SAS Bulletin

Society for Archaeological Sciences

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From the President

After two years "at the helm" of SAS, I'm not at all reluctant to turn over the reigns to new President Chris Prior. I have enjoyed working with Chris for several years. As our first overseas President, she will bring a wider geographic perspective to our Society. I'd like to be able to say that, now relieved of the responsibilities of the presidency, I'll be able to spend more time in the lab, but in reality it probably means more time doing paperwork as department chair. At least I'll have more time to do that paperwork better, or perhaps just make it needlessly longer and more complicated!

I'm pleased that during my tenure we continued initiatives to enhance the visibility of the archaeological sciences, to encourage student participation in our society and reward their archaeometric efforts, and to strengthen ties with related groups. Specifically we: 1) sponsor a symposium at the annual SAA meeting; 2) present an award for the best student poster in archaeometry at the SAA meeting; 3) present an award at the biennial Archaeometry Symposium; 4) are injecting new blood into the Editorial Board of our Plenum Press series to keep that series active; 5) are continuing discussions with the Standing Committee of the Archaeometry Symposium about closer relationships between our groups; 6) publish an excellent *Bulletin* through the efforts of Rob Tykot and his Associate Editors; 7) maintain an informative web site thanks to web designer Jim Burton.

Thanks again to my fellow members of the board and to the general membership for making my time in office productive and enjoyable.

Rob Sternberg

From the Editor

First of all, welcome to summer, because that's what it will be by the time you receive this issue. We apologize for its delay, which was due to both production and distribution problems, and promise that the first 1999 issues of the *Bulletin* will follow shortly. Hopefully, our foreign members will notice an improvement in the delivery time of the *Bulletin*, as we are now using an international airmail consolidator instead of surface mail.

Let me remind all members that it is time to renew your membership in the Society for Archaeological Sciences for 1999 if you have not already done so, and that there are multiple membership categories to suit your situation. Membership information may be found at the bottom of the back cover.

While this issue is largely devoted to Associate Editor Charles Kolb's column on Archaeological Ceramics and to eight book reviews solicited and edited by Michael Glascock, Associate Editor for Book Reviews, forthcoming issues will include additional columns and reviews as well as reports from our Annual Business Meeting, the results of the SAS Poster Contest for best archaeometry poster at the SAA meeting, the AIA's Pomerance Science Award winner, and more information on the 32nd International Archaeometry Symposium to be held in Mexico City in May 2000.

On an encouraging note, the Society for American Archaeology has held several workshops on curriculum revision, and identified a survey course in archaeological sciences as a central requirement for graduate programs in archaeology as we enter the 21st century.

Robert H. Tykot

In This Issue

32nd International Symposium on Archaeometry

May 15-19, 2000 - Mexico City, Mexico

The International Symposium on Archaeometry meets at different host locations every two years. This five-day conference is attended by several hundred scholars in the fields of archaeology, anthropology, art history, conservation, museology, materials science, chemistry, biochemistry, physics, geology, etc., from all over the world.

In its broadest sense, archaeometry represents the interface between archaeology and the natural and physical sciences. This interdisciplinary field involves close collaboration between archaeologists, art historians, curators, conservators, and scientists who utilize modern instrumental techniques to extract technological, cultural, and historical information from objects and archaeological/historical contexts. Applications range from archaeological fieldwork to conservation of museum objects and historic monuments, including such topics as bone chemistry, technological and provenance studies, prospection and geoarchaeology, advanced dating techniques, and art forgery.

The conference is directed by an International Standing Committee and organized by a Local Organizing Committee which extends invitations to a broad range of researchers. Significant research papers will be selected for oral or poster presentation in English. This will be the first Latin American venue for the Symposium, and the main host will be the Institute of Anthropological Research of the National Autonomous University of Mexico (UNAM) in collaboration with a number of other Mexican research centers and academic institutions.

The theme session for this Symposium will discuss archaeometric research of remains buried below modern urban settlements.

Preliminary Applications

If you wish to receive further announcements and information concerning the symposium, please fill out the online registration form at our web site. The call for papers and forms may also be obtained by contacting us by mail or fax.

Online registration: http://www.archaeometry.unam.mx
E-mail: archaeom@servidor.unam.mx
Fax: 52-5-622-9651/665-2959

Mailing address:
Archaeometry 2000
Instituto de Investigaciones Antropologicas, UNAM
Circuito Exterior s/n, Ciudad Universitaria, Del. Coyoacan
Mexico City, D.F. 04510
MEXICO

The Standing Committee for the International Symposium on Archaeometry has also established a home page, to be maintained by the ATAM Program at the University of Illinois. The address is: http://www.uiuc.edu/unit/ATAM/conf/home.html

International Standing Committee

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Studentships Available for MSc in Archaeological Computing

The Department of Archaeology at the University of Southampton invites applications for four NERC studentships (fees and maintenance) for the MSc in Archaeological Science: Archaeological Computing. This course, established in 1989, is supported and recognised by the Natural Environment Research Council (NERC).

