wrote her dissertation at Penn on the museum's collection of Chamá polychrome ceramics, *The Chama Polychrome Ceramic Cylinders in The University of Pennsylvania Museum*, unpublished Ph.D. dissertation, University of Pennsylvania, Philadelphia (1998). See also <http://www.mayavase.com/com593.htm>.

The polychrome pottery that is the subject of this book was crafted in a unique style that emerged suddenly flowered briefly in the early 8th century AD, and within 50 years ceased to be made. The Chamá artists, whose control of color, line, and composition has been admired by collectors as well as curators, were also appreciated by other ancient Maya artists, who placed pictures of Chamá-style vessels in the narrative scenes painted on other polychromes. Yet almost nothing is known archaeologically about this Maya site, its people, the reasons for the ceramic florescence, or for its demise. Grant and Danien help elucidate answers to these mysteries.

The book is structured as follows: Foreword, Preface, five chapters with a Glossary, Related Reading, Index, and "About the Authors." The initial brief chapter, "Of Pottery and Preservation," by Danien provides a context for this excavation of this corpus of polychrome vessels. The Maya Vase Conservation Project involved the conservation and documentation of 19 Maya vessels fabricated at or near the site of Chamá, province of Alta Verapaz, Guatemala, ca. 700 CE. These vessels were excavated in 1916-1917 on behalf of the Museum's Director, George Byron Gordon, by Robert James Burkitt, an 1891 engineering graduate of Harvard University who worked at the archaeological site of Copan, Honduras in 1894, became enamored of Central America, and never left. Burkitt, Danien relates, purchased vessels from farmers and workmen, and did his best to locate the actual archaeological sites and contexts. At Chamá, then a coffee plantation owned by Ebenezer Cary, Burkitt was able to excavate portions of two mounds, recovering fragmented polychrome vessels. Other sites along the Chixoy River were also tested. Danien includes very interesting excerpts from Burkitt's correspondence, while Lynne Grant begins each chapter with a quotation from Burkitt's writing.

With Chapter 2, "The Need for Conservation," Grant discusses the tasks of archaeological conservation, noting that this work involves two classes of materials: those that have come directly from archaeological contexts and have received little or no previous treatment, and those that have been in museum collections and have had previous restoration. The latter is the class to which the Chamá vases belong, having been subjected to some "restoration" in 1917 and late 1949 or early 1950. She further considers the initial condition of the vessels, limitations of the older restoration materials, and current procedures and methods of object conservation.

Grant's subsequent chapter reviews "New Technologies for Conservation and Archaeology" and emphasizes residue analysis, multispectral imaging, and new digital photographic procedures. She reminds the reader that these vessels were not decorative objects but were made to be used; hence, LC/MS (liquid chromatography/mass spectrometry) was employed by W. Jeffrey Hurst (Hershey Foods Corporation) on residues obtained from six vessel interiors. Two had traces of theobromine and caffeine, confirmation that they held cacao liquid, which is not surprising since the Chamá region has a microclimate suitable for the cultivation of cacao and was a producer for more than 1,200 years. Gene Ware (Brigham Young University) employed multispectral analysis to help assess slips and material identification, and created photocomposites. Digital photographs were taken using a Nikon Coolpix 990.

In Chapter 4 (pp. 39-80), Grant details nine specific conservation treatments: Examination and initial documentation, disassembly, consolidation, desalinization in deionized water, cleaning with cotton wool swabs and solvents (often water), mending (using Paraloid B-72), gap-filling, inpainting, and final documentation. Disassembly involved the use of Fourier Transform Infrared Spectrometry to identify adhesives and thereby indicate what solvents might be employed. Gap-filling using Plaster of Paris is done to preserve structural integrity and for cosmetic reasons, while inpainting is undertaken using materials that cannot be confused with the original object (the accompanying CD provides images showing the before and after treatments). The final chapter, "The Conservator's Eye," Grant relates the kinds of information that can be discerned when working closely with an object. These include a partial fingerprint preserved in a vessel's slip, an inappropriate "repair" of mending holes, and evidence of potters' construction methods (fractures and delamination are important sources of information).

In summary, the author explains the conservation process in lay terms, discussing why conservation is necessary, how it is undertaken, what materials are used, and what the results are. The clearly written narrative, with 96 full-color photographs illustrating the steps of the process to complement the text, includes such topics as the importance of the pots to Maya studies, their early excavation history, why they needed conservation, what the conservation process entails, how conservators do what they do and why, and special documentation techniques including multispectral imaging and residue analysis.

While the book focuses on the conservation effort rather than the individual vessels, the accompanying splendid CD with 280 full-color images, illustrates each of the vessels before, during, and after treatment. The volume has 99 figures (most in color), a Glossary with 46-items, Related Reading (14 print items plus 9 Websites), and a 2.5-page double column Index of conflated topics and proper nouns. The CD contains before, during, and after images of the conservation treatments. The entries on each of the 19 individual specimens include

information on provenience, dimensions, description, initial condition, etc. There are also topical considerations (the numbers of vessels involved in each topic are in parentheses): cleaning (4), consolidation (4), delamination (1), desalinization (2), disassembly (4), facing (1), filling (4), mending (6), multispectral imaging (2), photocomposites (6), post-firing holes (1), previous restorations (6), spalls (1), and ultraviolet examination (1). This unique, compellingly written, and insightful volume gives the reader a behind-the-scenes perspective on a highly significant but little-known aspect of archaeological research – the tasks undertaken by the archaeological conservator whose dedication, attention to detail, and skills enable the reconstruction of fragmented objects. The conservation and preservation of this material culture ultimately enables the scholarly interpretation of these important artifacts. The book and CD combined is a unique and valuable instructional tool for archaeologists, art historians, and conservators, as well as the lay person interested in issues of ceramic conservation.

New British Archaeological Reports (2005)

The Roman Stamped Tiles of Vindonissa (1st Century A.D., Northern Switzerland) Provenience and technology of the production – an archaeometric study by Folco Giacomini, BAR S1449, 2005. ISBN 1841718858, £25.00. 84 pp.; illustrated throughout with figures, maps, plans, tables and illustrations. Abstracts are in French and German. This work presents an archaeometric study on the Vindonissa stamped tiles. Vindonissa (Canton of Aargau, Switzerland) was an important Roman camp during the 1st century AD. With Vindonissa stamped tiles, archaeologists refer to all tiles stamped with the name of the military units that were stationed at Vindonissa from 47 to 101 AD. These tiles are among the most common archaeological findings in the Vindonissa legionary camp, but commonly occur in different Roman sites of Switzerland. The principal aim of this study was the petrographic and chemical characterization of the Vindonissa tiles to determine the production site (or sites) for these ceramics and to obtain information concerning the technological aspects of the tile production and the distribution of these stamped tiles in Switzerland during Roman times.

Geographies of Power: Understanding the Nature of Terminal Classic Pottery in the Maya Lowlands, edited by Sandra L. López Varela and Antonia E. Foias, BAR S1447, 2005. ISBN 1841718831, £33.00, ii + 188 pp.; illustrated throughout with figures, maps, plans, tables and illustrations. Twelve contributors present the contents of the Terminal Classic (the Mayan Lowlands, Central America) ceramic complexes in their area of study, and discuss them against the complexity and diversity of social processes illuminated by recent investigations. Contents: An Introduction to Geographies of Power (Sandra L. López Varela and Antonia E. Foias); A Survey of Terminal Classic Ceramic Complexes and Their Socioeconomic Implications (Donald W. Forsyth); Fine Paste Wares and the Terminal Classic in the Petexbatun and Pasion Regions, Peten, Guatemala (Antonia E. Foias and Ronald L. Bishop); Dynamics of Engagement in the Usumacinta River

Valley and the Coastal Plains of Tabasco: Traversing Terminal Classic Hypotheses (Sandra L. López Varela); The communities of the Holmul river drainage at the periphery of Tikal during the terminal classic and the identification of a distinctive micaceous paste component (Vilma Fialko); Contextualizing the Collapse Hegemony and Terminal Classic Ceramics from Caracol, Belize (Arlen F. Chase and Diane Z. Chase); Continuity and Change in the Ceramic Complex of Xunantunich during the Late and Terminal Classic Periods (Lisa J. LeCount); Terminal Classic Pottery Production in the Ulúa Valley, Honduras (Jeanne L. Lopiparo, Rosemary A. Joyce, and Julia A. Hendon); Pushing the Limits: Late to Terminal Classic Settlement and Economies on the Northern Belize Coast (Shirley Boteler Mock); Western Puuc Sociopolitical and Community Organization as Viewed through Terminal Classic Ceramics (Lorraine A. Williams-Beck); Late and Terminal Classic Puuc Ceramics as seen from Xkipché (Michael Vallo); Future Directions in the Study of Terminal Classic Ceramics: Some Brief Comments (Jeremy A. Sabloff).

Prehistoric Pottery-Making of the Russian Far East by Irina S. Zhushchikhovskaya (edited by Richard L. Bland and C. Melvin Aikens), BAR S1434, 2005. ISBN 184171870X, £32.00. ix + 171 pp.; 89 figures, maps, plans, tables, drawings and photographs. Zhushchikhovskaya is a member of the Russian Academy of Sciences, Far Eastern Division, Vladivostok. This is an original work of synthesis, expressly written for an international audience and not previously published in Russian. Before the research of quite recent years, the Incipient Jomon pottery vessels of Japan had clear claim to the distinction of being “first in the world,” with an age of about 13,000 radiocarbon years, or close to 15,000 calendar years ago. Now many comparably early dates have appeared in the Russian Far East as well, and impressive though currently less well-documented dates for early pottery are also appearing in China, Korea, and other countries. The present work shows that it may be quite some time now before any question of “first” can be resolved, as continuing discoveries show quite comparably early pottery appearing over an increasingly broad front in eastern Asia. Obviously there were processes at work that were general in scope, and certainly not accidental. Zhushchikhovskaya goes to the heart of this matter with her synthesis of the current evidence from the Russian Far East, which pays close attention to the environmental circumstances in which early pottery appears. Equally, she pays close attention to the properties of raw materials and the mechanics of shaping and firing. Ethnographic observations on aboriginal pottery-making and other craft processes contribute importantly as well. Zhushchikhovskaya’s account of the earliest pottery is only the beginning of her work. In later chapters she goes on to trace the development of the early Russian traditions down through additional millennia of environmental and cultural change to the Iron Age, addressing the relations of pottery-making to socio-economic structures, and the range of structures reflected in pottery-making itself. Her concluding discussion sums up the implications of particular Russian evidence for understanding the role that the study of pottery-making plays in archaeologists’ efforts to trace cultural continuities and discontinuities,

periodization, tempo of cultural development, cultural contacts, and migrations. This book will be of interest to a broad cross-section of readers: those interested in the history, technology, and functions of pottery — those who appreciate the attention it pays to ecology, context and process in the innovation and diversification of traditions; those who seek to expand the utility of pottery as a tool in archaeological synthesis and interpretation; and those who pursue specific interests in the cultural history of eastern Asia. It also offers the international community an interesting window on some of the ways in which Russian archaeologists conceptualize their subject matter.

The Development of Pottery Technology from the Late Sixth to the Fifth Millennium B.C. in Northern Jordan: Ethno- and Archaeological Studies: Abu Hamid as a key site by Nabil Ali, BAR S1422, 2005. ISBN 1841718610, £30.00. x + 118 pp. 12 tables; 104 figures, maps, plans, drawings and photographs; abstract in German. This study is divided into two main parts. Part one presents the ethnoarchaeological study that has been conducted on (late-Sixth to Fifth Millennium BC) pottery production in northern Jordan (the Ajlun Mountain area). It includes the location and environmental setting of the study area, the context of pottery production with reference to potters’ socio-economic contexts, and their identity. It also includes the context of pottery production and a description of the technological traditions that have been identified among the potters. Chapters 4 and 5 have been devoted to measuring and explaining the causes of technological similarities as well as differences in the potters’ out-put. Part 2 documents the archaeological study, including a description of the site of Abu Hamid and its environmental setting. Moreover, it presents the chronology and the sequence of occupation at the site, as well as the spatial and temporal contexts of the sampled pottery sherds. Further, it presents morphological and metric descriptions of the pottery assemblages. Chapters 8 and 9 are devoted to the identification of archaeological pottery forming techniques and the measuring of the technical variations among them. The last chapter presents the explanations of these technical variations.

Cambridge Monographs in African Archaeology 63: Traditions céramiques, Identités et Peuplement en Sénégal Ethnographie comparée et essai de reconstitution historique by Moustapha Sall, BAR S1407, 2005. ISBN 1841718505, £30.00. viii + 158 pp.; 82 figures, maps, plans, drawings and photographs; 14 tables. In French. This study determines the possible connections between the various ceramic traditions of Senegal and Gambia, with special references to identities and histories of the current populations in these areas.

La cerámica medieval sevillana (siglos XII al XIV). La producción trianera by Manuel Vera Reina and Pina López Torres, BAR S1403, 2005. ISBN 1841718440, £41.00. 331 pp.; 5 maps and plans (one in color); 10 plates; catalogues of finds, inscriptions, typologies. In Spanish. A detailed study of contexts and ceramic finds from mediaeval Seville, including a catalogue of over 250 entries of ceramic finds.

Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001 2 Pottery Manufacturing Processes: Reconstitution and Interpretation Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001, Colloque/ Symposium 2.1, edited by Alexandre Livingstone Smith, Dominique Bosquet and Rémi Martineau, BAR S1349, 2005. ISBN 1841716952, £35.00, 228 pages; illustrated throughout with figures, maps, plans, tables and plates. In English and French. Symposium 2.1 (Pottery Manufacturing Processes: Reconstitution and Interpretation) from the 14th UISPP Conference held in Liège, Belgium, 2001. Contents: 1) Linking Society with the Compositional Analyses of Pottery (Dean Arnold); 2) Transactional Politics and the Local and Regional Exchange of Pottery Resources in the Ecuadorian Amazon (Brenda Bowser); 3) The Sources: Clay Selection and Processing Practices in Sub-Saharan Africa (Olivier Gosselain and Alexandre Livingstone Smith); 4) Variabilité technique et identité culturelle: un cas d'étude ethnoarchéologique en Andhra Pradesh (Laure Degoy); 5) Cultural Contacts and Technical Heritage in Senegambia (Moustapha Sall); 6) Reconnaissance des techniques et des méthodes de façonnage par l'analyse des macrotraces: étude ethnoarchéologique dans la vallée du Sénégal (Agnès Gelbert); 7) Utilisation du dégraissant végétal en contexte néolithique: hypothèses technologiques et Expérimentation (Claude Sestier); 8) Use of Image Analysis in Determining Multi-Source Ceramic Materials (Bruce Velde); 9) La chaîne opératoire de la céramique rubanée: première tentative de reconstitution (Dominique Bosquet et al.); 10) Techno-Functional Aspects of a Middle Neolithic Pottery Assemblage (Spiere "De Hel", Belgium) (Bart Vanmontfort); 11) Techniques de fabrication de céramiques du Néolithique moyen I en Armorique (France) (Gwenaëlle Hamon et al.); 12) Exemples de reconstitutions des chaînes opératoires des poteries du Néolithique Moyen II dans la moitié nord de la France (Caroline Colas); 13) Identification of the Beater and Anvil Technique in Neolithic Context : Experimental Approach (Rémi Martineau); 14) Matériaux et types céramiques à Saint-Blaise, station néolithique suisse (2770-2626 av. J.-C.). Poterie exogène et production locale (Simonpietro di Pierro et al.); 15) Perception stylistique et technologie céramique : reconstitution et interprétation des techniques de façonnage des poteries archéologiques de Koumbi Saleh (Mauritanie, IX ème -XV ème siècles) (Barbara van Dooselaere); 16) Identifying Social Entities at a Macro-Regional Level: Chalcolithic Ceramics of South Levant as a Case Study (Valentine Roux et Marie-Agnès Courty); 17) Comparing Chaînes Opératoires: Technological, Cultural and Chronological Features of Pre-Pastoral and Pastoral Ceramic and Lithic Production (Elena Garcea).

Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001, Section 2: Archéométrie/ Archaeometry General sessions and posters. Acts of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001, edited by Le Secrétariat du Congrès (Mark Van Stryndonck and Alexandre Livingstone-Smith, Alexandre), BAR S1270, 2004. ISBN 1841716235, £25.00; illustrated throughout with figures, maps, plans, plates and drawings. Eight

papers from the general sessions of Section 2 (Archaeometry) of the XIVth UISPP Congress, University of Liège, Belgium, 2-8 September 2001, including: (1) Datation par les séries de l'uranium (U-Th) et la résonance paramagnétique électronique (RPE) combinées du gisement paléolithique de la grotte du Portel Ouest (Ariège, France): Résultats préliminaires (H. Tissoux, R. Vézian, H. de Lumley, J. J. Bahain, C. Falguères); (2) Datation ESR/U-Th de dents des niveaux moustériens de Beauvais et de Bettencourt: Étude comparative (V. Michel, Y. Yokoyama, J.-L. Lochet); (3) Inferences and Limitations in Chipped-Stone Modeling: Learning from an Ethnoarchaeological Case (Threshing-Sledge Production in Thessaly, Greece) (L. Karimali); (4) In-Depth Study of Copper-Based Artefacts: What can be Hidden Behind the Patina? (L. Garenne-Marot); (5) Analysis of Potsherd Residues and Vessel Use in Hunter-Gatherer-Fisher Groups (Pampean Region, Argentina) (M. I. Gonzalez de Bonaveri, M.M. Frère); (6) L'épaupe néandertalienne: identique ou différente de celle de l'homme moderne? (J.-L. Voisin); (7) Lithic Products Analysis, Raw Materials and Technology in the Prehistoric Settlement of the River Palmones (Algeciras, Cádiz, Spain) (S. Domínguez-Bella, J. Ramos Muñoz, V. Castañeda, E. García, M. Sánchez, G. Jurado); (8) Towards an Atlas of Prehistoric (Non-Metallic) Raw Materials in the Carpathian Basin (K. T. Biró, P. Scharek, G. Szakmány).

Previous Meetings

The First World Congress "Trypillian Civilization" was held in Kyiv, 7-11 October 2005. One of the papers, "Peculiarities of Radiocarbon Dating of Ancient Archaeological Pottery" was authored by N. Kovalyukh, V. Skripkin, and M. Videiko (Institute of Environmental Geochemistry of NAS of Ukraine, Kiev, Institute of Archaeology of NAS of Ukraine, Kiev, Ukraine). An abstract of this paper appears at <http://www.trypillia.com/articles/eng/re2.shtml>; a revised paper abstract in English follows: The lack of radiocarbon dates for most monuments from the Neolithic epoch represents the principal impediment for a body of problems to be considered. "These problems relate directly to genesis of either culture, division of studied culture into periods, as well as to their synchronisation in temporal correlation." This results from the fact that the cultural layers enclosing Neolithic monuments consist of partially wooded steppe and steppe landscape zones which retain organic materials suitable for radiocarbon dating. Wood, coal and bone materials in the aerated soil are subjected to intensive microbiological destruction. As this takes place, the main archaeological finds become stone implements and pottery fragments. Various kinds of pottery come into widespread use in the area of Eastern Europe at the end of VII-VI BC millennia. The production of early pottery was allied to the technologies wherein the admixtures of organic origin (grass, chaffed straw, fluvial and lacustrine ooze and droppings) were used in addition to clayey component for plasticity and strength. The organic admixtures dominated in the primary pottery pasty mass and came to tens of percent. Carbon content represented by coal inclusions after pottery annealing forms mostly 0, 6-2 % in the mass total weight. An aluminosilicate

matrix protects this carbon from oxidation and pollution by humic acids. Under these conditions, the radiocarbon dating of pottery fragments is a unique way for authentic correlation between obtained radiocarbon dates and concrete cultural phenomenon. Several series of pottery from early Neolithic cultures of Ukraine, Lithuania and Poland have been dated in the Kiev Radiocarbon Laboratory with new technologies applied to carry-out primary processing and synthesis of calculations. There are “tens of dates” for Tripolye, Dnieper-Donets and Bug-Dniester, cultures and otherwise. Radiocarbon dates on the pottery are in good agreement with ^{14}N dating on other organic material (fossil bone, coal) and archaeological prerequisites for each specific monument.

The 71st Annual Meeting of the Society for American Archaeology was held in San Juan, Puerto Rico from 26-30 April 2006. Most sessions were held at the Puerto Rico Convention Center which opened in November 2005, others were at the Caribe Hilton. The final registration was just over 5,000 (including paid guests, exhibitors, and vendors). Approximately 3,500 oral papers and poster presentations were given during this meeting; at least 122 were on ceramic materials (98 papers and 24 posters). Because some sessions were scheduled simultaneously during the same time periods or were given in scattered locations, it was not possible to visit all of these, but at least seven were not presented (4 papers and 3 posters). The following is a tabulation of the culture area/geographical or topical areas represented by these contributions to ceramic studies:

Area/Topic	Oral Papers	Posters	Total
Mesoamerica	46****	3	49
Andean Region	16	2	18
US Southwest	6	10*	16
Caribbean	14	-	14
US Southeast	7	1	8
Hungarian Plain	4	-	4
Method/theory	2	1*	3
Anatolia	3	-	3
Panama	1	1	2

[Asterisks indicate that a paper or poster was not presented in this category.]

In addition, there were single presentations: one poster each concerning China, Cyprus, Kenya*, Iran, Italy, The Netherlands; and oral presentations concerning Spain and the British Atlantic (on clay tobacco pipes). I have organized the list of presentations under 16 headings, retaining the original titles of the symposia and volunteered sessions but group under “miscellaneous” papers having similar orientations:

“Miscellaneous” Poster Sessions (Africa, Asia, and North America): Sibel Kusimba, Chapurukha Kusimba and Melanie Zacher “Ethnoarchaeology of Western Kenya Potters” [not presented]; Christin Jones, P. Nick Kardulias and Michael Toumazou “Economy and the Rural Landscape of Central Cyprus: The Ceramic Evidence from the Malloura Valley”;

Theresa McReynolds and Joseph Herbert “Woodland-Era Clay Procurement in the Carolinas: A Chemical and Mineralogical Study of Ceramics and Raw Clays.”

Poster Session: Ceramic Analysis: Michelle Croissier “An Integrative Approach for Determining Ceramic Provenance and Technology”; Angela Collins “Revealing Wheel-thrown Gray Ware in Batavo-Romano Netherlands”; Shirley Boteler Mock and Eleanor Harrison-Buck “Refining the Bennyhoff Ceramic Sphere: A New Look at Changes” [not presented]; María del Rosario Domínguez, Manuel Eduardo Espinosa and William Joseph Folan “Ceramic Production in and around the Regional State of Calakmul, Campeche, Mexico”[†]; Robert Bowers, Robert Tykot, Anne Underhill, Fengshi Luan and Hui Fang “Phytolith Analysis of Ceramics from Liangchengzhen, Shandong, China”; Yukiko Tonoike “Beyond Style: Petrographic Analysis of Dalma Ceramics in Two Regions of Iran”; Craig Fertelmes “Developing a Standard Protocol for Estimating Vessel Orifices from Prehistoric Southwest Rim Sherds” [not presented]; Judith A. Habicht-Mauche, Steven R. Mack and Jun Ueno Sunseri “Incised Pottery from the Northeastern Pueblo Periphery: Technology, Dating, and Implications for Taos Valley Pueblo Origins”; Sophia Kelly—The Role of Glazewares in Pueblo IV Period Zuni Ritual Activities: A Stylistic Analysis of Heshotauthla and Kwakina Polychromes”; Christopher Wolff, Michael Adler, Kevin Pemberton and Amanda Aland—Analysis of Ceramic Source Materials from the Chaves-Hummingbird Site Using X-Ray Diffraction”; Enrique Rodríguez-Alegría and Michael Glascock “Sources of Lead-Glazed Pottery in Xaltocan, Mexico”; Anna M. Semon, Kimberly Santoianni, Jennifer Wexler and Lauren R. Hayden “Blessed Vessels: Research and Analysis of Historic Ceramics Excavated from Mission Santa Catalina de Guale”; and Allison Davis “Producing Style in the Neolithic of Southern Italy.”

Symposium: Mesoamerican Iconography and Symbols in Action: Small-Scale Figures as Large-Scale Social Phenomena: Organizers: Christina T. Halperin and Kata A. Faust; Chair: Rhonda Taube. Participants: Sue Scott “Maya Symbols of Power on Teotihuacan Figurines”; Lynn Ruscheinsky “Affected Bodies: Ancient Lowland Maya Figurines”; Terry Stocker and Boyd Dixon “The Distribution of Mazapan-Xochiquetzal Figurines as Possible Indicator of a Toltec Empire” [not presented]; Erin L. Sears “Multiple Levels of Meaning: Figurine Patterns at Cancuén, El Petén Department, Guatemala”; Kristi Butterwick “Imagery of Social Status in West Mexican Figures”; Daniela Triadan “Late Classic Male Figurines and Their Social Context”; Rhonda Taube “The Figurines of Piedras Negras: An Iconographical Report”; Billie J. A. Follensbee “The Gift that Keeps on Giving: Formative Period Gulf Coast Ceramic Figurines”; Kata A. Faust “In Search of Identity and Political Economy: A Comparative Study of the Anthropomorphic Figurines and Sculptures of the Huasteca”; Christina T. Halperin—What Does Politics Have to Do with It?: Figurines as Bearers of and Burdens in Late Classic Maya Politics”; Cynthia Alexandria Conides “Figurines in Action: Contextualizing the Butterfly Personage at

Teotihuacan”; Cecelia F. Klein “Sex in the City: A Comparison of Aztec Ceramic Figurines to Sculptures Found at or near the Templo Mayor and Its Implications”; Jeanne Lopiparo and Julia Hendon “Honduran Figurine-Whistles in Context: Production, Use, and Meaning in the Lower Ulua Valley”; Elizabeth M. Brumfiel “Human Representation at Postclassic Xaltocan, Mexico: Does Form Follow Function?”; and Rosemary Joyce as Discussant.

General Session: Ceramic Analyses in Mesoamerica: Chair: Meredith Anderson. Participants: Meredith Anderson “Trade Ware Distribution in Rural Teotihuacán Sites: Regional and Temporal Distribution of Thin Orange in Mexico’s Northeastern Basin”; Jason Sherman and Laura Villamil “Interpreting Evidence of Ceramic Production: An Example from Yaasuchi, Oaxaca, Mexico”; Jim Aimers “The Interregional Maya Pottery Project: Progress and Prospects”; Michael Callaghan “a Preliminary Assessment of Ceramic Material from Holmul, Guatemala”; Pierre Colas and Philip Reeder “The Cave-Ceramics in the Pits on the Northern Vaca Plateau, Belize” [not presented]; and Leslie Cecil “Petén Postclassic Trade Networks as Seen Through Pottery Pastes and Slips.”

“Miscellaneous” Papers from Various Sessions (Mesoamerica): Ponciano Ortíz-Caballeros and María del Carmen Rodríguez-Martínez—Cronología de la Cerámica Olmeca en la Cuenca Baja del Río Coatzacoalcos”; Daniel R. K. Wyman “Trading in Royalty: Ceramic Exchange and the Development of Classic Maya Interregional Politics at Actuncan, Belize”; Yuri Valdes and Tamara Gonzalez “Life Histories and Ceramic Objects: Ritual Ethnoarchaeology in Central Mexico”; Laura O’Rourke “Late Classic Figurines from Las Galeras, Veracruz”; Tara Bond “An Examination of Preclassic Household Ceramics from Ek Balam and Surrounding Sites”; Nicole C. Little, Laura J. Kosakowsky and Robert J. Speakman “The Political Economy of Pots: Chemical and Typological Characterization of Classic Period Ceramics from Northwestern Belize”; Laura J. Kosakowsky and W. David Driver “Transforming Identities and Shifting Goods: Tracking Sociopolitical Change through the Monumental Architecture and Ceramic Assemblages at the Maya Site of Blue Creek in Northwestern Belize”; Lauren A. Sullivan “Ceramic Research in the Three Rivers Region [Belize]”; Marcie Venter “Identity and Imperialism: Ceramic Evidence from the Western Tuxtla Frontier”; Marion Popenoe de Hatch “The Ceramics of Chocoma: Indications of Shifting Relationships”; Linda Howie “On the Home Front: Local Trajectories in Pottery Production and Consumption at Lamanai, Belize, During the Classic to Postclassic Transition”; Robert Fry and James Aimers “Late Postclassic Ceramics from Chau Hiix and Lamanai”; Sarah Wille “Terminal Classic Activity at Chau Hiix, Belize: A Ceramic View from the Center;” Erica Begun “The Many Faces of West Mexican Figurines: What They Can Tell Us”; Amy J. Hirshman “Social Complexity and Ceramic Production in the Prehispanic Lake Patzcuaro Basin, Michoacán, Mexico”; Yuko Shiratori and Seiichi Nakamura “Preliminary Results of Ceramic Analysis from Group 9L-22 and 9L-23 in Copan, Honduras”; Cynthia Otis Charlton, Patricia Fournier Garcia and Thomas

Charlton “The Material Culture of the Basin of Mexico: Continuity and Change AD 1400-AD 1620”; LeighAnne Ellison “Ceramic Production at the Polity Level: Organization of an Agrestic Political Economy in the Late Classic Middle Chamelecon Drainage, Honduras”; Lauren Schwartz, Edwin Barnes and Miranda Stockett “Tools of the Trade: The Significance of Variation in Potstands from Las Canoas and Its Neighbors”; Patricia Urban “A Community with Potters, or a Potters’ Commune?: Classic Period Pottery Making at an Agrestic Center of Las Canoas”; and Kristin Sullivan “Figurine Production and Use at Teotihuacan, Mexico” [not presented].

