



# SAS Bulletin

## Society for Archaeological Sciences

Volume 27 number 1/2

Spring/Summer 2004

### From the Editors



We are pleased to announce that for 2004 the *SAS Bulletin* has a Co-Editor, Christian Wells, who will take Robert Tykot's position as Editor in 2005. Christian, who has been in charge of Membership Development for SAS since 2001, joined the faculty at the University of South Florida last year. Our first joint effort follows the "old formula" but we are very open to suggestions (and submissions!) from our readers.

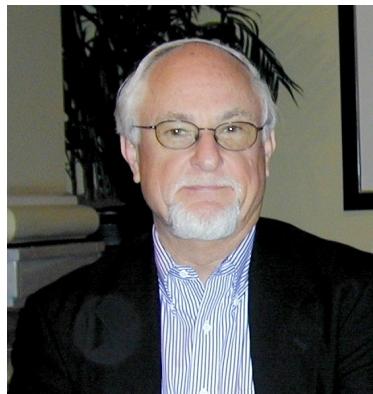


*Robert H. Tykot & E. Christian Wells*

### R.E. Taylor Receives Fryxell Award for Interdisciplinary Research at 2004 SAA

The winner of this year's Fryxell Award for Interdisciplinary Research is Dr. R. E. Taylor, Professor of Anthropology and Director of the Radiocarbon Laboratory at the University of California, Riverside. Most of the participants in the Fryxell Symposium are in picture at right.

Dr. Taylor has spent more than three decades researching radiocarbon dating in archaeology. In addition to having published more than 100 articles on the subject, he is the author, editor, or co-editor of five books on archaeological dating and chronology. He is best known for his work on the problems involved in dating bone, particularly human bone representing the earliest Americans. Dr. Taylor was a pioneer in the archaeological use of AMS dating, and was instrumental in establishing the Center of Accelerator Mass Spectrometry at the Lawrence Livermore National Laboratory.



For his outstanding contributions in the development and application of radiocarbon dating in archaeological research, the Society for American Archaeology is honored to present this award to Dr. R. E. Taylor.



*Seated from left to right: Felicia Beardsley, Timothy Jull and guest, R.E. Taylor, Robert H. Tykot, Jonathan E. Ericson, Arleyn W. Simon. Standing in back: Greg Hodgins, Joan S. Schneider, and guest.*

### In This Issue

Jobs, Fellowships, Call for Papers	2
SIMSMC 2003 (C. Stapleton & R. Sternberg)	3
Taylor Poster Award Winners	5
SAS Officer Reports & Budget	5
Archaeological Ceramics (C.C. Kolb)	8
Book Reviews (M. Hall)	
<i>Subsistence Settlement Systems</i> (Kenneth Ames)	29
Meetings Calendar (C. Stapleton)	30

## Employment Opportunities

### Purdue University

Purdue University Department of Sociology and Anthropology invites applications for the position of assistant professor of anthropology. This is a tenure-track position. We are looking for candidates whose research pertains to the application of science and technology to the development of archaeological method. Our ideal candidate will have an established research project, and will be willing to apply for funding to improve archaeology laboratory facilities and research instrumentation and establish a funded program of research integrating archaeology and technology. Geographical area is open. The position is to begin fall semester of 2005. Purdue's anthropology section emphasizes a four-field approach, and its faculty members are generalists who teach a wide range of courses. Candidates able to teach one or more of the following courses, in addition to those in their specialization, will receive special consideration: introduction to biological anthropology and archaeology, archaeological methods, topics in archaeology, world prehistory, and regional archaeology courses. Send a cover letter stating research interests and teaching interests and experience, vita, and names and addresses of three references to: Chair, Anthropology Search Committee, Department of Sociology and Anthropology, Purdue University, Stone Hall, 700 W. State Street, W. Lafayette, IN 47907-2059. Eventual letters of recommendation should address teaching strengths. Evaluation of applicants will begin November 15, 2004, but applications received after this date will be accepted until the position is filled.

### University of Nottingham

The University of Nottingham, School of Humanities – Department of Archaeology, invites applications for Lecturer in Archaeological Materials Science. This new post is open to outstanding candidates in the field, building on the Department's excellence in materials science. The successful candidate will teach at undergraduate and postgraduate level, share administrative responsibilities and carry out research. Candidates must have a PhD, a record of research and publication in refereed journals and some experience of securing research funds. Salary will be within the range £22,954 - £34,838 per annum, depending on qualifications and experience. Informal enquiries may be addressed to Professor W Cavanagh, Head of Department, tel: 0115 951 4836, fax: 0115 951 4812 or Email: Bill.Cavanagh@Nottingham.ac.uk or Professor Julian Henderson, tel: 0115 951 4840 or Email: Julian.Henderson@nottingham.ac.uk. Further details and application forms are available on the WWW at: <http://www.nottingham.ac.uk/hr/vacancies/academic.html> or from the Human Resources Department, Highfield House, The University of Nottingham, University Park, Nottingham, NG7 2RD. Tel: 0115 951 3262. Fax: 0115 951 5205. Please quote ref. SMM/828A. Closing date: 15 October 2004.

**Advertise your job, post-doc, and student opportunities here. Contact the Editor for further information.**

## Calls for Papers

### 8th International Conference on “Non-Destructive Investigations and Microanalysis for the Diagnostics and Conservation of the Cultural and Environmental Heritage” Lecce (Italy), 15 - 19 May 2005

We wish to inform you that the organization of the following is underway: 8th International Conference on “Non-Destructive Investigations and Microanalysis for the Diagnostics and Conservation of the Cultural and Environmental Heritage”. As you know, this will take place at Lecce, from the 15th - 19th May 2005. The organizers are: - the Italian Society of Non-Destructive Testing Monitoring Diagnostics - (AIPnD); - the Central Institute of Restoration (I.C.R.) of the Ministry of Cultural Heritage and Activities; - the Department of Materials Science of the University of Lecce. The topics of the Conference concern the applications and techniques of nondestructive investigations, monitoring, microanalysis and testing of works of art of any kind, material or period for historical research, restoration and conservation. Moreover, physical-chemical investigations applied to environments of museums, archaeological sites and historical centres of conservation. Deadline for contributions, 31st December 2004. All information regarding abstracts, the Conference can be found on website: <http://www.dsm.unile.it/art05>.

### Metallurgy – A Touchstone for Cross-Cultural Interaction, April 28-30, 2005: A Conference to Celebrate Paul Craddock's Contributions

Dr. Paul Craddock plans to leave the British Museum after nearly forty years of research into the history of metallurgy. An international conference is to be held at the British Museum 28-30th April 2005 to celebrate his work. The conference will reflect the breadth of Paul's research into early technology and aims to examine the 'why' as well as the 'how' of the exploitation and use of metals. In particular it will address the transfer of technologies between cultures across time and space, innovation and also interactions between metalworking and other material technologies - all with reference to archaeological/historical contexts. There will be no parallel sessions, but the poster session will allow maximum participation. We look forward to welcoming you to the conference and hope that many of those who have known and worked with Paul over the years, as well as those who know him only from his publications, will contribute. The conference proceedings, which will be refereed, are to be published in his honour. Abstracts of 200-400 words should be submitted by August 31st, 2004 to [slaniece@thebritishmuseum.ac.uk](mailto:slaniece@thebritishmuseum.ac.uk). Please give the title followed by the author's name and title, affiliation, full postal address and email address.

### Studies of the Sculptural Arts of Asia using Scientific Methods, Forbes Symposium on Scientific Research in Asian Art, Freer Gallery of Art, Washington, DC

In September 2005, the Freer Gallery of Art will hold the Third Forbes Symposium on Scientific Research in the Field of Asian Art in Washington, DC. The theme will be “Studies of the Sculptural Arts of Asia using Scientific Methods”, and will



focus on the impact of scientific methods of study on broader questions of a technical, historical, or art historical nature. Those interested in giving a paper are invited to submit an abstract (approximately 200 words) on original, previously unpublished research by 31 January 2005. Notifications of acceptance will be sent by 15 March 2005. Speakers should plan a 25-minute presentation and submit a manuscript (3000-4000 words) at the time of the symposium. Funding to offset speakers' travel expenses will be available. Contact: Forbes Symposium 2005/DCSR, Freer Gallery of Art/Arthur M. Sackler Gallery, Smithsonian Institution, MRC 707, P.O. Box 37012, Washington D.C. 20013-7012, U.S.A.; Fax: 202-633-9474; email: dcsr@asia.si.edu. Please check the symposium website at: <http://www.asia.si.edu/visitor/dcsrSymposium.htm>.

---

### **Report on the 2003 Summer Institute in the Materials Science of Material Culture at the Massachusetts Institute of Technology**

*Colleen Stapleton, Department of Liberal Studies,  
Mercer University*

*Rob Sternberg, Department of Earth and Environment,  
Franklin & Marshall College*

For the past two summers, faculty from the Department of Materials Science and Engineering (DMSE) and the Center for Materials Research in Archaeology and Ethnology (CMRAE; [http://web.mit.edu/cmrae/cmrae\\_home.htm](http://web.mit.edu/cmrae/cmrae_home.htm)) at MIT have run the Summer Institute in the Materials Science of Material Culture (SIMSMC; <http://web.mit.edu/materialculture/www/>). This NSF-sponsored program combines studies of modern materials science with archaeological materials from a variety of cultural contexts. The purpose of SIMSMC is to encourage faculty to integrate materials science studies into liberal arts and sciences programs. Archaeological materials are the focus of these scientific studies because these materials and the objects that they were used for can be incorporated into a wide range of traditional liberal arts classes including anthropology, architecture, art, chemistry, history, geology, as well as archaeology. Lecture notes, bibliographies, and other supplementary materials are given to participants for use in planning their own classes or modules in their home institutions and are an essential component of this Summer Institute.

SIMSMC, held during a two-week period in June, is composed of two modules, each of which encompasses one type of material and lasts for one week. In the mornings, participants listen to lectures on the archaeological setting, social context, characteristics, and manufacturing techniques of the material under discussion. In the afternoons, participants engage in hands-on laboratory exercises including the processing and working of materials discussed during the morning. Participants learn about the social context of materials through these hands-on activities because, by design, technical, organizational, and

creative aspects of materials industries are combined into these "workshops". Modules are varied each year and participants receive supplementary materials from the years in which they do not attend. The instructors have included Samuel M. Allen (Posco Professor of Physical Metallurgy, DMSE), David F. Grose (Professor of Classics and Anthropology, University of Massachusetts), Elizabeth Hendrix (Research Scientist in Archaeological Materials, CMRAE), Linn W. Hobbs (Professor of Materials Science, DMSE), Dorothy Hosler (Professor of Archaeology and Ancient Technology, DMSE), and Heather Lechtman (Professor of Archaeology and Ancient Technology, DMSE). The modules for the upcoming 2004 SIMSMC are "Acoustics and Culture in Mesoamerica: Metal and Sound" taught by Profs. Hosler and Allen, and "Cloth and Other Fiber Technologies in the Andean World" taught by Profs. Hobbs and Lechtman, and Mary Frame (specialist in Andean textiles).

The list of attendees for 2003 is given at the web site. There were seven chemists, two geoscientists, one materials scientist, one archaeologist, and two historians. Although there was a majority of chemists, the representation of different sciences, and especially the inclusion of social scientists, made for a balanced set of perspectives. Different institutions were also well represented, with faculty from five universities, seven liberal arts colleges, and one community college. It was interesting to discuss the material presented by our research university mentors with other colleagues who have given so much thought to the teaching of science, archaeology, and art history. Gender of participants was nearly balanced, with eight men and five women. Judging by the photographs of majors in DMSE's undergraduate major program in Archaeology and Materials, this is a field that does well in attracting women as majors, perhaps because of the women in leadership positions.

The first module of SIMSMC 2003, Glass in the Mediterranean World, was led by David Grose and Linn Hobbs. In one week, the lectures covered the archaeology, history, social and political structure, ancient documentation, conservation, ancient and modern technology of not only glass, but also of other vitreous materials. Lectures were intense and very thorough, but were delivered with the full enthusiasm that the instructors obviously have for their areas of expertise. Our mornings also included videos on the history and archaeology of Mediterranean cultures, and on making and working with glass using ancient techniques. Our first afternoon laboratory activity involved making lost-wax casts and plaster molds for faience and mixing up our own faience paste. The firings of the dried faience objects were not entirely successful. As crafts people and scientists, we were as interested in the failed pieces, those that broke or did not glaze during firing, as in those that fired perfectly. Our instructors took pity on us and let us carry out additional faience-making experiments. Elizabeth Hendrix, having already led us through exercises on weathered and corroded glass, took advantage of the situation and taught us how to carry out ceramic and glass conservation techniques.

In another lab activity, we made plaster forms and used these to make slump-molded glass vessels. Both the faience making and slump molding could be carried out easily with common college lab materials and equipment or art department kilns.

Our glassworking activities were carried out in the DMSE Undergraduate Laboratory for Metalworking, Ceramics, and Glassworking. In a process that took several afternoon sessions to complete, we made and decorated core-formed vessels, including the ceramic cores around which the vessels are formed. The technique we used was developed by Dudley Giberson, owner of Joppa Glassworks, and required an open-topped kiln. To decorate our core-formed vessels, we softened canes of colored glass over the glory hole and applied these to our vessels with varying degrees of skill and success. Although not all participants thought this lab would be appropriate for their undergraduate students, we agreed that using this kiln gave us a very good understanding of the practices and skills that early glassworkers would have needed to successfully produce glass objects. One of the participants suggested a modified version of this kiln which seemed more appropriate for institutions that do not have a dedicated glass lab. While some participants worked on core-formed vessels, others watched glassblowing demonstrations by Glassworking Lab instructor Brendon Edwards and created their own glass paperweights with the help of Peter Houk, Technical Instructor in the Glassworking Lab. These instructors showed how easily this material can be controlled ... with much, much practice. Glass gathered onto the end of a pontil is heavy and unwieldy, moving imperceptibly like warm, thick caramel. Originally spherical gathers can become disfigured into peanut-shaped objects (well, Colleen's did).

In the second module, the Power of Metal in the Andean World, Samuel Allen and Heather Lechtman discussed the physical metallurgy, manufacturing technology, use and cultural meaning of metals, as well as the cultural commitment to specific styles of metal processing in the Andean region of the New World. Lechtman also compared the archaeology and history of metal use in the Old World with that in the New World, showing how these histories differ. Lectures on the structure and properties of metals were very well-integrated with descriptions of the use and meaning of metal in Andean society. Lechtman's anthropological treatment of the module material contrasted with the historical approach taken by Hobbs and Grose in the glass module. Laboratory exercises began with metallographic examinations of the structure of metals. We learned how to distinguish between cast and worked metal, and about the practical aspects of microscopy and sample preparation. We were able to examine samples removed from Andean artifacts made of copper and copper alloys.

Under the tutelage of blacksmith Toby Bashaw, we smelted the copper ore malachite in crucibles heated in the Metalworking Lab forges and found out how easy it is to extract

copper metal from this ore. With our new-found confidence, we went on to the remaining labs with the goal of producing Andean backflaps or axe-monies with silver-enriched surfaces. Mr. Bashaw guided us through a lost-wax casting method for making molds for bar ingots. For safety reasons, Mr. Bashaw poured the melted copper-silver alloy into the molds to make the ingots. For practical purposes in undergraduate laboratories, it may be possible to obtain commercially produced alloys or a local blacksmith may be able to provide a demonstration. In the Metalworking Lab, we used cold-hammering, annealing, and pickling to change the copper-colored surfaces of our ingots to silver by removing copper from the outer layers. The hammering also thinned out our ingots into shapes that somewhat resembled the axe-monies and backflaps we were trying to recreate. Our sweaty efforts were rewarded by silver-tinted surfaces and some defects and tears that we were not skilled enough to control by annealing. This was hard work, but could be performed by most undergraduates. The results would be quite useful in explaining to students the processes involved in creating and deforming microstructures commonly observed in crystalline materials, especially if the worked metal was examined by the students themselves.

Working with these materials gave us a tactile understanding of their working properties and a sense of the culture that can develop around the making and using of materials. While not every laboratory activity we took part in would be practical for every institution, undergraduate students would certainly benefit from learning how material industries may develop by taking part in similar experimental experiences.

The logistics of the workshop were excellent. Funds were provided by an NSF grant to DMSE to cover travel, meals, lodging of attendees. Housing was in single dorm rooms in McCormick Hall. The rooms were typical dorm rooms, not luxurious, but adequate. The view from the penthouse (with the tv and vcr) over the Charles River and into Boston was beautiful. Participants were given dollars on id/dining cards which could be used in various campus locations. Rob enjoyed the Student Center, including bagels and sushi plates. In addition, there was an allowance of \$25/day for dinners off campus, which gave us the chance to fully enjoy the multicultural eating establishments of Cambridge and Boston - seafood, Italian, Thai, you name it.

The intervening weekend and evenings were mostly free time, except for a couple of demonstrations and group discussions. The culinary, cultural, sporting, and entertainment possibilities were plentiful.

Participants enjoyed all the workshop had to offer. The activities, lectures, lecture notes, CDs with images and pdf files will be valuable resources as Rob continues to teach his archaeometry course in the future. He will use some of the materials provided on metals and glasses (his areas of greatest weakness in archaeometry), as well as some of the material

on plasters from the previous year's workshop. Among some of the feedback comments featured on the website:

"This was an outstanding experience to spend two weeks intensively interacting w/colleagues from other institutions; not only did we learn a great deal from each other, but we now have a "stable" of resource personnel from which to draw as our curricular plans develop."

"Another one of the strengths of the summer institute in my mind was the plethora of reading material. I am very glad to have a lot of supplementary written material to refer to now that the institute is over. It will certainly be very useful when I incorporate some of this material into my own courses."

"The lectures were excellent. Clear, interesting, engaging, but alas only too short a time to cover so much interesting material. However, two weeks of intensive study is the limit for participants to maintain the high energy level needed for the course."

We would recommend this workshop to natural scientists or social scientists who are developing or teaching courses on archaeometry, materials/artifacts, or materials science applications. Modules shift from year to year, so one might want to ascertain if modules being taught in a given year will be of particular interest. Kudos to the organizers, instructors, and the funders for a job well done.

---

### **R.E. Taylor Poster Award Recipients at the 2004 SAA Meeting**

*E. Christian Wells*

*Vice President for Membership Development*

Congratulations to Hanneke Hoekman and Cynthia Fadem, recipients of this year's R.E. Taylor Student Poster Awards, presented at the 2004 Meetings of the Society for American Archaeology, Montreal, Canada. The winners receive one-year membership in the Society for Archaeological Sciences, including subscriptions to *Archaeometry* and the *Journal of Archaeological Science*.

### **Residue Analysis of Ceramics from Roman and Early Byzantine Contexts at Pella, Jordan**

*Hanneke Hoekman, College of Wooster*

This project involves extraction and analysis of residues from pottery sherds to examine some economic features at Pella of the Decapolis from Roman to Early Byzantine times. Sherds are soaked in dichloromethane and methanol to extract the residues, which are analyzed using gas chromatography and mass spectroscopy. Certain samples receive further analysis using in-depth extraction and digestion methods. Initial work reveals the presence of licorice, dill, and kohlrabi. The results inform us about diet and trade in this important city that was part of a complex commercial network at the western terminus of Asian caravan routes.

### **Archived Sediments & Isotopic Geochemistry: Results from the Marmes Site (45FR50), Washington**

*Cynthia Fadem (with Gary Huckleberry), Washington State University*

Recent isotope geochemistry studies show that measures of d18O and d13C from soil organic matter and carbonate rhizoliths function as proxies for paleoclimate and vegetative composition (C3 vs. C4) and distribution. The Marmes Site (45FR50) contains well-dated latest Pleistocene and early Holocene deposits for which conventional biophysical properties were obtained in 1968. Current inspection of these archived sediments indicates they contain sufficient organic matter and rhizoliths for isotopic study. These preliminary results imply potential for isotopic studies at other previously excavated sites where sediments have been archived and further paleoenvironmental information would benefit cultural interpretation.

---

### **Society for Archaeological Sciences General Secretary's Report, 2003 (submitted April 2004)**

*Rob Sternberg, General Secretary*

Calendar year 2003 was the first full year for the General Secretary's office at Franklin & Marshall College, after 25 years at Riverside.

The General Secretary (GS) is responsible for the membership database. We are currently using Paradox software. The database structure has been slightly modified from previous years. The database now has valid emails for about 80% of its members. The GS manages this software himself, with some clerical assistance for data entry. Finances are tracked using Quicken software.

Banking is still done through a Bank of America office in California, but can be handled from Lancaster using deposits-by-mail and credit card charges through a touch-tone phone. The GS makes one trip to the nearest Bank of America branch in Baltimore for the largest single deposit of checks at the beginning of the membership year. The GS manages the banking personally. The corporate headquarters for SAS is still at Riverside.

Franklin & Marshall College has generously provided assistance to the Society. There is no charge for secretarial help when it is needed. There is no charge for long-distance phone calls, postage for the occasional mail item, or small volumes of copying. The Department of Earth and Environment at F&M has also paid occasional hours for a student assistant for the GS.

The GS completed a history of the Society that was printed in Bulletin v. 26, #2. The GS and student assistant Isaac Weaver produced a CD-ROM with pdf files of 25 years of SA Newsletters and Bulletins. This is being sold to members for a nominal fee.



Membership Data

	<u>2003</u>	<u>2004</u>
SAS members, total	309	254
Regular	188	140
Extended	2	3
Student/retired	25	22
Lifetime	72	71
Institutional	22	18
USA	224	184
International	85	70
check	187	134
subscription services		10
credit card	68	55
bank transfer	1	1
Lifetime members w/o journals	51	54
<i>Journal of Archaeological Science</i>	155	119
<i>Archaeometry</i>	63	65

## Society for Archaeological Sciences President's Report for 2003-2004

*Gregory W. Hodgins, President*



The 2003/04 year has been one of reflection, evolution, and innovation for the society.

Interim changes to the SAS Board are in the works. Jim Burton, our Internet guru, has decided to pass the baton. Jim has been an active member of SAS for more than a decade. He is a past President and for the last eight years has managed the SASnet and the SAS Web pages. On behalf of the Society, I would like to thank him for his service to the SAS and ask for his patience as we search for another person to take on these important duties. In the same vein, Michael Richards has stepped down from the Intersociety Relations position as a consequence of a job transitions.