The course equips students with computing and IT skills appropriate a career in professional archaeology or to study for a research degree. The programme covers most areas of computing and IT that are used within Archaeology including units on Programming, Databases, Image Processing, CAD, Quantitative Data Analysis, Geographic Information Systems and Multimedia systems. Opportunities to take a range of other units are also available.

The programme is structured into two semesters of tuition, following which students spend the summer preparing a dissertation. Students take eight assessed units, including four that are normally compulsory.

Past experience has shown that MSc dissertations can form a starting point for more advanced research towards MPhil or PhD or as a tangible example of applied computing skills.

Successful applicants for NERC studentships will have or expect to get a good honours degree (usually an upper 2nd or first) in archaeology or a related subject. Applicants should indicate that they wish to be considered for NERC funding in a covering letter with their completed application form. Application forms and further details are available from:

School of Research and Graduate Studies,
Faculty of Arts,
Avenue Campus,
University of Southampton,
Southampton
SO17 1BJ

The closing date for applications is 1st July

Archaeological Ceramics

Charles C. Kolb, Associate Editor

The column in this issue covers four major topics: summaries of new publications related to archaeological ceramics, 2) notices about forthcoming conferences, 3) reviews of conferences that have recently been held, and 4) additions to websites having relevant contents for readers of the *SAS Bulletin*.

New Publications

Athenian Vase Construction: A Potter's Analysis by Toby Schreiber (Malibu, CA: J. Paul Getty Museum, 296 pp., ISBN 0-89236-465-3, $70.00 cloth, 1999) was published in February 1999. The author, a practicing master potter who has for over two decades worked with Greek ceramic collections at the Getty and a half-dozen other museums, seeks to describe in systematic detail the actual fabrication of the vessels rather than emphasizing the potters and painters or methods of vase painting. In a 66-page introductory section, she discusses the fundamentals of vase fabrication beginning with clay selection and ending with firing. Ethnographic and ethnoarchaeological data are incorporated. This provides a basic orientation for the documentation of the manufacture of 24 major types of Attic vases (from Alabastron and Amphora through Skyphos and Stamnos), pp. 67-252. Five appendices document 78 vase shape silhouettes, vessel terminology, mouth types, foot types, and forms of handles. There are ten pages of endnotes (358 entries), a 69-item glossary, and a bibliography with 143 entries. The clear and readable text is accompanied by profuse illustrations: 542 black-and-white images and 440 line drawings. This book updates and emends the classic work, *The Craft of Athenian Pottery: An Investigation of Black-Figured and Red-Figured Athenian Vases* by G. M. A. Richter (1923). Schreiber's volume may be ordered from Getty Trust Publications, Distribution Center, P. O. Box 49659, Los Angeles, CA 90049-0659; Telephone 800/223-3431, or through the URL http://www.getty.edu/publications A review of this book, prepared by Charles C. Kolb, will appear this spring in *Old Potter's Almanac (British Museum)* and in *La Tinaja: A Newsletter of Archaeological Ceramics*.

Athenian Potters and Painters: The Conference Proceedings, edited by John H. Oakley, William D. E. Coulson, and Olga Palagia (Oxford, UK: Oxbow Books, Oxbow Monograph 67, 539 pp, ISBN 1-90188-12-0, $86.00 cloth, 1997) includes 43 papers which document the diversity of approaches to the study of ancient Attic painted pottery. Forty-one papers were presented at a conference held at the American School of Classical Studies at Athens, 1-4 December 1994; two additional contributions were commissioned and have been added to the corpus. The volume documents the latest research on Attic painters and potters in terms of design and decoration rather than fabrication. Therefore, the book is a useful companion to Schreiber's compendium. This Oxbow publication may be ordered through Oxbow Books in Oxford, UK or through the American distributor, David Brown Book Co., P. O. Box 5111, Oakville, CT 06779 (Telephone 860/945-9329, fax 860/945-9468). The Oxbow website is http://www.oxbowbooks.com

Ceramic Design Structure and the Organization of Cibola White Ware Production in the Grasshopper Region, Arizona, authored by Scott Van Keuren (Arizona State Museum Archaeological Series, 75 pp., ISBN 1-889747-69-6, $12.95 paper, 1999). The author's ethnoarchaeological study presents a new method of design structure analysis using a ceramic tradition, Cibola White Ware, from east central Arizona, ca. A.D. 1300. Brush stroke sequencing data suggests a fruitful approach to design analysis. Van Keuren suggests that the local potting community at Grasshopper was able to copy designs from producers of the ware who had immigrated to Grasshopper from the Colorado Plateau but that the copyists did not understand the execution of the designs. The book is distributed by the University of Arizona Press, 1230 North Park Avenue, Tucson, AZ 85719; Telephone/FAX 1-800/426-3797, e-mail orders@uapress.arizona.edu The press has a website: http://www.uspress.arizona.edu