Symposium: Craft Production, Exchange, and Provenance Analysis of Andean Ceramics: Current Research and Future Directions: Organizers: Robert J. Speakman, Patrick Ryan Williams and Kevin Vaughn; Chair: Kevin Vaughn. Participants: Ronald D. Lippi and Alejandra Gudino “Sorting Out Yumbo, Inca, and Cosanga Wares at Palmitopamba, A Tropical Forest Site in Northwestern Ecuador”; Maria Masucci and Hector Neff “Ceramic Production and Societal Change in the Manteño of Coastal Ecuador”; Mercedes Delgado, Paula Olivera, Eduardo Montoya and Angel Bustamante “Ceramics from Villa El Salvador, a Late Formative Site from the Central Coast of Peru”; Krzysztof Makowski, Ivan Ghezzi and Hector Neff “LA-ICPMS Analysis of Ceramics from Pueblo Viejo (Lurin, Peru): Discussion of Results”; Kevin Vaughn and Hendrik van Gijsegem “A Compositional Perspective on the Origins of the “Nasca Cult” at Cahuachi”; Nicola Sharratt, Patrick Ryan Williams, Donna Nash, Robert J. Speakman and Michael D. Glascock “Status and Specialized Production on Wari’s Southern Frontier”; Joseph Szymczak, Anita Cook, William Isbell, Robert J. Speakman and Patrick Ryan Williams “Wari Ceramic Production at Conchopata and Cerro Baul: Insights from Sourcing Studies”; Maria Beatriz Cremonte, Irma Lia Botto and Raul Oscar Vina “Burnished Bowls from Northwestern Argentina: A Petrographic and Physico-Chemical Study”; Andres Laguens, Martin Giesso, Robert J. Speakman and Michael Glascock “Provenance Analysis of Gray-Black Incised Ceramics from the Eastern Valleys of Ambato and Tucuman, Argentina”; Verónica I. Williams, Calogero Santoro Vargas, Alvaro Romero, Robert J. Speakman and Michael Glascock “Inka Pottery Production and Consumption in NW Argentina, Northern Chile, and Bolivia”; and Frances M. Hayashida as Discussant.

Poster Session: Andean Archaeology: Ursel Wagner, Werner Haeusler, Josef Riederer, Izumi Shimada and Fritz E. Wagner “Formative and Middle Sicán Pottery Production in Northern Peru Melissa Chatfield—Indigenous Ceramic Technology of Spanish Colonial Peru”; and Karen Pereira “The Hearth of Escuintla: New Evidence of Rim-head Vessels as Censers.” Andean Archaeology: Hélène Bernier “Urban Households and Craft Production at Moche.” General Session: Ceramic Analyses in South America: Christian Mesia “Flushing Ceramics down the Drain: New Evidence of Chronology and Use at Chavín de Huantar”; Gregory Lockard “A Jungian Analysis of Moche Iconography”; Paul Goldstein “Man, Woman, Place and Medium: Gendering Ceremony, Ceramics

and Power in Tiwanaku Culture”; and Heather Doherty, Matthew Henderson and Jan Olson “Preliminary Analysis of Manteño Ceramics From the Interior Valleys of Coastal Ecuador.”

Poster Symposium: Recent Research on Mimbres Area Pottery in the American Southwest: Tiffany Clark and Darrell Creel “Sourcing Chupadero Black-on-white Pottery from the Post-A.D. 1130 Mimbres Region, Southwestern New Mexico”; Eleanor Dahlin “12th Century Sites of the Cañada Alamosa: Linking the Chaco and Mimbres”; Suzanne Eckert “The Mimbres Kachina Cult Revisited”; Thomas Gruber and Bernard Schriever “Mimbres Ceramics in the Chihuahuan Desert of Southwestern New Mexico: A Product of Exchange or Local Manufacture?”; Michelle Hegmon, Margaret Nelson and Stephanie Kulow “Conformity in Mimbres Pottery, Constraints on Mimbres Lives?”; Lowell Kane “Shared Iconography: A Comparison of Classic Mimbres and Mesoamerican Imagery on Pottery”; and Stephanie Kulow “Mimbres Pottery Motifs in a Social Context: A Case Study from the Galaz Ruin.” Miscellaneous Papers from Various Sessions (US Southwest): Andrew Lack, Joshua Watts and David Abbott “Changing Patterns of Hohokam Red-on-buff Production from the Preclassic to Classic Periods”; Sachiko Sakai, “Investigation of Olivine Tempered Ceramics and Clay Procurement Patterns in the Virgin Branch Anasazi Region”; Elisabeth Cutright-Smith and Lisa Gavioli “Chronology, Production, and Exchange: The Ceramics from Chevelon Ruin”; W. Nicholas Trierweiler “Thinking Outside the Pot: A Career of Dangerous Ideas”; Caitlin Wichlacz, David Abbott and Gordon Moore “Nothing Local, Everything Imported: The Plainware Pottery at La Plata”; William Keegan “From Ceramic Sociology to Settlement Pattern Sociology: Broken K Meets the Taino and Lapita”; Jennifer Boyd and Connie Constan “Variation in Ceramic Assemblages on the Jemez Plateau”; and Neomie Tsosie “Ceramics of White House Pueblo.”

Symposium: An Exploratory Study into the Chemical Characterization of Caribbean Ceramics: In Memory of James B. Peterson: Organized by Christophe Descantes and Chaired by Michael D. Glascock. Participants: Christophe Descantes, Robert J. Speakman and Michael D. Glascock, “Compositional Studies of Caribbean Ceramics: The Instrumental Neutron Activation Analysis Evidence”; Daan Isendoorn, Corinne Hofman and Mathijs Booden “Back to the Source: Provenance Areas of Clays and Temper Materials of Pre-Columbian Caribbean Ceramics”; Geoffrey Conrad, Charles Beeker and John Foster “Compositional Analysis of Ceramics from La Aleta, Dominican Republic”; Peter E. Siegel “Pre-Columbian Pottery in the West Indies: Compositional Change in Context”; Michael D. Glascock, John G. Crock, Birgit F. Morse and James B. Petersen “Preliminary Interpretations of Ceramic Compositional Analysis from Late Ceramic Age Sites in Anguilla and the Salt River Site in St. Croix”; Scott M. Fitzpatrick, Quetta Kaye and Michiel Kappers “Compositional and Petrographic Analysis of Ceramics from Carriacou, Southern Grenadines, West Indies”; Mark Hauser “Locating

Enslaved Craft Production: Chemical Analysis of Eighteenth Century Jamaican Pottery”; Kenneth Kelly and Mark Hauser “Cabotage or Contraband: Compositional Analysis of French Colonial Ceramics”; Todd M. Ahlman and Gerald F. Schroedl, “Ceramic Production and Exchange among Enslaved Africans on St. Kitts, West Indies;” and Ronald Bishop as Discussant. Miscellaneous Papers (Caribbean): Corinne L. Hofman and Daan Isendoorn “A Tuneful Threefold: Combining Conventional Archaeological Methods, Geochemical Analysis and Ethnoarchaeological Research in Studying Pre-Columbian Pottery of the Caribbean”; Alistair Bright and Corinne Hofman “Ceramic Style Distribution Across the Lesser Antilles: An Archipelagic Perspective”; Birgit Faber-Morse “A Comparative Ceramic Analysis of St. Croix Collections at the Yale Peabody Museum and Other Institutions”; Alan Gillott “Infant Burials in Puerto Rico Associated with Pottery ‘Baby Bowls’ or Urns Excavated by Froelich Rainey in 1934”; Nathan Hamilton and Stephen Pollock “Technical Vessel Analysis for Precolumbian Ceramics from Cadet and Desmarreaux Sites, Northwest Haiti”; Lucinda McWeeney and Charlene Dixon Hutcheson “Unraveling the Mystery: Fiber Impressed Ceramics from the Palmetto Grove Site, San Salvador, Bahamas.”

“Miscellaneous” Symposium Papers on the Hungarian Plain: Timothy Parsons “Elemental Interaction: Trade and Sourcing of Tiszapolgár Ceramics on the Great Hungarian Plain”; Samuel Duwe “Pondering Provenance and Technology: Chemical Characterization of Copper Age Daub, Ceramics, and Raw Material Sources in Southeastern Hungary”; Hanneke Hoekman-Sites “When Did Dairying Originate on the Great Hungarian Plain? Using Residue Analysis to Find Out”; and Walter Warner “Ceramic Technology and Fabric Analysis of Copper Age Pottery on the Great Hungarian Plain.”

Symposium: Archaeology in Three Dimensions: Real-Life Documentation, Use, and Management of Digital 3D Scanning in Cultural Heritage: Organizers: Elizabeth Burson and Duane Peter; Chair: Duane Peter. Participants: Malcolm Hooe, Robert Heckman and Stephen McElroy “Non-Contact Laser Scanning as a Tool in Ceramic Analysis”; and Jamie E. Forde “Mixtec Polychrome Ceramics from Tututepec, Oaxaca, Mexico: New Contexts and Considerations.”

Symposium: Social Spaces and Activities in the Past and Present: Evaluating Chemical Analyses and Techniques for Archaeological Interpretation: Organizers: Sandra L. López Varela, Manuel R. Palacios-Fest and Christopher Dore. Ten papers including: Agustín Ortiz, Leonardo López Luján and Luis Barba “Ritual Activities around Two Mictlantecuhtli Ceramic Images in the Sacred Precinct of Tenochtitlan (Mexico City)”; and Christopher Dore and Sandra López Varela “Kaleidoscopes, Palimpsests, and Clay: Realities and Complexities in Human Activities and Residue Analysis.”

General Session: Ceramic Production and Distribution in the Southeastern US: Chair: Maureen Meyers. Participants: David Kluth and Joseph Giliberti “Net Impressed Pottery of the Mississippi Headwaters Region and Its Possible Relationship

to Early Gulf Coast Pottery”; Neill Wallis “The Production of Meaning in Swift Creek Iconography”; Charles Redwine “Why Shell Temper? Cooking Technology or Meaningful Metaphor?”; Sarah Blankenship and Jan Simek “Mississippian Paint Technology: Geochemical Analysis of Prehistoric Pigments from Painted Bluff, Alabama”; Maureen Meyers “Ceramic Variability on the Mississippian Edge: A Reexamination of C.G. Holland’s Southwestern Virginia Survey”; and Christina Pappas “Textile-impressed Ceramics and the Caborn-Welborn in Kentucky.”

“Miscellaneous” Oral Presentations on Panamanian Ceramics: Luis Alberto Sanchez Herrera “La Cerámica de Cerro Juan Díaz en la Tradición del Gran Coclé, Panamá”; and Jeannette Bond “Ceramics and Society at Sitio Drago, Panama.”

“Miscellaneous” Oral Presentations on Anatolian Ceramics: Katherine Erdman, Mark Schwartz, Mitchell Rothman and Melissa Morison “Migration, Diffusion, Emulation: A Petrographic Analysis of Transcaucasian Pottery from Malatya, Turkey”; and Peter Grave and Lisa Kealhofer “The Anatolian Iron Age Ceramics Project: Characterising Economic and Political Interaction with Very Large Datasets.”

Other Oral Presentations: Christina B. Rieth and Derek Saputo “Archaeometric Analysis of Ceramic Vessels from the Pethick Site, Schoharie County, New York”; Susanna McFadden “An Image Worth a Thousand Sherds: The ‘Lupa Romana’ and Constantine’s ‘New Rome’”; Jason Bright “A Strict Reading of Costly Signals in Archaeology Through Sex-based Biases in Stylized Ceramic Production”; Sarah McClure “Technology and Climate Change: The Introduction of Pottery to Valencia, Spain”; and Fraser Nieman “Commodities as Costly Signals: The Case of Clay Tobacco Pipes in the 17th-Century British Atlantic.”

The 36th International Symposium on Archaeometry (ISA 2006) was held at the Séminaire de Québec in Québec City, Canada, 2-6 May 2006. The goal of the Symposium was to promote the development and use of scientific techniques in order to extract archaeological and historical information from the cultural heritage and the paleoenvironment. The Symposium was composed of seven successive sessions; six of which are regular plus a special theme session selected by the organizers. In addition, a special sub-session was dedicated to isotope studies of glass. The special theme session of 2006 addressed the problem of early settlement of the Americas, as it can be perceived from an archaeometrical perspective. The six regular sessions included the following: 1) Field Archaeology (Remote Sensing and Prospecting) and Environmental Archaeology; 2) Dating (Organic and Inorganic Materials); 3) Biomaterials (DNA, Diet, Organic Residues Analysis and Agricultural Archaeology); 4) Technology and Provenance I (Stone, Pigments and Plaster); 5) Technology and Provenance II (Ceramics and Glass) with a Special Sub-Session: Isotope Studies of Glass; and 6) Technology and Provenance III (Metals).

The posters and papers presented included those by Domenico Miriello, Luis Barba, Gino Mirocle Crisci, Alessandra Pecci, D. Barca, L. Manzanilla and A. Ortiz, “Characterization of Lime Plasters from the Central Patio of Teopancaczo, Teotihuacan (Mexico) by Optical Microscopy, SEM-EDS and ICP-MS Laser Ablation” [poster] and Tatsuya Murakami, Gregory W. L. Hodgins, Amy Jo Vonarx and Arleyn Simon “Radiocarbon Dating Mesoamerican Plasters: Studies from Teotihuacan” [paper]. Ceramic-related contributions included papers by Sophie Blain, A. Bouvier, Pierre Guibert, Emmanuelle Vieilleveigne, F. Bechtel, Philippe Lanos, A. Chauvin, Ch. Sapin and M. Baylé, “Architectural Ceramics Dating Applied to Medieval Building Archaeology: The Case of Notre-Dame-Sous-Terre (Mont-Saint-Michel, France)”; Valerie Jean Steele and Ben Stern, “Pots, Provenance and Perfumes – Organic Residues from the Late Bronze Age Eastern Mediterranean”; Richard P. Evershed, M. S. Copley, J. Coolidge, D. Urem-Kotsou, A. Sherratt and S. Payne, “The Emergence and Spread of Dairying in Southeast Europe and the Near East”; Marino Maggetti and Jean Rosen “Grand-feu Colours Used in the Faïence Manufactory Le Bois d’Epense (North-Eastern France, 18/19th Century)”; Claire Pacheco, Rémy Chapoulie, Eric Doorhye and Anne Bouquillon, “Medieval Islamic Gilded Glazed Ceramics: Crossing Analytical Results in Search of Technological Features”; Josefina Perez-Arategui, Gemma Cepria, Josep Roque, and Marius Vendrell-Saz, “Lustre Decoration on Ceramics: Electrochemical Study of the Reduction Behaviour of Different Pigment Mixtures”; Anno Hein and Vassilis Kilikoglou, “Hot Pots – Modelling Heat Transfer in Archaeological Ceramics”; Ron Hancock and Katharine Hancock, “A Pseudo-Forensic Accounting of Olmec INAA Data Interpretations”; Rui Wen, “The Chemical Composition of Blue Pigment on Blue-and-White Porcelain of the Ming Dynasty (AD 1368-1644)”; Hans Mommsen, U. Schlotzhauer, A. Villing and S. Weber, “The Ceramic Repertoire Imported into Naukratis, Egypt, Classified by Neutron Activation Analysis”; Gisela Thierrin-Michael, Wine Amphorae from Northern Campania”; and Yves Monette and Marc Richer-LaFlèche, “Laser-Ablation ICP-MS Analysis of Historic Ceramic Glazes - A Multi-Element and Lead Isotope Investigation.”