Rob Tykot, who has produced the Newsletter for the past five years, has decided to transition out of this position, and Christian Wells will be taking over this important role. Luckily, Rob's experience and input will not be lost to the SAS. In his

new role as Chairman of Publications he will be initiating a series of SAS sponsored publications, and is heavily involved in negotiations to establish a long-term association with a publisher. We look forward to this exciting new chapter in the Society's activities.

General Secretary, Rob Sternberg's initiative to compile and re-issue the past 25 years of Newsletters and Bulletins has been well received. These are valuable records of both the activities of the Society, and topics of interest to its members. They chart not just the growth of the Society, but the growth of the field of Archaeological Science. Rob's efforts to make this accessible have been a great service.

The new Secretary-Treasurer Colleen Stapleton has been working with the General Secretary Rob Sternberg, redefining the Secretary-Treasurer's duties and integrating them those of the General Secretary.

Thanks to all the other SAS board members for their positive efforts in many different areas; Vice President (Aaron), Past President (Arleyn), membership (Christian), journals (Steve), the SAS web and SASnet (Jim), the ISA (Sarah), and not least, the Bulletin (Rob). Past President Chris Prior also deserves special mention for donating high-profile booth space to the SAS during the Montreal meeting.

The formal board and business meetings were held in conjunction with the Society for American Archaeology Annual meeting in Montreal, 31 March to April 4<sup>th</sup>, 2004. R.E. Taylor, founder of the Society for Archaeological Science, attended the business meeting. Erv Taylor was the recipient of the 2004 Fryxell Award. In conjunction with this award, SAS Past Presidents Chris Pryor and Arleyn Simon organized an SAS-sponsored Symposium at the SAAs to honor Erv's contributions to Archaeological Science.

An informal board and membership meeting was also held in conjunction with the 34<sup>th</sup> International Symposium on Archaeometry in Zaragoza, Spain, 3-7 May 2004.

At both Conferences, Christian Wells organized The R.E. Taylor Student Poster Awards. The posters were judged by attending SAS Board Members, and awards presented at both conferences. The increased number of entrants this year was a tribute to Christian's efforts at publicizing the award, and the high quality an encouraging sign for the field in general.

Some of the discussions at both Montreal and Zaragoza focused on strengthen ties with regional archaeological science and archaeometry groups centered in Europe, the United Kingdom, and Asia. The motivation for this outreach is to encourage communications between archaeological scientists worldwide, to highlight the activities of colleagues in other countries, and to counter the sometimes insidious centrifugal force that regional funding exerts on academic communities.

In the upcoming year, the SAS will be sponsoring the Inaugural Archaeological Sciences of the Americas Meeting, being held at the University of Arizona September 2004. This student-organized and student-oriented conference, in the works since spring 2003, has already has topped 100 submissions from both the Americas and Europe, and should prove to be an exciting addition to the conference calendar.

Best wishes to all for an interesting and productive upcoming year.

## SOCIETY FOR ARCHAEOLOGICAL SCIENCES

### Income and Expenditure Projections January 1, 2004, to December 31, 2004

#### PROJECTED INCOME

	<u>Projected, 2004</u>	<u>Projected, 2003</u>
Membership, SAS <sup>1</sup>	\$6,000	\$7,000
<i>Archaeometry</i> subscriptions <sup>2</sup>	\$2,200	\$1,500
<i>JAS</i> subscriptions <sup>2</sup>	\$13,000	\$19,000
CD-ROM sales <sup>3</sup>	\$500	\$0
UCR Campus Credit Union dividends	\$200	\$100
Plenum Royalties	<u>\$100</u>	<u>\$400</u>
PROJECTED TOTAL INCOME	\$22,000	28,000

#### PROJECTED OPERATING EXPENDITURES

Annual meeting	\$150	\$230
Banking costs	\$600	\$800
Bulletin printing/postage	\$4,000	\$3,900
Gifts	\$100	\$0
Office expenses, Bulletin editor	\$200	\$200
Office expenses, General Secretary	\$200	\$500
Office expenses, President	\$100	\$100
Payment, <i>Archaeometry</i> subscriptions	\$2,200	\$1,500
Payment, <i>JAS</i> subscriptions	\$13,630	\$19,000
Postage	\$200	\$500
Printing	\$200	\$500
State taxes	\$20	\$20
Web service	\$300	\$250
Miscellaneous	<u>\$100</u>	<u>\$500</u>
PROJECTED TOTAL EXPENDITURE:	\$22,000	28,000

#### Notes

1. Assumes about 300 members.
2. Assumes about 70 *Archaeometry*, 130 *JAS* subscriptions.
3. Assumes 20 sold @ \$25 each.



**Archaeological Ceramics**  
Charles C. Kolb, Associate Editor

The column in this issue includes eight topics: 1) News; 2) Reviews of Books on Archaeological Ceramics; 3) New Publications; 4) FAMSI Website; 5) Previous Meetings; 6) Forthcoming Meetings; 7) Exhibits; and 8) Internet Resources.

#### News

Roxanna Maude Brown, Doctor of Philosophy in Art History. I am delighted to report that Roxanna completed her dissertation on 6 January 2004: Roxanna M. Brown (2003), *The Ming Gap and Shipwreck Ceramics in Southeast Asia,*

Unpublished Ph.D. dissertation, Department of Art History, University of California, Los Angeles (1 map, 1 figure, 30 tables, and 73 plates). The committee consisted of Professor Robert L. Brown (Chair), Susan Downey, Lothar Von Falkenhausen, and Geoffrey Robinson. Abstract (courtesy of Roxanna): "This dissertation uses shipwreck archaeological materials in Southeast Asia to discover the extent of trade ceramics shortages from China in the early Ming period. Firstly, some 120 maritime sites are organized into an approximate relative chronology. The chronology is shown on 24 tables that cover the years from the first centuries AD to the 20<sup>th</sup> century. The analysis then focuses on 15 sites that cover the period *circa* 1368-1487. These sites reveal two types of shortages. Once Thai and Vietnamese ceramics join shipwreck cargoes in the Hongwu reign (1368-98) or very shortly thereafter, there is not a single shipwreck with 100% Chinese ware until the 16<sup>th</sup> century. On shipwrecks from *circa* 1368-1430 the percentage of Chinese ware, which comprises primarily celadon and brown glazed wares, is 30-40%. On ships from approximately 1430-1487, the percentage of Chinese ceramics drops to 2% and usually less, and then in the Hongzhi (1488-1505) reign the percentage abruptly rises to about 90%. The Ming gap, a term that refers to a near absence of Chinese blue and white ware, runs from about 1352 through to the beginning of the Hongzhi reign when Chinese ware floods onto the Southeast Asian market. Only one to three blue and white Chinese pieces are known from *circa* 1352-1450, and about a hundred examples are known from the years *circa* 1450-1487. Besides finding evidence for the two shortages of Chinese blue and white and of Chinese ceramics in general, the research reveals a six-phase chronology for Thai ceramics that was not previously possible to construct. This chronology covers the late 14<sup>th</sup> to late 16<sup>th</sup> centuries. Vietnamese ceramics are divided into two major phases, *circa* 1368-1430, and *circa* 1450-1510. The ships also show evidence for the export of Central Vietnam Champa ceramics *circa* 1450-1475, and for Burmese celadon *circa* 1470-1510. The shipwrecks also suggest minor shortages of Chinese ware in the middle 16<sup>th</sup> century *circa* 1520-1560/70 when the only Southeast Asian exports came from Thailand." The dissertation should be available via ProQuest within a few months. Roxanna Brown is currently the Director of the Southeast Asian Ceramics Museum, Bangkok University, Rangsit Campus, Prathum Thani 12120 Thailand. Among her two dozen publications on ceramics are seven books: *The Legacy of Phra Ruang* (London: Bluett & Sons, Ltd, 1974), *The Ceramics of South-East Asia, Their Dating and Identification* (Singapore: Oxford University Press, 1977), *Legend and Reality, Early Ceramics from South-East Asia* (Kuala Lumpur: Oxford University Press, 1978), *The Ceramics of South-East Asia, Their Dating and Identification*, 2<sup>nd</sup> ed. rev. Singapore: Oxford University Press, 1988, reprinted Chicago: Art Media Resources, Ltd., 2000), and the edited volume *Guandong Ceramics from Butuan and Other Philippine Sites* (Manila, The Philippines: Oriental Ceramic Society of the Philippines/Oxford University Press, 1989). She also co-authored, with Sven Sjostrand, *Turiang: A Fourteenth Century Wreck in Southeast Asian Waters* (Pasadena, CA: Pacific Asia Museum, 2000, also on line at <http://>

www.maritimeasia.ws/) and *Maritime Archaeology and Shipwreck Ceramics in Malaysia*, Kuala Lumpur, Malaysia: Department of Museums and Antiquities, 2002), and she co-edited with J. Adraian *South-East Asian and Chinese Trade Pottery: An Exhibition Catalog* (Hong Kong: Oriental Ceramics Society of Hong Kong, 1979).

The Tables of Contents for *Medieval Ceramics* 1 (1977) through 24 (2000), the annual bulletin of the Medieval Pottery Research Group MPRG) in the UK, are available online at <http://www.medievalpottery.org.uk/publi.htm>. The contents include Papers, Compendario, Book Reviews, and occasional Review Articles. The MPRG was founded in 1975 to bring together people with an interest in the pottery vessels that were made, traded, and used in Europe between the end of the Roman period and the 16th century. It has subsequently expanded to include pottery of the 17th and 18th centuries from both sides of the Atlantic and beyond, as well as post-Roman ceramic building materials.

*NSDL: National Science Digital Library and Ceramics: The American Ceramic Society Bulletin* (February 2004) contains a useful article about an interactive Internet site designed to facilitate ceramic research and education. The article, "Digital Library of Ceramic Microstructures Part 1, Digital Library," is authored by R. R. Wills and M. H. Peirson (University of Dayton Research Institute, Dayton, OH), M. K. Ferber (Mechanical Test & Instrumentation Co., Oak Ridge, TN), V. Tennery (Tennery Consulting Inc., Oak Ridge, TN), J. Sankar and S. Yarmolenko (North Carolina A&T University, Greensboro, NC), N. N. Thadhani (Georgia Institute of Technology, Atlanta), M. Velez (Mo-Sci Corp., Rolla, MO), and M. Karakus (University of Missouri-Rolla, Rolla, MO). This Internet site, [www.udri.udayton.edu/DLCM](http://www.udri.udayton.edu/DLCM), "contains more than 900 images of 30 different ceramics that range from monolithic ceramics to composites and nanoceramics. Micrographs that illustrate a common theme have been grouped together in a series of 13 separate collections. The second part of the website consists of a virtual experiments laboratory that enables students to perform experiments in microstructural analysis, mechanical properties and oxidation.

The National Science Digital Library (NSDL) is a comprehensive, online source ([www.nsd.org](http://www.nsd.org)) for science, technology, engineering and mathematics (STEM) education. NSDL's mission is to deepen and extend science literacy through access to materials and methods that reveal the nature of the physical universe and the intellectual means by which we discover and understand it. Initial development of the NSDL program began in late 1995 with an internal concept paper for the National Science Foundation (NSF) Division of Undergraduate Education. In 1996, NSF released a report about ways to improve undergraduate STEM education. The report recommended establishing a national digital library that would constitute an online network of learning environments for improving teaching and learning for STEM education at all levels. The NSDL program held its first formal funding cycle during fiscal year 2000. To date, 102 projects have been funded to create collections and services for teachers and learners at all levels and to perform targeted research in digital libraries and their application to education. The Digital Library of

Ceramic Microstructures (DLCM) was one of those projects and the only one supported in materials science to date in the United States. The term "digital library" stretches the conventional understanding of a library as a collection of books, because it may include databases as well as virtual collaborative work areas, analytical tools, remote instrumentation, virtual or simulated environments."

"Ceramic Conservation in Cambodia" by Denise Haywood appears in *Asian Art: The Newspaper for Collectors, Dealers, Museums and Galleries* (Article 2, 8 December 2003, 7 pp.) and elaborates pottery conservation training in Phnom Penh, Cambodia under the direction of Bonnie Baskin. The article and images are available online at [http://www.globalheritagefund.org/what/Asian\\_Art\\_Newspaper\\_Nov\\_03\\_cambodian\\_ceramics.pdf](http://www.globalheritagefund.org/what/Asian_Art_Newspaper_Nov_03_cambodian_ceramics.pdf).

*Snails Led to Pottery's Invention?* by Jennifer Viegas, *Discovery News*, 6 January 2004, <http://dsc.discovery.com/news/briefs/20040105/pottery.html>. "A taste for freshwater snails may have resulted in the invention of some of the world's oldest pottery, a team of Chinese archaeologists announced recently. The archaeologists, who gathered late last month at a forum in Guilin, southeast China's Guangxi Zhuang Autonomous Region, believe China's earliest pottery was used to cook snails, which are hard to eat raw. The pottery dates to the early part of China's Neolithic period, from 12,000 to 7,000 years ago."

"Terracotta Army saved from crack up: Plastic solution and particle accelerator revive faded Chinese figures," by Philip Ball, *Nature*, 27 November 2003, <http://www.nature.com/nsu/031124/031124-7.html> "A chemical treatment could prevent China's Terracotta Army from cracking up. Around 1,500 of the 2,000-year-old figures are fading as their protective glaze begins to crumble. "The new method effectively glues the lacquer together from the inside," explain Heinz Langhals and colleagues at the University of Munich in Germany. A handful of soldiers have been protected so far and thousands more may be treated. The life-sized terracotta figures were found buried in underground chambers near Xi'an, China, in 1974. The army - thousands of warriors and horses - were interred in the mausoleum of the first Chinese Emperor Qin Shihuangdi, who died in 210 BC. Soon afterwards, looters set fire to the burial tomb and the ceiling collapsed. For the next two millennia, the clay effigies lay buried in water-soaked soil. As the figures are exhumed, their sodden glaze starts to dry out. The brownish lacquer, covered with coloured pigments, begins to flake and fall off. Langhals' team bathes the warriors in a solution containing hydroxyethyl methacrylate (HEMA). The organic molecule, which is commonly used to make plastics, is small enough to penetrate tiny pores in the glaze. Next the soldiers journey to nearby Lintong, where they are bombarded with electrons in a particle accelerator. This converts the impregnated liquid into a robust polymer, bonding the fragile coating together like glue. The technique outstrips standard preservation methods. Cracked paint on artefacts is often treated with a solution that seeps into crevices and dries to form a tough film. But these molecules are too big to infiltrate the tiny, water-filled pores in the Terracotta Army's glaze. Crucially, the new technique does not alter the figurines' appearance - other protective polymers can add a glossy sheen.



And the research is timely: new excavations may reveal further legions of figures.” The original publication is: Langhals, H. and Bathelt, D. (2003) The restoration of the largest archaeological discovery - a chemical problem: conservation of the polychromy of the Chinese terracotta army in Lintong. *Angewandte Chemie International Edition* 42:5676 – 5681. <http://www.sciencedaily.com/releases/2004/03/040316073517.htm> Source: American Chemical Society; Date: 2004-03-16.

**King Tut Liked Red Wine:** Ancient Egyptians believed in properly equipping a body for the afterlife, and not just through mummification. A new study reveals that King Tutankhamun eased his arduous journey with a stash of red wine. Spanish scientists have developed the first technique that can determine the color of wine used in ancient jars. They analyzed residues from a jar found in the tomb of King Tut and found that it contained wine made with red grapes. This is the only extensive chemical analysis that has been done on a jar from King Tut’s tomb, and it is the first time scientists have provided evidence of the color of wine in an archaeological sample. The report appears in the March 15 edition of *Analytical Chemistry*, a peer-reviewed journal of the American Chemical Society, the world’s largest scientific society. The earliest scientific evidence of grapes is from 60-million-year-old fossil vines, while the first written record of winemaking comes from a much more recent source, the Bible, which says Noah planted a vineyard after exiting the ark. Scientists have detected wine in a jar from as far back as 5400 B.C., found at the site of Hajji Firuz Tepe in the northern Zagros Mountains of present-day Iran. But the earliest knowledge about wine cultivation comes from ancient Egypt, where the winemaking process was represented on tomb walls dating to 2600 B.C. “Wine in ancient Egypt was a drink of great importance, consumed by the upper classes and the kings,” says Maria Rosa Guasch-Jané, a master in Egyptology at the University of Barcelona in Spain. She and Rosa M. Lamuela-Raventós, Ph.D., a professor of nutrition and food science, have analyzed samples of ancient Egyptian jars belonging to the Egyptian Museum in Cairo and the British Museum in London. One sample came from the tomb of King Tutankhamun, discovered in 1922 by Howard Carter in Western Thebes, Egypt. The inscription on the jar reads: “Year 5. Wine of the House-of-Tutankhamun Ruler-of-the-Southern-On, l.p.h. [in] the Western River. By the chief vintner Khaa.” “Wine jars were placed in tombs as funerary meals,” Guasch-Jané says. “The New Kingdom wine jars were labeled with product, year, source and even the name of the vine grower, but they did not mention the color of the wines they contained.” Scientists and oenophiles have long debated the type of grape that ancient Egyptians used in their wines. Using a new method for the identification of grape markers, Lamuela-Raventós and her coworkers determined that the wine in this jar was made with red grapes. Tartaric acid, which is rarely found in nature from sources other than grapes, has been used before as a marker for the presence of wine in ancient residues, but it offers no information about the type of grape. Malvidin-glucoside is the major component that gives the red color to young red wines, and no other juice used in the ancient Near East and Mediterranean region contains it. As wine ages, malvidin reacts

with other compounds forming more complex structures. The researchers directed their efforts toward developing a tool for breaking down these structures to release syringic acid. Analysis of ancient samples requires a very sensitive method to minimize the amount of sample that needs to be used. To detect syringic acid, the researchers used a technique called liquid chromatography and mass spectrometry in tandem mode, which is known for its high speed, sensitivity and selectivity. This method has never before been used to identify tartaric acid or syringic acid, nor has it been used on any archaeological sample, according to the scientists. Lamuela-Raventós and Guasch-Jané plan to use the new technique in more extensive studies of wine residues from other archaeological samples. The Spanish Wine Culture Foundation and Codorniu Group provided funding for this research.

**Shipwreck Porcelain Fetches over A\$2m:** The 5 March 2004 edition of the Singapore Press Holdings Ltd-published *Business Times*, <http://business-times.asia1.com.sg/story/0,4567,109992,00.html>, carried an article from Sydney, Australia reporting that more than 17,000 rare Ming era porcelains recovered in 2002 from the Chinese junk *Binh Thuan*, which sank in 40 meters of water off southern Vietnam in 1608, has been sold for \$2.1 million (US dollars) by Christie’s auction house, more than doubling the initial Christie’s estimate. About half of the ceramics cargo was Swatow style glazed blue and white ware from the late Ming dynasty; the rest was unglazed. Researchers believe the junk belonged to a Chinese merchant called I Sin Ho and was taking the porcelain to Malaysia when it struck a coral reef.

“The Restoration of the Largest Archaeological Discovery — A Chemical Problem: Conservation of the Polychromy of the Chinese Terracotta Army in Lintong” by Heinz Langhals and Daniela Bathelt (Department Chemie, Universität München, Butenandtstrasse 13, 81 377 München, Germany), [langhals@lrz.uni-muenchen.de](mailto:langhals@lrz.uni-muenchen.de) appeared in *Angewandte Chemie International Edition* 42(46): 5676–5681 (2003).

Abstract: “A new process to preserve the polychromy of the Chinese Terracotta Army in Lintong is described. The polychromy of the excavated warriors is found to consist of a layer structure of a lacquer base-coat and pigment. Both the base and paint have changed while in storage and normal preservation materials do not work through the fine pore structure of the water-based base-coat. Researchers have found that the monomer hydroxyethylmethacrylate, which is water soluble, can be used directly on the damp terracotta. Irradiation with electron beams (e<sup>-</sup> rays) results in cross-linking of the monomers into a polymeric structure through the lacquer layer that stops at the terracotta.

Oxygen from the surrounding surface air stops the reaction and the pigment is found to be unaffected by this treatment. This could be used to preserve the colour of the army.”

**Ancient Pottery Kilns Discovered in Guizhou** (2003-12-20 11:04) (Xinhua), [http://www1.chinadaily.com.cn/en/doc/2003-12/20/content\\_292122.htm](http://www1.chinadaily.com.cn/en/doc/2003-12/20/content_292122.htm). Chinese archaeologists have discovered 15 pottery kilns, dating back to the Han Dynasty (206 B.C.-220 A.D.) in the Wujiang River valley in southwest China’s Guizhou Province. Located on a riverbank near the Hongdu Township, Tujia Autonomous County of Yanhe, 13 of

the 15 ancient pottery kilns remained intact, according to archaeologists with the provincial cultural heritage research institute. The pottery kilns, scattered in an area of over 3,700 square meters and 120 meters from the Wujiang River, were unearthed from a stratum three meters underground. One of the kilns, 2.3 meters wide from north to south, has 1.5-meter high walls and a 0.8-meter-deep water discharge ditch. Liu Enyuan, a research fellow with the Guizhou Provincial Cultural Heritage Research Institute, said pottery kilns were rarely found in the Wujiang River valley and it was the first time that such a big group of Han pottery kilns had been discovered in the area. The Wujiang River is one of the major tributaries of the Yangtze River, the longest in China, which runs through this southwest China province. Archaeologists have unearthed relics such as bricks with decorative designs, tiles and tools used in making pottery from the kilns. Liu said the ancient pottery kilns were precious materials for studying the history of ethnic architecture in Guizhou Province.