"Archaeological Interpretations from Archaeological Ceramic Studies in the U.S. Southwest" is the theme of a recent Special Issue of the *Journal of Anthropological Research* 54(4), 1998. The Guest Editors for the issue are Arleyn W. Simon and James H. Burton, with contributions by A. W. Simon and J. H. Burton; J. J. Reid and B. K. Montgomery; M N. Zedeno; K. N. Hensler; M. T. Stark and J. M. Heidke; A. W. Simon, J. H. Burton, and D. R. Abbott. This volume may be purchased for $10.00 plus $3.00 postage and handling from: Subscriptions Manager, *JAR*, Department of Anthropology, University of New Mexico, Albuquerque, NM 87131; telephone 505/277-4544. The *JAR* website may be accessed at http://www.unm.edu/~jar

Women's Ritual in Formative Oaxaca: Figurine-making, Divination, Death and the Ancestors is a volume authored by Joyce Marcus that was published in early April 1999. This volume, *Memoirs of the Museum of Anthropology, University of Michigan, No.* 33 (*Prehistory and Human Ecology of the Valley of Oaxaca, Vol.* 11) ISBN 0-915703-48-3, assesses women's ritual treatment of ancestors in the Valley of Oaxaca, Mexico, ca. 1600-500 B.C.E. and involved the analysis of more than 800 ceramic figurines or figurine parts. The book may be purchased from Museum of Anthropology Publications, 4009-P Museums Building, Ann Arbor, MI 48109-1079 for $25.00 plus postage and handling. Further information may be obtained on the website at http://www.umma.lsa.umich.edu (click on Publications).

The Ceramics of Raquria, Columbia: Gender, Work, and Economic Change by Ronald J. Duncan (Gainesville: University of Florida Press, 304 pp., 46 illustrations, 11 tables, appendices, glossary, bibliography, index, ISBN 0-8130-1615, $49.95 cloth, 1998) documents a contemporary pottery-making village in Colombia. The author describes the contrasting systems of women's and men's ceramic production and also assesses the "tension between tradition and economic change in these gender-based cultural patterns." The book is especially valuable because there are very few assessments of village potters from communities located in northern South America published in any language. Duncan considers gender and the

social organization of work, figurative ceramics, design and style, production techniques, and the economics of marketing, among other topics. Additional information may be obtained from The University Press of Florida, 15 Northwest 15th Street, Gainesville, FL 32611 (telephone 800/226-3822, fax 800/6809-1955). The press also has a website at http://upf.com

Explaining Change in the Matt-Painted Pottery of Southern Italy: Cultural and Social Explanations for Ceramic Development from the 11th to the 4th Centuries B.C., authored by Edward Herring (255 pp., 176 illustrations, ISBN 0-86954-899-6, 1998, 32 Pounds Sterling), was published as British Archaeological Report BAR S722 late last year by Archaeopress, Oxford, UK. The author examines native Matt-Painted pottery from Iron Age and Classical Southern Italy within the context of native social change and of the relationship between the Greeks and the local peoples. The work is an initial attempt to move away from a purely typological approach and to study the pottery within its social context, casting light upon ceramic innovation and wider sociocultural development. The book may be ordered from Hadrian Books Ltd, 122 Banbury Road, Oxford OX2 7BP, UK; telephone/fax +44 (0)1865-311914. BAR also has a web site located at: http://www.archaeopress.demon.co.uk/

J. Elayi and H. Sayegh (with 13 collaborators) have recently published *Beirut in the Iron Age III/Persian Period: A District of the Phoenician Harbor: The Objects* (Supplement nr 6 to *Transeuphratene*, 365 pp., 40 plates, Paris: Editions Gabalda, 1998, 580 FF). The text is in French and English, and the 15 chapters include: "The Pottery of Locus 130," "The Jars and Amphorae of Locus 130," "Fabric Analysis of Jars and Amphorae of Loci 130 and 135-138," "Coarse Ware," "Imported Greek Ware," "The Graffiti on Pottery," "Terracotta Lamps," "Terracotta Figurines," "Other Clay Objects," "Glass Artifacts," "Analysis of a Glass Sample," "Bone Artifacts," "Stone Objects," "Weights: Objects for Weighting and Coins," and "Metal Artifacts." For further information contact Editions Gabalda, 18 rue Pierre et Marie Curie, F-75015, Paris, FR (Telephone 33-1-43-26-53-55, fax 33-3-43-25-04-71) or e-mail the senior author: elayi-j@infonie.fr

Roberta Tomber and John Dore are the authors of *The National Roman Fabric Collection: A Handbook* (London: Museum of London Archeological Service, MoLAS Monograph 2, 220 color plates, 26 Pounds Sterling). This reference work details nearly 200 fabric groups based on the macroscopic and microscopic analysis (at 20X and in thin section) of 650 samples, including imported and widely-distributed Romano-British wares. The 220 color plates illustrate fresh sherd breaks. The publication may be ordered from: Publication Department, Museum of London, Archeology Service, Walker House, 87 Queen Victoria Street, London EC4V 4AB, UK; e-mail molas@molas.org.uk