Other posters included: David Chivall, Nicola Brandon, Sebastian Payne and Richard P. Evershed, “Characterisation of Animal Fats in Pottery by Compound-Specific Stable Hydrogen Isotope Analysis”; Ruth Ann Armitage, Leah Minc, Silas Hurry and David Hill, “Characterization of Building Materials from the Brick Chapel at Historic St. Mary’s City by INAA and Petrographic Analysis”; Claire Blanc, “An 18th C. Faïence’s Workshop, Fribourg (Switzerland)”; Marie-Claude Boileau, “Diachronic Study of Pottery Production and Consumption at Tell Acharneh (Syria)”; Miguel A. Cau-Ontiveros, Giuseppe Montana and Ioannis Iliopoulos, “The Problem of the Muscovite-Rich Late Roman Cooking Wares: The Role of Petrography and Scanning Electron Microscopy in the Study of their Provenance”; Miguel A. Cau-Ontiveros, Jaime Buxeda i Garrigós and Vassilis Kilikoglou, “Pereruela II: Variability of Major Elements and Petrographic Features

within a Single Production Centre”; Miguel A. Cau-Ontiveros, Joseph Maria Gurt i Esparraguera, Jaume Buxeda i Garrigós and Evanthia Tsantini, “Late Roman Coarse Wares and Cooking Wares on the Balearic Islands: The Example of Eivissa”; Guillermo Adrian De La Fuente, “Ceramic Production and Technology in Northwestern Argentina: An Archaeometrical Approach to Understanding the Ancient Potters”; Khademi Nadooshan Farhang, Alireza Hejebri Nobari, Ali Reza Arkan and Mohammad Saffari, “Sources Determination of Chalcolithic Iron Age Pottery: WLXRF Spectroscopy of Shahryry”; Rosario García Giménez, M. Dolores Petit Dominguez, Portugal Pedro Carretero, and Ana Arruda, “Archaeometry of a New Punico-Turdetano Amphora Type: The Oil Amphorae from the Campiña Gaditana (Cádiz, Spain)”; Rosario García Giménez, M. Dolores Petit Dominguez, Pedro Carretero, and Catarina Dias Vega, “Characterization of Dolia from the Guadalquivir Valley and Found in the Southern Lusitanian Sites (Algarve, Portugal)”; Javier Garcia Iñañez, Jaume Buxeda i Garrigós, Robert J. Speakman and Michael D. Glascock, “Archaeometric Characterization of Renaissance Tin Lead Glazed Pottery from Talavera de la Reina, Puente del Arzobispo and Seville (Spain)”; Alan F. Greene, Charles Hartley and David Peterson, “The Making of Ancient Eurasia: Preliminary Notes on Incorporating Archaeometry and Anthropology in the Integrated Study of Ceramic and Metal Technologies”; Christina M. Henshaw, Thilo Rehren and Olga Anarbaev, “Glaze Technology in Eastern Uzbekistan: A Comparison of Early Islamic Wares from Tashkent, Akhsiket and Kuva”; Louise Joyner, “A Petrographic Study of Late Neolithic Clay-Based Construction Materials from Makriyalos, Macedonia, Greece”; Despina Kavoussanaki, Yannis Maniatis and Michael S. Tite, “Plant Ashes from Greece and Attempts to Reproduce Faience and Glass”; Stanley G. Klassen, “The Early Bronze Age Ceramic Industry of the Madaba Plain Region: A Reflection of Hierarchy or Heterarchy?”; Claude Mirguet and Philippe Sciau, “Transmission Electron Microscopy: A Powerful Tool for Studying the Surface of Ancient Ceramics”; Piero Mirti, Marco Pace and Alessandra Bianco Prevot, “Technology of Production of Sasanian Glazed Pottery from Seleucia and Vehardašir (Central Iraq): A SEM-EDS Investigation”; Casimiro S. Munita, E. Neves, R. Toyota and P.M.S. Oliveira Chemical Characterization of Marajoara Pottery by INAA”; Alessandra Pecci and Laura Salvini, “Functional Interpretation of Tuscan Medieval Pottery (Italy)”; M. Isabel Prudencio, M. Jose Trindade, Joao Coroado, Fernando Rocha and M. Isabel Dias, “Clay Materials Compositional Variability with Temperature Applied to Archaeological Ceramic Production Studies”; Ina Reiche, Friedericke Voigt, Birgit Kanngiesser, Wolfgang Malzer, Stefan Röhrs, Yvonne Höhn and Ioanna Mantouvalou, “XRF Analyses of Qajar Tiles from the Workshop of Ali Muhammad Isfahani’s in Tehran (2nd half of 19th c.)”; Jean E. Rosen, Maurice Picon and Marino Maggetti, “Studying the Origin of French Faience through Chemical Analyses”; Philippe Sciau, Christian Roucau, Yolande Kihn, and Philippe Goudeau, “Microstructural and Microchemical Characterization of Roman Period Terra Sigillate Slips from Archeological Sites in Southern France”; Heinrich Taubald, Katalin T. Biró, Zsolt Kasztovsky and Márta Balla, “Early Neolithic Pottery and its Environment

in Hungary”; Llorenç Vila, Verónica Martínez, Jaume Buxeda i Garrigós and Vassilis Kilikoglou, “Differences in Technological and Functional Models of Contemporary Amphorae Production in Neighbouring Areas”; Harriet E. White, Caroline Jackson and Guy Sanders, “Byzantine Glazed Pottery from Corinth: Testing Provenance Assumptions”; Congcang Zhao, “A Discovery and Tentative Knowledge of Prehistory Kiln with Entirely Reversing Flame in Chenggu County Bao Mountain of China”; and Irina Zhushchikhovskaya, “Methods of Pastes Analysis in Archaeological Ceramics Research (Russian Far East as a Case of Study).”

The Annual Conference of the Medieval Pottery Research Group (MPRG), “Ceramics Cloistered and Crenellated: Pottery and the Medieval Establishment,” was held at Trafford Hall Conference Centre, Chester, UK, 12-14 June 2006. The program prospectus reads, in part, “pottery finds from castles and monastic institutions, and the archaeologists who worked with them, were seminal in the development of medieval pottery studies. The MPRG is taking the opportunity of our 2006 annual meeting, in Chester to hear about more recent work on pottery from medieval castles, manors, monasteries, hospitals and similar sites. The aim is to consider what (if anything) made these places different to the urban and rural domestic sites that have been the focus of recent discussions and publications. Are there, for instance, peculiarities in the way religious houses acquired, used or disposed of pottery? How did castles affect patterns of industry and commerce? It is hoped that this meeting will show how ceramic analysis can inform our understanding of the role of medieval institutions within medieval society, and conversely, how studying those establishments deepens our knowledge of medieval pottery.” Further information on this very valuable conference is available from Duncan Brown Duncan.brown@southampton.gov.uk.

The following papers were presented: “Medieval Archaeology in Chester” by Simon Ward; “The Medieval and Early Post-Medieval Pottery of Chester” by Julie Edwards; “Institutions, Households and Consumption: Their Relevance to Pottery Studies” by Chris Dyer; and “Pottery Studies and Medieval Institutions” by Duncan Brown. Presentations on 13 June included: “The Use of Pottery in Richard of Cornwall’s Caput at Launceston Castle” by Alan Vince; “Storage, Cooking and Display Pottery from Two Fortified Settlements in Chianti: Castellaccio di Lucolena (10th - 13th cent) and Monte Moggino (14th-15th centuries)” by Marta Caroscio; “Céramiques provenant du palais de Marie de Hongrie (Binche, Belgique)” by Sophie Challe; “From Caliph’s Crockery to the People’s Pottery: Examining Ceramic Consumption in Almohad, Seville” by Rebecca Bridgman; “Aspects of the Production, the Use and the Consumption of Ceramics at Caen in the End of the Middle Ages” by A. Bocquet Liénard and D. Dufournier; “Is There a Specific Ceramic for Privileged Merovingian Sites?” by Line Van Wersch; “Local Flavour: The Bishopstone Assemblage in its Wider Context” by Ben Jervis; “Pottery from Two East Anglian Moated Sites” by Sue Anderson; “Pottery as an Indicator of Status in Medieval Ware: Some Emerging

Patterns” by Cristina Borrill; “Cloistered Kings, Crenellated Bishops and Courtly Abbots: The Ceramic Assemblages from Peel Castle and Rushen Abbey, Isle of Man” by Peter Davey and Claire Corkill; “Catering for the Masses: Medieval Pottery from Merton College, Oxford and Eynsham Abbey, Oxfordshire” by Paul Blinkhorn; “A Mid-17th-century Finds Group from the Inns of Court: A Tale of Lawyers, Buying Power, Conservatism and Possible Misbehaviour” by Chris Jarrett; and “The Use of Wooden Vessels in Medieval Institutions” by Robin Wood. The Gerald Dunning Memorial Lecture, “Crossing Cultures and Bridging Boundaries from the 9th to 12th Century” was given by Maureen Mellor.

The 14 June papers included: “Pottery from a Premonstratensian Monastery in Tommarp and a Franciscan Monastery in Ystad, Southern Sweden - Daily Life and Contacts with the European Continent” by Torbjörn Brorsson; “The Use of Ceramics in Late and Post-Medieval Monasteries: Data from Three Sites in Eastern Flanders” by Koen De Groote; “The Material Culture of Monasteries in Liguria between the Medieval Period and the Modern Age and an Analysis of Archaeological Excavation Records: Data Comparison and Some Lines of Research and Study” by Paolo De Vingo; “Ceramics in Cloisters, Convents and Cottages: A Preliminary View from Denmark” by M. Larsen; “A World of Difference? Form and Function in Scotland’s Hospitals and Religious Houses” by Derek Hall; “French Pottery in Scotland” by George Haggarty; “Mount Grace Priory: Pottery and Personality” by Glyn Coppack; “Palace and Abbey: Guildford and the Crockers of Chertse” by Phil Jones; “Abbey and Town - Pottery Procurement in Medieval Shrewsbury” by Victoria Bryant.

Forthcoming Meetings

The World in Colours: Ceramics with Coloured Decoration Dating from 700 to 1920 is the title of an exhibition through 24 June 2006 and a seminar (14 June) at the Brunei Gallery, SOAS (The School of Oriental and African Studies), University of London, London, UK (near Russell Square); tickets are (£25.00). The focus of the seminar and exhibit is to move beyond blue-and-white ceramics to explore other methods of decoration that were used in China before cobalt. In addition to Chinese pieces, ceramics from Japan, Vietnam, the Middle East, and Europe are used to demonstrate the influence and broad impact of Chinese techniques. The earliest ceramics in the exhibition date to the Tang dynasty (618-906), and the latest to the early decades of the 20th century when modern design schools had started to operate in China. Over 220 ceramic pieces from members of the Oriental Ceramic Society illustrate the 1,400 years between these two dates. The Organising Body includes: Rose Kerr, Chair and Editor (formerly V&A Museum); Jessica Harrison-Hall (British Museum); Sheila Canby (British Museum); Stacey Pierson (Percival David Foundation); Rosemary Scott (Christie’s), Anthony du Boulay (formerly Christie’s); Phillip Allen (Collector); and Jean Martin. Additional information is posted on the Internet at <http://www.soas.ac.uk/gallery/>

theworldincolours/home.html. There is a fully illustrated catalogue to accompany the exhibition available from the Brunei Gallery Bookshop (£10.00), *The World in Colours: An Exhibition of Ceramics with Coloured Decoration Dating from 700 to 1920 Belonging to Members of the Oriental Ceramic Society*, by Rose Kerr et al., London: Oriental Ceramic Society, 2006; soft cover, 104 pages, full colour (ISBN: 0903421275) see <http://dogbert.abebooks.com/servlet/SearchResults?bx=off&sts=t&ds=30&vci=4494352&bi=0&y=8&tn=The+World+in+Colours&x=52&sortBy=2>.

The 2006 *Pecos Conference* is scheduled to be held at Navajo Lake, New Mexico from 10-13 August. Additional information is available on the Internet site at http://www.swanet.org/2006_pecos_conference/index.html. This informal conference affords Southwestern archaeologists a superlative opportunity to talk with one another, both by presenting field reports and by casual discussions. In recent years, Native Americans, avocational archaeologists, the general public and media organizations have come to play an increasingly important role, serving as participants and as audience, to celebrate archaeological research and to mark cultural continuity. Several mini-symposia are in the works (details are not yet available). Themes: Summer field reports and archaeological research presentations should try to connect to this year’s conference theme: “One Hundred Year’s of Archaeology and Preservation in the Southwest,” or, come discuss your latest SW project or research endeavor. There are no poster sessions, no reading of papers (oral presentations only), and no audio-visual equipment. Graphics (e.g., map, photos, charts, etc.) may be mount it on stiff foamboard and should be large enough for the audience to see it from a distance. A one page audience handout referencing presentation title, post-conference contact information, and Internet URL pointing to your on-line research paper may be distributed.

The Fourth Mediterranean Clay Meeting is scheduled for 5-10 September 2006 in Ankara, Turkey. The meeting Internet site <http://www.mcm06.com> contains details about all aspects of the conference, including the themes, workshop, abstract submission, field excursions, social activities, registration, accommodation, exhibitions, etc. Oral presentations will be allotted 20 minutes (15 minutes for presentation and 5 minutes for discussion). Selected papers presented by invited speakers will be allotted 30 minute. English will be the official language of the Meeting for all presentations and publications. Oral presentations are allotted 20 minutes (15 minutes for presentation and 5 minutes for discussion); selected papers presented by invited speakers will be allotted 30 minutes. All presenters had to register by 1 June 2006 and any further news and developments will be announced on this website. Contributions from all fields of scientific and practical aspects of clays and clay minerals are to be grouped into oral and poster sessions. Invited and volunteered papers will be presented on plenary and technical sessions organized by the Scientific Committee. A Special Issue of *Applied Clay Science* will be devoted to papers on a Special Topic presented by the participants of the meeting.

The Archaeological Sciences of the Americas Symposium (ASAS) 2006 will be held at the University of Arizona, Tucson from 13-16 September 2006. ASAS encourages regular and sustained collaboration between archaeological, conservation, and natural scientists in the Americas. The meeting will be hosted by graduate students in the Department of Anthropology at the University of Arizona. The Integrative Graduate Education and Research Traineeship (IGERT) Program in Archaeological Sciences at the University of Arizona will co-sponsor this event. This Biennial Symposium will focus on studies, techniques, and approaches that emphasize the analysis and interpretation of prehistoric and historic materials, human cultures and ecology. Researchers at all levels of experience and training are invited to participate. A special invitation is extended to colleagues from Canada, Mexico, Central America, and South America. Conceptual and methodological contributions that transcend geographic boundaries of research are also encouraged; applications need not be confined to the Americas. In recognition that archaeological science represents an interdisciplinary effort, six major themes will be represented at the meeting: 1) Geoarchaeology; 2) Conservation Studies and Ephemeral Remains; 3) Spatial Analysis and Remote Sensing; 4) Chronometry; 5) Human-Environmental Interaction; and 6) Material Culture Studies. Abstracts for individually-submitted papers, posters, and computer simulations were due 1 June 2006 and limited to 250 words. Proposals of organized sessions (5-6 papers and one discussant) were due 15 May 2006. Application fees are \$60 (US) for students and \$90 (US) for professionals (checks are to be made out to the University of Arizona). None of the application fee is tax deductible. More information and registration forms available online at: <http://asas06.ltc.arizona.edu>.