#### *Reviews of Books on Archaeological Ceramics*

**Encyclopedia of Geology**, 5 vols. (ca. 2,100 pp.), is to be published by Elsevier in November 2004. The editor-in-chief is Richard C. Selley (Department of Earth Science & Engineering, Royal School of Mines, Imperial College of Science, Technology & Medicine, London, UK), and the editors are Robin Cocks (Department of Palaeontology, The Natural History Museum, London, UK) and Ian R. Plimer (School of Earth Sciences, The University of Melbourne, Australia). The five-volume set, ISBN: 0-12-636380-3, comes in a print version, \$1,200 USD / 775 GBP (Introductory Offer: \$960 USD / 620 GBP [valid through third month after publication] a 20% Introductory Discount). For additional information about the encyclopedia, see <http://www.encyclopediaofgeology.com/> To order, go to [www.bh.com/apcatalog/default.asp?isbn=0126363803](http://www.bh.com/apcatalog/default.asp?isbn=0126363803) An online version became available November 2004 on Elsevier's ScienceDirect platform, see [http://www.info.sciencedirect.com/reference\\_works](http://www.info.sciencedirect.com/reference_works) This five-volume reference work will cover all aspects of geology including earth history, earth materials, surface processes, regional geology, economic geology, engineering geology, petroleum geology, geochemical and mineral exploration, and the history of geology. The techniques of remote sensing and other tools of investigation will also be described in detail. The encyclopedia is divided into nearly 350 articles, each covering one aspect of geology. The encyclopedia will be divided into short articles, each covering one aspect of geology. It is planned and structured to provide the user with a comprehensive coverage of the core knowledge in the area, accessed as intuitively as possible. Large subject areas will be sub-divided and covered by a number of articles. The articles will normally be 2500-4000 words in length and provide a list of further reading to point users to more in-depth or advanced material. The contributions are to include color illustrations (photographs, diagrams and maps) throughout and the articles will cross-reference and include further reading lists. The principal categories of reader are likely to be students, researchers and professionals who are seeking an authoritative source of information about any particular aspect of geology. Concepts

and theory are to be explained at a level that allows undergraduates and educated laypeople to understand them. The Table of Contents currently available (Spring 2004) is tentative and subject to some changes prior to publication. The primary entries (of interest to SAS readers) include: *Applied Geology* (Economic Geology, Environmental Geochemistry, Geoarchaeology, Geological Conservation, Medical Geology, and Military Geology); *Earth History* (separate articles on Archaean through Eocene, Magnetostratigraphy, Principles of Stratigraphy, Sequence Stratigraphy, Stratigraphical Zonation, and Time Scale) *Earth Materials* (separate articles ranging from Andesite, Clay Minerals, Clays and their Diagenesis, Igneous Rocks [mineralogy, classification and description], and Minerals [chemistry, structure, genesis, occurrence and uses], to Minerals and Mineraloids, Sedimentary Rocks [mineralogy and classification], and Volcanoclastics); *Earth Processes* (Active/passive Margins, Faults, Folding, Hydrothermal Activity, Igneous Processes, Mountain Building and Orogeny, Mud Lumps and Growth Faults, Plate Tectonics, Volcanoes, etc.); *Engineering Geology* (Aggregates, Environmental Geology, Forensic Geology, Rock Mechanics, Site Classification, Soil, Soil Mechanics, Subsidence, Surface Processes, Urban Geology); *Environmental Geology* (contents not elaborated); *Geological Engineering* (Oil Properties and Their Assessment); *Geology: Tools of Investigation* (Fission Track Analysis, Geochemical Analysis [including x-ray], Geological Field Mapping, Geological Maps and their Interpretation, Geological Surveys, Geophysical Surveying, GIS, Isotope Analysis, Mineral Analysis, Petrological Analysis, and Remote Sensing); *History of Geology* (articles from Agassiz to Wegener); *Life on Earth* (contributions from Acritarchs and Biodiversity to Fossilization Processes, and Trilobites); *Metamorphic Rocks* (Classification and Nomenclature, Facies and Zones, Regional Metamorphism, Shock Metamorphism, Thermal Metamorphism, and Ultra High Pressure Metamorphism); *Mining Geology* (Boreholes through Ores); *Miscellaneous* (Geology of Beer, Geology of Whisky, Mineral Water, and Wine Geology); *North American Regional Geology* (Appalachians through Precambrian Continental Nucleus); *Petroleum Geology* (Gas Hydrates to Petroleum Geology and Petroleum Reserves); *Regional Geology* (approximately 50 entries, including Andes, Arabia & the Middle East, Central Asia, Southeast, China and Mongolia, Himalayan Orogeny, Indian Sub-continent, Pleistocene Glaciation, Russia, and South America [less Brazil and Argentina]); *Silicates* (Amphiboles to Zircon); *Surface Processes* (Aeolian Transportation and Deposition, Dendrochronology, Depositional Sedimentary Structures, Deserts, Erosional Sedimentary Structures, Estuaries and Tidal Flats, Lake Processes and Deposits, Landslides, Sedimentary Environments & Facies, Shoreline and Shoreface Deposits, and Weathering); *The Earth in Space* (Asteroids to Tektites and the planets); and *Vertebrate Palaeontology* (Dinosaurs to Reptiles).

**Encyclopedia of Analytical Science**, 2<sup>nd</sup> ed., 10 vols., edited by Paul Worsfold (University of Plymouth, Plymouth, UK), Alan Townshend (University of Hull, Hull, UK), and Colin Poole (Wayne State University, Detroit, Michigan, USA), London: Academic Press, ISBN: 0-12-764100-9, ca. 5000 pp.,



hardbound, is due to be published in October 2004. The regular price is: GBP £2,950, USD \$4,570; prepublication price: GBP £2,360, USD \$3,660. The second edition of this encyclopedia is designed to provide a detailed and comprehensive publication covering all facets of the science and practice of analysis. The new edition has been extensively revised in terms of the titles and content of the first edition, and includes comprehensive coverage of techniques used for the determination of specific elements, compounds and groups of compounds, in physical or biological matrices. It also addresses applications of chemical analysis in all areas, ranging from such topics as medicine to environmental science, and geology to food science. Important characterization techniques, such as microscopy and surface analysis are also included. The complete work consists of approximately 610 articles, each consisting of about 4000 words, figures and summary tables. These articles are combined to form larger entries providing comprehensive coverage of important topics and assisting the reader in locating material of interest. The entries are arranged in an alphabetical A to Z format providing a final publication of about two and a half million words in ten volumes. The articles are structured to allow easy access to information on specific analyses, instrumental techniques and sample matrices. There is extensive cross-referencing throughout the encyclopedia and a detailed index. Encyclopedia entries of particular interest to readers of this column include: Activation analysis (separate articles on neutron activation analysis, charged particle activation analysis, and photon activation analysis); archaeometry and antique analysis (with separate articles on dating of artifacts, metallic and ceramic objects, art and conservation, and organic and biological materials); atomic absorption spectrometry (five separate articles); atomic emission spectrometry (five separate articles); atomic fluorescence spectrometry; atomic mass spectrometry; atomic spectrometry; ceramics; colour measurement; gas chromatography (20 articles including mass spectrometry); geochemistry (five articles); infrared spectrometry (eight articles); liquid chromatography (26 articles); mass spectrometry (27 articles); microscopy (22 articles including Fourier transformed, electron, scanning electron microscopy, and scanning Auger microscopy); optical spectroscopy (six articles); radiochemical methods (12 articles); Raman spectroscopy (five articles); sampling (separate articles, overview and practice); surface analysis (16 articles); and X-Ray techniques (11 articles). This encyclopedia will be of interests to analytical chemists, biochemists, biologists, biomedical researchers, biotechnologists, earth scientists, environmental scientists, forensic scientists, food scientists and technologists, pharmacologists and toxicologists, and physicists, as well as archaeologists and materials scientists.

**The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation**, edited by Arthur A. Demarest, Prudence M. Rice, and Don S. Rice; Boulder: University Press of Colorado, 2004; 27 tables, 125 figures, references, index; ISBN 0-87081-739-6; \$59.95 cloth. Ten of the 23 chapters in this landmark volume present ceramic data. These contributions are: "Terminal Classic-Period Lowland Ceramics" by Prudence M. Rice and Donald Forsyth (pp. 28-59); "The Last Hurrah: Continuity and

Transformation at Seibal" by Gair Tourtellot and Jason J. González (pp. 60-82, ceramics pp. 75-76); "After the Maelstrom: Collapse of the Classic Maya Kingdoms and the Terminal Classic in Western Petén" by Arthur A. Demarest (pp. 102-124, ceramics pp. 104-106); "Defining the Terminal Classic at Calakmul, Campeche" by Geoffrey E. Braswell, Joel D. Gunn, María del Rosario Domínguez Carrasco, William J. Folan, Laraine A. Fletcher, Abel Morales López, and Michael D. Glascock (pp. 162-194, ceramics 167-168 and 180-182); "Terminal Classic Settlement and Polity in the Mopan Valley, Petén, Guatemala" by Juan Pedro Laporte (pp. 195-230, ceramics pp. 214-223); "Out with a Whimper: La Milpa in the Terminal Classic" by Norman Hammond and Gair Tourtellot (pp. 288-301, ceramics 296-299); "Terminal Classic Status-Linked Ceramics and the Maya "Collapse": De Facto Refuse at Caracol, Belize" by Arlen F. Chase and Diane Z. Chase (pp. 342-366); "Ceramics and Settlement Patterns at Terminal Classic-Period Lagoon Sites in Northeastern Belize" by Marilyn A. Masson and Shirley Boteler Mock (pp. 367-401); "Out of Sight: The Postclassic and Early Colonial Periods at Chau Hiix, Belize" by Christopher R. Andres and K. Anne Pyburn (pp. 402-423, ceramics 415-421); "The Decline of the East: The Classic to Postclassic Transition at Ek Balam, Yucatán" by William M. Ringle, George J. Bey III, Tara Bond Freeman, Craig A. Hanson, Charles W. Houck, and J. Gregory Smith (pp. 485-516, ceramics 490-493); and "Chichén Itzá: Settlement and Hegemony During the Terminal Classic Period" Rafael Cobos Palma (pp. 517-544, ceramics 521-525 and 533).

#### New Publications

"Material Analysis in Archaeology" is the subject of a special issue of the journal *Hyperfine Interactions* 150(1-4)1-187 for 2003, which contains 12 articles: R. Gebhard, "Material analysis in archaeology," *Hyperfine Interactions* 150:1-5; F. Hayashida, "Bridging the gap between archaeology and the physical sciences," *Hyperfine Interactions* 150:7-11; L. Stievano, M. Bertelle, and S. Calogero, "Application of  $^{57}\text{Fe}$  Mössbauer spectroscopy for the characterisation of Materials of archaeological interest: The work performed in Italy," *Hyperfine Interactions* 150:13-31; Yuanfu Hsia and Hongbo Huang, "Mössbauer studies in Chinese archaeology," *Hyperfine Interactions* 150:33-50; L. G. Lumbreras, R. Gebhard, W. Häusler, F. Kauffmann-Doig, J. Reiderer, G. Sieben, and U. Wagner, "Mössbauer study of ceramic finds from the Galería de las Ofrendas, Chavín de Huántar," *Hyperfine Interactions* 150:51-72. Izumi Shimada (Anthropology Department, Southern Illinois University) and his colleagues contributed four interrelated studies: I. Shimada, W. Häusler, T. Hutzelmann, and U. Wagner, "Early pottery making in northern coastal Peru, Part I: Mössbauer study of clays," *Hyperfine Interactions* 150:73-89; I. Shimada, D. Goldstein, J. Sosa, and U. Wagner, "Early pottery making in northern coastal Peru, Part II: Field firing experiments," *Hyperfine Interactions* 150:91-105; I. Shimada, W. Häusler, T. Hutzelmann, J. Reiderer, and U. Wagner, "Early pottery making in northern coastal Peru, Part III: Mössbauer study of Sicán pottery," *Hyperfine Interactions* 150:107-123; and I.



Shimada, W. Häusler, M. Jakob, J. Montenegro, J. Reiderer, and U. Wagner, "Early pottery making in northern coastal Peru, Part IV: Mössbauer study of ceramics from Huaca Sialupe," *Hyperfine Interactions* 150:125-139. Frances Hayashida (Pennsylvania State University) and her colleagues prepared two contributions: F. Hayashida, W. Häusler, and U. Wagner, "Technology and organization of Inka pottery production in the Leche Valley, Part I: Study of clays," *Hyperfine Interactions* 150:141-151; and F. Hayashida, W. Häusler, J. Riederer, and U. Wagner, "Technology and organization of Inka pottery production in the Leche Valley, Part II: Study of fired vessels," *Hyperfine Interactions* 150:151-163. The final contribution is by H. Tschauner and U. Wagner, "Pottery for a Chimú workshop studied by Mössbauer spectroscopy," *Hyperfine Interactions* 150:165-186. A related article by U. Wagner, W. Häusler, F. E. Wagner, and I. Shimada, entitled "Mössbauer spectroscopy in South American Archaeology" previously appeared in *Hyperfine Interactions* 148-149(1-4): 13-20 (2003). The LC Call Number for this Kluwer journal is QC762 .H89. The address for accessing the journal using authorization number and password through OCLC FirstSearch Electronic Collections Online (Subscription to online journal required for access to abstracts and full text); address for accessing the journal from an authorized IP address through OCLC FirstSearch Electronic Collections Online (Subscription to online journal required for access to abstracts and full text); access through Kluwer Online (Restricted to subscribers); access through EBSCO Online (Restricted to subscribers).

Two new volumes with ceramic content have been published recently and will be reviewed in a subsequent issue of the *SAS Bulletin*: Lambertus van Zelst (ed.), *Patterns and Process: A Festschrift in Honor of Dr. Edward V. Sayre*, Suitland, Maryland: Smithsonian Center for Materials Research and Education, 311 pp., 2003. There 17 chapters with 27 authors. The majority of the papers presented in this volume derive from oral presentations made at the symposium "Patterns and Process" held at the Smithsonian Institution in September 1999. Martha Goodway mentioned the volume in her column "News of Archaeometallurgy" in the last issue of the *SAS Bulletin* 26(3-4):11 (2003). Since the book was produced with Federal funds it cannot be sold. A copy can be requested by contacting Ann N'Gadi, SCMRE, Smithsonian Institution, 4210 Silver Hill Road, Suitland, MD 20746. The second volume is edited by Alex Gibson, *Prehistoric Pottery: People, Pattern, and Purpose*. Prehistoric Ceramics Research Group, Occasional Publication No. 4, British Archaeological Reports International Series S1156, Archaeopress, Oxford, UK.

**Ceramic in the Society: Proceedings of the 6<sup>th</sup> European Meeting on Ancient Ceramics, Fribourg, Switzerland, 3-6 October 2001**, edited by S. Di Pierro, V. Serneels, and M. Maggetti (eds.), Fribourg, Switzerland: Department of Geosciences, Mineralogy and Petrography, University of Fribourg, 2003. viii + 349 pp., (No ISBN) paper, Eur 30 (approximately \$36.00 US). EMAC, the European Meeting on Ancient Ceramics, has been held every other year in various European venues. EMAC '99, held in Athens, resulted in the publication of *Modern Trends in Scientific Studies on Ancient Ceramics* (British Archaeological Reports

S1011, Oxford: Archaeopress, 2002, 402 pp.) edited by V. Kilikoglou, A. Hein and Y. Maniatis. Those proceedings included 43 short papers reflecting recent archaeological and scientific developments in the analysis of ceramics, with emphasis on pottery from the Aegean, Italy, Iberia and Central Europe. The volume included papers on scientific analysis and techniques, kilns and firing methods, experimental reconstructions, prehistoric and Mycenaean ceramics, links between Greek and Italian wares, Roman and medieval Italian ceramics, prehistoric and Roman Iberian wares, prehistoric Hungarian wares, Gallo-Roman pottery from Switzerland, Roman pottery from Ephesus. The EMAC '99 website <http://www.ims.demokritos.gr/archae/emacprogram.html> is still active and the paper titles and page numbers from the BAR volume are available online at <http://srs.dl.ac.uk/arch/conferences/bar.htm> EMAC '03 was held in late October 2003 in Lisbon and has an active Internet site <http://www.emac03.itn.mces.pt/> The publication of these proceedings is anticipated. EMAC '01, the 6<sup>th</sup> European Meeting on Ancient Ceramics, had the theme of "Ceramic in the Society," and was organized by Marino Maggetti and Vincent Serneels (Institute of Mineralogy and Petrology, University of Fribourg, Switzerland). The EMAC '01 Internet site is no longer active. The published monograph from this meeting was produced with financial support from the Swiss Academy of Natural Sciences and the Council of the University of Fribourg and contains 27 papers. The publication is difficult to obtain in North America but may be ordered directly from Switzerland for Eur 30 (including postage and handling charges). Additional information is available from Mme. Nichole Bruegger (Secretary, Department of Geosciences, Mineralogy and Petrography; telephone +41 (0)26 3008920, fax +41 (0)26 3009765, e-mail [nicole.bruegger@unifr.ch](mailto:nicole.bruegger@unifr.ch)) or on the Internet: <http://www.unifr.ch/geoscience/mineralogie/archaeometry/Arch0.html>. Within the Department of Geosciences, the Institute of Mineralogy and Petrography has been active in archaeometric research and teaching including a wide range of topics such as ceramics, metallurgy, stones, wall paintings and experimental archaeology since 1974. *Ceramic in the Society* has three editors, all of whom are associated with the Institute. Professor Dr. Marino Maggetti (who specializes in Basement Geology and Technical Mineralogy) is the current head of the Department of Geosciences (2003-2005) and is also head of the Archaeometry Unit. His colleague, Dr. Vincent Serneels, specializes in Crystallography, Analytical Methods, and Archaeometry. The senior editor, Simonpietro Di Pierro, received his doctorate in Mineralogy and Petrography from the University of Fribourg in 2002. The title of his dissertation is *Domestic Production Versus Pottery Exchange During the Final Neolithic: Characterization of the Auvernier-Cordé Ceramics from the Portalban and St. Blaise Settlements, Western Switzerland*. As editors of the proceedings, Di Pierro, Serneels, and Maggetti have assembled 27 papers of varying length prepared by 87 authors. Each contribution is accompanied by a bibliography. These contributions are well illustrated with 210 figures (four of which are in color) and accompanied by 54 tables and one appendix. An appendix provides a list of conference participants. Fourteen different countries or geographical areas are represented in

the 27 papers: Switzerland (n = 7), Italy (5), Mediterranean region (4), Portugal (2), Near East (2), and papers dealing with materials from Britain, France, Germany, Turkey, Jordan, Syria, Nepal, and Mali. One paper concerns the analysis of European, Islamic, and Asian specimens. A variety of laboratory methods were employed: petrographic analysis (n = 10), chemical analysis (7), mineralogical analysis (4), and non-linear optics (1). Other methods included: XRF (7), XRD (6), XRF (6), INAA (3), Raman spectrometry (2), SEM-EDS (2), ED-XRF (1), and WDS (1). Experimental or replication studies figure in four of the contributions. Chronologically, the papers span the gamut from the 7<sup>th</sup> millennium BCE through the 19<sup>th</sup> century; the majority concern ceramics assigned BCE dates (17), as well as Neolithic (3), Bronze Age (3), Iron Age (1), Etruscan (1), Roman (4), and Celtic (1). The Middle Ages, Medieval, and 13<sup>th</sup> through 19<sup>th</sup> centuries are also represented (7). Although ceramics are the main focus, there are papers on kilns, metallurgy, crucibles, and tiles. There are no introductory or concluding essays. I shall summarize briefly these contributions:

“An investigation on the ‘Etruscan’ iron furnaces from Baratti-Popolonia (Tuscany, Italy)” by Marco Benvenuti, Elena Pecchioni, Laura Chiarantini, Alessandra Mariani, and Isabella Mascaro (pp. 1-17, 5 figs., 5 tables). The paper presents new data on metallurgical furnaces used presumably by the Etruscans to smelt iron during the second half of the first millennium BCE in what is today southern Tuscany. The data assembled includes information about the mineralogical, textural, and compositional features of burnt clay fragments from the furnace. The opportunity to examine well-preserved furnaces of this era is extremely rare, and the authors also propose a reconstruction of a “Baratti-type” iron-smelting furnace based on their data.

“The metallic luster of glazed ceramics interpretation of the in-scattered-light optical properties: One theoretical approach” by Olivier Bobin, Max Schvoerer, Jean-Louis Miane, Jean-François Fabre, Christine Labrugère, Michele Lahayre, and Alain Guette (pp. 19-24, 10 figs.). An outstanding optical property, colored metallic shine, observed in specular reflection is assessed for specimens from the Mediterranean region during the Middle Ages. The authors establish that the texture and the distribution of decoration components act as a determining factor in these optical properties. Because conventional optical methods are not suited to explain the observed properties, the authors employ non-linear optics associated with nanoparticles.

“Petrographical and mineralogical study of Neolithic ceramic from Arbon-Bleiche 3 (Canton of Thurgau, Switzerland)” by Jeanne Bonzon (pp. 25-50, 19 figs.). Clays used in house construction and the production of loom weights during the Neolithic on the Swiss Plateau and French Jura Mountains have a carbonate-rich matrix and are dissimilar to the silicate-rich clays used in pottery and spindle whorl production. Bonzon describes two separate ceramic traditions that have interpenetrated Arbon-Bleiche 3: Pfyn/Horgen pots (thick-walled, coil-built, mainly granite tempered pots) and so-called “Special Forms” (thin-walled vessels without visible coiling, tempered with grog or bone. The latter has an eastern European affiliation. The sediments selected are well

differentiated and were consciously selected.

“Scientific investigation and classification of Nepalese slipped pottery from Gotihawa (Nepalese Tarai)” by Liliana Camarada, Enrica Cerchi, Bruno Fabbri, Sabrina Gualtieri, and Giovanni Verardi (pp. 51-63, 7 figs., 6 tables). The authors conducted XRF, XRD, SEM/EDS, and optical microscopic analyses on the bodies and slips of third century BCE Northern Black Polished ware (NBPW) from Gotihawa, Nepal and on local clays. The chemical compositions and microstructure are very homogeneous, with variances attributed to different clay samples from different localities at the excavation. The raw materials used for the clay body were also utilized in the slip, suggesting the concentration of the fine fraction of the raw clay; in some examples significant amounts of iron and potassium were added.

“Pottery production in the middle Bronze Age village of Egnazia (south-eastern Italy): Raw material provenance and firing techniques” by Angela Cinquepalmi, Rocco Laviano, and Italo M. Muntoni (pp. 65-74, 3 figs., 6 tables). Mineralogical, PXRD, and XRF analyses were conducted on 44 pottery samples from Egnazia, a Middle Bronze Age (XVI-XIV century BCE) site located on the Adriatic coast. Petrographic thin sections were examined with a polarized light microscope and point counting was employed to determine dominant clastic constituents (quartz, feldspars, chamotte, and micas). PXRD studies show that quartz predominates, with accompanying smaller amounts of feldspars, micas and hematites. XRF analyses identified the oxides of silicon, aluminum, and iron. The corpus is generally homogeneous but suggests the selection of non-calcareous clays and a firing technology in which temperatures did not exceed 700-800°C.