Deep Water Archaeology: A Late-Roman Ship from Carthage and an Ancient Trade Route Near Skerki Bank off Northwest Sicily has been authored by Anna Marguerite McCann and Joann Freed (*Journal of Roman Archaeology*, Supplementary Series 13, 162 pp., 17 color plates, 1998, $64.75 plus shipping). This volume is the full report on the archaeological work of the JASON project in the Mediterranean in 1989 using the robots Jason and Medea working at depths of 800 meters. The main shipwreck, dated to the last quarter of the 4th century A.D., is thought to be that of a vessel sailing from Carthage to Italy. The compendium includes separate chapters on the pottery and the amphorae (both by Joann Freed), and an appendix on the thermoluminescence dating of sherds (authored by Peter Clark and Michael S. Tite). Further information may be obtained from John H. Humphrey, the General Editor of *Journal of Roman Archaeology*, at jra@wsii.com

Social Dynamics of the Prehistoric Central Mediterranean, a volume edited by Robert H. Tykot, Jonathan Morter, and John E. Robb, was published in March 1999 by Accordia Research Institute, University of London, as *Specialist Studies on the Mediterranean* 3 (ISBN 1-873415-19-2). Among the 14 chapters is a contribution by Laura Maniscalco entitled "The Sicilian Bronze Age Pottery Service" (pp. 185-194). The volume (32 Pounds Sterling) is available in the United States from University Museum Publications, University of Pennsylvania – further information at http://www.upenn.edu/museum_pubs or from Oxbow Books http://www.oxbowbooks.com It may also be obtained from the publisher, Accordia Research Institute, c/o Institute of Archaeology, University College London, 31-34 Gordon Square, London WC1H 0PY, UK.

Forthcoming Conferences and Workshops

A two-day workshop on the principles of plane pattern symmetries will be held 7-9 May 1999 at the University of Wisconsin-Madison. Symmetry analysis is a tool that is used in the analysis of patterns on ceramics, textiles, and other decorated surfaces. The instructors will be Donald Crowe, Dorothy K. Washburn, Branko Grunbaum, Doris Schattschneider, Kevin Lee, and Verda Elliott. Washburn and Crowe are the authors of *Symmetries of Culture*. Further information about the content of the workshop and registration can be obtained from Dorothy Washburn at 606/737-7451 or by e-mail dkwashburn@worldnet.att.net

Building Bridges: A Cross Cultural Multi-disciplinary Approach to Ceramics a PCRG/MPRG (Prehistoric Ceramics Research Group/Medieval Pottery Research Group) Conference is scheduled for 24-24 May 1999 at the Rutland Hotel and Conference Centre, 452 Glossop Road, Sheffield S10 2PY, UK. The two-day conference celebrates the tenth anniversary of PCRG as a national research group. The provisional program includes six symposia: "Minimum Standards" (with papers by Alan Vince, Clive Orton, and Damian Robinson), "Towards Joint Standards (presentations by Anna Slowokowski, Lorraine Mepham, and Maggi Darling), "Theoretical Approaches" (papers by Ann Woodward, Chris Cumberpatch, and David Gaimster), "Culture" (presentations by Greg Stevenson, Jane Evans, and J. D. Hill and Elaine Morris), "Trade & Exchange" (papers by Maureen Mellor, Robin Symonds, and Annette Hancocks), and "Manufacture" (contributions by Tristan Bareham and John Hudson). Recent fabric analysis will be summarized and illustrated by Peter Day at the Materials Science Department, Sheffield University, on 24 May. Further information may be obtained from Anne Jenner,

Meetings Secretary (MPRG), 24 Victoria Terrace, Lanchester, Co. Durham DH7 0JB, UK.

Mineralogy of Ceramics, Ancient and Modern is the title of a conference organized by the Applied Mineralogy Group on 17 June 1999 at The Mineralogical Society of Great Britain and Ireland, 41 Queen's Gate, London SW7 5HR; Internet: www.minersoc.org

The theme of the conference is that mineralogical techniques have a role to play in the characterization of ceramics as diverse as refactories, faience, earthenwares, porcelain, tiles, and glazes. The papers include: I. C. Freestone (British Museum, London) "Early English Porcelains," Y. Iqbal and W. E. Lee (University of Sheffield) "Modern Vitreous Ceramics," W. E. Lee (University of Sheffield) "Refractories Development in the 20th Century," and M. S. Tite (University of Oxford) "Islamic and Iznik Wares." Further information can be obtained from Andrew Middleton, Department of Scientific Research, British Museum, Great Russell Street, London WC1B 3DG, e-mail: amiddleton@british-museum.ac.uk There is no charge for registration.