Ceramic Ecology XX: Current Research on Ceramics 2006: Honoring Louana M. Lackey (1926-2005). This 20th Annual Ceramic Ecology Symposium is scheduled for the American Anthropological Association Annual Meeting 15-19 November 2006 in San Jose, California. The symposium organizer and chair is Charles C. Kolb (National Endowment for the Humanities) and the discussant is Brenda Bowser (California State University, Fullerton). The symposium abstract and the scheduled papers and abstracts include a diverse panel of participants.

Symposium Abstract: The papers in this international and interdisciplinary symposium, the 20th in the annual series, reflect a number of approaches within the framework of Matson's concept of Ceramic Ecology, set forth in his volume, *Ceramics and Man* (1965). In this work Matson a ceramic engineer, archeometrician, ceramic ethnoarchaeologist, and ethnographer stated that "unless ceramic studies lead to a better understanding of the cultural context in which ceramic materials were made and used, they form a sterile record of limited worth." Ceramic Ecology as a methodological and theoretical approach has as its paramount goal a better understanding of the peoples who made and used pottery and seeks to redefine our comprehension about the significance of these materials in

human societies. The concept of Ceramic Ecology is contextual, multi and interdisciplinary, and analytical. On the one hand, it seeks to evaluate data derived from the application of physiochemical methods and techniques borrowed from the physical sciences within an ecological and sociocultural frame of reference. It relates environmental parameters, raw materials, technological choices and abilities, and sociocultural variables to the manufacture, distribution, and use of pottery and other ceramic artifacts. On the other hand, interpretation of these data and explanations of the ceramic materials utilize methods and paradigms derived from the social sciences, humanities, and the arts. The concept of Ceramic Ecology forms an implicit or explicit basis of the investigations reported by archaeologists, ethnographers, and others in this symposium in which emphasis is placed upon the technological and socioeconomic aspects of ceramic materials regardless of chronology or geography. It also demonstrates the value of the cross fertilization which results when investigators ranging from art historians and professional potters to ethnoarchaeologists and archaeometricians come together in a forum devoted to a topical consideration: ceramics. These papers continue a symposium series initiated at the 1986 AAA meeting by students of ceramic materials who are members of the informal "Ceramic Studies Interest Group," an organization formed at the suggestion of Matson. This 20th symposium honors the legacy of ceramic ethnoarchaeologist and ceramic historian Louana M. Lackey.

Cynthia Pinkston (University of Maryland) "Silent Testifiers, Written Records and Scientific Analysis: Combining Evidences when Studying Selected Prestige Objects from a 19th Century Oaxacan Collection." Among the over 1,000 archaeological objects collected by Louis H. Ayme for the Smithsonian Institution, a group of five ceramics are rather curious. Found "...together in a mound..." at Miahuatlan, some 85 km from Monte Alban, Ayme theorized "...it seems that they had been drinking cups and jars..." Consisting of three bridge-spouted animal and/or human effigy jars, one double-gourd shaped vessel and a small broken pipe featuring a raised animal head, the assemblage is intriguing because while bridge-spout vessels occur in the Valley of Oaxaca from the late Formative (ca. 200B.C.-A.D.200) onwards, they are usually without sculptural embellishment except for small applied effigy faces. Examples from Abasolo, Tomaltepec, etc. do not exhibit fully realized sculptural forms like those from the Ayme collection: such are rare in any case, at least in most of Mesoamerica. 90 percent of the spouted vessels reported from all across Mesoamerica are associated with elites, most serving, at least secondarily, as burial offerings. This paper will discuss questions of the origin, use and status of spouted vessels, especially in relation to recent research on Middle and Late Preclassic Mayan spouted "chocolate pots" from which evidence of theobromine (cocoa) was verified by dry residue analysis. Although collected in the 19th. century, the Ayme group, when approached through the concept of Ceramic Ecology, may yet testify to its role in the past while serving as comparative evidence for further researches into the importance of this relatively rare type of prestige object.

Sandra Lopez Varela (Universidad Autonoma Estado de Morelos), Joan Vendrell (Universidad Autonoma Estado de Morelos), and Christopher D. Dore (Statistical Research, Inc.) “Capturing Chemical Traces of Working and Gendered Spaces of the House.” The analysis of chemical residues on built and natural surfaces are used to make meaningful statements about human activities. The ways that humans operate in space are complex and dynamic is a learned fact deriving from ethnoarchaeological investigations at Cuentepec. Daily practices are the result of conscious learned decisions concerning the locations at which a diverse range of activities will be performed. Supported by social theories, map algebra, image analysis techniques, and spatial statistics, we illustrate how our program of investigation enhances and challenges the interpretation of human space use.

Patricia A. Urban (Kenyon College) “Habits of Mind and Hand: Assessing Variation in Ceramic Production in Classic Period Communities along the Middle Rio Chamelecon, NW Honduras.” Research since 1988 along the middle Chamelecon has revealed ceramic production at one large center, La Sierra, one smaller agrestic center, Las Canoas, and at least 10 small, rural sites. The zone’s ancient craft workers shared many facets of potting: specific vessel forms are cross-regionally associated with particular paste colors as well as finishing and decorative techniques; and there is a common toolkit utilizing deliberately and opportunistically shaped sherds and smoothing stones. Firing, however, differs by locale: kilns are found at La Sierra, and postulated for Canoas, but smaller sites have signs of more informal methods. In addition, there is a distinctive artifact class in the southern part of the zone—a ceramic support used during finishing and firing. Finally, the number of production areas increased with time, adding more pastes to the regional assemblage, but there was only a small increase in form and decoration variability. Pottery making, then, shows both conscious choice and *habitus*, that is, learned but largely unconscious behavior. For both conscious choice and *habitus* there is complex temporal and spatial patterning.

José E. Moreno-Cortés and E. Christian Wells (both University of South Florida, Tampa) “Explaining Standardization without Explaining It Away: Inferring Production Scale from Ancient Pech Pottery of Roatan Island, Honduras.” Ethnoarchaeological studies of pottery making in Honduras have revealed that the scale of production tends to take one of two forms, household or workshop. Scale is typically measured by the number of individuals that compose the production unit and the principles of labor recruitment. These variables are difficult to observe in the archaeological record, however, because the identification of manufacturing facilities and arrangements is often problematic. Thus, many studies infer production scale indirectly using the standardization hypothesis, which proposes that a high degree of standardization in certain vessel dimensions reflects workshop manufacture, while a high degree of variation indicates household production. This paper examines quantitative patterns in formal attributes of 120 plainware ceramic vessels from Roatan Island, Honduras, to infer production scale. The pottery was made by the Pech, indigenous

hunters/fishers-gatherers and small-scale horticulturalists that occupied the Bay Islands throughout the thirteenth to sixteenth centuries. The dishes were probably used in *kesh* ceremonies, ritual practices that involved the consumption of fermented beverages (*munia*, *ostia*) and special foods (*sasal*) to attract the attention of the ancestors. The study of Pech pots reveals a high degree of standardization in vessel dimensions in the absence of evidence for specialized production. This finding challenges the standardization hypothesis by offering a case of small-scale, low-output household production that resulted in ceramic containers whose dimensions were highly standardized. We argue that household level manufacturing can result in highly standardized pottery if the products are intended to be used in ceremonies that require highly specific forms.

Christopher P. Garraty (Arizona State University) “The Political Economy of Utilitarian Ceramics in the Aztec Heartland: Production and Exchange of Tortilla Griddles.” Most studies of archaeological political economy focus on elite control over the production and exchange of wealth and prestige goods imbued with obvious social or ideological content, such as decorated ceramics or ritual paraphernalia. However, studies of mundane, utilitarian objects are rarely accorded such political economic importance. I suggest in this paper that elites in early complex societies potentially also garnered power and influence from controlling the production and movement of mundane, utilitarian goods, such as undecorated plainware ceramics. I further posit that utilitarian goods can be potentially meaningful and ideologically charged. I present the results of detailed studies of the production and exchange of ceramic tortilla griddles, or *comales*. Studies of the production and exchange of *comales* indicate that state elites may have subsidized large-scale production and export of *comales* throughout the Basin of Mexico as a means of garnering revenues. Simultaneously, *comales* made in some areas of the Basin may have been in high demand because of their association with prestigious places or ideas. For example, *comales* made at the center of Culhuacán in pre-imperial times may have been in high demand owing to the center’s longstanding connection to the venerated Toltec craft traditions.

Kostalena Michelaki (McMaster University) “Making Pots in Neolithic Calabria, Italy.” Although pottery is the most common artefact type on all Neolithic sites, provides one of the defining criteria for the Neolithic itself and is used by archaeologists to characterize all Neolithic cultures, research on Italian Neolithic ceramics has focused primarily on either decorative motifs, or on the spatial distribution of fine decorated ceramics. As a result, the variability of Neolithic ceramics is not well understood, nor is the social context of their production. Starting from the basic principle of Ceramic Ecology that urges us to focus on activities rather than objects, I will examine the production of ceramics in two Neolithic sites in Southwestern Calabria, Italy: Umbro (5,800-2,900 BC cal) and Penitenzeria (5,500-5,000 BC cal). The excavations are in progress, as are our physico-chemical and mineralogical analyses of the ceramic material. While the results are still preliminary, I will nevertheless use them as the basis to look for the choices the

potters had made at each step of the ceramic operational sequence. By looking at the complete production sequence I will explore variability as it is introduced in each step of the process. Furthermore, by focusing on decision making and the environmental, technical and social factors that affect it, I will be able to get deeper insights into the social lives of the communities that produced these pots.

John W. Arthur (University of South Florida, St. Petersburg) "Standardization in a Stratified Society: An Ethnoarchaeological Perspective from the Gamo of Southwest Ethiopia." Previous research has shown that there are many factors, such as vessel type, size, and function, producer skill, and market systems, which can affect pottery standardization. In this paper, I use ethnoarchaeology to explore how social and economic organization of the Gamo living in southwestern Ethiopia affects pottery standardization. This analysis compares standardization at the individual, village, and regional level to test our assumptions regarding potter standardization from potters who are full-time craft specialists living in a complex and highly stratified society.

Timothy Scarlett (Michigan Technological University) "Aesthetic Genealogies: Potters and China Painters in Utah." As she did with so many young scholars, Louana Lackey spoke with me about my dissertation research following an academic conference round table. I was struck early in my research by how Utah's operative potters had lived through their profession's social reinvention as both art and industry during their lifetimes. Some potters grew up as apprentices working under a master in a small craft shop, while others were former factory workers. They watched while their peers closed their shops and began turning sewer pipe for the heavy clay industries while the progressive local university hired ceramic artists to teach their skills to students. Dr. Lackey challenged me to think about the biographical dimension of technology, aesthetics, and business relations.

Charles C. Kolb (National Endowment for the Humanities) "Louana Mae Engelhart Lackey (1926-2005): Ceramic Historian and Ethnoarchaeologist." Louana Lackey, a co-founder of the Ceramic Ecology symposium series, passed away in December 2005. She earned her B.A. (1972) and doctorate (1978) in anthropology, both from American University in Washington, DC. Moving to Baltimore in 1987, she became research scholar in ceramics at the Maryland Institute College of Art. Louana conducted research on contemporary potters in Mexico, Central America, Spain and Italy, and wrote extensively about the work of present-day studio potters and ceramic artists in the United States, Canada, Nepal, South Korea, Latvia, Finland, Italy, and Britain. She authored *The Pottery of Acatlán: A Changing Mexican Tradition* (1982), based on her dissertation, a biography of Montana ceramic artist, *Rudy Autio* (2002); and co-edited *A Pot for All Reasons: Ceramic Ecology Revisited* (1988). A frequent contributor to *Ceramics Monthly*, she also authored chapters on Mesoamerican Thin Orange ceramics in two volumes of *Research in Economic Anthropology*. Louana was a long-

time member and a board member of the National Council on Education for the Ceramic Arts (NCECA); a member of the Society of Women Geographers, AAA, SAA, SHA, and AIA; and served as president of the Association of Senior Anthropologists and also wrote the "seniors" column for *Anthropology News*. She was one of only 80 Americans elected to the International Academy of Ceramics. In this symposium, we celebrate her life and provide unpublished and anecdotal information about Louana and her love of the ceramic arts.

Internet Sites

L. (Jake) Jacobson's Archaeometry Internet site provides information about provenance studies in South Africa, contains a list of research projects plus an extensive bibliography of his publications (n = 115), and includes an extract of a publication from the South African Journal of Science; see <http://www.museumsnc.co.za/arcometr.htm>. Jacobson's current research projects are focused mainly on provenance studies of pottery, the most significant of which is the study of pottery from Mapungubwe, one of South Africa's most important archaeological sites. His provenance studies include assessments of ceramics and ostrich eggshell using PIXE, XRF and the microprobe: 1) Sotho-Tswana pottery; 2) Mapungubwe pottery; 3) Type R Khoi pottery from the Riet River; 4) Khoi Coastal pottery from Port Nolloth and the Cape Peninsula; 5) Studies on temper and clay mixing; 6) Early Iron Age pottery from the Mngeni and Thukela rivers, KwaZulu-Natal; 7) Miscellaneous analytical studies of pottery from Namibia, Zimbabwe and Botswana; and 8) Ostrich eggshell. Other chemical analyses include: 1) Stone patinas; 2) Rock art paint; 3) Vitriified dung from the Karoo, South Africa; 4) Microprobe analysis of bone from Sterkfontein; 5) Archaeological sediments; 6) Development of Certified Reference material SARM-69 CERAMIC-1; and 7) Woodstock glass. The extract from the South African Journal of Science 91:381-382 (1995), "Geochemistry and archaeology: a creative bond." was written by L. Jacobson, W. A. van der Westhuizen, and H. de Bruijn.

The Utah Pottery Project is dedicated to the archaeological, historical, and scientific study of Utah's 19th Century immigrant potters. The overall goal is to gather into one place information about the potters, their families, their work, their products, and their contributions to the history of Utah. The project was conceived and directed by Timothy James Scarlett, Department of Social Sciences, Michigan Technological University (1400 Townsend Avenue, Houghton, MI 49931; telephone 906/487-2359, Fax 906/487-2468, email: scarlett@mtu.edu). There is an internet site at: <http://www.social.mtu.edu/faculty/Scarlett/Research/UPP/upphome.htm>.

At least 100 working potters came to Utah in the 19th Century and opened shops or worked in the business. Most of the potters immigrated to the territory after joining the Church of Jesus Christ of Latter-Day Saints (LDS, the Mormons). The currently identified sites include 45 potteries in 26 cities and towns throughout the Mormon Domain— connecting

settlements in Utah to Hailey, Idaho; Brigham City, Arizona; and Virginia City, Nevada. These potters made all kinds of products: kitchen crockery and storage jars, tea pots and umbrella stands, drainage pipes and roofing tile, plates and piggy banks. Each pottery became an important symbol in its community. Children visited the potters after school, people came to dances during the dramatic kiln firings, and everyone certainly knew when new pots were available for sale. Almost every pottery identified in nineteenth-century Utah was found in a Mormon community. Given the emphasis placed upon landed self-sufficiency in LDS theology, the potteries became symbols of permanence through their association with agriculture. The potters made the jars into which residents put up preserves. Pottery making even became an important metaphor in extemporaneous religious sermons.