“Production technique and provenance of the middle Bronze Age pottery of Ried-Hölle (ct. Fribourg, Switzerland)” by Mümtaz Çolak, Timothy Anderson, Marino Maggetti, and Giulio Galetti (pp. 75-86, 10 figs., 1 table). Fifty ceramic samples (out of 20,000) from a Middle Bronze Age (1600-1200 BCE) settlement were studied by optical microscopy and X-ray (XRD and XRF). Potters used two distinct clays, notably a locally available sandy clay/loam with silicate temper used for pottery vessels and ceramic loom weights, fired to 800°C in an uncontrolled firing atmosphere in open pits. Over-fired forms are identified with a secondary firing of the village itself. The pottery is homogeneous (47 of 50) and establishes a new reference group.

“Analysis of ancient European, Islamic and Asian ceramics by non-destructive Raman (micro)spectrometry” by Philippe Colomban (pp. 87-97, 10 figs. [1 in color]). French and Saxon soft- and hard-paste porcelains (>18<sup>th</sup> century) and porcelains/celadons from Vietnam (13-16<sup>th</sup> centuries), faiences/earthenwares from Ifriqiya, the Silk Road (Samarkand, Termez, Uzbekistan) and Sind, Pakistan (11-18<sup>th</sup> centuries) were studied by Raman spectrometry. Types of bodies, glaze matrices, and coloring pigments were assessed. Comparison is made with a database of ancient palettes and enamel powders from the Sèvres Manufactory. The question of the reliability of the Raman spectra is addressed.

“Chemical characterisation of pottery from the kilns of Peniche (Portugal): A provenance study” by Isabel M. Dias,

Isabel M. Prudêncio, G. Cardoso, Angela M. Gouveia, and S. Rodrigues (pp. 99-108, 7 figs., 2 tables). Ceramics selected from three Roman ceramic kilns at Peniche, dating early 1<sup>st</sup> century to early 2<sup>nd</sup> century CE (excavated 1998-2000), were studied by INAA and compared to other known Roman production centers in Portugal, adding to the database for provenance studies. Firing temperature and chemical compositions are defined. “Matrix-temper separation of Neolithic ceramics: An experimental approach to characterize the original raw materials and determine their provenance” by Simonpietro Di Pierro (pp.109-131, 12 figs., 6 tables). Seventeen Neolithic ceramics from Portalban, Switzerland, were subjected to a separation technique through H<sub>2</sub>O<sub>2</sub>, differentiating the temper (Mont Blanc granite) and the matrix (studied by XRF). The matrix is consistent with Al<sub>2</sub>O<sub>3</sub>-rich and CaO-less clay, a composition with is non-local. A similar composition can be found at Cornaux village, 15 km north of Portalban.

“Remarkable changes in two centuries of Nabataean Coarse Ware: New analyses show systematic, time-dependent alteration of chemical composition” by Yvonne Gorger (pp. 133-144, 13 figs.). The study considers the chemical composition of Nabataean coarse ware from az-Zantur (Petra, Jordan), dating to the late 2<sup>nd</sup> century BCE to 2<sup>nd</sup> century CE, and compares compositional change to a typo-chronological framework. ED-XRF and K-means cluster analysis of chemical components suggests that potters employed clays from outside of Petra and that different clays were blended together and that temper did not play a role in the chemical compositional changes through time.

“The Roman tile-factories in Switzerland: The case of the Vindonissa legionary camp (1<sup>st</sup> century A.D.)” by Folco Giacomini (pp. 145-162, 15 figs.). Vindonissa stamped tiles dating 47-101 CE are heterogeneous and can be grouped into four main petrographic and chemical groups related to stamp types; the groupings do not correlate with the archaeological site of provenance. There is no evidence for tile kilns at Vindonissa; two for the four groupings were apparently made at Rapperswil and Kölliken, two Roman kiln sites situated 20 km distant. Production sites for the other two groupings are uncertain. A well-organized large-scale tile production is evident in Switzerland.

“Early and Middle Neolithic pottery production at ‘Pulo di Molfetta’ (Apulia, Italy): Social, chronological, and functional implications of ‘raw materials variability’” by Rocco Laviano and Italo M. Muntoni (pp. 163-173, 3 figs., 6 tables). Analyses of pottery samples from Apulia, south Italy, dating to the Early and Middle Neolithic, 7<sup>th</sup> to 5<sup>th</sup> millennium BCE) was undertaken using thin section and PXRD analyses, as well as re-firing experiments. Four paste groups were discerned and are considered in ecological and technological perspectives; group choices appear to be related to local, functional and/or social constraints. Diachronically this suggests a substantial shift in the production sequence with important advances in paste preparation and firing techniques.

“Appearances and first development of cooking and ‘non-cooking’ ware concepts in the Near East” by Marie Le Mière and Maurice Picon (pp. 175-188, 7 figs.). Data from Tell Bouqras, Syria (1<sup>st</sup> half 8<sup>th</sup> millennium BP), Tell Halula (1<sup>st</sup>

quarter 8<sup>th</sup> millennium BP), and Tell Sabi Abayad (Syria, mid 8<sup>th</sup> millennium BP) are reviewed in relation to Dark-Faced Burnished Ware, produced in northern Syria (Cilicia, Ras Shamra, the Amuq Plain, and Mersin). Questions are raised in terms of differentiating cooking and non-cooking ceramics on the basis of fabric analyses. The authors also consider the slowness of the transformations of pottery production techniques.

“Identification of porcelain type using Raman spectroscopy” by Karen A. Leslie (pp. 189-196, 5 figs.). Soft-paste porcelains from six 18<sup>th</sup> century British manufactories were studied using Raman spectroscopy to determine if the technique offers a quick and easy, non-destructive tool for differentiating manufacturing recipes. Three main body types (lime-rich soapstone, bone ash, and glass frit) were characterized. It was possible to obtain characteristic spectra from old breaks and chips if suitable operating conditions were adopted.

“The archaeogeology project: A tool for the study of provenance and technology of ancient pottery” by Sara Tiziana Levi and Maurizio Sonnino (pp. 197-208, 5 figs.). The authors present the initial results from a “new” interdisciplinary field, archaeogeology (combining archaeological and geological analyses). The technology and distribution of protohistoric Impasto pottery in Italy (Bronze and Early Iron Age, 2<sup>nd</sup> to the beginning of the 1<sup>st</sup> millennium BCE) was considered using 2,000 samples. Temper distributions are related to geological maps.

“Methodology for the archaeological and experimental study of pottery forming techniques” by Rémi Martineau (pp. 109-216, 5 figs.). The recognition of pottery manufacturing techniques is reviewed, and the importance of experimental and ethnoarchaeological approaches are elaborated. The uses and limitations of methods (such as drawings and photographs) are defined, and an example from Chalain, Jura, France (3200-2900 BCE calendar years) is reported.

“Use of Ethnoarchaeology for a better understanding of ceramic production, diffusion and consumption modalities: The Mali example” by Anne Mayor (pp. 217-229, 8 figs.). Ethnoarchaeological data derived from two Malian sites (Hamdallahi and Modjodjé) dating to the 19<sup>th</sup> century are employed to interpret the history of the Dogon people and the study of Iron Age terracotta pestles in the Sahel area of Africa.

“Archaeometric study on crucibles from Arsantepe, Turkey (IV-II mill. BC)” by Alberto M. Palmieru and Paola Morbidello (pp. 231-243, 14 figs. [2 in color], 4 tables). Twelve archaeological crucibles dating 4<sup>th</sup>-2<sup>nd</sup> millennium BCE from Arslantepe (Malatya, southeastern Turkey) were studied using petrographic, XRD, morphological and chemical analyses. The study examined the typological sequence, metallurgical technologies, and likely raw materials. The period 2500-1700 BCE shows a technological transformation with the addition of quartz grains to the paste. The older crucibles were used to smelt the mixed minerals but the more recent ones indicate direct metal melting.

“Chemical characterisation of amphorae from the Tagus and Sado estuaries production centres (Portugal)” by Isabel M. Prudêncio, Isabel M. Dias, J. Raposo, Angela M. Gouveia, C. Fabião, A. Guerra, J. Bugalhão, A. L. Duarte, and A.



Sabrosa (pp. 245-253, 7 figs., 1 table). Roman era amphoras from the production centers sites of Porto dos Cacos and Quintana do Rouxinol (both located in the Tagus estuary) and Pinheiro (in the Salado estuary) were studied by INAA and the results compared with ceramic samples from Correeiros, a consumption center near Lisbon. Chemical analysis confirms that distinct raw clays were used in each basin and that the Correeiros specimens are from the production center of Quintana do Rouxinol.

“Ceramics and society in Late Antiquity: Pantellerian Ware, a case history” by Sara Santoro Bianchi (pp. 255-260, 4 figs.). Pantelleria Island, situated between North Africa and Sicily, is the focus of a major research project involving site survey, excavations, and archaeometric analyses of materials dated to the later Roman period, 4<sup>th</sup>-5<sup>th</sup> centuries CE. The ware is notable for its resistance to thermal and mechanical shocks. The initial results of the microscopic assessment of fabrics are reported and related to raw materials.

“The ceramics of a Celtic Bronze foundry from the *Oppidium* of Kelheim, Germany” by Andreas Schäfer and Werner Scharff (pp. 261-266, 8 figs. [1 in color]). The site has one of the largest deposits of late Celtic period foundry materials on the continent of Europe. Preliminary metallurgical and archaeological research results focus on crucibles, tuyères, and molds.

“In the footsteps of prehistoric bronze smiths: A study of interaction of crucible clay with molten metal and influence on the properties of cast objects” by Marcus Schreiner, Barbara S. Ottaway, and Quanyu Wang (pp. 267-275, 9 figs.). The authors’ focus on Iron Age European prototypes studies by SEM-EDX and characterize replication experiments for both quartz and chaff tempered crucibles then used in casting tin bronzes. The metal did not show interaction with the ceramic paste. Analyses of dross and metal prills are also characterized.

“Pottery production and its diffusion: Chemical and petrographic analyses of early Medieval pottery from Develiuer-Couretéle and their historical implications” by Gisela Thierrin-Michael and Marie-Hélène Paratte Rana (pp. 277-288, 5 figs.). Chemical (XRF and WDS) and petrographic analyses of 75 specimens from Develiuer-Couretéle, a Merovingian rural settlement located in the northern part of the Jura Mountains, are reported. The hypothesis of a centralized production in Alsace, proposed formerly, is strengthened, and dispersed production is attested for pottery attributable to Burgundy.

“Organic tempers in ancient ceramics” by Yuri B Tsetlin (pp. 289-310, 4 figs., 11 tables, 10-part appendix). The author replicates ancient paste traditions using natural clays and a variety of organic additives (such as sheep dung). The reconstruction of paste composition involves the microscopic analysis of clay plasticity and state of the clay and organic materials (dry or wet), and studies of the kinds and proportions of organic temper. Comparative data are presented on ceramics from the Near East (Sotto culture, 6<sup>th</sup> millennium BCE), Moldava (Linear Pottery culture, 5<sup>th</sup> millennium BCE), and North Caucasus (Maikop culture, 4<sup>th</sup> millennium BCE).

“Some indications regarding eastern Mediterranean late Roman common wares found in southern France” by Yona S.

Waksman, S. Bien, J-C. Trégliia, L. Vallauri, M. Bonifay, and Mohammad Roumié (pp. 311-322, 6 figs.). Common ceramics from sites in southern France dated to the 5<sup>th</sup>-7<sup>th</sup> century CE and thought to come from Levantine, Cypriot, or Aegean sources, were investigated by XRF. The results suggest to a main provider of common ceramics for both Levantine and Cypriot forms.

“First results about Iron Age pottery from Frasses/Praz au Doux and Bussy/Pré de Fond, Fribourg, Switzerland” by Sophie Wolf, Mireille Ruffieux, and Michel Mauvilly (pp. 323-334, 7 figs., 2 tables). Petrographic, mineralogical, and chemical analyses of pottery from Late Bronze and First Iron Age settlements from Estavayer-le-Lac (Canton of Fribourg) were reported. Results indicate that the introduction of the potter’s wheel during the First Iron Age and the existence of long-distance trade connections did not affect pottery production traditions (kinds and sources of raw materials, preparation, forming and firing).

“The effect of post burial alterations of ceramics on the TI/Osl dating” by N. Zacharias, J. Bixeda i Garrigós, Hans Mommsen, Alexander Schwedt, and Vassilis Kilikoglou (pp. 335-343, 2 figs., 4 tables). Using Minoan ceramics from Kommos, the authors document the importance of post-burial alteration and the contamination of archaeological pottery on luminescence dating and XRD due to the leaching of K. INAA, XRF, and petrographic analyses are also discussed. Four models for the estimation of corrected dose rate values are presented and applied to two sets of Bronze Age pottery groups.

Scheduled for publication in 2004 is **Laser Ablation ICP-MS: A New Frontier in Archaeological Characterization Studies**, edited by Robert J. Speakman and Hector Neff. University of New Mexico Press, Albuquerque. The projected chapters include: “The Application of Laser Ablation ICP-MS to the Study of Archaeological Materials: An Introduction,” by Robert J. Speakman and Hector Neff; “Straight from the Source: Obsidian Prismatic Blades at El Ujuxte, Guatemala.” by Natasha Tabares, Michael Love, Robert J. Speakman, Michael D. Glascock, and Hector Neff; “LA-ICP-MS as a Supplement to Abbreviated-INAA for Obsidian Artifacts from the Aztec-Tarascan Frontier,” by Michael D. Glascock, Robert J. Speakman, and Helen Pollard; “Laser Ablation ICP-MS Chemical Characterization of Jade from a Jade Workshop in Cancuen, Guatemala,” by Brigitte Kovacevich, Hector Neff, and Ronald Bishop; “Characterization of Montana Cherts by LA-ICP-MS,” by Tom Roll, Michael Neeley, Robert J. Speakman, and Michael D. Glascock; “Searching for Analytical Alternatives in the Characterization of Copper Minerals,” by Maria Nieves Zedeño, Hector Neff, and Axel Neilson; and “LA-ICP-MS of African Glass Trade Beads” by Rachel Popelka, Michael D. Glascock, Peter Robertshaw, and Marilee Wood. The ceramic-oriented papers are “LA-ICP-MS as a Bulk Chemical Characterization Technique: Comparison of LA-ICP-MS, MD-ICP-MS, and INAA Data on Virgin Branch Anasazi Ceramics” by Daniel O. Larson, Hector Neff, and Sachiko Sakai; “Compositional Analysis of Hohokam Schist-Tempered Pottery: Comparison of Methods,” by James W. Cogswell, David R. Abbott, Elizabeth J. Miksa, Hector Neff, Robert J. Speakman, and Michael D. Glascock; “Tephra

Analysis by LA-ICP-MS for Archaeology,” by Hector Neff and Payson Sheets; “LA-ICP-MS and the Late Neolithic Pottery of the Amuq Plain, Turkey,” by Benjamin Diebold, Robert J. Speakman, and Michael D. Glascock; “A Compositional Analysis of Nasca Polychrome Paints: Implications for Nasca Pottery Economics,” by Kevin Vaughn, Christina A. Conlee, Hector Neff, and Katharina J. Schreiber; “A Preliminary Analysis of Pigments used in Redware Pottery Production at Point of Pines, Arizona,” by Candace A. Sall, Maria Nieves Zedeño, and Robert J. Speakman; and “Chemical Characterization of Mesa Verde and Mancos Black-on-White Pottery Pigments by LA-ICP-MS,” by Robert J. Speakman. The concluding chapter is “Detecting Provenience of African-Origin Individuals in the Colonial Cemetery of Campeche (Yucatán): A New Approach using Trace Elements and LA-ICP-MS,” by Andrea Cucina, Hector Neff, and Vera Tiesler Bloss.

### FAMSI Website

Two reports were recently posted to the FAMSI Website: Harriett F. Beaubien (Smithsonian Institution, SCMRE) beaubienh@scmre.si.edu, *Textile-Clay Laminates: A Special-use Material in Ancient Mesoamerica*, Crystal River, FL: Foundation for the Advancement of Mesoamerican Studies, Inc. [FAMSI]. <http://www.famsi.org/reports/01010/index.html> (September 16, 2003). Abstract: “Many pictorial features in Maya vase painting and stone carving have been shown by excavated examples to be faithful renderings, including aspects of architecture and furnishings, ritual implements and costume. We can infer that the depictions of elaborate headdresses and back-racks are to some degree realistic, but to date the archaeological evidence of their materials has been scanty. While stone, the material of some excavated mortuary masks, and wood, cited as a mask material in ethnohistoric records [e.g., Tozzer 1941:111], must be considered among the possibilities, these seem impractical choices for the ornate headgear that would have been worn by elites during ritual activities. Recent discovery of mask and headdress components made of a previously unknown textile-clay laminate offers an intriguing alternative as a material for such ceremonial regalia. Further investigation of this material, including a search for additional examples, is the focus of the project funded through a grant received from the Foundation for the Advancement of Mesoamerican Studies, Inc., [FAMSI].” The contents of this report include: Introduction (Abstract and Resume), Initial Materials Investigations, Research Outline for the Current Study, Results and Discussion, Textile-Clay Laminate Data Set, Laminate Technology, Laminate Products, Data Set Limitations, Conclusions, Acknowledgements, Endnotes, List of Figures [n = 10], and Sources Cited [21 references].

Eduardo Williams (Centro de Estudios Arqueológicos, El Colegio de Michoacán, A.C.) williams@colmich.edu.mx, *The Ethnoarchaeology of Salt Production in the Lake Cuitzeo Basin, Michoacán, México*, Crystal River, FL: Foundation for the Advancement of Mesoamerican Studies, Inc. [FAMSI]. <http://www.famsi.org/reports/02006/index.html> (May 20, 2004). Abstract: “Salt has always been a strategic resource of primary importance. In Prehispanic times salt was used mainly for

human consumption, and after the Spanish conquest, it became in addition an important commodity for silver processing and cattle-raising. Salt production and trade in the Lake Cuitzeo Basin are analyzed from the perspective of ethnography, archaeology, and ethnohistory. Contemporary salt-producing sites and methods are described, including the amount of brine and earth used, and the average yield of each *finca*, or salt-producing unit. Modern and ancient techniques and processes are compared, and found to be similar. The “archaeological visibility” of these activities is assessed, to illustrate the archaeological features and artifacts connected with salt making.” The report includes: Abstract/Resume, Introduction, Salt Production in the Lake Cuitzeo Basin, Implications for Archaeology, Final Remarks, Acknowledgements, List of Figures [n = 8], and Sources Cited [10 references]. The research documents the use of ceramics (gradually replaced by plastic containers) in the production.

FAMSI has also announced “Projects Funded for the Research Year 2004” <http://www.famsi.org/grants/2004fund.htm> Among the 38 projects are several involving archaeological ceramics; these include: M. Cabrera Cortés, “Craft Production and Socio-economic Marginality on the Periphery of Teotihuacán, México” (\$9,600); E. Danien, “Publication of Painted Maya Pottery, Guatemala and México” (\$5,000); C. Elson, “Aztec Elites and the Postclassic Economy” Neutron Activation Analysis of Museum Collections from Chiconautla, México” (\$5,600); M. Pérez Galindo, “Corpus de la Cerámica Clásico Terminal Proveniente de Moldes, de la colección Dieseldorff, Guatemala” (\$6,550); V. Perez Rodriguez, “Specialized Craft Production and Social Complexity in Formative Mixteca Alta, México” (\$9,775); and K. Sullivan, “Making and Manipulating Ritual in the City of the Gods: Figurine Production and Use at Teotihuacán, México” (\$7,000).

### Previous Meetings

*The American Anthropological Association's 102<sup>nd</sup> Annual Meeting* was held in Chicago, 19-12 November, 2003. There were 682 sessions and more than 4,500 papers or posters presented. Among the sessions on ceramics were an invited session on material culture in memory of the late Carol Kramer and the Ceramic Ecology XVII symposium. The invited session “Breaking Down the Boundaries: Anthropological Approaches to Cultural Transmission and Material Culture in Memory of Carol Kramer” was organized by Lee Horne (University of Pennsylvania), Brenda Bowser (Washington State University), and Miriam Stark (University of Hawai'i at Manoa). The session was chaired by Stark and had 14 papers: “Introduction” by William A. Longacre (University of Arizona); “The Look of Learning: Women's Specialized Craft Knowledge and Generational Transmission in a Patrilocal Context” by Janet M. Chernela (University of Maryland); “A Life History Approach to [the] Transmission of Pottery Style in the Ecuadorean Amazon by Brenda J. Bowser (Washington State University); “Mother Bella was Not a Bella: Inherited and Transformed Traditions in Southwestern Niger” by Olivier Gosselain (U. Libre de Bruxelles); “The Way of the Potter's Mother: Apprenticeship Strategies among Dii Potters of Cameroon” by Hélène Wallaert-Petre (Free University of

Brussels; “Technical Traditions and Cultural Identity: An Ethnoarchaeological Study of Technical Variability in Pottery Production in Andhra Pradesh (South India)” by Laure Degoy-Thotakuta (Laboratoire de Préhistoire); “Talk about Pots: Language and the Stylistic Boundaries in Tarascan Pottery Painting” by Margaret A. Hardin (Natural History Museum of Los Angeles County) read by Bowser; “Two Cases of Flawed Technology Transfer from Early Spanish Colonialism in the New World” by David Killick and Noah H. Thomas (both University of Arizona); “Crafts Teaching and Learning: Implications for Archaeology” by Patricia Crown (University of New Mexico); “Colonialism and Cuisine: Cultural Transmission, Domestic Practice, and Agency at Zuni Pueblo” by Barbara J. Mills (University of Arizona); “The Transmission of Culture: Case Studies from Indigenous California” by Peter D. Jordan (Institute of Archaeology) and Stephen J. Shennan (University College London); “Modeling the Cultural Transmission of Errors in the Archaeological Record” by Jelmer Eerkens (California State University, Long Beach) and Carl Lipo (-); and “Cladistics in Anthropology” by Mark Collard (Washington State University). Marcia-Ann Dobres (University of California, Berkeley) served as discussant. Louise Senior (SWCA, Inc.) did not present her paper “It’s About Time: Ceramic Transformations. Time Expenditure, and Cultural Transmission in Third Millennium Tell Leilan, Syria.”