A conference, *Ceramic Millennium 1999: Leadership Congress of the Ceramic Arts Foundation*, will take place in Amsterdam from 10-25 July 1999. The conference has two themes: How will ceramics retain their relevance in a changing post-industrial society? And, how do the traditions of the field conflict with new technologies, tastes, and needs? The Congress, organized by the Ceramic Arts Foundation in New York, has five components: 1) an international ceramics symposium with approximately presentations, 2) a Ceramic Arts Festival which features exhibitions, 3) a three-day film and video festival, 4) a Ceramic Resources Fair for studio potters, and 5) "Ceramic Caravans" which involves excursions to major ceramic collections in Europe. The registration fee is $395.00 exclusive of the "Ceramic Caravans." Further information is available from Ceramic Arts Foundation, 666 Fifth Avenue, Suite 309, New York, NY 10103; fax 212/489-5168, e-mail: caf@ceramicmill.com

The European Association of Archaeologists Fifth Annual Meeting is scheduled from 14-19 September 1999 and will be held at Bournmouth University, Dorset, UK. The call for sessions and papers expired at the end of March 1999. The abstracts of the sessions and those papers that have been accepted are included on a university website. Among these are a session organized by Jan Harding (University of Newcastle upon Tyne) and Andrew Jones (University College, Dublin) "The Significance of Colour in Archaeological Research: Colour, Monuments, and Artefacts." Dennis Zhuravlev (Department of Archaeology, State Historical Museum, Moscow) is the organizer of a session "Trade and Use of Ceramic Lamps in the Eastern Roman Empire," while another session, "Prehistoric Ceramics in Europe: Recent Research and Current Trends," has been organized by Alex Gibson (Prehistoric Ceramics Research Group, UK). Additional information about the meeting site, logistics, and registration is also available on the Internet site: http://csweb.bournmouth.ac.uk/consci/eaa99/

Ceramic Ecology XIII: Current Research on Ceramics 1999 has been organized by Charles C. Kolb (National Endowment for the Humanities) and Louana M. Lackey (Maryland Institute, College of Art) for the annual meeting of the American Anthropological Association to be held in Chicago during the period 14-18 November 1999. Presentations will be made by George J. Bey III and Susan Kepecs, Michael Shott and Eduardo Williams, Miriam T. Stark and R. Alexander Bentley, Christopher A. Pool, Mary R. Hopkins, James J. Sheehy, Marcia L. Selsor, Michael Galaty, Louana M. Lackey and Charles C. Kolb. The symposium discussant will be Frances M. Hayashida (The Pennsylvania State University).

Plans are also underway for *Ceramic Ecology XIV: Current Research on Ceramics 2000* for the American Anthropological Association's Annual Meeting to be held in San Francisco, 15-19 November 2000. For additional information, please contact Charlie Kolb: ckolb@neh.gov

The Society for East Asian Archaeology Second Worldwide Conference will be held in Durham, England in July 2000 (tentative dates: 6-9 July). The meeting is not limited to SEAA members; all scholars interested in East Asia are welcome. There are no limitations on issues, areas, or time periods. Proposals for panels or papers should be directed to Gideon Shelach, Department of East Asian Studies, The Hebrew University, Mt. Scopus, Jerusalem 91905, Israel; FAX 972-2-5322545, e-mail msshe@mscc.huji.ac.il The Society for East Asian Archaeology also maintains a website at http://www.dur.ac.uk/SEAA/

Recent Conferences

ACRO Meeting 1998: Asian Ceramica: Resolving the Enigmas of the 15th Century Gap

The Third Asian Ceramic Research Organization (ACRO) Conference was held from 23-25 October 1998 at The Field Museum of Natural History in Chicago. (My report updates and emends information provided in a previous column.) The topic, "Resolving the Enigmas of the 15th Century," concerned the Ming Dynasty policies that institutionalized foreign trade and restricted Chinese merchants from conducting business abroad. At the same time, ceramic production in Korea, Vietnam, Thailand, and Japan was upgraded and expanded. Shipbuilding and navigational skills, the voyages of the Chinese Admiral Zheng He, and the spread of Islam into Southeast Asia and China were mitigating factors. The conference, organized by Chuimei Ho and Bennet Bronson, was co-sponsored by the Anthropology Department of the Field Museum and ACRO, and sought to address these issues surrounding the "Ming Gap."

The symposium held on 23 October was entitled "Society, Politics, and Ceramics." The morning session was chaired by Bennet Bronson (Field Museum of Natural History) and included two papers: "Turmoil and Change: Asian Ceramics of the 15th Century" (Chuimei Ho and Malcolm N. Smith, both Field Museum; presented by Mac Smith) and "Southeast Asian Design Motifs and their Historical Context" (Hiram W. "Woody" Woodward, Jr., Walters Art Gallery). Roxanna M. Brown (Independent Scholar, Chicago and Los Angeles) served as the discussant. The afternoon session, chaired by Katherine Tsiang Mino (University of Chicago), included three papers: "15th Century Korean Ceramics – Unique Style and Foreign Influences" (Kim Young-Won, Kongju National Museum,

Korea), "14th-16th Century Southeast Asian Ceramics" (Miyata Etsuko, Hagi Urugami Museum, Japan), and "15th Century Jingdezhen Ceramics Made at Private Kilns" (Ouyang Shibin, Jingdezhen Ceramic Institute, China). Bronson was the discussant. That same evening there was an illustrated lecture entitled "Ceramics: A Conservator's View" by Ms. Echo Evetts (Independent Conservator, London) who is a specialist on the conservation of Asian and European porcelain.