Tim Scarlett seeks contributions of information such as references, pictures, documents, and stories. Copies of diaries, account books, photographs, receipts, and other family scrapbook contributions are a tremendous help to the research; financial support is also accepted. The five project goals are: 1) Catalog the immigrant pottery makers and clay industry workers of Utah's 19th Century; 2) Locate and identify the archaeological sites from operating potteries; 3) Catalog known examples of Utah Pottery in museum collections; 4) Academic Study; and 5) Make information available to everyone. The Internet site includes links to potters and towns where pottery was made, examples from museum collections, and pottery sites. A bibliography and slide show are under construction.

Exhibition

The Colors of Clays: Special Techniques in Athenian Vases is the title of an exhibition at the Getty Villa from 8 June through 4 September 2006. More than 100 vases made in and around Athens between 550 and 340 B.C., including some of the greatest masterpieces of Athenian pottery. The exhibition goes beyond the two standard techniques of Athenian vase-painting—black-figure and red-figure—to explore alternative techniques, such as coral red, white ground, and gilding, that gave Athenian vases their wide range of shapes and colors. Most of these techniques were first developed around 525 B.C., an extraordinarily fertile period of experimentation in the Athenian pottery industry. In addition, the exhibition also presents new insights gained by conservators and scientists into the methods and materials used by ancient vase makers. The majority of the vases in this exhibition, as in ancient Athens as a whole, were constructed and decorated in workshops owned and operated by potters. The workshops were usually family businesses, with sons following their fathers in the trade. Potters often painted their own vases, but they sometimes hired artisans who specialized in vase-painting. The names of many ancient potters are known, but fewer vase-painters. Painters with recognizable styles are often given nicknames, such as “the Brygos Painter” or “the Painter of the Wedding Procession,” based on potters with whom they worked or subjects in which they specialized. A three-stage firing process was key to achieving the distinctive look of Athenian vases. Before firing,

vase-painters painted the red-orange clay with a liquid clay slip, or clay-water mix. During the three-stage firing, the clay slip turned into shiny black gloss, coral-red gloss, or matte white, depending on the type of clay slip used. Vase-painters sometimes applied further decoration, including bright, colorful pigments and gilding, after firing. Additional information is available on the Internet at http://www.getty.edu/art/exhibitions/colors_clay/homepage.html. The exhibition is also accompanied by a well-illustrated and informative catalog, *The Colors of Clay: Special Techniques in Athenian Vases* by Beth Cohen (Los Angeles: J. Paul Getty Museum, 2006; 384 pages, 240 color and 57 b/w illustrations, 1 map; ISBN 0-89236-571-4, \$85.00, hardcover). Cohen is an art historian who has published on classical Greek and Italian Renaissance art. The text includes separate essays written by Marion True, Jeffrey Maish, Marie Svoboda, Susan Lansing-Maish, and Kenneth Lapatin (all from the J. Paul Getty Museum); Joan Mertens (Metropolitan Museum of Art, New York); and Dyfri Williams (British Museum, London). This catalogue documents a major exhibition that is the first ever to focus on ancient Athenian terracotta vases made by techniques other than the well-known black- and red-figure styles. The exhibition comprises vases executed in bilingual, coral-red gloss, outline, Kerch-style, white ground, and Six's technique, as well as examples with added clay and gilding, and plastic vases and additions. The volume begins with an introductory essay that integrates the diverse themes of the exhibition and sets them within the context of vase making in general; a second essay discusses conservation issues related to several of the techniques. A detailed discussion of the techniques featured in the exhibition precedes each section of the catalogue and more than a hundred vases from museums in the United States and Europe are described in depth.

Book Reviews

Stacey N. Lengyel, Associate Editor

Climate Change in Prehistory: The End of the Reign of Chaos. By William J. Burroughs, Cambridge University Press: Cambridge, UK, 2005. xii + 356 pp., 29 figures, two tables, one appendix, index. Price: £19.99 or USD\$30.00 (hardback). ISBN: 13 978-0-521-82409-5.

Reviewed by David Lubell, Department of Anthropology, University of Waterloo, Waterloo, ON, N2L 3G1, Canada

I came to this book with high expectations. As someone doing research on the Late Pleistocene/early Holocene transition and with a long-term interest in the relationship between palaeoenvironment and human adaptation, the Cambridge University Press (CUP) description of *Climate Change in Prehistory* was enticing: “[It]...explores the challenges that faced humankind in a glacial climate and the

opportunities that arose when the climate improved dramatically around 10,000 years ago.

Drawing on recent advances in genetic mapping, it presents the latest thinking on how the fluctuations during the ice age defined the development and spread of modern humans across the Earth. It reviews the aspects of our physiology, intellectual development and social behavior that have been influenced by climatic factors, and how features of our lives – diet, health and the relationship with nature – are also the product of the climate in which we evolved.”

I hoped this might be in some way a successor to Butzer’s *Environment and Archeology*, but it is not intended as such. Burroughs summarizes the overall objective best on p. 208: “to present the evidence of climate change and the climatology in prehistory” so as to elucidate the relationship between past cultural developments and climate. And the topic is current, as shown by Kirch’s 2005 paper “Archaeology and Global Change: The Holocene Record” in the *Annual Review of Environment and Resources* where the emphasis is on how human populations have affected environmental variables, something Burroughs touches on at the end of this book.

Chapter 1 introduces the overall concepts to be discussed in subsequent chapters. Chapter 2 (“The climate of the past 100 000 years”) includes a series of figures that show the cyclic pattern of change and variability and relating human prehistory to the OIS sequence. For the most part these are useful, but in one case, Fig. 2.11, the caption lacks sufficient explanation. What are (a) and (b)? The former can be understood from the original source where the data are presented in a clearer format, but the latter is unexplained. I found the discussion of Heinrich and Dansgaard/Oeschger events useful in that I now think I understand just what they mean and thus how to interpret them. I found the second half (starting with §2.6 “The end of the last ice age”) the most interesting and convincing in terms of my own research. The summary table (2.1) that gives a “climatic template” is useful. Burroughs concludes that the “radical shift in climatic variability” (p. 73) at the onset of the Holocene – a reduction in that variability – must be seen as central to subsequent cultural developments. No one would, I think, find anything here with which to disagree.

Chapter 3 (“Life in the ice age”) uses examples drawn from all regions in an attempt to show the interrelation of climate and human existence. While Burroughs does discuss both the good and the bad, his overall theme is to show that “survival of the human race was a precarious business” (p. 75). In this regard, he draws interesting conclusions on the effects of catastrophic events such as the Toba eruption at ca. 70 kyr, which he argues could have had “a significant impact on the size of the human population at the time” (p. 85). This leads into a discussion of genetic mapping (§ 3.7 and 3.8) that I find to be too accepting of the validity of mtDNA and Y chromosome mapping of extinct populations given the enormous difficulty we are experiencing in the extraction and analysis of

uncontaminated aDNA from skeletal remains – a point not discussed by Burroughs, although he does recognize that there is a “continuing debate” (p. 109). I am more convinced by the discussion that begins in §3.9 (“The transition to the Upper Palaeolithic”) in which specific examples from western and eastern Europe, the Asian steppes and the eastern Mediterranean and Nile Valley are used to show the relationship between climatic variability and human settlement.

Chapter 4 (“The evolutionary implications of living with the ice age”) ranges widely over a number of topics, from population genetics to demography to gender roles to cultural/subsistence transitions. Much here is of interest, but also a great deal that I find overly speculative (such § 4.9 on networks and mobility) and, in at least one case (the discussion of palaeodemography on p. 156), at odds with what I think are more accurate reconstructions.

Chapter 5 (“Emerging from the ice age”) is the longest and, to my mind, the most interesting and successful chapter. I have some minor quibbles with the treatment of North African data, but overall the balance and breadth of global coverage is good. Controversial topics (e.g. the spread of farming into Europe, peopling of the Americas, the Black Sea flood) are handled well. Burroughs’ objective in this chapter is to “present the evidence of climate change and climatology in prehistory that may assist in addressing debates...not to seek to provide answers to the debates” (p. 208), and I think he succeeds.

Chapter 6 (“Recorded history”) first reviews several well-known cases of climate/culture interactions (e.g., salt in ancient Mesopotamia) updated with new data and interpretations. Burroughs then moves on to what he calls “the price of settling down” (p. 248) in which he argues there was “a high price to pay in terms of public health”. While there may be some validity to this scenario, it is by no means universal and as he notes when discussing the Natufian-Neolithic transition, there may be other trajectories – local conditions must always be taken into account. Here, as elsewhere when discussing anthropological data, I am a bit concerned that he may not have recognized the inadequacy of those data for the reconstructions he is attempting.

Chapter 7 (“Our climatic inheritance”) explores “the implications for human development of the characteristics of ice-age people...being markedly different to the requirements of subsequent societies” (p. 261). In other words, whether our biology has changed, partly in response to climate/culture interactions. Few of us would, I think, argue against some interaction, but there is a deterministic emphasis here that concerns me.

In Chapter 8 (“The future”), Burroughs tries to draw together the data and interpretations of past climatic variability and the effect of this variability on human societies with predictions for what may be on the horizon. He seems cautiously optimistic, arguing that having successfully survived so many vicissitudes in the past, we will continue to do so in the future.

Burroughs' theme throughout is that human existence in the past was at the mercy of the elements, and he refers constantly to this in his choice of language (e.g., "ice-age shackles" on p. 197 as one of many examples). Although he maintains he is not being deterministic, I found it hard to avoid thinking at times that he was. Nonetheless, the book overall is interesting, useful, and often stimulating. Unfortunately, it is marred by inadequate editing and far too many instances of sloppy proofreading and production in which words are missing or sentences repeated. One does not expect this in a book from CUP.

Myths of the Archaic State: Evolution of the Earliest Cities, States and Civilizations. Norman Yoffee, Cambridge University Press: London, 2005. xii+277 pp., 77 figures, 2 tables, index. Price \$75.00 (Hardback) ISBN 0-521-81837-0. Price \$34.00 (Paperback) ISBN 0-521-52156-4.

Reviewed by Natalia Moragas, Universidad Autónoma del Estado de Hidalgo, Instituto de Ciencias Sociales y Humanidades, Ctra. de Pachuca a Actopan, Km 4, CP 49800, Pachuca de Soto (Hidalgo), México

The books of Norman Yoffee, Professor of Near Eastern Studies and Anthropology at the University of Michigan, are always awaited with great interest by the scientific community that works in subjects related to the origin of early states and the development of the first cities in the Old and New World. This book does not disappoint, and it provides us with an interesting re-evaluation of old topics related to this subject. The title of the book, *Myths of the Archaic State: Evolution of the Earliest Cities, Status and Civilizations*, captures the reader's interest from the start. The academic trajectory of Yoffee is widely known by archaeologists who focus on the early state societies in the Old World as well as the New World, and therefore this book promises to serve as a theoretical reference. The author, from the first page of the book, states that this is a book about early states, their evolution, their collapse, and what happens afterwards. Yoffee maintains that all early states have common characteristics: large territorial systems ruled by totalitarian despots who controlled the flow of goods, services, and information and imposed law and order on their subjects (p. 2), and although the main example is Mesopotamia, this study provides useful theoretical and methodological references for the study of the development of the early state in other parts of the world. From the beginning, this book is suggestive and interesting, and it makes us think about the old-new models of the development and use of evolutionary theories.

The book consists of nine chapters that go from the development of the author's theoretical model to the study of archaeological cases of the Near East, yet with links to cases from the American continent and the Far East. The text demonstrates the wide knowledge of Yoffee and his great ability to analyze and explain the essential points about the problem

of the origin and development of early states and other aspects related to the early city, its power and collapse.

Chapter 1 (The evolution of a factoid) begins with some provocation by apologizing for the use of the term evolution (p. 4). The chapter provides an analytical summary of the history of the use of evolutionary theory to explain the phenomenon of the evolution of early states. In Chapter 2, the author moves on to neoevolutionary theory to understand the evolution of power and how this power was manifested in the elites of early states. Finally, he tries to explain the limits of neoevolutionary theory since it considers that the evolution of early states follows different trajectories and the triviality of some academic discussions. In Chapter 3, Yoffee presents the city as a basic element for understanding early states. The examples that are presented come from the Near East, the Far East, Mesoamerican, and the Andes. In Chapter 4, he analyzes the phenomenon of social complexity in societies of the Near and Far East, seeing the examples of social organization and codification of the legal norms as examples of political use on the part of elites. Chapter 5 discusses the terms agency and identity, much in vogue now, through two case studies. Chapter 6 discusses the collapse of ancient states and civilizations as a classic in archaeological investigations, but a sociocultural phenomenon that still is little understood. Mesopotamia, another classic subject, is used as a case study in which collapse is seen as the mutation of social identity and suffocation of cultural memory. Chapter 7 analyzes the fact that social change follows different paths and models in different societies. The case study draws on the societies of Chaco Canyon, New Mexico and the use that the leaders of this society made of the ritual under its own model. Chapter 8 has a suggestive title, "New rules of the game." This chapter discusses new schemes of analysis within new comparative models (or not) in which history must have been a method to explain causes and effects and to understand the past on its own terms (p.195). Finally, Chapter 9 explains the elements delineated in previous chapters to offer a dynamic image of the understanding of the origin and early development of these states. This chapter summarizes the trajectory of Mesopotamian cities under the new perspective of historical analysis that the author has tried to theorize in the previous chapters.

This book turns out to be a useful tool for the professor as well as for the student. The writing style is clear and simple, but also academically strict with a good use of the bibliography. In addition, it has certain touches of humour that make the reading of this book a pleasant experience. It is a recommendable book for anyone who is interested in the study of early societies and who is looking for a comprehensible text on the subject. It also is recommended for advanced undergraduate and graduate students in courses of natural and social sciences. One of the virtues of this book is that the use of the bibliography and the extensive knowledge of the author do not prevent it from being read by students and academics, who are not familiar with all of the archaeological cultures that Yoffee uses to support his arguments. The author goes to the

crux of the question to debate with a line of argumentation that is clear and simple, but also comprehensive and concrete.

If there is something that can be criticized in this interesting academic text, it is the almost exclusive use of certain references. Although English can be considered the language of academic exchange, as a Mesoamericanist, I miss some academic works written by other groups of researchers that could have enriched further the content of this book.

Also the figures that accompany some of the chapters do not present clearly aspects discussed in the text. The figures are not well referenced either. These are minor issues that are easily corrected (perhaps in a future second edition).

In conclusion, this book provides a comprehensive reading of the questions about the evolution of early states, power and early cities as the place in which these models of sociocultural organization are developed. It offers a renewed image of neoevolutionary theory giving an image of academic honesty while clearly delimiting the limitations of this theoretical model, but showing as well that it is possible to go beyond the theoretical limits to offer a re-evaluation of the evolution of early cities, states and civilizations.

Environmental Archaeology: Theoretical and Practical Approaches. Nick Branch, Matthew Canti, Peter Clark and Chris Turney, Hodder Arnold: London, UK, 2005. xvi + 240 pp., 94 figures, 11 tables, 7 boxes, index. Price: £22.99 (paperback). ISBN: 0-340-80871-3.