Ceramic Ecology XVII: Current Research on Ceramics – 2003” was organized by Charles C. Kolb (National Endowment for the Humanities) and Louana M. Lackey (Maryland Institute College of Art), and chaired by Kolb. Abstracts of the papers appeared in the previous *SAS Bulletin*. Presentations were made by Kolb “Introduction to Ceramic Ecology XVII: Current Research on Ceramics – 2003”; Sandra L. López Varela (Universidad Autónoma del Estado de Morelos), Magorzata Daszkiewicz (ARHEA-Warsaw), Gerwulf Schneider (Freie Universitaet Berlin) and Ewa Bobryk (University of Warsaw) “Learning Maya Pottery from K’axob through Archaeometry”; Samuel V. Connell (CILHI) “Revising Diversity Analysis of Ceramics: Gauging Regional Consciousness around Xunantunich, Belize”; Christopher Gunn (University of Kentucky) “Petrographic and Chemical Perspectives on the Production of Muna Slate Wares in the Terminal Classic Northern Maya Lowlands”; Kristin Sullivan (Arizona State University) “The Production and Distribution of Ultrafine Paste Ceramic Vessels and Figurines in the Western Lower Papaloapan Basin of Veracruz, Mexico”; Wesley Stoner and Christopher A. Pool (both University of Kentucky), Hector Neff (presently, California State University at Long Beach), and Michael D. Glascock (University of Missouri Research Reactor) “Coarse Orange Pottery Exchange in Southern Veracruz: A Compositional Perspective on Centralized Craft Production and Exchange in the Classic Period”; Cynthia N. Pinkston (University of Maryland) “Across Time and Space: Comparing Cultural Contexts of Two Different Ceramic Traditions as a Strategy for Increasing Knowledge”; Christine M. Shriner (Departments of Geological Sciences and Classical Studies, Indiana University at Bloomington) and James G. Brophy (Department of Geological Sciences, Indiana University at Bloomington) “Beyond Ceramic Regionalism: Provenance

Determination with an Electron Microprobe Mineral Composition Databank”; William A. Parkinson (Florida State University) “Tribal Boundaries: Ceramic Style and Social Boundary Maintenance during the Transition to the Copper Age on the Great Hungarian Plain”; Kathleen M. S. Allen (University of Pittsburgh) “Technological Style and Iroquois Pottery: An Examination of Patterns of Ceramic Variability and Social Boundaries”; and Louana M. Lackey (Maryland Institute College of Art) “Potters, Pots, and Potsherds: Current Research in Ceramic Studies.” The discussants were Michael L. Galaty (Millsaps College) and Charles C. Kolb.

In the session “Mesoamerican Ritual Economy: Archaeological and Ethnological Perspectives” organized by E. Christian Wells and Karla L. Davis-Salazar (both University of South Florida), the “Introduction” by Wells featured some ceramic examples. A paper by Antonia Foias (Williams College) entitled “Pottery Economics and Ritual in the Classic Maya Southern Lowlands” was not presented in this session.

*The National Museum of Natural History Anthropology Seminar Series*. “Archaeological Guises of Ceramic Compositional Analysis” was the subject of an illustrated lecture presented by Ronald L. Bishop (Department of Anthropology, National Museum of Natural History, Smithsonian Institution) on 3 December 2003 as a part of the series. As noted in the last issue of the *Bulletin*, Ron has recently moved from the SCMRE in Suitland, Maryland to the SI’s downtown location. He traced the chemical analysis of archaeological ceramics from the 1930s into the 1950s in the Western Hemisphere, and pointed out the significant change that INAA brought to archaeological research. The contributions of Anna Shepard with the USGS and Ed Sayre at Brookhaven and CAL (later SCMRE) were noted. The contributions by Jim Blackman at NIST and Hector Neff and Mike Glascock at MURR were also cited. Using information primarily from Mesoamerica and Central America (with a few examples from Zuni in the American Southwest), Bishop highlighted the varying theoretical positions that have provided the framework for the consideration of ceramic compositional data at the macro- and micro-levels of interpretation. He noted that “for more effective, robust creations of archaeological narratives involving ceramic compositional information we must pursue a methodology that translates between analytical findings and past social contexts and practices.” INAA analyses from Tikal, Petexbatún, Copán, Buenavista del Cayo, Homul, and Palenque were included, and Bishop also discussed Palenque Fine Paste and Fine Orange ceramics.

*The Second International Conference on Science and Technology in Archaeology and Conservation*, organized by Queen Rania’s Institute of Tourism and Heritage, The Hashemite University, Zarqa, Jordan, was held 7-11 December 2003. Presentations focused on the topics of Tourism and Sustainability, Cultural Heritage Management, Vandalism, Archaeological Information System (AIS), Geographical Information System (GIS), Information Technologies, Stone Weathering, Restoration of Monuments and Historical Artifacts, Policies and Strategies in Conservation, Archaeometry, Museology, Imaging and Non-Destructive Techniques Applications, Ancient Art and Technologies, Landscape



Archaeological Conservations, Environmental and Cultural Heritage Impact Assessment, and Heritage Management in Crises and Conflicts. Among there were four presentations on ceramics (cited below). Information about the conference as well as paper titles and abstracts are available on the Internet at <http://www.hu.edu.jo/oldlook/conferences/Second%20International%20Conference.htm>: “Analysis of Nabataean Ceramics: CT-Scans and FTIR” by Talal Akasheh, Khairieh ‘Amr, Maram Na’es, and Rand Othman; abstract: Under the Ceramed project funded by the European Community, Researchers at Queen Rania’s Institute of Tourism and Heritage are studying Nabatean ceramic pottery. FTIR and CT-scan was used to Characterize some of the pieces that have been collected by ACOR and the Department of Antiquities of Jordan. “‘What makes them Rattle’ – The Use of Medical Computed Tomography (CT) in the Study of Two Ceramic Rattles from Israel” by Nachum Applbaum and Yaakov H. Applbaum; abstract: Computed Tomography Imaging (CT) is highly regarded by the medical profession as an efficient and relatively inexpensive diagnostic tool. In the study of clay and ceramic archaeological artifacts, however, the CT has hardly been noticed. We will demonstrate that CT is, in fact, a very powerful and efficient radiological tool for in-depth studies and analysis of a wide, almost unlimited, range of archaeological finds. As the images obtained by CT scans are digital in nature, we have succeeded in manipulating them in many ways, thereby adding new dimensions to non-destructive X-radiological study of archaeological finds. By adapting various image post-processing techniques that had been developed for the CT as a medical diagnostic tool to our specific needs, we have avoided new research and development costs. We will demonstrate the tremendous potential of the CT as an ideal tool with which to extract a broad spectrum of information from artifacts in the study, understanding, interpretation, conservation and preservation of ceramic and clay artifacts. As medical CT testing is relatively inexpensive, non-destructive and widely available, we foresee its becoming a leading tool in archaeological and archaeometric studies. “The Provenance of Anthropomorphic Figurines Found at Khirbat al-Mudayna in Moab, compared to Similar Figurines at Horvat Qitmit and En Hazeva in Israel, by Neutron Activation Analysis” by Jan Gunneweg and Marta Balla; abstract: In 1988, neutron activation analysis (hence NAA) established the provenance of anthropomorphic and zoomorphic figurines found in the Iron Age II Horvat Qitmit shrine in Israel. The shrine was initially interpreted as “Edomite” because of the ceramic content including anthropomorphic figurines that were thought to be Edomite. The NAA results showed that all figurines were locally made in the triangle Beer Sheba-Arad-Horvat Qitmit in the N-E Negev of Israel. Ten years later, NAA was applied to a series of 42 cultic vessels and three anthropomorphic figurines that had been found in yet another shrine, at ‘En Hazeva in the Arava of Israel. Shortly thereafter, Michele Daviau excavated a road shrine at Khirbat al-Mudayna in Moab, Jordan and noticed that these Moabite anthropomorphic vessels looked similar to those in Israel. Subsequently, they were submitted to NAA. Conclusion: This is the first time that we have been able to establish a provenance for similar looking anthropomorphic and

zoomorphic figurines found in all three-road shrines. “Nabataean Pottery - 30 Years of Conservation and Exhibition: A Case Study in Archaeology and Tourism” by Karl Schmitt-Korte; abstract: The German-Jordanian Society has initiated or participated in 10 archaeological exhibitions of Petra and the Nabataeans in German museums during the period 1970-1991. The basis for my work was the find of a large batch of mainly broken herds of Nabataean pottery in the late 1960ies. The material was carefully cleaned and sorted whilst a scientific ‘grid’ (scheme) was devised to analyze and reconstruct the patterns of the painted ware until entail enough material was brought together for a first exhibition which was held in Munich in 1971. At the time of the first exhibition Petra was still virtually unknown in Germany with a few thousands visitors per year. The series of exhibitions as seen by over 100 000 visitors. With a wide coverage by press and TV a public of more than a million has been reached. This success prompted German tour operators to put Petra on their agenda and as a result for some time Germany provided the highest number of foreign visitors to the marvels of Petra. The successful realization of this exhibition series over a period of 20 years plus 10 additional years of research and lecturing activities constitutes a good case for the cooperation between a private institution and public organizations in the field of archaeology and tourism.

*The Archaeological Institute of America’s* 105th Annual Meeting was held 2-5 January 2004 in San Francisco, California. Three presentations concerned ceramic materials. In the Colloquium “Regional Exchange and Local Culture Process in the Black Sea Region,” Alexander Bauer (University of Pennsylvania) presented “Ceramic Technology in the Bronze Age Wares of Sinop”; abstract: The pre-colonization periods in the Black Sea region have been largely ignored by archaeologists working in the region, particularly by those interested in the broader issues of social interaction and trade, as it is assumed that few such interactions occurred before the Greeks established colonies there. Comparing the Black Sea situation with the intensive interactions in the Bronze Age Mediterranean only serves to support this view. To what extent has our understanding of trade itself limited our ability to identify interactions and the movement of “less tangible” commodities, such as ideas, information, and technological knowledge, across archaeological contexts? This paper seeks to address this issue with regard to an earlier period of possible integration in the Black Sea region during the Early Bronze Age. For while there is little evidence in the prehistoric Black Sea for an intensive trade in goods, similarities in pottery production across the region at this time suggest the development of shared “Black Sea” technological traditions, probably brought about through increasing communication. Through a systematic analytical program of xeroradiography, SEM, and spectroscopic studies applied to Early Bronze Age ceramics from Sinop, Turkey and from the north Pontic Usatovo, Kemi-Oba, and Maikop-related cultures, the technology and manufacturing traditions of these regions will be compared as a means to assess whether information and ideas were being shared among Black Sea communities long before the integration of the Greek Colonization period. A second contribution was “Late Roman Red Slip Pottery in the Pontic Area: From Regionalism to

Periphery” by Krzysztof Domzalski (Institute of Archaeology and Ethnology, Polish Academy of Sciences); abstract: “Materials discovered in the northern Pontus have recently made it possible to distinguish a group of pottery of macroregional distribution, originating from an undetected center, called Pontic Red Slip ware (PRS). Statistical analyses have also indicated the scale of the imports from more distant areas: mainly the Phocian (PhRS) and African (ARS) wares. This paper shows the changes in the mechanism of supplying table pottery in the Black Sea basin over Late Antiquity. PRS ware, isolated on the basis of its technological and typological features and confirmed by physico-chemical analyses, dominates in the contexts of the mid fourth - mid fifth centuries C.E. The vessels were used in the port towns and reached the close rural hinterland in some regions: southwestern Crimea, Kerch Strait area, and Kolchis. The finds from the northernmost trading station of Tanais show that PRS was imported there, not as exchange goods, but for household use by its inhabitants. Intensive competition from the Phocian center, which produced mass quantities of strongly standardized, rather thin-walled vessels, helped cause the decline of the Pontic workshops. Phocaea became the main pan-regional supplier of the empire from the late fifth century, and its products practically flooded the Black Sea markets. The change of the supply source was also facilitated by the growing political and military activity of Byzantium, most obvious in Justinianic times. Withdrawal from this policy in the second half of the sixth century brought about a drastic reduction of the imports to the region but did not stimulate the recovery of the Pontic tradition of fine pottery making. The Poster Session included “The Reconstruction and Firing of a Greek Kiln” by John C. Wissinger (Tampa Museum of Art) and Lisa C. Kahn (Eckerd College); abstract: When Joseph Veach Noble, in *The Techniques of Painted Attic Pottery* (New York 1965), introduced his findings regarding the chemistry of ancient Greek vase decoration, he based his investigation on a collection, which in 1986 was acquired by the Tampa Museum of Art and which now provides an excellent sample group for this ongoing study. The project investigators, an archaeologist and a ceramic artist, combine their knowledge to explore this lost art. While Noble’s groundbreaking work was focused on the chemistry and firing principles (he didn’t actually employ ancient firing technology), his conclusions having been drawn from tests using an electric kiln. This left many questions regarding the process when actually using wood. In order to reconstruct a “Greek kiln,” the investigators consulted the archaeological record along with images painted on ceramics by ancient potters depicting their work. Such data, in conjunction with a solid understanding of kiln design, have been used to create a working wood kiln. This project has brought to light a number of issues previously unknown. The three-stage firing process (oxidation, reduction, and oxidation) has been clarified, and it was learned that the pots require full protection from ash within the kiln chamber. The protection was provided through the introduction of a sagger container, a large, closed chamber, to hold the pots in a clean firing environment. This poster describes the kiln design and construction, the firing process, and the results of the kiln firings. In the session “Ships and Shipwrecks” a paper entitled “The Late Sixth-Century B.C.

Shipwreck at Pabuç Burnu, Turkey” by Elizabeth S. Greene (Wellesley College) included a discussion of ceramic finds; abstract: In the summers of 2002 and 2003, the Institute of Nautical Archaeology excavated a Greek shipwreck of the late sixth century B.C. off Pabuç Burnu, Turkey, about 25 km southeast of Bodrum, or ancient Halicarnassus. More than 250 intact and broken amphoras found on the site present parallels to East Greek types from Ephesus, Miletus, and Cnidus (Cook and Dupont 1992). Sieved contents of the amphoras yielded grape seeds, olive pits, and fragments of bark stoppers; pitch lining in some amphoras suggests a primary cargo of wine. Ceramics from the ship’s galley include large bowls or *mortaria*, smaller bowls, and several oinochoai and olpai. A stone anchor stock, approximately 1.7 m in length, speaks for a moderate-sized vessel. Among the final discoveries of the 2002 campaign was the first evidence of the hull; four planks with triangular holes on their upper and lower surfaces indicate “sewn” or laced construction, a method that stands in contrast to the mortise-and-tenon joinery more commonly found in the eastern Mediterranean. The second and final excavation season focused on the downslope region of the site where additional hull remains were discovered, as well as a smaller stone anchor stock and fragments of coarse and fineware pottery. Along with other Archaic wrecks excavated in the western Mediterranean, this modest eastern merchant vessel may offer firsthand evidence for the often-ignored small-scale “low trade” in agricultural goods, which Horden and Purcell (2000) propose for a Mediterranean world comprised of microregions and microeconomies, bridged by the sea.” The symposium “Roman Pottery Studies,” chaired by Archer Martin (American Academy in Rome) included three papers: “A Ceramic Approach to the ‘Romanization’ of Italy” by Roman E. Roth (Fitzwilliam College and University of Cambridge); “Cooking in the Eternal City: Five Centuries of Cookwares from Ancient Rome” by Janne P. Ikäheimo (University of Oulu); and “A Close Reading of the Trash: Evidence from a Vandal-Era Dump in Carthage” by Joann McDaniel (University of Michigan). Abstract of “A Ceramic Approach to the ‘Romanization’ of Italy” by Roth: “The Hellenistic period in Italy sees a dramatic spread of black-slipped pottery (Black Glaze) across central Italy. This paper challenges the *communis opinio*, according to which this distributional pattern reflects the spread of notionally Roman forms of socioeconomic organization, resulting in the erosion of regional identities and in structural homogeneity across the peninsula. By contrast, this paper argues that Black Glaze is a far less homogeneous ceramic class than is normally assumed, and that its variability holds the key to our understanding of some of the structural changes taking place within regional societies during this period. This paper focuses on the ways in which regional Black Glazes often combine stylistic elements found in imported wares (e.g., a black-slipped surface), with those of traditional, regionally produced pottery (e.g., certain rim forms). It further argues that this phenomenon represents the integration of imported material forms, which are associated with the increasing degree of interpolity communication and elite-controlled production, with existing artifact categories, which represent more traditional social relations that are reproduced through daily practices, such as

the production of regional black-glazed wares. This material, therefore, provides an important source of evidence for the ways in which all levels of society were actively engaged in the redefinition of cultural and social identities, which ultimately resulted from the hegemony of Rome. Thus, it seriously questions the notion of a one directionally enforced integration of regional societies into the supposedly homogeneous culture of Roman Italy during the Hellenistic period. Abstract of "Cooking in the Eternal City: Five Centuries of Cookwares from Ancient Rome" by Ikäheimo: "This paper entails the preliminary results of the study of the Roman period cookwares — a heterogeneous group of recipients used for preparing and processing various foodstuffs — recovered in the course of the Soprintendenza Archeologica di Roma/American Academy in Rome excavations, which took place between 1989 and 1994 in and around a late Imperial domus situated on the northeast corner of the Palatine Hill. The assemblage contains a substantial amount of Roman cookwares recovered in a series of closely dated deposits spanning the period ca. A.D. 50 - 550. It is used here to provide a uniquely comprehensive and detailed view of the distribution and consumption of these low cost craft goods in the political and economic center of the Roman Empire over a period that marked its maturation and decline. Of particular note with regard to Rome is the fact that at certain points during the Imperial period, the state played a direct role in the supply of foodstuffs to the urban populace. In some cases this triggered the importation of cookwares from the area supplying the capital with bulk goods. Cookware assemblages from Rome thus give additional evidence not only of the private sector economy, but also of the state-driven command economy. Finally, the study of the distribution and consumption of Roman cookwares provides us with new insights into the Roman diet." Abstract of "A Close Reading of the Trash: Evidence from a Vandal-Era Dump in Carthage" by McDaniel: "A careful examination of the worked bone artifacts from a stratified dump excavated alongside the Roman circus at Carthage from 1982 through 1987, as part of a joint University of Michigan, University of Colorado, and University of Georgia project, offers an opportunity to explore the wider implications of this material and the specialized industry that produced it. The circus dump produced evidence not only for the operations of a bone-carving workshop in the fourth and early fifth centuries, but also — by inference — for building activity in the city during the early sixth century. Artifacts document the complete sequence of bone working in such volume that one must assume a large commercial venture at Roman Carthage. More importantly, the preponderance of a specific artifact, the hairpin, indicates specialization within that workshop. On a broader historical level, the sixth-century redeposition of massive amounts of earlier industrial debris next to the circus offers insight into the urban landscape of Vandal era Carthage. First, the redeposited material blocked access to sections of the cave, suggesting that at least part of the circus was no longer in use as a public entertainment building. Conversely, some sort of Vandal building activity in the area required the systematic transfer of this dump from its original location to a spot behind the circus. Because corroborating evidence for public construction under the Vandals is lacking,

one assumes that the dump was moved as a result of private action, perhaps for a large domestic structure that would have been situated nearby."

*Samian Wares and Their Distribution in Roman Italy and Gaul: Recent Research concerning Four Major Production Centers by Four Major European Research Laboratories* was the title of a colloquium organized by Bailey K. Young (Eastern Illinois University). The Colloquium Overview Statement reads "The production and distribution of *terra sigillata* finewares has long been a major research theme in the archaeology of the Roman Empire. Over the past 20 years, much new research, utilizing the resources of more sophisticated laboratory analysis and computer-assisted studies, has been conducted in university-based research laboratories. This colloquium brings together leading researchers from four of these, located in Italy, France, and Belgium, whose perspectives will allow a comparative discussion spanning the period from the second century B.C. through the fifth century A.D. Major themes in these presentations include the integration of these fineware productions into the local, regional, and interregional economic systems; the fluctuating patterns of long distance distribution and the competition for markets; and the conclusions that enhanced quantitative and technical analysis suggest for the study of technology and social history, as well as for the economic history of the earlier and later economy of the Roman West." Two papers were included: "Ceramic Productions in Northern Italy: Their Economic Role from the Roman Conquest until the Later Empire" by Sara Santoro (University of Parma). Abstract: "Over the past few years, an international research group (CRAFTS) has been pursuing a project whose goal is to analyze, in detailed manner, the economic role of craft productions and the social status of craftsmen during the Roman period in Italy and the western provinces of the empire. The Italian researchers in this group, based in the universities of Parma, Pavia, and Bologna, have been focusing on the economy of Cisalpine Gaul from the beginning of that region's Romanization (second century B.C.) through the Late Empire (fifth century A.D.). This region has long been regarded as a zone of economic and political experimentation for Rome, where policies later applied in the European provinces were first developed. To what extent did the north Italian cities and their respective territories function mostly as local, closed economic systems? Or to what extent were they integrated into regional and interregional economic circuits? Ceramic productions and their distribution provide an excellent analytical tool, now being refined by new studies regarding technology and provenance, made possible by the development of archeometry. The database now available for all of northern Italy allows us a better quantitative grasp of how the distribution systems worked in time and space and the relationship of ceramics to other craft productions, and it sheds new light on the old arguments regarding the nature, static or dynamic, primitive or modern, of the nonagricultural sector of the ancient economy." The second contribution was "Atlantic Commerce in *Terra Sigillata* from Montans (South Gaul) during the Early Roman Empire" by Thierry Martin (University of Toulouse). Abstract: "This study retraces the routes followed by the fine Samian wares produced in the Montans workshop,



from the late Augustan period, for their commercial distribution. These routes followed the Tarn and Garonne Rivers downstream to Bordeaux and spread out in an arc following the Atlantic coastline, from Iberia in the south up to Armorica in the north. It discusses the probable role played by Italian and later Gaulish merchants in establishing these distribution networks, which lasted, in some cases, a century and a half. It also demonstrates how these products of the Tarn region quickly entered into competition in the Garonne Valley and also, more generally, throughout southern Aquitaine, not only with Italian imports and pre-Samian Languedocian wares, but also with La Graufesenque, thus gaining in the course of the first century A.D. a quasi-monopoly in the supply of fine table wares throughout these regions of Roman Gaul.” Other contributions were “Ceramic Productions in Northern Italy: Their Economic Role from the Roman Conquest Until the Later Empire” by Sara Santoro (University of Parma) and “Atlantic Commerce in Terra Sigillata from Montans (South Gaul) during the Early Roman Empire” by Thierry Martin (University of Toulouse). The discussants for these papers were J. Theodore Peña (Ohio State University) and Kathleen Slane (University of Missouri, Columbia).