On Saturday, two sessions on "Production and Technology" were held. The four papers in the morning group were introduced by James L. Phillips (University of Illinois at Chicago), while Charles C. Kolb (National Endowment for the Humanities) served as the discussant. These papers were: "A Technological Context for 15th Century Ceramic Production" (Pamela Vandiver, Smithsonian Center for Materials Research and Education), "Ten Thousand Dragons: Ceramic Production in Southeastern China" (Peter D. Holmes, a potter and archaeologist from Auckland, New Zealand); "Thai Archaeological Ceramics" (Don Hein, Independent Scholar); and "Ships and Shippers in East Asian Waters in the Mid-Second Millennium A.D." (Pierre-Yves Manguin, Ecole Francaise d'Extreme-Orient, Paris). The afternoon session was chaired by Gary Feinman (University of Wisconsin at Madison) who is the Chairman-elect of the Department of Anthropology at the Field Museum. The three papers presented were: "Key Sites of Ceramic Production in 15th Century Lanna Region, Upper Northern Thailand" (Sayan Prishanchit, Sukhothai Historical Park, Thailand); "Vietnam and Vietnamese Ceramics in the 15th Century" (Tring Cao Tuong, Vietnam Archaeological Institute, Hanoi); and "Ceramic Production in Central Vietnam (Vijaya): Internal Motivations and External Influences" (Allison I. Diem, Independent Scholar, Manila). The discussant was Prudence M. Rice (Southern Illinois University at Carbondale).

"Cross Cultural Influences" was the title of the two sessions held on Sunday. The morning session, chaired by Mary Lawton (Loyola University of Chicago), included "Chinese Ceramics in the 15th Century and Some Related Questions" (Hsieh Ming-liang, National Taiwan University, Taiwan) and "From Ming China to Choson Korea: Manufacturing Blue-and-White Wares" (Heekyung Lee, School of Oriental and African Studies, University of London). Bernd Jesse (Art Institute of Chicago) served as the discussant. The final session was chaired by Elinor Pearlstein (Art Institute of Chicago) and included three presentations: "Notes on Chinese Export Ceramics on the 15th and 16th Century" (Brian McElney, Honorary Keeper, Museum of East Asian Art, Bath, UK); "An Approach to the Enigmas: Observations from Hakata's Archaeological Data" (Morimoto Asako, Fukuoka City, Japan); and "Evidence in Southeast Asia for a Ming Gap Involving Chinese Blue-and-White Ceramics" (Roxanna Brown, Independent Scholar). The discussant for these papers was Chuimei Ho. The wrap-up speaker for the entire conference was Dean E. Arnold (Wheaton College, Illinois).

American Anthropological Association Annual Meeting 1998 and Ceramic Ecology '98

The 97th annual meeting of the American Anthropological Association was held in Philadelphia, PA from 2-6 December 1998 and was attended by 4,867 registrants. Only one of the 415 sessions was devoted to ceramic materials, and only 13 papers on ceramics out of more than 3,300 presentations concerned archaeological or ethnographic ceramics. Three papers dealt with pottery from the Mexican Yucatan: George J. Bey III (Millsaps College) "Ceramic Change and Conflict in Maya Culture"; Tara M. Bond (Louisiana State University), George J. Bey III (Millsaps College) and Charles Houck (Tulane University) "Ceramic Evidence of the Middle Preclassic Period at Ek Balam and Xuilub, Yucatan, Mexico"; and Dave Johnstone (Southern Methodist University) "Ceramic and Cultural Spheres of Northern Yucatan."

The twelfth annual Ceramic Ecology symposium, "Ceramic Ecology '98" Current Research on Ceramics," co-organized by Louana M. Lackey (Maryland Institute, College of Art) and Charles C. Kolb (National Endowment for the Humanities), and chaired by the latter, convened on Wednesday evening, 2 December 1998. This year's session included ten papers, a majority of which concerned archaeological and ethnoarchaeological ceramics from Southeast Asia, the Andean Region, and Western Europe. As has been traditional at these meetings, the symposium included some "old hands" and new presenters. Since its inception, this series, which honors Frederick R. Matson (Emeritus Professor of Ceramic Engineering and Emeritus Professor of Archaeology, The Pennsylvania State University), has had 84 presenters from the United States and from overseas (Germany, Israel, Japan, Mexico, and Spain). Barbara L. Stark, department Chair and Professor of Anthropology at Arizona State University, served as discussant for the 1998 symposium. The presenters, institutional affiliations, and the titles of the ten papers were:

1) Frances Hayashida (The Pennsylvania State University), Michael Glascock (Missouri University Research Reactor), Werner Hausler (Technical University, Munich), Hector Neff (Missouri University Research Reactor), Josef Riederer (Rathgen Research Laboratory, Berlin), and Ursel Wagner (Technical University, Munich) "State Pottery Production in Inka Provinces: Archaeometric Perspectives." 2) Chuimei Ho (Field Museum of Natural History) "Sino-Indonesian/Malaysian Ceramic Making in Borneo." 3) Charles C. Kolb (National Endowment for the Humanities) "One If By Land, Two If By Sea: The State and Ceramic Production and Distribution – Imperial Entanglements in Rome, India, and China." 4) Louana M. Lackey (Maryland Institute, College of Art) "Who, What, When, Where, and Why: Recent Research in Ceramic Studies." 5) H. Leedom Lefferts (Drew University) and Louise Allison Cort (Freer and Sackler Galleries, Smithsonian Institution) "A Preliminary Cultural Geography of Contemporary Village-based Earthenware Production in Mainland Southeast Asia." 6) Maria Masucci (Drew University) "Imported Vessels, Population Movement, or Technological Change? Tracing the Expansion of the Prehispanic Manteno, Coastal Ecuador." 7) Ken Sasaki (International Research Center for Japanese Studies, Osaka, Japan) "Ceramics Approach to Redistribution in Prehistory." 8) Ilse Schutz (Museo de Alfareria, Agost, Alicante, Spain) "Women's Participation in Traditional Spanish Pottery Production." 9) Arleyn W. Simon (Arizona State University) "Ceramics and Settlements: Salado Social Dynamics in Central

Arizona." 10) Michael Tite (University of Oxford) "Cooking Pots and their Thermal Shock Resistance."

Archaeological Institute of America Annual Meeting 1998

The 100th annual meeting of the Archaeological Institute of America was held in Washington, D.C. from 27-30 December 1998. One workshop and one symposium were devoted to pottery, and a total of 28 papers concerned ceramic materials.

"Seeing Trees and Forests: Ceramics Specialists, Generalists, and Project Directors" was the title of a workshop organized by Mark L. Lawall (Department of Classics, University of Manitoba, lawall@cc.manitoba.ca) and held on 29 December. The panelists included Tana Allen (University of Alberta), Joann Freed (Wilfrid Laurier University), Sharon Herbert (University of Michigan), John Papadopoulos (J. Paul Getty Museum), Susan Rotroff (University of Washington, St. Louis), and Guy Sanders (Corinth Excavations). This workshop was designed to be interactive, in that members of the audience were encouraged to participate, and many of the nearly fifty persons who attended did contribute to the discussion. Panelists' statements and comments on issues relevant to ceramic analyses were placed on a website prior to the meeting so that the participants could concentrate on the discussion. The questions included: 1) timing the specialist's role in the project, 2) defining the specialist's role, 3) teamwork, 4) publication process, and 5)the future of specialization. The URL is: http://www.umanitoba.ca/faculties/arts/classics/dept/lawall/intro.html

Pottery specialists from any region of the world would benefit from the panel's review of this "hot issue." The major topics discussed included the following topics (abstracted from notes made by your Associate Editor): ongoing or long-term vs. short-term research projects; integrating old research data or collections with newly excavated data and collections (new and different expectations of research, 1930 vs. 1998); sources of data: survey (general, intensive, or specialized [transect]), excavation, museum; "coping with the copious quantities of pottery"; "excavating is not an ideal world, one must improvise" since every site is unique and presents different problems; excavating, processing, and interpreting the results; the differing approaches of classical studies versus anthropological archaeology; and humanities models versus science models (working by ones self vs. a team approach), e.g. — teamwork and collaboration are essential. Discussion also centered on the issue that authors should publish the known and the unknown ("dare not to know" – stated Susan Rotroff); and catalogs should be systematic, scientific, and clear/readable and not be the "Great American Novel" (a comment by John Papadopolous). The ethical issue of publication as a responsibility and goal was also discussed, as were varying requirements in publishing survey data versus excavation data, and the need for detailed publications by pottery specialists (for example, on lamps, figurines, etc.). Other panelists countered by bringing up the question of "hyperspecialists" who "know" only a very narrow subject matter.

Excavation, laboratory, and editorial oversight and supervision, budgets and funding sources, unanticipated or unexpected need for specialists on site; and problem-oriented excavations were considered. The research programs or agendas of the hyperspecialists (who may hold other jobs so that their work may be extracurricular and done for the love of research) were also reviewed. The problem of the "overcommitted specialist"; requirements for print and/or electronic publication (paper and the Internet or paper or the Internet) issues; and problems of digital data preservation were considered. Panelists reviewed three levels of presentation and the audiences for electronic publication: 1) general (the public), 2) student, and 3) professional. Also assessed were pottery publication formats; the language(s) of publication (the authors own language plus English was recommended); and differing perspectives on the same object (reports by specialists and synthesis or overview by the project director) – different perspectives versus a single "grand interpretation" these scholars may disagree with their colleagues. The members of the panel and audience also considered the philosophical and methodological approaches that differ in departments of archaeology versus departments of anthropology, and variations in promotion and tenure evaluations. In addition, the participants debated the tenure and promotion "value" of monographs and articles written by one single author versus short specialist notes in larger, edited works. The workshop was a valuable part of the centennial AIA meeting.