Reviewed by Clare Wilson, School of Biological and Environmental Sciences, University of Stirling, Stirling, FK9 4LA, UK

Environmental Archaeology: Theoretical and Practical Approaches is the fifth and most recent book in the Key Issues in Environmental Change series edited by John Matthews, Raymond Bradley, Neil Roberts, and Martin Williams. This series aims to explore the scale, intensity, and permanence of human impacts on the environment in the context of past natural environmental change.

Environmental archaeology has an important role in fostering an understanding of the relationships and interactions between humans and environmental change. The stated aim of this book is to encourage the integration of the complex interaction of humans with environmental systems within cultural histories based on the results of material excavations.

The invited authors represent a wide range of disciplines and backgrounds. Nick Branch is a lecturer in environmental archaeology based at Royal Holloway, University of London, UK. Matthew Canti is a geoarchaeologist at the Centre for Archaeology, English Heritage, UK. Peter Clark is Deputy Director of Canterbury Archaeological Trust, UK and specialist

in the theory and practice of excavation and post-excavation analysis. Chris Turney is a Fellow in Environmental Science at University of Wollongong, Australia and specialist in radiocarbon dating. This range of specialties brings a breadth and depth to this book that makes it an interesting and often thought provoking read.

This is a reasonably priced paperback, providing an introduction to all areas of environmental archaeology, including a strong emphasis on geoarchaeology and stratigraphic interpretation. It is divided into five chapters, each of which begins with a summary, moves onto a discussion of techniques and then finishes with a series of illustrative case studies.

Chapter 1, An introduction to environmental archaeology. At first glance this introductory chapter begins conventionally enough by seeking to define environmental archaeology. However, the book then moves on to tackle the differences in philosophical background between archaeology and environmental science, something that is often overlooked in manual type environmental archaeology texts, but which is vital to appreciate if archaeology and archaeological science are to be truly integrated. The structure for the rest of the book is then set through a discussion of spatial and temporal scale. In later chapters case studies are provided representing micro, meso, macro, and mega-scale applications of the various techniques.

Chapter 2, Defining the context: integrated approaches to stratigraphy. This second chapter covers stratigraphic description and interpretation, and the role of geoarchaeology in this process. It is essentially a discussion of field excavation methods and the importance of soil and sedimentary formation processes, thus providing a context for a debate about the integration of geoarchaeology in the archaeological processes. This background setting would provide a useful companion to recent specialist geoarchaeological publications, for example *Geoarchaeology in action* (C. French; Routledge, UK, 2003) and *Practical and theoretical geoarchaeology* (R. Macphail, W. Matthews, and P. Goldberg; Blackwell Science, UK, 2005).

Chapter 3, Bioarchaeology: analyzing plant and animal remains. Encompassing the range of micro and macrofossil remains, this chapter provides a whistle-stop tour of archaeobotany and archaeozoology. Included is a brief introduction to the analysis of pollen, diatoms, ostracods, foraminifera, cladocera, microscopic charred particles, faecal spherulites, earthworm granules, phytoliths and starch grains, seeds and plant macro components, wood and charcoal, mollusks, insects, and invertebrate remains in archaeology. The discussion concentrates on the concepts and methods used in the analysis of each group of remains and of the significance of problems of identification, analysis, and taphonomy for interpretation. Sampling and recovery methods are discussed; case studies include the Lindow Moss bog body, the pan-European Elm decline, the environmental context of hunting, gathering, and farming in the northern Mediterranean, and hunting and farming in early prehistoric South America.

Chapter 4: Dating and numerical analysis: the age and significance of environmental evidence. The chapter begins with a brief introduction to statistical concepts of normal distribution, standard deviation, accuracy and precision before moving on to ordination and time series methods. I felt that perhaps there was a missed opportunity to more fully address the interpretation of statistical output in relation to cultural remains, but I'm sure the introduction to multivariate techniques will be welcomed by many students. The rest of the chapter is given over to the discussion of dating techniques including relative, age-equivalent, incremental, and radiometric methods. The principles, methods and problems of each technique are introduced. The desirability of multi-dating methods is illustrated through case studies.

Chapter 5: Integrated studies in environmental archaeology. This final chapter presents four case studies – the Dover Bronze Age boat, the prehistoric human environment of the London Thames, irrigation, salinity and culture in ancient Mesopotamia, and megafaunal extinction and human settlement – demonstrating the application of these techniques within integrated environmental and archaeological studies.

The scope of the book means that each subject can only be touched on, essentially providing a whistle-stop tour of environmental archaeology in its broadest sense. However, the book is very well referenced, and most subject areas are also provided with internet addresses where more information can be obtained, including links to research websites and photographic databases. The web-addresses are correct at this time, and many appear to have been chosen for their apparent relative permanency as well as scientific content, though over time many of these addresses will inevitably become redundant. The book is well illustrated; however, in Chapter 2 when stratigraphic sections and soil profiles are pictured, the absence of colour photographs sometimes leaves the reader unclear about the true nature of the features being illustrated.

This book claims to be aimed at students and junior researchers in environmental archaeology, and indeed it would be a worthwhile acquisition for anyone in this target group. It provides an illustrated introduction to the range of techniques that can be used to investigate the relationships between humans and their environment, and an insight into the theoretical paradigms of archaeological science and the way this fits (sometimes uncomfortably) within modern archaeology. However, this book is more than a scientific manual of environmental archaeology. The focus on the theoretical backgrounds to archaeology and archaeological science and the integration of environmental archaeology within archaeology together with the case study illustrations of what environmental archaeology can contribute to archaeological interpretation make this an invaluable aid to archaeological policy makers and archaeological excavators.

Overall the book has a UK-oriented feel; however the authors have international research programs, hence the case studies include not only British but also South American and

Australian examples. This, together with the thoughtful theoretical discussion and the emphasis in Chapter 2 on stratigraphic analysis, result in a book relevant to an international audience. It is a well written, well structured, and consequently an immensely readable book. I would suggest that anyone with even a passing interest in environmental archaeology or stratigraphic interpretation will find this a valuable read.

Images and Artefacts of the Ancient World. Alan Bowman and Michael Brady (editors), Oxford University Press: New York, 2005. xiv + 150 pp., 153 figures, 1 table. Price: \$55.00 (paper). ISBN 0-19-726296-1.

Reviewed by Robert Schon, University of Arizona, Department of Classics, Learning Services Building Room 203, 1512 East 1st St., PO Box 210105, Tucson, AZ 85721-0105 USA

This book showcases a number of collaborative research projects undertaken by experts in a diverse range of fields including, but not limited to, history, archaeology, computer engineering, medical imaging, and optics. The goal of the book is to highlight current imaging technologies that can be applied to ancient objects. The editors group the fifteen chapters into six topical categories, which do not correspond to the sequence of the chapters. In the interest of simplicity, though, I will stick to them in the following summary.

In Chapter 1, Bowman and Tomlin discuss problems in the reading and interpretation of stylus tablets found at the Roman military outpost of Vindolanda in Great Britain. Their article focuses on the act of interpreting an inscription and how even the most accurate image can be prone to ambiguous readings. Chapter 2, by Brady et al., continues the discussion of the Vindolanda stylus tablets and describes a method that clarifies the extremely shallow incisions preserved on them. This method eliminates much of the visual 'background noise' and also fills in gaps between strokes, helping scholars better read the texts. Vandecasteele et al. (Chapter 3) discuss a method of image manipulation that produces photographs of Assyrian cuneiform tablets with up to 95 percent legibility. This method not only provides an archive, but also increases the efficiency of work in the field, which often relies on copying the tablets by hand.

In Chapter 9, Wallace discusses the benefits and drawbacks of two laser scanning techniques, triangulation and time-of-flight (TOF). Wallace's team developed a technique of TOF scanning using time-correlated single photon counting (TCSPC). They tested the TCSPC technique on objects from 5 cm to 25 m in size and consistently achieved sub-millimeter accuracy. In Chapter 4, Swantesson and Gustavson apply the triangulation scanning technique to runic inscriptions. While laser scanning is not a substitute for autopsy, it obviates the need for excessive revisits to a monument and provides an archival record of cultural resources that are in a perpetual state of slow, but steady, decay.

Kaudelka and Fastner (Chapter 12) report on a project that set out to document Roman *Terra Sigillata* pottery bearing appliqué decoration in the region of Noricum using photogrammetry. They hoped that through standardized documentation they could compare examples of this widely distributed pottery type better. In addition to illustrating their methods, the article outlines the nearly twenty-year history of their project and the challenges that ensue when one works with rapidly changing technology. In Chapter 6, Fitzgibbon, Cross and Zisserman present a method of creating 3D representations of an object using a series of photographs taken as it rotates on a turntable. The technique does not handle problems of occlusion as effectively as laser imaging methods (see Chapter 9), but it does have the advantage of replicating decorated surfaces, such as on a painted vase. In Chapter 13, Cipolla and Wong present a similar technique and further emphasize how profiles of objects taken from photographs can be analyzed to produce 3D images. By having the photographs taken from a circumferential vantage point, large objects such as sculpture can also be modeled.

Denard (Chapter 7) reports on a University of Warwick project to create a three-dimensional digital model of Rome's Theater of Pompey and its surrounding buildings- an important monument that is severely under-documented due to its incorporation into multiple subsequent buildings. Other advantages of the model are that it aids in the placement of excavation trenches, is adaptable to new data, and takes into account the dangers of creating false plausibility when using virtual reality. In Chapter 8, Van Gool and his team write about the Murale consortium working at Sagalassos in Turkey. The focus of this article is the project's methods of 3D shape acquisition and surface texture reconstruction. Three-dimensional reconstructions are made using conventional photographs (for architecture) and using a ShapeSnatcher system (for sculpture and potsherds). The simulation of texture, based on sample images and a computer algorithm, allows the modelers to emulate the natural appearance of architecture and the landscape. Greenhalgh (Chapter 5), in what should have been the first (or the last) chapter of the book offers a review and critique of the numerous tools used to create three-dimensional reconstructions of sites and artifacts. His focus is on the utility of virtual reality as a pedagogic tool.

Howgego (Chapter 11) outlines some potential benefits of applying advanced visual imagery to the study of numismatics. He cites a number of sources of distortion that currently hinder the comparison of coins and dies, and suggests that digital image capture and software, such as that used in fingerprint analysis, may allow scholars to eliminate, or at least minimize, some of the biases inherent in relying on photographs. Chapter 10 stands out from the other articles by explicitly examining the relationship between the image and the observer. Koenderink outlines a psychophysical experiment in which subjects create a 'pictorial relief' by superimposing ellipses at varying orientations onto photographs of objects. Results are compared in terms of the variability between observers and in terms of the effect of different vantage points on a single observer.

Neave and Prag (Chapter 14) discuss the application of facial reconstruction, often used to aid in the identification of homicide victims, to ancient skulls. The authors note that in this field computerized modeling is less effective than the traditional methods of modeling in clay, because the skill of the artist is paramount. In Chapter 15, Linney, Campos, and Alusi apply CT imaging to a Roman mummy in order to gage the accuracy of its portrait. Such imaging is essential in facial reconstructions when access to the skull is impossible.

While not a comprehensive manual of archaeological imaging, this book is an excellent survey of cutting edge work in the field. The articles touch upon a number of common themes. First is the nature of interdisciplinary cooperation. These collaborations not only show how technology can help the archaeologist, but also highlight how technicians adjust their work when approaching humanistic questions. Second, many chapters exhibit a critical self-awareness of the problems created when plausible reconstructions inhibit attempts at alternative interpretations. They acknowledge that improved imaging helps reduce, but does not eliminate, subjectivity in interpretation. One problematic exception to this concession is the paper by Neave and Prag who continue to insist that their reconstruction of a skull from Vergina proves the identity of the individual (based on a facial scar) to be Philip II, although overwhelming archaeological evidence has been presented to the contrary (see *Science*, April 21, 2000).

The utility of the projects vary considerably from the essential to the entertaining. The digital reconstruction of Pompey's Theater and the clarification of tablets provide information that can be gained in no other way. On the other end of the scale, knowing what an ancient person looked like has little scholarly value, but certainly raises public interest.

Overall, the articles present a good balance of archaeological problems and scientific techniques. While the equipment used to capture images is thoroughly described, the computer software used to manipulate data almost never is. Many of the papers are based on larger research projects and these are often inadequately cited. Numerous websites are mentioned and an index summarizing them would have been helpful. The US\$55 price of the book might limit its sales, but readers surely will apply a number of articles to a traditional imaging technique- the copy machine.

Interacting with the Dead: Perspectives on Mortuary Archaeology for the New Millennium. Gordon F.M. Rakita, Jane E. Buikstra, Lane A. Beck, and Sloan R. Williams, University Press of Florida: Gainesville, 2005. xii + 390 pp., 70 figures, 28 tables, index. Price: \$75.00 (cloth). ISBN: 0-8130-2856-6.

Reviewed by Andrew K. Scherer, Department of Sociology and Anthropology, Wagner College, 1 Campus Road, Staten Island, NY 10301 USA

Rakita, Buikstra, Beck, and Williams have compiled an edited monograph that demonstrates the current state of theory and methodology in mortuary archaeology. According to the editors, “this volume represents the fourth in a series of edited volumes on the archaeology of mortuary behavior” (p. 1) that began with James A. Brown’s *Approaches to the Social Dimensions of Mortuary Practices* and continued with Robert Chapman and colleagues’ *The Archaeology of Death* and Lane Beck’s *Regional Approaches to Mortuary Analysis*. The majority of the contributions in *Interacting with the Dead* originated as papers in two symposia from the Society for American Archaeology Annual Meeting in 2001. The volume is organized into three thematic sections: “Theories, Time, and Space,” “Bodies and Souls,” and “Sacrifice, Violence, and Veneration.” The contributions are a mix of what have traditionally been characterized as “mortuary archaeology” and “bioarchaeology,” though many of the chapters integrate these two approaches. There are also two ethnographic chapters on modern mortuary practices that provide a nice contrast to the studies of ancient burials and human remains.

The first section, “Theories, Time, and Space,” is thematically broad in that it includes works that deal with “time, space, and the impact of different theoretical and methodological approaches” (p. 13). In the first contributed chapter, Douglas Charles offers an overall critique of theory and practice in the archaeology of death (ch. 2). Using examples primarily from the mortuary record of the Illinois River Valley, Charles aptly argues that a truly anthropological approach is one that bridges processual interest in diachronic and synchronic mortuary variability to a postprocessual concern with interpretation of individual details of the burial record. Robert Chapman reviews two mortuary case studies from Europe and argues that more nuanced analyses of mortuary chronology are needed if we wish to properly identify temporal trends in burial practices and understand how these changes do (or do not) relate to broader social transformations (ch. 3). Aubrey Cannon considers gender and agency in mortuary fashion in a variety of European contexts and among the Seneca of New York (ch. 4). For the cases he presents, Cannon argues that since women were responsible for burying their husbands, changes in mortuary patterns, particularly of male burials, reflect women’s agency in transforming burial practices. The presentation of mortuary data from a variety of cultural contexts is a strongpoint of Cannon’s contribution. In their analysis of Chiribaya (Peru) political economy, Buikstra and colleagues illustrate that the interpretative power of bioarchaeological data are greatly increased when multiple lines of evidence are used and integrated with the broader archaeological context (ch. 5). Using examples from Classic Maya royal burials, Wendy Ashmore and Pamela Gellar reiterate the argument that both the spatial positioning of mortuary features and the arrangement of objects within burials are significant (ch. 6).