The Potteries of Trenton Society and the New Jersey Historical Society hosted a one-day symposium, *Early Stoneware in New Jersey and New York: Origins of an American Industry*, 6 March 2004 at The New Jersey Historical Society in Newark. There were four lecturers and a panel discussion group that explored the genesis and early growth of the American stoneware industry in the northeast and examined the way documents, objects, and archaeological investigations can be combined to establish and express the historical context. The speakers were: William Liebeknecht (Principal Investigator at Hunter Research, Inc., Trenton), “*New Jersey’s Role in 18th Century American Stoneware Production*”; Brenda Springsted (graduate of Brown University and New York University), “*Stoneware Made in the 18th Century ‘Hinterlands’ of Ringoes*”; Richard Hunter (founder and president of Hunter Research, Inc., Trenton), “*Stoneware on the Delaware in the 1770s: William Richards’ Pottery on the Lambertson Waterfront*”; and Meta Janowitz (material specialist for URS Corporation and consultant to both John Milner Associates and Howard University), “*Eighteenth-Century New York City-Made Stonewares.*” Panel Discussion and Registration required. For more information visit [www.potteriesoftrentonsociety.org](http://www.potteriesoftrentonsociety.org).

The Society for American Archaeology Annual Meeting was held in Montreal, Quebec, Canada from 31 March through 4 April 2004. Among the nearly 1,600 papers and posters presented there were 14 posters and 70 oral presentations on ceramics; three of the latter concerned ceramic figurines. At the 2003 meeting in Milwaukee, there were 8 posters and 83 oral papers. There were no sessions devoted exclusively to ceramics (there were two in 2003). The numbers of presentations (poster and oral) by culture area were: Mesoamerica (23), American Southwest (16), Western South America/Peru (6), US Southeast (5), and Southeast Asia (3). There were two papers, each with the following subject or area orientation: General, Amazon Basin, Europe, Japan, and

US Midwest. Single papers focused on Asia (General), Southwest Asia, Central Asia, China, Oceania, Circum-Mediterranean, and Egypt. Notable among the poster presentations were those by Linda Howle, Peter Day and Elizabeth Graham “Late Classic Maya Paste Recipes at Altun Ha, Belize and the Meaning of Paste Variability”; Mary S. Thieme, Arthur Joyce, J. Michael Elam, Hector Neff and Andrew Workinger “Sourcing Oaxacan Pottery”; Ethan Cochran “Explaining the Evolution of Cultural Diversity: Analyses of Ancient Ceramics in Fiji”; Karen Harry “Measuring Ceramic Porosity – Nondestructive Methods”; and James Feathers “Resolving Ceramic Chronological Problems with Luminescence Dating.” Among the oral papers were: Prudence Rice “Pregnant Female Figurines at Zacpeten, Guatemala”; Greg Kennedy and Claude Chapdelaine “Neutron Activation Analysis of Moche Ceramics from the Moche Site and the Lower Santa Valley”; Sarah Sterling “Similarity in Ancient Egyptian Vessel Forms as a Tool for Measuring Community Interaction”; Jody L. Dalton and Karen G. Haury “Through the Looking Glass: An Experimental Approach to Examine the Cause(s) of Vitrified Ceramic Vessels Associated with Far Western Pueblo Sites”; Sunday Eiselt “Historic Micaceous Pottery Production and Raw Material Procurement in a Southwestern Horse Nomad Society: The Jicarilla Apache of Northern New Mexico”; Ana Tejada and Hector Neff “Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MA) Analysis of Fine Paste Ceramics of La Blanca, Guatemala”; Joelle M. Chartrand “From Here or There?: A Petrographic Examination of the Volcanic Ash Ware Assemblage from Minanha”; and Etsuo Sato “Preliminary Results of Ceramic Analysis of the Pyramid of the Moon” [Teotihuacán]. In addition: Janet Hagopian, Margaret Beck, and Kelley Hayes-Gilpin “Sourcing Ceramics from the Fence Lake Data Recovery Project”; Kristin Sullivan “Multi-craft Production in Classic Period Teotihuacán, Mexico”; Sandra L. Lopez Varela “Revering Maya Potters from the Sibun River Valley, Belize: A Snapshot of Aims and Results”; Elizabeth Klarich “Hearths and Ollas from Mesoamerica to Mesopotamia: A Review of Food Preparation Research and an Andean Case Study”; Sovath Bong and Miriam Stark “Ceramics and Early State Formation in the Mekong Delta”; Samuel Duwe “Local Clays and Foreign Pots: Compositional Analysis of Valdez Phase Exchange in the Taos District, New Mexico”; and Jennifer Wharton “Open Wide: Ceramic Size and its Relationship to Vessel Form and Function.”

*Late Antique Archaeology 2004: Objects in Context, Objects in Use – the Archaeology of Everyday Life* was the subject of a symposium held at the Ashmolean Museum, Oxford, 15-16 May 2004. This conference focused on the ways in which objects were associated with each other in everyday life. The papers examined the particular arrangements of objects that defined the spatiality of houses, shops, workshops and churches at a human level. Sites featured in the presentations included Aphrodisias, Xanthos, Sagalassos, Pella, Scythopolis, and Dichin. The initial papers on “Artefacts in Religious Space” included presentations by Béatrice Caseau (Paris) “Furnishing Late Antique Christian Basilicas: The Static and the Movable” and Michel Vincent (Paris) “Ecclesiastical Furniture, Fixtures

and Fittings: The Archaeological Evidence.” “Artefacts in Domestic Space” had papers by Sauro Gelichi (Venice) “The Modena Hoards: Rural Domestic Artefact Assemblages” and Alan Walmsley (Copenhagen) “Houses at Pella, Jordan: The Domestic Destruction Deposits.” “Recent Fieldwork in Asia Minor” included papers by Anne-Marie Manière (Paris) “Recent Excavations at Xanthos” and Mark Waelkens (Leuven) “Late Antique to Early Byzantine Sagalassos.” A debate involving Penelope Allison, Maria Parani and Beatrice Caseau focused on “Texts, Pictures or ‘the spade that cannot lie’? Evaluating Sources.” The session entitled “The Table and Its Artefacts” had presentations by Joanita Vroom (East Anglia) “The Archaeology of Late Antique Dining in the East Mediterranean” and Ellen Swift (Kent) “Decorated Vessels: The Function of Decoration in Late Antiquity.” The second day of the conference had a session entitled “Understanding Finds in Context” with papers by Toon Putzeys (Leuven) “Contextual Analysis at Sagalassos” and R. R. R. Smith (Oxford) “Statues and their Contexts in Late Antiquity: Recent Work at Aphrodisias in Caria.” “Artefacts in Commercial Space” featured Elias Khamis (Oxford) “The Scythopolis Shops: Finds in Context Artefacts in Personal Space” and Maria Parani (Nicosia, Cyprus) “Dress and Accessories in Late Antiquity.” A final set of contributions related to “Artefacts in Military Space” and included papers by John Conyard (Comitatus Military Re-enactment Group) “Reconstructing the Late Roman Army (with equipment displays)” and Andrew Poulter (Nottingham) “Deconstructing Destruction Deposits: Finds in Context from a Late Roman Fort in Bulgaria.” The cost of admission to the symposium was £30 (£10 student/unwaged), excluding meals. Additional information is available on the Internet at [www.lateantiquearchaeology.com](http://www.lateantiquearchaeology.com) and [info@lateantiquearchaeology.com](mailto:info@lateantiquearchaeology.com).

**The Society for East Asian Archaeology** (SEAA), formerly known as the EAANetwork, is concerned with promoting interest and research in the field of East Asian archaeology through the sharing of information on ongoing projects, encouraging premier quality research and interdisciplinary communications, providing publishing opportunities through a web bulletin board and journal, holding academic meetings and conferences, providing educational outreach to the general community, enhancing scholarly communications and good relations among archaeologists within East Asia, and encouraging interdisciplinary perspectives involving several regions. The 2004 annual meeting was held in Daejeon, Republic of Korea, from 16-19 June 16-19 on the campus of Chungnam National University. See the Internet site at <http://www.seaa2004.org/#> for details. Of the 107 papers presented, 5 focused on ceramic materials. The authors, titles, and abstracts of the papers follow [some typographical errors have been corrected]. Masaaki Fukuda (Kyushu University) “Application of Principle Component Analysis to the Classification of the Early Haji Ware.” Abstract: This paper reports the result of the application of a multivariate statistical method, namely principle component analysis, to the classification of the early Haji ware of the Early Kofun period (ca. AD.3rd and 4th century). The classification based on subjectivity of a researcher can say that the conventional

research had problems in terms of objectivity. To solve such a problem, I try to focus on the quantitative attributes of ware. In the paper, typological classification is performed using principle component analysis, which is a kind of multivariate analysis. The outcome has confirmed the validity of the preciously published classification schemes based upon qualitative methods, and has objectively revealed the attribute contents of the classified categories. From analytical results, it is able to confirm the validity of the methods of conventional research; it is able to indicate objectivity in the process of the subdivided typological classification. Tetsuo Furiya (Kyushu University) “A Study of the Distribution of Korean Ceramic Based on the Analysis of Celadon Ware During the Medieval Period of Japan.” Abstract: This paper is an examination of the distribution of Korean Trade Ceramic, especially Celadon Ware during the Medieval Period of Japan. In the same time, I try to explain how the people who lived in the Medieval Japan used or consumed the Korean Trade Ceramics. The artifact from a certain archaeological site reflected to a certain archaeological context on which we can prove how the findings were used. To clarify these problems, I re-classified the materials of Celadon Ware from archaeological sites of Japan, and made a new system of chronology between the Medieval Period of Japan and Koryo Period of Korea. A result of this chronology is; Period I about the late-11 to early-12 centuries; Period II about early-12 to mid-13 centuries; Period III about late-13 to mid-14 centuries; Period IV about late-14 to late 15 centuries. Through the formation of the distribution during Period I-IV, it is clear that about 60 percentages of Korean ceramics are found in a variety of political center, such as Castles (JOU-KAN), Offices (KOKUFU), Temples (JI-IN). In Period I, there is a tendency that most of Korean Ceramics distributes around the northern KYUSHU. Period II, the distribution of Kyushu sudden decreases, on the contrary, two cities of HEIAN (HEIAN-KYO) and KAMAKURA comes to be prominent. Period III, the KAMAKURA is a center of the distribution with some sites depended on the Polity of KAMAKURA (BAKUFU). Period IV, there is a tendency that distribution revised in the northern KYUSHU, and it spread around a whole area of Japan. In conclusion, I will point out the latter understandings about the distribution –routs– of Korean Ceramics in the Medieval of Japan. (1) The route along the SETOUTI Sea and the Pacific Ocean (2) The route along the NIHON Sea (3) The route through inland of Japan. Kumi Iwasaki (Okayama University) “Anthropomorphic Clay Figurines in the Prehistoric Japanese Archipelago: Ideological and Gendered Perspective.” Abstract: The Jomon period, which extends over 10,000 years, has been considered as a magic or ritual oriented culture because of the many artifacts considered to have been used for ritual. Especially redundant are clay figurines about 15000 of which have been found are verified from the Initial Jomon period to the early Yayoi period, and, the further increase in the further is quite likely then. Their proportion is also very rich in variety suggesting the rich imaginative power of people of those days. The Jomon clay figurines are uniquely large in quantity compared with other parts of the world. It has been considered that many of figurines represent the female image. Because of their unrealistic style,



they have been interpreted as the goddesses and mother goddesses rather than real women. These interpretations assume only one role of clay figurines, which is not likely considering the very long time of 10,000 years. We should pay more attention to particular contexts and deviations to attain more adequate interpretation of the figurines. Although the body features of clay figurines have been used to reconstruct the customs of Jomon period, they are examined from the ideological perspective in this paper. This paper focuses on the second half of the late Jomon period, when the amounts of clay figurines increase remarkably in central and northern part of Kyushu. There are two explanations for this phenomenon: 1) The figurines spread to Kyushu as a part of cultural complexes from eastern Japan, and 2) ritual with clay figurines was performed extensively against the new culture transmitted from the continent. This paper presents a new interpretation of the increase of figurines from a gendered perspective, considering the women's roles in horticultural society. Hirofumi Kato (Hokkaido University) with Igor Shevkomud and Masaki Naganuma "Emergence of the Oldest Pottery and 'Oskipova Culture' in [the] Russian Far East." Abstract: Emergence of the Oldest Pottery in Asian Far East is not only currently hot topic in East Asian Archaeology, also in world archaeology. Since 1990 years, many researchers has discussed about it. As well known, in this area had been found the oldest pottery around 13-12 ka BP. (it is not [a] calibrated dating). Those complexes that included the oldest pottery, we can present in Russian Far East ("Amur" river basin and the Maritime region) and in Japanese islands (Honshu Island and Kyushu Island). Archaeological complex with the oldest pottery are placed in the early stage in Neolithic culture in continental side, on the other hand, the initial stage Jomon culture in Japanese island. Although, it is clear that those complex has looted far eastern microblade industries, characterized the wedge-shaped core technology (it is included some of variations of "Yubetsu microblade flaking method"). Those complexes have same roots or quite different basement. It is important archaeological discussion, but is not simple. In order to solve that matter, it is essential to organize the comparative research with international cooperation. And also it is necessary to examine on the same archaeological context and to compare with worldwide point view. We have been excavated and continued Joint research project about the transition late Paleolithic to early Neolithic in the Lower Amur basin. In this paper will be present current results for our joint research and consider the role of the "Oshipovka" culture in the Transition period the late Paleolithic to the early Neolithic on East Asia. Tatsuji Shigematsu (Kyushu University) "Dynamics of the Regional Society as Seen from the Study of Yayoi Pottery." Abstract: The purpose of this study is to reconstruct the dynamics of a regional community in the Later Yayoi period by studying changes in the regional variability of pottery. The late Late Yayoi period of the Okayama Plain in the Inland Sea region of Japan saw the development of unique mortuary customs including the construction of tumuli and highly decorated mortuary pots. A significant transformation of social organization can be inferred to have given rise to it. By analyzing changes in the regional variability of the pottery style of the region, the following findings have been made: 1)

During the late Middle Yayoi period, the inter-site similarity of pottery assemblage was comparatively high. 2) During the middle and late Late Yayoi period, the similarity began to decrease and the region became fragmented into a number of micro style zones. 3) The most remarkable point is that stylistic differences emerged in distinct manners in different shape categories. It is particularly significant that the distinct regional styles which appeared in pedestalled bowls, a particularly well-made shape-type in the assemblage, were closely related to emerging units of local integration marked by settlements and tumulus clusters. The above suggests that the identity of newly emerging units of local integration was signified particularly strongly by a pottery shape-type to which specific symbolic meanings were attached.

*The Society for Pennsylvania Archaeology's 75<sup>th</sup> Annual Meeting* was held in Clarion, PA, 23-25 April 2004 and hosted by Ohio Valley Chapter 22. Andrew Wyatt (Temple University) presented a paper on ceramics entitled "Water from a Deeper Well: An Analysis of Final Cordage Twist Direction on Woodland Pottery from the Central and Northern Susquehanna Drainage."

*The Council for West Virginia Archaeology's Annual Spring Workshop* held 8 May 2004 at the Delf Naronia Museum in Moundville West Virginia as devoted to "Late Prehistoric Ceramics in West Virginia and the Surrounding Region." Five formal presentations in the morning were followed by informal discussions and presentations. The speakers and their topics were: Brad Bowden "The Radford/Page Dilemma: A Review and Reexamination of Limestone Tempered Ceramics in Western Virginia"; David Pollack and A. Gwynn Henderson "Kentucky Fort Ancient Ceramics"; Bob Genheimer "The Schomaker Site and Making Sense of Fort Ancient Ceramics in the Lower Little and Great Miami Valleys"; Brian Redmond "A New Look at the Whittlesey and Wellsburg Ceramic Traditions of Eastern Ohio"; and William C. Johnson "Late Prehistoric Monongahela Culture and Fort Ancient Culture Bluestone Phase Ceramics and Late Woodland Ceramics from the Upper Potomac River Basin Location." This workshop was sponsored by the Council for West Virginia Archaeology, the West Virginia Division of Culture and History, Cultural Resource Analysts, Inc., GAI Consultants, Inc., and Michael Baker Jr., Inc. Additional information is available on the Council for West Virginia Archaeology's Internet site at <http://www.tamu.edu/anthropology/workshop.pdf> and from Darla Spencer ([dspencer@crai-ky.com](mailto:dspencer@crai-ky.com)).

#### *Forthcoming Meetings*

*Learning About Roman Ceramics Hands On.* Catarina Viegas (Adjunct Lecturer Universidade de Lisboa) and Maia Langley (University of Louisville, Program Manager, Study Abroad in Portugal) have announced a series of volunteer summer internships at the National Museum of Archaeology, Lisbon, Portugal. The three four-week sessions run from 5 July through 25 September 2004 (1st session: July 5-30; 2nd session: August 2-27; 3rd session: August 30 - September 25, 2004) with a rolling application deadline beginning 1 June 2004. The museum is located in the maritime and cultural center in the Jeronimite Monastery in Belém. During the course of the



internship, students/researchers will learn about Roman ceramics while assisting archaeologists in accessioning and cataloguing collections in the museum. The internship will begin with an introductory seminar that will address the varying typologies of Roman ceramics — fine wares, course wares, amphora, terra sigillata, mortaria, construction materials, etc., — as well as the proper terminology used in ceramic conservation, archaeology, and museology. Participants will have a chance to ask questions in a friendly and academic atmosphere and will visit on-going excavations and various collections in Portugal. Students will have the opportunity to attend lectures concerning Iron Age, Phoenician, and Islamic ceramics as well. Since the internships will be conducted in the National Museum, students will learn about the key principles the basics of conservation and environmental/climate control of ceramics. Participants will be asked to help wash, catalog, inventory, and mark ceramic sherds and vessels during part of the time. The internship will be complimented by excursions, organized lectures, daily explanations of ceramic typologies, and discussions concerning the identification and provenience of certain wares. A seminar concerning ceramic drawing techniques and rules will be offered to interested participants. For additional information, consult the Internet at <http://www.portanta.com/> and contact Maia M. Langley; Urb. Varandas de Monsanto, Lote 9, 4 Dto. Alfragide Sul, Amadora 2720, Portugal. Telephone: 351 21 471 3579; e-mail [maialangley@hotmail.com](mailto:maialangley@hotmail.com).

*The Ethnoarchaeology of Prehistory: Beyond the Analogy* is the theme of a symposium organized by the Archaeology Laboratory (Laboratorio de Arqueología) of the IMF-CSIC, Institutió Milà y Fontanais, Consejo Superior de Investigaciones Científicas [Madrid] (Spanish Council for Scientific Research). The symposium is scheduled for 1-3 September 2004 in Barcelona. The official languages of the conference are English, Spanish, Catalan, and French. The symposium will be organized around three foci coordinated by specialists: “Concepts and Definitions of Ethnoarchaeology” (Manuel Gándara, Centro de Cultura Digital-IntelMex [México] and Assumpció Vila, Institutió Milà I Fontanais, CSIC [España]); Applied Ethnoarchaeology (Pierre Pétrequin, CNRS [Francia] and Oleg Kuznetsov, Universidad Estatal de Chita [Federación Rusa]); and Ethnohistorical Archaeology (Iain Davidson, University of New England [Australia] and Estela Mansur, CADIC-CONICET [Argentina]). The proceedings are to be published. Information regarding fees, conference sessions, and contact persons are listed on the Internet at <http://www.imf.csic.es/Simposio-Etnoarqueologia.htm>.

*Archaeological Sciences of the Americas Symposium (ASA)*. The inaugural ASA Symposium will be held 23-26 September 2004 at the University of Arizona. This event is intended to encourage regular and sustained collaboration between archaeologists, conservation scientists, natural scientists, and contract researchers engaged in the development of archaeological science in the Americas. This unique 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. 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. Ninety posters and papers will explore six major topics in the field of archaeological science: 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. Based on the preliminary schedule, among the 44 oral presentations are five papers on ceramics: Harriett F. Beaubien, Rene Munoz and Margaret Kipiling, Yves Monette, Sachico Sakai, and Elizabeth J. Mikasa and James M. Heidke ([http://info-center.ccit.arizona.edu/~anthro/session\\_schedule.pdf](http://info-center.ccit.arizona.edu/~anthro/session_schedule.pdf)). Among the 29 poster presentation are four with ceramics content: Hector Neff, Molly Proue, Gregory D. Smith (and five other co-authors), and Samuel Duwe and Amanda Reynolds. ([http://info-center.ccit.arizona.edu/~anthro/poster\\_list.pdf](http://info-center.ccit.arizona.edu/~anthro/poster_list.pdf)). Those who wish to attend the conference as a non-presenter can find a link to a printable registration form below. Registration fees are \$40 for professionals and \$30 for students if received by 1 August 2004. On-site registration will be \$70 for professionals and \$60 for students. For additional information, visit the Internet site at <http://info-center.ccit.arizona.edu/~anthro/asa.shtml> or contact one of the organizing committee members directly: R. Emerson Howell ([rhoell@email.arizona.edu](mailto:rhoell@email.arizona.edu)), Kanani Paraso ([paraso@email.arizona.edu](mailto:paraso@email.arizona.edu)), or A. J. Vonarx ([ajvonarx@email.arizona.edu](mailto:ajvonarx@email.arizona.edu)).

*Prehistoric Pottery: Recent Research* is the theme of the Prehistoric Ceramics Research Group and The Prehistoric Society: Joint Conference sponsored by the Department of Archaeological Sciences, University of Bradford, will be held at the university 22-24 October 2004. Please send offers of papers to Dr. Alex Gibson (Hon. Chairman Prehistoric Ceramics Research Group) Department of Archaeological Sciences, University of Bradford, Bradford, BD7 1DP; telephone: ++44 (0)1274 235385, e-mail [A.M.Gibson1@Bradford.ac.uk](mailto:A.M.Gibson1@Bradford.ac.uk).

*Ceramic Ecology XVIII (2004)*: The symposium for 2004 to be held in San Francisco at the American Anthropological association annual meeting in November has 13 papers. The symposium co-organizers are Charles C. Kolb (National Endowment for the Humanities) and Louana M. Lackey (Maryland Institute College of Art), with Kolb as Chairman. The discussants will be Thomas Myers (University of Nebraska State Museum) and Kolb who will also provide an introductory paper. Session Abstract: The papers in this international and interdisciplinary symposium, the 18th 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. The 2004 papers are:

Hector Neff (California State University, Long Beach) "Exploring the Potential of Time-of-Flight LA-ICP-MS for Archaeological Ceramic Studies." In Time of Flight-Inductively Coupled Plasma-Mass Spectrometry (TOF-ICP-MS), ions from a high-temperature argon plasma are sampled at a single instant in time, and different masses are detected by monitoring how long it takes them to reach a detector, the heavier ions taking longer than lighter ions. This design contrasts with scanning devices, such as quadrupoles or magnetic-sector ICP-mass spectrometers, which monitor one mass at a time. Because the TOF samples all ions produced at a single moment in time, it has two dramatic advantages over scanning devices. First, it is possible to obtain complete characterizations from very short-lived signals. This "transient signal" capability is a distinct advantage in archaeological applications involving laser-ablation sampling and analysis of microscopic components within artifact fabrics. Another advantage of the TOF is that variation in the production of ions within the plasma from moment to moment (so-called "plasma flicker") is completely eliminated as a source of analytical error. As a result, isotope-ratio precision is increased dramatically with TOF-ICP-MS compared to scanning devices. A TOF was recently installed in the ICP-MS lab at California State University Long Beach, and several pilot archaeological ceramic applications have been carried out. In this paper, I describe the laser ablation and TOF-ICP-MS instrumentation at CSULB, present some results obtained from ceramic pastes, slips, pigments, and glazes, and evaluates the strengths and weaknesses of the instruments for archaeological ceramic studies.

Christophe Descantes (University of Missouri, Columbia), Michiko Intoh (National Museum of Ethnology, Osaka, Japan), and Hector Neff (California State University, Long Beach)

"Yapese Clay Procurement: Contributions from Chemical Characterization Data." Pacific researchers have long recognized the importance of characterizing ceramics, vital in provenance studies for understanding the origins of ancestral Pacific Islanders and complex exchange networks of the past. Mineralogical and chemical characterization data from instrumental neutron activation analysis (INAA) also provide essential information for modeling past Yapese clay procurement strategies. By integrating mineralogical and chemical composition studies, we suggest clay source zone distinctions for the four different Yapese ceramic wares. All four ceramic compositional groups have at least one clay sample resembling their chemical characterization. Coupled with ethnographic and ethnohistoric data, implications of the characterization results on the organization of Yapese ceramic pot production and possible changes through time are suggested.

Judy C. Voelker (University of Pennsylvania Museum) "Examining Prehistoric Industrial Ceramics from the Khao Wong Prachan Valley, Central Thailand: The Distribution and Use of Ceramic Bivalve Casting Molds." The Thailand Archaeometallurgy Project (TAP) has focused on the Khao Wong Prachan Valley, central Thailand in efforts to better understand the origins of mining and metallurgy in Southeast Asia. The copper industry of the Khao Wong Prachan Valley represents a major center for the production of raw copper that was traded across a wide region in prehistory. TAP has surveyed and excavated a group of culturally and technologically related copper production and habitation sites in this valley, and occupation at three sites: Non Pa Wai, Nil Kham Haeng, and Non Mak La, spans the mid-3rd to the late 1st millennium BC. At the sites of Non Pa Wai and Nil Kham Haeng evidence of all aspects of metallurgy, from the local procurement and processing of copper ores to the smelting and casting of metal is visible. The site of Non Mak La, situated nearby and contemporaneous to Non Pa Wai is most likely a habitation settlement of the metal producers. Ceramic tools of metal production are common at these sites and include crucibles, furnace chimneys, ingot molds, and bivalve casting molds. This paper presents initial findings from analysis of over 600 fragments of ceramic bivalve casting molds that were recovered from deposits at the three sites. Bivalve casting molds were widely used throughout Southeast Asia in prehistory to cast copper-base artifacts such as socketed axes, blades, spear points, and jewelry.

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.

Olivier Gosselain (University of Brussels/Université Libre de Bruxelles) "'Sorry, never heard that word before.' Techniques as Stigmas in Southern Niger." In the Ader area (South Central Niger), people of Tuareg origin or who were formerly dominated by Tuaregs are currently undergoing a process of 'Hausa-ization': they adopt the Hausa language along salient cultural traits such as architecture, dresses, or specific Islamic practices. The process, which is probably quite ancient, stems from series of political and economical reasons. For craft people, and especially female potters, it offers an opportunity to shift from a vertically segmented social context in which they occupy the lowest position, to a context where craft activities are neither stigmatized nor distinguished from other activities. Drawing on data collected during winter 2004 in some 50 villages, I will show how Hausa speaking potters from the Ader area are currently re-building their pottery traditions with the adoption of new shaping or firing techniques and the "purification" of their technical vocabulary in order to dissociate themselves from their Tuareg speaking counterparts.

Timothy J. Scarlett (Michigan Technological University) "Pottery, Economy, Science, and Religion: the Latter-Day Saints' Nineteenth-Century Pottery Industry." Immigrant potters established businesses throughout the Mormon Culture Region in the nineteenth century. These potters hailed from different cultural and economic backgrounds, but in Utah their work grounded them into new physical environments and cultural landscapes of dynamic change. Religion and Science both serve as excellent viewpoints to understand the rolls potters played in the region's distinctive development. Working at Ecobiographic narratives of two pottery shops, The Davenport Pottery (Parowan) and The Peterson Pottery (Salt Lake City), illustrates the importance of both religious belief and scientific practice in understanding the evolution of this sociotechnical system.

Sandra L. López Varela (Universidad Autonoma del Estado de Morelos) "Global Challenges in Ethnoarchaeology, A Case Study at Cuentepec, México." The effects of modernity and globalization are leading to the extinction of social productions in various communities around the world, as it is the case of pottery making by women of Cuentepec, near the archaeological site of Xochicalco in Morelos. At the turn of the millennium, David Nicholas and Carol Kramer predicted this scenario, as part of the future range of ethnoarchaeology. In 1998, the original goals of the Cuentepec project were trapped within the processual framework of providing a "scientific understanding of the past". Recently, federal government development planning and educational programs supported by private institutions have supplied women with a

new repertoire of meanings about pottery making and new concepts of the self. In this powerful transformational context, the processual goals of ethnoarchaeology seem far too simplistic. The project could no longer assume that the ethnographic context is something elementary, from which to draw analogies to understand the past, since the impact of modernity is also a phenomenon of the past. The revolutionary changes introduced by agriculture, the wheel, styles, or even by technologies in stone or metal, resulted in the appropriation, modification, reuse or abandonment of identities, not only of commodities. Searching for human agency is considered postmodernism and a sterile archaeological exercise, however, we claim that individual action contributes to the formation, transformation, disintegration and permanence of social processes.

Dean E. Arnold (Wheaton College, IL) "Pots as Symbols: Pottery, Religion, and Supra-Household Organization in Ticul, Yucatan, Mexico." While archaeologists are familiar with the 'pots as tools' approach to ceramics, less is known about the use of pottery as symbols. One approach to this disparity is the use of ethnoarchaeological contexts to illuminate the use of pottery in ritual contexts. An examination of the activities of the potters' guild (*gremio*) in Ticul, Yucatan, Mexico, reveals a rich use of material culture symbols (including pottery) that do not just signal potters' veneration for Yucatan's patron saint, but provide a complex set of meanings that provide structure to the *gremio*'s activities, and identify it during a ritual month when many such *gremios* provide fiestas in honor of the saint. Furthermore, the *gremio* data reveal why such a supra-household organization of potters can thrive and organize ritual activities when government attempts at organizing potters at such levels for economic purposes have failed for more than 60 years. Religion and ritual of the potters' *gremio* symbolize the importance of their craft economically in Ticul and serves as the glue that holds such supra-household organization together when inter-household and inter-familial suspicion and distrust have prevented other attempts at organizing potters in the past.

Christopher A. Pool (University of Kentucky) "Further Investigation of Ceramic Production and Political Economy at Tres Zapotes, Veracruz, Mexico." Archaeologists frequently distinguish between "attached" craft specialization, which produces wealth items for elite and governmental institutions, and "independent" specialization, which produces utilitarian artifacts for an unspecified demand crowd. Previous survey and surface collection at Tres Zapotes, Veracruz, Mexico, however, suggested an alternative arrangement in which ceramic specialists in elite contexts duplicated the manufacture of utilitarian and serving wares also produced in non-elite contexts. Recent excavations at Tres Zapotes (1) support this model of ceramic production and (2) suggest ceramic production was carried out as part of a diversified domestic craft economy, but (3) suggest some differential production of non-ceramic crafts. This research contributes to a growing appreciation of the complexity of Prehispanic household and political economies in Mesoamerica.

Barbara L. Stark (Arizona State University), Robert J. Speakman (University of Missouri), and Michael Glascock (University of Missouri) "Pottery Production and Distribution



Patterns in South-central Veracruz, Mexico Using INAA Characterization.” Elemental characterization of Late Classic pottery in the western lower Papaloapan basin affords a new basis for interpreting local economic relationships. The alluvial coastal environment offers more challenges for chemical characterizations of production and distribution patterns than in geologically diverse regions. Pottery production and distribution in south-central Veracruz during the Late Classic period are examined in relationship to four physiographic areas and three major polities that succeeded Cerro de las Mesas.

Marilyn Beaudry-Corbett (Cotsen Institute of Archaeology, UCLA) and Jeanne Lopiparo (University of California, Berkeley) “New Approaches to Publishing Ceramic Data: Pottery of Prehistoric Honduras.” We present a preview of a hybrid digital-print publication that facilitates updating ceramic data and making it available through a searchable interface. Cooperative efforts among investigators working in various regions of Honduras began almost 20 years ago with a roundtable and workshop that had the goal of beginning to develop common methods of ceramic analysis and to facilitate sharing data for comparison. The main product of these efforts, the 1993 “Pottery of Prehistoric Honduras: Regional Classification and Analysis”, edited by John S. Henderson and Marilyn Beaudry-Corbett, met three objectives: to set forth the concepts, methods, and theories being used in ceramic analyses in Honduras; to provide a summary of the descriptions and classifications developed for pre-Columbian ceramics; and to present a case study showing the utility of analytical compatibility emerging from collaboration. The second edition of the volume, being edited by Marilyn Beaudry-Corbett, John Henderson, and Rosemary Joyce, will use a combination digital-paper format. Considerably more data are available for defining new regional classifications and for refining the original ones. The digital component will have a searchable database containing maps of areas with regional sequences, standardized descriptions, and illustrations and converts the original indices into classification keys. The paper component will give background information, interregional comparisons, and chronometric information for each region. Our regional approach is useful wherever archaeologists are working, using ceramics to address issues related to regional interaction, cultural and regional homogeneity and heterogeneity, as well as topics of social and economic change.

Karen Anderson (University of California, Santa Barbara) “Technological Style and the Impact of the Tiwanaku State in the South Central Andes: The Case from Cochabamba.” The spread of the Tiwanaku state ceramic style (AD 600-1100) to the Cochabamba region (~300 km to the southeast) has been variously interpreted as an indicator of state domination or a simple matter of loose interaction networks with little political impact. However, these interpretations have been based primarily on changes in the form and iconography of the fineware ceramics, which in themselves are not sufficiently clear markers of social or political change. Recent studies in technological style, especially focusing on identifying changes in various stages of production, note that some aspects of ceramic production are more easily copied and less socially significant than other less malleable production techniques.

Thus, to be more certain of our interpretation of ceramic data, we need to look at additional aspects, including production methods, in both fine and utilitarian ware. In this paper, I present the ceramic evidence from excavations in the Cochabamba valleys, providing data of changes in local ceramics from pre-Tiwanaku through post-Tiwanaku periods. I will especially focus on change and continuity in production techniques such as firing, temper, burnishing techniques and paint application giving a more nuanced view of the extent of Tiwanaku impact on local ceramics and finally what this material can tell us about social and political change.

Louana M. Lackey (Maryland Institute College of Art) “Shards or Sherds – Old World or New: Current Research in Ceramic Studies.” In searching for answers to their questions, members of the informal “Ceramic Studies Interest Group” use a number of approaches. In this paper I will discuss some of their many current problems and projects in ceramic studies that have been reported to me by mail, e-mail, and telephone. Examples include work from both the Old and New Worlds — work that uses approaches that include archaeology, ethnoarchaeology, ethnography, and technical analysis. Many of these field and laboratory investigations are still in progress and have not yet reached a final “paper ready” stage. Many of the investigators of work “in progress” invite input from colleagues. Other projects have been too recently completed for a “final report” and, for others, results are in press, or have been too recently published to be generally known.

*Ceramic Ecology XIX (2005)* to be held at the annual meeting of the AAA in Washington, DC has seven presenters signed up. The 20<sup>th</sup> anniversary *CE XX (2006)* session (city not yet determined) has five contributions scheduled. If you are interested in participating, please contact Charlie Kolb, ckolb@neh.gov, as soon as possible.

*Foreign Relations and Diplomacy in the Ancient World: Egypt, Greece, Near East* is the theme of a symposium to be held 3-5 December 2004 on the Island of Rhodes, Greece. A call for papers has been issued by the Organizing Committee, which consists of Panagiotis Kousoulis and Konstantinos Magliveras (Department of Mediterranean Studies of the University of the Aegean, Rhodes, Greece). The theme and topics of the conference are: The broader Mediterranean region, which includes twenty-five nations today, was the witness of the development of some of the most important and magnificent civilizations of the past. The Mediterranean Sea facilitated to a great extent this development through cross-cultural exchanges, which were mobilized by various modes of thought and action - foreign and diplomatic affairs, social, religious and artistic modules. The Conference will address foreign relations, diplomatic affairs and cross-cultural interaction between Egypt, Greece and the Near East from the 3rd millennium BC down to the Arabic conquest of Egypt (637 CE). Presentations and conference proceedings will be in English. Papers were invited on three broad topics: 1) Colonization; 2) Great migrations; and 3) Trade and politics among Egypt, Greece and the Near East. The influence of political institutions in the foreign relations of Greece with Egypt and the Near East Ambassadors, diplomats and messengers Sea routes, trade and labor relations Wars, conflicts and treaties Egypt and Anatolia in the Bronze

Age The Egyptian empire in Asia Greeks in Egypt and the Near East Religious and linguistic interactions between Egypt and the rest of the Mediterranean world. Confirmed invited speakers include: Kenneth A. Kitchen (Liverpool), Allan Lloyd (Swansea), Robert Redford (Toronto), Peter Brand (Memphis), Siegfried Morenz (Leipzig), Bernard Knapp (Glasgow), and Yvan Koenig (Paris). The deadline for the submission of abstracts was 31 May 2004; notification of acceptance by 30 June 2004; and required pre-registration by 31 July 2004. Abstracts (not exceeding 500 words, including name, affiliation and full contact address) or requests for further information should be sent (preferably via e-mail) to: Dr. P. Kousoulis or Asst. Prof. Konstantinos Magliveras, Department of Mediterranean Studies, University of the Aegean, 1 Demokratias Avenue, Rhodes 85100, Greece. Telephone 0030 22410 99341, 99325; fax: 0030 22410 99309; e-mail: kousoulis@rhodes.aegean.gr or kmagliveras@rhodes.aegean.gr.

*Archaeology at the Interface* is the title of a conference scheduled 13-16 April 2005 and sponsored by the Department of Archaeological Sciences, University of Bradford. There are five conference themes: 1) The Life Cycle of the Artefact; 2) People and Geo-landscapes; 3) Diet and Diversity, and 4) Archaeological and Forensic Investigation. There will be specific site sessions on Niah Cave and Pompeii. The abstract deadline is 15 October 2004 and early registration will close on 31 January 2005. For further information, visit the website at <http://www.bradford.ac.uk/archsci/archsci2005/> or send e-mail to [archsci-conference@bradford.ac.uk](mailto:archsci-conference@bradford.ac.uk).

*Metallurgy – A Touchstone for Cross-cultural Interaction* is the theme of a conference organized by the British Museum Department of Conservation, Documentation and Science that is scheduled for 28-30 April 2005. This international conference to be held at the British Museum (London WC1B 3DG, UK) will celebrate Dr. Paul Craddock's contributions to the study of metal through the ages. Craddock leaves the British Museum in 2005, after nearly forty years of research into the history of metallurgy. The conference will reflect the breadth of his research into early technology and aims to examine the "why" as well as the "how" of the exploitation and use of metals. In particular it will address the transfer of technologies between cultures across time and space, innovation and also interactions between metalworking and other material technologies - all with reference to archaeological/historical contexts. There will be no parallel sessions, but a poster session will allow maximum participation. The initial call for papers has been issued. Abstracts of 200-400 words should be submitted by 31 August 2004 to [slaniece@thebritishmuseum.ac.uk](mailto:slaniece@thebritishmuseum.ac.uk) Please give the title followed by the author's name and title, affiliation, full postal address and email address. The Advisory Committee includes Michael Cowell, Alessandra Giumlia-Mair, Peter Northover, Thilo Rehren, and Michael Wayman. The Organizing Committee consists of Susan La Niece, Ian Freestone, Duncan Hook, Janet Lang, and Nigel Meeks.

*Predynastic and Early Dynastic Egypt: Origins of State* is the title of a conference to be held 5-8 September 2005 in Toulouse, France. This conference is open to contributions

concerning the prehistory and the protohistory of Egypt: Field Archaeology, Anthropology and funerary customs, Material culture (pottery, lithic technology, bone technology), Foreign relations and trade, Archaeology of the Delta, Archaeology of the deserts, Environment, Ethnoarchaeology, Iconography, Paleography and birth of the writing, and Research in museums. A Scientific Committee composed of scholars in Egyptological research is charged to examine the "projects of communication" [abstracts]; oral presentations of 25 minutes in French or English. The abstracts (1 layer and 4000 signs maximum under Word format) should be sent to the Organization Committee by email ([origines@egypt.edu](mailto:origines@egypt.edu)) or by post at Centre d'anthropologie, UMR 8555 du CNRS, 39 allées Jules Guesde, F-31000 Toulouse. The authors of the communications selected will be informed by the organizer. The abstracts should be submitted before 30 March 2005. Postal Address: Centre d'Anthropologie, UMR 8555 du CNRS, Université Paul Sabatier, 39 Allées Jules Guesde, 31000 Toulouse (France).

### Exhibition

*Greek Vase Painting: Form, Figure and Narrative – Treasures of the National Archaeological Museum in Madrid* is the theme of an exhibition that will be open from 8 February through 6 June 2004 at the Meadows Museum, Dallas, Texas. This exhibition of 44 masterpieces of the potter's craft and the painter's art, shown exclusively at the Meadows Museum, surveys the development of Greek art from the dawn of the Iron Age to the age of Alexander, spanning the 8th to the 3rd centuries BCE. The unprecedented loan from Spain's most important archaeological museum illuminates the search by Greek artists for the means of realizing on a small scale, and on a two-dimensional surface, some of the earliest accurate renderings of the human form, human spaces and divine narratives. The majority of works in the exhibit are being lent abroad for the first time. The exhibition was organized by an international team of scholars headed by Dr. P. Gregory Warden, professor of art history at Southern Methodist University, and Dr. Paloma Cabrera, chief curator of the Roman and Greek Antiquities Department at the National Archaeological Museum in Madrid. To inaugurate the exhibition, the Meadows Museum hosted a public symposium on 7 February in which international scholars presented new approaches to the understanding of Greek vase painting from the context of use, form, and influence. For more detailed information, visit the museum Internet site at <http://meadowsmuseum.smu.edu>.

### Internet

*The Worcestershire On-line Fabric Type Series*: This on-line fabric type series is part of Worcestershire's Historic Environment Record (formally the Sites and Monuments Record). One aim of the HER is to improve access to finds and environmental data in order to encourage and facilitate research. The series is being developed by Worcestershire County Council Archaeological Service with OxfordArchDigital. This work is funded by Worcestershire County Council as part of its commitment to e-government. The pottery fabric type-series has been developed at Worcestershire Archaeological Service over a period of 20

years. It is based on the results of research carried out in the course of publishing major urban sites in Droitwich and Worcester but the type series has continued to develop with the addition of fabrics from many other sites across the region. Many of the fabric descriptions were published in 1992 (D. Hurst and H. Rees, 1992, in S. Woodiwiss (ed.), *Iron Age and Roman Salt Production and the Medieval Town of Droitwich*, CBA Research Report 81, pp. 200-209). Additional fabrics were published in the same format in site reports as they were identified. This consistency of approach has led to the establishment of a large database of excavated ceramics of all periods providing great potential for future analysis. The Worcestershire on-line fabric type series is the first part of "Pottery in Perspective," an innovative project to provide information on the pottery used, and made, in Worcestershire from prehistory to about 1900 CE. The fabric type series describes all the types of pottery found on archaeological sites in Worcestershire. For each type of pottery the database contains information on: fabric (clay type and inclusions), manufacture, forms, source, distribution, and date. There are images of pottery sections to aid in identification, and bibliographic references for each fabric including cross-references to other fabric type series. The database was designed to make the complete fabric and form type series for Worcestershire accessible on line. This first stage of the Pottery in Perspective project is aimed at ceramic specialists and students but could be used by anyone interested in the study of pottery as it includes simple as well as advanced search facilities. Over the next year non-specialist on-line information will be developed by the project. Presently, the database contains information only on the medieval pottery fabrics but information will be added to it continuously over the next two years. The program for the development of the fabric type series will include: The development of a non-specialist database, integration of the prehistoric, Roman and post-medieval pottery fabrics found on archaeological sites in Worcestershire, and enhancement of the fabric series with descriptions and images of thin sections. Also planned is the creation of a form type series for each fabric with descriptions, images, dates and bibliographies. Other anticipated developments will include: Brief overviews of the ceramic history of the county for each period; mapping of find spots; and the enhancement of kiln site information to include text, dates, maps and bibliographies. Worcestershire has a long tradition of pottery production. Pottery making in the Malvern area started in prehistory and continued into the Roman period. In the Middle Ages potters worked in the parish of Hanley Castle, as well as in and around the city of Worcester. Today Worcestershire is still renowned for pottery production with Worcester Porcelain one of the most famous brands of high quality ceramics in this country. This part of the Midlands is particularly well placed for undertaking ceramic research. The geological diversity of the region considerably aids the identification of the sources of pottery. This is useful for establishing patterns of trade and exchange, especially for earlier periods, and a number of pioneering petrographic studies of pottery fabrics have been carried out in Worcestershire. The URL is <http://www.worcestershireceramics.org/>.

The *Worcester On-line Fabric Type Series* website has been reviewed by Beverly Nenk in *Internet Archaeology* **14** <http://intarch.ac.uk/journal/issue14/reviews/nenk.html> (2003).

The *Prehistoric Ceramics Research Group* (PCRG) web site is now up and running at <http://www.pcr.org.uk>, reports Alex Gibson (PCRG Hon. Chairman; Reader in British Prehistory, University of Bradford).