The second section, “Bodies and Souls,” is the most thematically broad section of the volume. The section opens with a strong contribution by Rakita and Buikstra that reexamines Heertz’s interpretation of mummification and

cremation within the broader context of rites of passage (ch. 7). Heertz generalized these practices as simply strategies to accelerate the transformation of the corpse into its final state. Rakita and Buikstra offer more culturally-specific interpretations of these rituals through a close examination of Andean mummification and cremation in the American Southwest. They suggest that cremation among Kachina societies was a strategy to remove the corpse from the living world and transform the deceased into a powerful ancestor spirit. Inca mummification, on the other hand, was a strategy for locking the ancestors into a permanent liminal state where they were imbued with sacred power. In the first of the two ethnographic chapters, Suzanne Oakdale illustrates that the Kayabi of Brazil make a metaphorical connection between the deceased and the memory of their enemies as a strategy for hastening the mourning process (ch. 8). A. Martin Byers offers an interpretation of Hopewell (American Midwest) mortuary practices that emphasizes the importance of understanding burials as the product of *mortuary processes*, not *mortuary events* (ch. 9). In what is perhaps a stretch of ethnographic analogy, Byers grounds his interpretation of the mortuary record by applying a modern pan-American Indian world view to the Hopewell (ca 200 B.C. to A.D. 400). Sonia Guillén provides an enlightening summary of Chinchorro and other Andean mummification practices, though little is offered beyond the descriptive data presented (ch. 10). Beck interprets the variability in Hohokam (American Southwest) cremation practices by linking archaeological observations with ethnographic data (ch. 11). Her chapter would have benefited from a more complete presentation of the data, so it is difficult to evaluate her conclusions. Estella Weiss-Krejci compiles an interesting descriptive summary of the Medieval European funerary practices that produced dismemberment and secondary interment of corpses (ch. 12). Stephan Naji considers the phenomenon of crowding and burial disturbance at a medieval monastery cemetery in France and suggests that a preoccupation with interring the recently deceased within a sacred space was the motivation for the practice (ch. 13). In the second ethnographic chapter, Nancy Malville provides an overview of modern Tibetan mortuary practices (ch. 14). Malville’s contribution should give archaeologists pause in that the preferred methods of corpse-processing in Tibet, cremation and scavenging by vultures and other animals, are two practices that could easily be mistaken for acts of desecration if the broader cultural context were not understood.

The final section of the book, “Sacrifice, Violence, and Veneration,” highlights various contexts where disarticulated and dismembered bodies are encountered in the archaeological record. While this section forms the most unified portion of the book, many of the chapters in the previous section would have worked equally well here. William Duncan provides a carefully contextualized analysis of skull caches and disarticulated skeletal remains among the Late Postclassic Maya (ch. 15). Duncan’s piece is useful in that it underscores the importance of avoiding the automatic interpretation that disarticulated remains were the product of acts of sacrifice and desecration, a common problem in the literature for the Maya. Assuming a cautionary

perspective, Ann Stodder offers an analysis of a deposit of fragmented human and faunal remains from Papua New Guinea, some of which bear evidence of perimortem modification (ch. 16). Rather than limiting her analysis to a "cannibalism or not" line of inquiry, she explores a range of ethnohistorically documented funerary rituals in Papua New Guinea that are consistent with the composition of these kinds of deposits. Kathleen Forgey and Sloan Williams consider the etiology and significance of Nazca (Peru) trophy heads (ch. 17). Despite their thoughtful consideration of the osteological, archaeological, and ethnographic data, they are unable to conclude whether the trophy heads were the product of veneration or desecration. Their chapter illustrates the challenges inherent in mortuary studies: despite our best efforts, meaning can sometimes prove elusive. John Verano, working with well-preserved Moche (Peru) remains from the Pyramid of the Moon, presents a strong argument for the sacrificial nature of this deposit (ch. 18). To make his case, Verano summarizes the evidence for perimortem trauma and dismemberment and contextualizes the data with a careful reading of the archaeological and iconographic records. Beck and Sievert argue that the skeletal remains dredged from the waters of the Sacred Cenote at Chichén Itzá, Mexico may have been the product of any combination of sacrifice by drowning, dismemberment of sacrificial victims, suicide, convenient corpse disposal, or the offering of retained skeletal elements of venerated ancestors (ch. 19). In the final chapter of the book, Judith McNeill provides an overview of the use of human long bones for the manufacture of spear points in prehistoric Guam (ch. 20). Interestingly, the long bones were extracted from otherwise articulated primary burials. In some instances, the human bone spear points were used to slay other people, as demonstrated by the recovery of an individual with 10 points embedded within various parts of the body.

Overall, Rakita and colleagues are to be commended for putting together an interesting volume on the current state of mortuary archaeology. The three key strengths of *Interacting with the Dead* are (1) the geographic and cultural diversity represented, (2) its consideration of human remains in both burial and non-burial contexts, and (3) the inclusion of contributions from a variety of methodological and theoretical perspectives in archaeology, bioarchaeology, and socio-cultural anthropology. As a result of this diversity, however, the thematic unity of some sections of the volume is not always apparent. Further, the quality of the contributions is at times uneven. Some authors struggle in their ability to transition from the mortuary data to broader interpretations and conclusions.

Nonetheless, there are many strong chapters in *Interacting with the Dead* that offer new insights to the study of the archaeology of death. This is especially true of those pieces that skillfully combine bioarchaeological data on human remains with insightful analyses of the broader archaeological record. When placed within the legacy of previous archaeological studies of death, *Interacting with the Dead* succeeds by highlighting how far the field has progressed, while illuminating the challenges that lay ahead.

Upcoming Conferences

Rachel S. Popelka-Filcoff, Associate Editor

2006

23-28 August. International Council for Archaeozoology (ICAZ) 2006, Mexico City, Mexico. General information: <http://www.nmnh.si.edu/icaz>.

29 August-1 September. Quaternary Research Association 5th International Postgraduate Symposium, Edinburgh, Scotland. Contact: Email: qra.2006@ed.ac.uk. General information: <http://www.geos.ed.ac.uk/conferences/qrapg2006>.

4-9 September. International Union for Prehistoric and Protohistoric Sciences. Lisbon, Portugal. General information: <http://www.uispp.ipt.pt/>.

10-14 September. 232nd National Meeting and Exposition, American Chemical Society National Meeting, San Francisco, CA USA. General information: <http://www.acs.org>.

13-16 September. Archaeological Sciences of the Americas Symposium, Tucson, AZ, USA. Major themes: 1) Geoarchaeology, 2) Conservation Studies and Ephemeral Remains, 3) Spatial Analysis and Remote Sensing, 4) Chronometry, 5) Human-Environmental Interaction, 6) Material Culture Studies Contact: R. Emerson Howell (rhoell@email.arizona.edu) or AJ Vonarx (ajvonarx@email.arizona.edu). General information: <http://asas06.ltc.arizona.edu/>.

27-29 September. Synchrotron Radiation in Art and Archaeology, Berlin, Germany. Contact: sr2a@bessy.de General information: http://www.bessy.de/front_content.php?idcatart=573.

15-19 October. Materials Science & Technology 2005 (MS&T '06), Cincinnati, OH, USA. General info: <http://www.matscitech.org>.

22-25 October. Annual Meeting of the Geological Society of America, Philadelphia, PA, USA. Several sessions with archaeological geology themes. For more information: meetings@geosociety.org. General information: <http://www.geosociety.org/meetings/2006/>.

6-12 November. UNESCO International Symposium/Workshop on Natural Dyes Shilpa Kala Vedika, Hyderabad, Andra Pradesh, India. Contact: Ms. Dr. Dominique Cardon - cardon.dominique@wanadoo.fr. General information: <http://www.naturaldyes.org/events.htm#cci2006>.

12-16 November. Winter Meeting of the American Nuclear Society, Albuquerque, NM, USA. Special Session: Nuclear Archaeometry. Session contact: Michael D. Glascock, glascockm@missouri.edu. General information: Stephen P. LaMont, Isotopes and Radiation Division, lamont@lanl.gov <http://ans.org/meetings/index.cgi?c=n>.

Department of Anthropology
University of South Florida
4202 E. Fowler Ave., SOC 107
Tampa FL 33620-8100 USA

Non Profit Org.
U.S. POSTAGE PAID
Tampa, FL
Permit No. 257

ADDRESS SERVICE REQUESTED

Please send subscription address changes to SAS Administration

SAS Bulletin

Newsletter of the Society for Archaeological Sciences

SAS Bulletin Staff

Editor: **E. Christian Wells**, Department of Anthropology, University of South Florida, 4202 E. Fowler Ave., SOC 107, Tampa, FL 33620-8100, USA; tel 813-974-2337; fax 813-974-2668; email cwells@cas.usf.edu

Associate Editor, Archaeological Ceramics: **Charles C. Kolb**, Division of Preservation and Access, National Endowment for the Humanities, Room 411, 1100 Pennsylvania Avenue, NW, Washington, DC 20506, USA; tel 202-606-8250; fax 202-606-8639; email ckolb@neh.gov

Associate Editor, Archaeometallurgy: **Nora Reber**, Anthropology Program, University of North Carolina, 601 S. College Road, Wilmington, NC 28403, USA; tel 910-962-7734; email rebere@uncwil.edu

Associate Editor, Archaeological Soil Science: **Jane A. Entwistle**, Geography, School of Applied Sciences, Northumbria University, Sandyford Road, Newcastle upon Tyne NE1 8ST, UK; tel 44(0)191-227-3017; fax 44(0)191-227-4715; email jane.entwistle@northumbria.ac.uk

Associate Editor, Archaeometallurgy: **Roger C.P. Doonan**, Department of Archaeology, University of Sheffield, Northgate House, West Street, Sheffield, S1 4ET, UK; tel 44(0)11-4222-2939; fax 44(0)11-4272-563; email r.doonan@sheffield.ac.uk

Associate Editor, Bioarchaeology: **Gordon F.M. Rakita**, Department of Sociology, Anthropology, & Criminal Justice, University of North Florida, Building 2, Room 1100, 4567 St. Johns Bluff Rd., South Jacksonville, FL 32224-2659, USA; tel 904-620-1658; fax 904-620-2540; email grakita@unf.edu

Associate Editor, Book Reviews: **Stacey N. Lengyel**, Statistical Research, Inc., 6099 E. Speedway Blvd, Tucson, AZ 85712, USA; tel 520-721-4309; fax 520-298-7044; email slengyel@srirm.com

Associate Editor, Dating: **Gregory Hodgins**, Physics and Atmospheric Sciences, NSF Arizona AMS Facility, 1118 E. 4th Street, University of Arizona, Box 0081, Tucson, AZ 85721, USA; tel 520-621-3619; fax 520-621-4721; email ghodgins@physics.arizona.edu

Associate Editor, Geoarchaeology: **David D. Kuehn**, David Kuehn Consulting, 311 Zenith Drive, El Paso, TX 79912, USA; tel 915-771-7887; fax 915-771-0325; email dkuehn@lone-mtn.com

Associate Editor, Meeting Calendar: **Rachel S. Popelka-Filcoff**, Department of Chemistry, University of Missouri, Columbia, MO 65211 USA; tel 573-882-5286, email rspopelka-filcoff@mizzou.edu

Associate Editor, Remote Sensing and GIS: **Apostolos Sarris**, Laboratory of Geophysical-Satellite Remote Sensing & Archaeoenvironment, Foundation of Research & Technology Hellas, Melissinou & Nikiforou Foka 130, P.O. Box 119, Rethymnon 74100, Crete, Greece; tel (30)-831-25146; fax (30)-831-25810; e-mail asaris@ret.forthnet.gr

SAS Administration

General Secretary: **Robert Sternberg**, Department of Earth and Environment, Franklin & Marshall College, Lancaster, PA 17604-3003, USA; tel 717-291-4134; fax 717-291-4186; email rob.sternberg@fandm.edu

SAS Executive Officers, 2005-2007

President: **Aaron Shugar**, Art Conservation Department, Buffalo State College, 1300 Elmwood Ave., Buffalo, NY 14222, USA; tel 716-878-5031; fax 716-878-5039; email shugaran@buffalostate.edu

Vice President/President-elect: **Thilo Rehren**, Institute of Archaeology, University College London, 31-34 Gordon Square, London, WC1H 0PY, UK; tel 44(0)20-7679-4757; fax 44(0)20-7383-2572; email th.rehren@ucl.ac.uk

Past President: **Gregory Hodgins**, Physics and Atmospheric Sciences, NSF Arizona AMS Facility, 1118 E. 4th Street, University of Arizona, Box 0081, Tucson, AZ 85721, USA; tel 520-621-3619; fax 520-621-4721; email ghodgins@physics.arizona.edu

Internet and the World Wide Web: **Destiny Crider** and **Arleyn W. Simon**, Archaeological Research Institute, Arizona State University, Tempe, AZ 85287-2402, USA; tel 602-965-9231; fax 602-965-7671; email destiny.crider@asu.edu, arleyn.simon@asu.edu

SASnet: **James Burton**, Department of Anthropology, University of Wisconsin, Madison, WI 53706-1393, USA; tel 608-262-4505; fax 608-265-4216; email jhburton@facstaff.wisc.edu

Vice President for Intersociety Relations: **Adrian Burke**, Département d'Anthropologie, Université de Montréal, C.P.6128, succursale Centre-ville, Montréal QC H3C 3J7, Canada; tel 514-343-6909; email adrian.burke@umontreal.ca

Vice President for Membership Development: **AJ Vonarx**, Department of Anthropology, University of Arizona, Tucson, AZ 85721-0030; tel 520-881-3407; fax 520-621-2088; email ajvonarx@email.arizona.edu

Publications Coordinator: **Robert H. Tykot**, Department of Anthropology, University of South Florida, 4202 E. Fowler Ave., Tampa, FL 33620-8100, USA; tel 813-974-7279; fax 813-974-2668; email rtykot@cas.usf.edu

SAS Editor for Archaeometry: **James Burton**, Department of Anthropology, University of Wisconsin, Madison, WI 53706-1393, USA; tel 608-262-4505; fax 608-265-4216; email jhburton@facstaff.wisc.edu

Editor, Archaeometry: **Mark Pollard**, Research Laboratory for Archaeology and the History of Art, Oxford University, 6 Keble Road, Oxford OX1 3QJ, UK; tel 44-(0) 1865-515211; fax 44-(0) 1865-273932; email mark.pollard@rlaha.ox.ac.uk

Editor, Journal of Archaeological Science: **TBA**

SAS Representative on the International Symposium on Archaeometry committee: **Sarah Wisseman**, Ancient Technologies and Materials Program, University of Illinois at Urbana-Champaign, 116 Observatory, MC 190, 901 S. Mathews, Urbana, IL 61801, USA; tel 217-333-6629; fax 217-244-3490; email wisarc@uiuc.edu

Published quarterly by the Society for Archaeological Sciences

Distributed to subscribers: \$20/yr regular membership; \$15.00 student & retired; \$30.00 institutional; \$300 lifetime. Individuals add \$105.00/yr for *Journal of Archaeological Science*; \$35/year for *Archaeometry*. ISSN 0899-8922.