*Archéologie et art rupestre du Hemma (Djezireh syrienne)*. There are two reports on ceramics within the annual campaign reports. Mission de Khishâm - Campagne 2001 par Paul-Louis van Berg et Vincianne Picalause [http://www.espasoc.org/khi\\_1acc.html](http://www.espasoc.org/khi_1acc.html). Mission de Khishâm - Campagne 2002: Rapport préliminaire sous la direction de Paul-Louis van Berg et Khaled Ahmo [http://www.espasoc.org/2002/hem\\_1acc.html](http://www.espasoc.org/2002/hem_1acc.html). "Culture matérielle" par Marc Vander Linden (Université Libre de Bruxelles). Il ne s'agit ici que de l'identification préliminaire du matériel de surface récolté lors des prospections. L'étude du matériel retrouvé dans les sondages est prévue pour la Campagne 2003. Les périodes néolithique et chalcolithique semblent bien représentées; see [http://www.espasoc.org/2002/hem\\_4mat.html](http://www.espasoc.org/2002/hem_4mat.html). Mission de Khishâm - Campagne 2003: [http://www.espasoc.org/2003/he3\\_1acc.html](http://www.espasoc.org/2003/he3_1acc.html). Céramique de Khishâm-2, Quartier V: La céramique néo-assyrienne du Quartier V de Khishâm-2. La céramique de la pièce néo-assyrienne 0032. Florence Cosme (Université Libre de Bruxelles): Le sondage effectué dans la pièce 0032 et une partie de l'enclos qui la borde au Sud a livré 3700 tessons de poterie d'époque néo-assyrienne. Plus d'un quart de ce matériel provient du remplissage supérieur (0046) de la pièce 0032 et environ un cinquième de la couche superficielle (0039) d'une partie de l'enclos (0011); see [http://www.espasoc.org/2003/he3\\_6mat.html](http://www.espasoc.org/2003/he3_6mat.html).



## Book Reviews

*Mark Hall, Associate Editor*

### **Subsistence-Settlement Systems and Intersite Variability in the Moroiso Phase of the Early Jomon Period of Japan.**

Junko Habu, *International Monographs in Prehistory, Archaeological Series* 14 Ann Arbor, 2001. xii + 207 pp., 73 figures, and 33 tables. Price: \$65.00 (cloth) or \$30.00 (softcover). ISBN: 1879621320.

*Reviewed by Kenneth M. Ames, Department of Anthropology, Portland State University, Portland, OR, 97207 USA*

This monograph is an analysis of changing mobility patterns in a portion of central Japan during the Early Jomon period. Habu's study is a test of a long-held hypothesis that Jomon hunter-gatherers were sedentary by the Early Jomon period. Her study is based upon Binford's well-known distinction between foragers (residential mobility) and collectors (logistical



mobility). Based on her analysis, she draws two major conclusions: 1) that Early Jomon people in her study region were collectors, rather than fully sedentary and 2) that by the end of the Moroiso phase, some may have shifted towards being foragers. The monograph is important for reasons discussed at the end of this review.

The Jomon is exceedingly interesting for a number of reasons, including the world's earliest pottery, coupled with hunter-gatherer economies that in some places and at some times included the use of cultigens. Jomon is widely regarded as a classic example of complex hunter-gatherers; in fact Price's original formulation was based on California Native Americans, the Jomon and the Mesolithic. Jomon is considered "complex" because of its relatively high population densities, intensive subsistence economies, large stable settlements, and elaborate ceramic traditions (including pottery and figurines) among other traits. The history and development of these traits are central research questions in Jomon archaeology and the archaeology of complex hunter-gatherers generally. The development of logistical mobility strategies is widely held as a key step in the evolution of hunter-gatherer complexity.

The Jomon tradition spans the period from approximately 13000 b.p. to 2100 b.p. It is divided on six periods: Incipient Jomon (c.13000 - 9500 b.p.), Initial (9500 - 6100 b.p.), Early (6100 - 4100 b.p.), Middle (4800 - 4050 b.p.), Late (4050 - 3050 b.p.) and Final Jomon (3050 - 2100 b.p.). These broad periods are locally subdivided into phases, and the phases further subdivided into sub-phases, based on pottery chronologies. The Moroiso phase dates approximately to c. 5000 b.p. and is subdivided in three sub-phases (Moroiso a - c).

The monograph, a revision of Habu's McGill University dissertation, is organized into seven chapters. The first, very short one is the introduction and lays out her purposes and goals. Chapter 2 develops the distinctions between foragers and collectors, addressing issues relevant to her methodology. Chapter 3 is a summary review of the Jomon tradition, discussing research issues and problems in both the Japanese and English language literatures. This is an excellent review. Chapter 4 details the specific hypotheses to be tested, her research and analytical techniques, to which I will return below. Chapters 5 and 6 present results and Chapter 7 her discussion of those results and conclusions. Chapter 7 is followed by 76 pages of tables including both raw data and statistical analyses.

Habu reviewed site reports for 1058 Moroiso phase sites from six prefectures in the general Tokyo Bay region of central Honshu, collecting data on site location, size, presence/absence (and number) of pit dwellings and counts of lithic artifacts falling into 11 broad functional classes from sites with 15 or more artifacts, producing a sub-sample of 98 sites. She used the artifact data to explore assemblage diversity (was an assemblage dominated by one or a few types or were types evenly represented) and structure (if dominated by one or few types, which ones). She used all of these data to operationalize residential and logistical mobility.

The volume is important for a number of reasons: 1) she demonstrates greater variability in Jomon settlement patterns than is generally appreciated. Jomon is often treated, at least in the English-language literature, as rather monolithic and

invariant. This study shows that expectation may not hold at relatively small spatial and temporal scales; 2) she demonstrates that, as originally anticipated by Binford, hunter-gatherers can shift along the forager-collector continuum. Some recent work mistakenly assumes that shifts from residential to logistical mobility are rarely reversed; 3) the Middle Jomon in Habu's study area is widely regarded as perhaps the period marked by the greatest social and economic complexity of the Jomon tradition. Her analysis suggests that there may not have a slow steady increase in complexity, as is often thought. Finally, the volume is important because it is an excellent introduction to empirical issues in Jomon archaeology for the non-Japanese who is interested in Jomon, but who does not read Japanese.

## Upcoming Conferences

*Colleen P. Stapleton, Associate Editor*

### 2004

- Aug 20-28, 32nd International Geological Congress, Florence, Italy. Theme: Geology, Natural Hazards and Cultural Heritage. Sessions include: Geologic Hazards (S08), Cultural Heritage (S09), Geoarchaeometry: Geomaterials in Cultural Heritage (T13.1, contact: M. Maggetti, marino.maggetti@unifr.ch). General information: [www.32igc.com](http://www.32igc.com).
- Aug 30-Sept 3, DEUQUA (German Quaternary geologists), Nijmegen, The Netherlands. Organizers: Jef Vandenberghe, Kees Kasse, Ronald van Balen (Vrije Universiteit Amsterdam), Wim Hoek, Henk Berendsen (Utrecht University), Wim Westerhoff (Netherlands Institute for Applied Geosciences). The meeting is open to all interested Quaternary geologists. Conference languages will be German and English. Meeting theme: From Source to Delta. General information: [sheba.geo.vu.nl/~quageo/](http://sheba.geo.vu.nl/~quageo/) and follow the link to "DEUQUA".
- Sept 2-5, Association for Environmental Archaeology 25th Anniversary Symposium, Bad Buchau, Germany. Theme: Economic and Environmental changes during the 4th and 3rd millennium BC. Registration: Dr. Ralf Baumeister, Federseemuseum, August Grober Platz, D-88422 Bad Buchau, Germany; fax: +49-(0)7582-933810 e-mail: [rbaumeister@federseemuseum.de](mailto:rbaumeister@federseemuseum.de). General information: [www.federseemuseum.de](http://www.federseemuseum.de).
- Sept 8-10, Earth Systems 2004 Symposium, Istanbul, Turkey. Sessions include: Geoarchaeology, Quaternary Environments, Environmental Geology and Landscape Analysis, Anthropogenic Aerosols, and Abrupt Environmental Changes and Human History. Contact: Oya ALGAN, Institute of Marine Sciences and Management, Vefa, 34470, Istanbul, Turkey, tel.: +90 212 528 2539, 90 212 440 0000 / 26051, +90 212 526 8433. E-mail: [algan@istanbul.edu.tr](mailto:algan@istanbul.edu.tr). General information: [www.earthsystem2004.org](http://www.earthsystem2004.org)
- Sept 23-26, Archaeological Sciences of the Americas Symposium, University of Arizona, Tucson, USA. Sessions will explore seven major topics in the field of archaeological science: 1) Catastrophes and Cultural Reaction, 2) Geoarchaeology, 3) Conservation Studies and Ephemeral Remains, 4) Spatial Analysis and Remote Sensing, 5) Chronometry, 6) Human-Environmental Interaction, and 7) Material Culture Studies. General information: <http://info-center.ccit.arizona.edu/~anthro/asa.shtml>.

- Oct 22-24, Prehistoric Pottery: Recent Research, University of Bradford, UK. Sponsored by the Prehistoric Ceramic Research Group and the Prehistoric Society. Contact: Dr. Alex Gibson, Dept. of Archaeological Sciences, University of Bradford, Bradford, BD7 1DP. Tel: ++44 (0)1274 235385. Email: a.m.gibson1@bradford.ac.uk
- Nov 7-10, Quaternary Paleoenvironments of the Middle East: Proxy Records, Human Prehistory, and Regional Cross-Correlation, GSA Topical Session 102, Denver, Colorado, USA. Sponsored by the Archaeological Geology Division and the Quaternary Geology and Geomorphology Division. Conveners: Carlos E. Cordova (cordova@okstate.edu), Caroline P. Davies (daviesc@umkc.edu). General information: [www.geosociety.org/meetings/2004](http://www.geosociety.org/meetings/2004).
- Nov 15-17, Arts and Surfaces, Dijon, France. Session A of 18th International Conference on Surface Modification Technologies. a multidisciplinary discussion on the science and technology of surface related phenomena for all materials employed. Research on any work of art or archaeological find, made of any sort of material, on both theoretical and experimental approaches are welcomed. Session organizer: Alessandra Giumlia-Mair. General information: [www.congres-scientifiques.com/smt18](http://www.congres-scientifiques.com/smt18)
- Nov 17-21, 18th Annual Ceramic Ecology Symposium 2004, AAA Annual Meeting, San Francisco. Organizers: Charles C. Kolb (ckolb@neh.gov), Louana M. Lackey (Maryland Institute College of Art). General information: [www.aaanet.org/mtgs/mtgs.htm](http://www.aaanet.org/mtgs/mtgs.htm)
- Nov 29-Dec 3, Materials Issues in Art and Archaeology VII, Materials Research Society, Boston, USA. Symposium organizers: Pamela Vandiver, University of Arizona, Dept. of Materials Science & Engineering, Mines Bldg., Tucson, AZ 85721, tel 520-400-2270, fax 520-621-8117, email: vandiver@mse.arizona.edu; Jennifer Mass, Winterthur Museum, Conservation Dept., Garden, & Library, Winterthur, DE 19735, tel 302-888-4808, fax 302-888-4838, email: jmass@winterthur.org, Alison Murray, Queens University, Art Conservation Program, Dept. of Art, Kingston, ON K7L 3N6, Canada, tel 613-533-6000 x-74338; fax 613-545-6889, email: am26@post.queensu.ca, John Merkel, University College, Institute of Archaeology, 31-34 Gordon Sq., London WC1H 0PY, UK, tel 44-171-387-7050, fax 44-171-3832572, email: j.merkel@ucl.ac.uk. General info: [www.mrs.org/meetings/fall2004/program/cfp\\_oo.html](http://www.mrs.org/meetings/fall2004/program/cfp_oo.html).
- Dec 7-11, Science and Technology in Archaeology and Conservation, Hashemite University, Jordan. Contact: Prof. Talal Akasheh, email: takasheh@index.com.jo, tel.: 00962-5-382 6600 ext.: 4488, fax: 00962-5-382 6613, General information: [www.hu.edu.jo/Inside/About/default.htm](http://www.hu.edu.jo/Inside/About/default.htm)
- 2005**
- Jan 5-10, Society for Historical Archaeology Conference on Historical and Underwater Archaeology, York, UK. General information: [www.sha.org/About/Conferences/mt2005.htm](http://www.sha.org/About/Conferences/mt2005.htm).
- Jan 6-9, 2005, Archaeological Institute of America, Boston, USA. General information: [www.archaeological.org](http://www.archaeological.org).
- March 21-27, Computer Applications in Archaeology, Portugal. Contact: caa2005@ipt.pt. General information: [caa.leidenuniv.nl/caa\\_meetings.htm](http://caa.leidenuniv.nl/caa_meetings.htm).
- March 30-April 3, Society for American Archaeology Annual Meeting, Salt Lake City, USA. Abstract deadline: 1 Sept 2004. Themed session on "Lithic Reduction Analysis and Problems of Prehistory", contact Harry Lerner [harry.lerner@mail.mcgill.ca](mailto:harry.lerner@mail.mcgill.ca). General information: [www.saa.org/meetings/index.html](http://www.saa.org/meetings/index.html).
- April 13-16, UK Archaeological Science Conference, University of Bradford, UK. Email: ArchSci-Conference@Bradford.ac.uk. Abstract deadline: 15 Oct 2004. General information: [www.brad.ac.uk/archsci/archsci2005](http://www.brad.ac.uk/archsci/archsci2005).
- April 13-16, 2nd International Conference on Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry, Aix-en-Provence-Marseille-Arles, France. Abstract deadline: 30 Oct 2004. Email: lrcw2@msh.univ-aix.fr, tel.: +33 4 42 52 42 68, fax +33 4 42 52 43 75. Congres LRCW2, MMSH, 5 Rue du Chateau de L'Horloge, BP 647, 13094 Aix en Provence Cedex 02, France. General information: [www.msh.univ-aix.fr/lrcw2](http://www.msh.univ-aix.fr/lrcw2).
- May 15-19, 8th International Conference on Non-Destructive Testing and Microanalysis for the Diagnostics and Conservation of the Cultural and Environmental Heritage, Lecce, Italy. Abstract deadline: 31 July 2004. General information: [www.dsm.unile.it/LinkTeca/ART05](http://www.dsm.unile.it/LinkTeca/ART05).
- June 5-10, CANQUA (Canadian Quaternary Association) in both Winnipeg and Regina, Canada with a mid-conference field trip across the eastern Canadian Prairies linking the two venues. Contact D. Sauchyn (sauchyn@uregina.ca) or J. Teller (tellerjt@ms.umanitoba.ca), co-chairs. General information: [www.mun.ca/canqua/index.html](http://www.mun.ca/canqua/index.html).
- July 25-29, 11th International Conference on Luminescence and Electron Spin Resonance Dating (LED 2005), Kardinal-Schulte-Haus, Bergisch-Gladbach, Cologne, Germany. General information: [www.uni-koeln.de/LED2005](http://www.uni-koeln.de/LED2005).
- April 28-30, Metallurgy – A Touchstone for Cross-Cultural Interaction, British Museum, London, UK. Abstract deadline: 31 Aug 2004. Contact: Susan La Niece: [laniece@thebritishmuseum.ac.uk](mailto:laniece@thebritishmuseum.ac.uk). General information: [www.thebritishmuseum.ac.uk/science/whatsnew/metals%20conf%201.htm](http://www.thebritishmuseum.ac.uk/science/whatsnew/metals%20conf%201.htm)
- Sept 12-16, 14th ICOM-CC, The Hague, The Netherlands. Contact: Congress ICOM-CC 2005, Floortje Kok, Keizersgracht 497, PO Box 76709, 1070 KA Amsterdam, The Netherlands, tel: +31 20 305 45 20, fax: +31 20 305 45 00, email : [icom-cc2005@icn.nl](mailto:icom-cc2005@icn.nl). General information: [www.icom-cc2005.org/intro/harikete/](http://www.icom-cc2005.org/intro/harikete/)
- Sept 12-16, 22nd International Meeting on Organic Geochemistry, Seville, Spain. Papers sought on "New Trends in Organic Geochemistry", including studies from archaeology, biochemistry, and DNA. Abstract deadline: Jan 7, 2005. General information: [www.imog05.org](http://www.imog05.org).
- Sept 26-29, Archaeometallurgy Session, Materials Science & Technology 2005 (MS&T '05), Pittsburgh, PA, USA. The third in a series of multidisciplinary annual conferences held by and for professionals in the metals and materials community. Sponsored by TMS, the Association for Iron & Steel Technology, ASM International, the American Ceramics Society, and the American Welding Society. Session organizers: Mike Notis, Heather Lechtman, Pam Vandiver, Martha Goodway. Contact: TMS Meetings Services, 184 Thorn Hill Road, Warrendale, PA, 15086; tel: (724) 776-9000, ext. 243; fax: (724) 776-3770; e-mail: [mtgserv@tms.org](mailto:mtgserv@tms.org). General information: [www.matscitech.org](http://www.matscitech.org).
- Oct 25-29, European Meeting on Ancient Ceramics (EMAC 05), Lyon, France. First circular. Contact: EMAC' 05, Laboratoire de ceramologie, UMR5138, Maison de l'Orient et de la Mediteranee, 7 rue Raulin, 69365 LYON cedex 7, FRANCE; tel. 33 (0)4 72 71 58 71, fax 33 (0)4 78 69 82 31, email: [emac05@mom.fr](mailto:emac05@mom.fr)

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

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

### Society for Archaeological Sciences

#### SAS Bulletin Staff

*Editor:* **Robert H. Tykot**, Department of Anthropology, University of South Florida, 4202 E. Fowler Ave., SOC 107, Tampa, FL 33620-8100, USA; tel 813-974-7279; fax 813-974-2668; e-mail rtykot@cas.usf.edu

*Co-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**, National Endowment for the Humanities, Division of Preservation and Access, Room 411, 1100 Pennsylvania Avenue, NW, Washington, DC 20506, USA; tel 202-606-8250; fax 202-606-8639; e-mail ckolb@neh.gov

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

*Associate Editor, Archaeometallurgy:* **Martha Goodway**, Smithsonian Center for Materials Research and Education, 4210 Silver Hill Road, Suitland, MD 20746-2863 USA; tel 301-238-3700 x164; fax 301-238-3709; e-mail GoodwayM@scmre.si.edu

*Associate Editor, Bioarchaeology:* **David B. Landon**, Center for Cultural and Environmental History, Anthropology Dept., University of Massachusetts-Boston, Boston, MA 02125 USA; email david.landon@umb.edu

*Associate Editor, Book Reviews:* **Mark E. Hall**, Niigata Prefectural Museum of History, Gongendo 2247-2, Sekihara 1, Nagaoka 940-2037, Japan; email: hall@nbz.or.jp

*Associate Editors, Dating:* **Jack Rink**, Department of Geology, McMaster University, 1280 Main Street West, Hamilton, ON, Canada L8S 4M1; tel 905-525-9140 x24178; fax 905-522-3141; e-mail rinkwj@mcmail.cis.mcmaster.ca

*Associate Editor, Geoarchaeology:* **Frederic B. Pearl**, Anthropology & Maritime Studies, Texas A&M University, PO Box 1675, Galveston, Texas 77553, USA; tel 409 740-4935; fax 409 740-4962; email fpearl@tamug.tamu.edu

*Associate Editor, Meeting Calendar:* **Colleen P. Stapleton**, Department of Liberal Studies, Mercer University, 160 Henry Parkway, McDonough, GA 30253, USA; tel 678-547-6565; fax 678-547-6389; email stapleton\_c@mercer.edu

*Associate Editor, Remote Sensing and GIS:* **Apostolos Sarris**, Laboratory of Geophysical - Satellite Remote Sensing & Archaeoenvironment, Institute of Mediterranean Studies, Foundation of Research & Technology Hellas, Melissinou & Nikiforou Foka 130, P.O. Box 119, Rethymnon 74100, Crete, Greece; tel (30)-831-25146, (30)-831-56627; fax (30)-831-25810; e-mail: asaris@ret.forthnet.gr

#### SAS Administration

*General Secretary:* **Robert Sternberg**, Department of Geosciences, Franklin and Marshall College, Lancaster, PA 17604-3003, USA; tel 717-291-4134; fax 717-291-4186; e-mail R\_Sternberg@FandM.edu

#### SAS Executive Officers 2003-2005

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

*Vice President/President-elect:* **Aaron Shugar**, Archaeometallurgy Laboratory, Lehigh University, 5 East Packer Ave., Bethlehem, PA 18015, USA; tel 610-758-4701; fax 610-758-3526; email a.shugar@lehigh.edu; Smithsonian Center for Materials Research and Education (SCMRE), Museum Support Center, 4210 Silver Hill Road, Suitland, Maryland, 20746; tel 301-238-3700 x137; fax 301-238-3709; email shugarA@scmre.si.edu

*Past President:* **Arleyn W. Simon**, Archaeological Research Institute, Department of Anthropology, Arizona State University, Tempe, AZ 85287-2402, USA; tel 602-965-9231, 6957(direct); fax 602-965-7671; e-mail Arleyn.Simon@asu.edu

*Secretary/Treasurer:* **Colleen P. Stapleton**, Department of Liberal Studies, Mercer University, 160 Henry Parkway, McDonough, GA 30253, USA; tel 678-547-6565; fax 678-547-6389; email stapleton\_c@mercer.edu

*Internet and the World Wide Web:* **James Burton**, Department of Anthropology, University of Wisconsin, Madison, WI 53706-1393, USA; tel 608-262-4505; fax 608-265-4216; e-mail jhburton@facstaff.wisc.edu

*Vice President for Intersociety Relations:* **TBA**

*Vice President for Membership Development:* **TBA**

*SAS Editor for Archaeometry:* **Steven Shackley**, Phoebe Hearst Museum of Anthropology, 103 Kroeber Hall, University of California-Berkeley, Berkeley, CA 94720-3712, USA; tel 510-643-1193, x-3; fax 510-642-6271; e-mail shackley@qal.berkeley.edu

*Editor, Archaeometry:* **Michael Tite**, 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 Michael.Tite@rlaha.ox.ac.uk

*Editor, Journal of Archaeological Science:* **Julian Henderson**, Department of Archaeology, University of Nottingham, University Park, Nottingham NG7 2RD, England, UK; email: julian.henderson@nottingham.ac.uk

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

Published quarterly by the Society for Archaeological Sciences

Distributed to subscribers: \$20/year regular membership; \$15.00 student and retired; \$30.00 institutional; \$300 lifetime. Individuals add \$95.00/year for *Journal of Archaeological Science*; \$30/year for *Archaeometry*. Discounts also available on *Geoarchaeology* and other Wiley journals. Payable with major credit cards (+7%). ISSN 0899-8922.