Among the eight papers given at the Gold Medallion Colloquium to Honor Anna Marguerite McCann, four had a focus on ceramics. These included: Elizabeth Lyding Will (University of Massachusetts-Amherst) "The Port of Cosa and Economic Romanization in Gaul and the Danube Valley"; Lionel Casson (New York University) "Rome's Trade with India: New Documentary Evidence"; Philip Kenrick (University of Oxford) "A New Catalogue of Signed Italian Terra Sigillata: What Can 36,000 Vessels Can Tell Us about Roman Craft and Trade"; and Maria Teresa Marabini Moeves (Rutgers University) " Hellenistic Text Illustration and Arretine Pottery."

On 28 December, seven papers were given in a symposium devoted to pottery entitled "Ceramics and Trade." These presentations included: Eleftheria Mantzouka-Syson (East Carolina University) "The Transport Amphoras from the Late Fifth Century B.C. Shipwreck off Alonnesos, Northern Sporades"; Lea M. Sterling (University of Manitoba) and Nejib Ben Lazreg (Institut nacional du patrimonie de Tunisie) "Kilns and Pottery Production at Leptiminus: Results of the 1998 Excavation Season"; T.D.C. Barnes (University of Nottingham) "The Continuity of Inland Trade in Sub-Roman North Africa: Was the Breadbasket Left Half Empty or Half Full?"; Joann Freed (Wilfrid Laurier University) and R.J.A. Wilson (University of Nottingham) "Sicilian Naxian Wine Amphoras: A New Look at Wine in North Africa"; Jane Francis (Concordia University) "Beehives, Honey, and the Whole Ball of Wax"; Eric C. De Sena (University of Bradford) "The Supply of Ceramics and Related Goods to Pompeii during the Late Republican and Early Imperial Periods: Evidence from the Casa delle Vestali"; and Charles C. Kolb (National Endowment for the Humanities) "A Reassessment of the So-called 'Arretine' Ceramic Production and Distribution in Central and South Asia: The Afghan Connection."

The AIA pottery oral presentations also included (in alphabetical order): Bettina Arnold (University of Wisconsin-Milwaukee) "'Ministers of Wine and Mead': The Mediterranean Wine Trade and the Institutionalization of Iron Age Elites"; Sheramy D. Bundrick (Emory University) "Expressions of Harmony: Female Musicians on Fifth-Century Attic Vases"; Kathleen Donahue Sherwood (AIA Montreal Society) "Corinthian Products at Arcadian Stympkalos: A Preliminary Report on the Votive Terracottas from the Acropolis Temple"; and Michael L. Galaty (Mississippi State University) "Nestor's Wine Cups: Pots and Mycenaean Pylos." Papers were also given by Leslie Hammond (University of Missouri-Columbia) "The Miniature Votive Vessels from the Norwegian Excavations at Tegea"; Sebastian F.S. Heath (University of Michigan) "Encouraging Collaboration: On-line Publication of Mediterranean Pottery"; Tamar Hodos (University of Cambridge) "The Cypro-Cilician Iron Age Assemblage at Kinet Hoyok, Turkey"; Susanne U. Hofstra (University of Texas-Austin) "Pithoi in the Corridors of Power: Ideology and Activity in the Palace of Nestor"; Ann N. Nicgorski (Willamette University) "Two New Poppy-shaped Rhyta from the LM III Cemetery at Mocholos" [Crete]; and Maria Papiaoannou (University of British Columbia) "Documentation and Restoration: A White-Ground Cup by the Sotades Painter Reexamined." Presentations were also made by Elizabeth Shank (Temple University) "The Middle Minoan III Floral Landscape Motif in Pottery"; Lynn Swartz (University of California-Los Angeles) "Aegean Pottery: A Late Bronze and Iron Age Road Map to Southern Anatolia"; Thomas F. Tartaron (Massachusetts Institute of Technology), Ian K. Whitbread (Fitch Laboratory, British School at Athens), and Kalliope Sarri and Efthalia Velli (both, University of Heidelberg) "Ceramic Ecology and Pottery Production in Central Greece in the Middle Bronze Age"; and Aleydis Van de Moortel (Seattle Pacific University) "Pottery as a Barometer of Economic Change in Neopalatial Central Crete."

Three poster presentations documented pottery research. These were by Melissa G. Moore (Boston University) "Roman and Late Antique Coarse Wares from Southern Epirus, Greece"; Alexandra Smith (Temple University) "Pot Bellows from Chrysokamino: A Theoretical Reconstruction"; and by Ian K. Whitbread and Matthew J. Pointing (both, Fitch Laboratory, British School at Athens) and Berit Wells (Swedish Institute in Athens) "A Diachronic Study of the Exploitation of Ceramic Raw Materials in the Berbati Valley, Argolid."

Society for Historical Archaeology Annual Meeting 1999.

Salt Lake City was the site of the annual meeting of the Society for Historical Archaeology, 5-9 January 1999. This well-attended meeting included only eight papers on archaeological ceramic materials scattered through 45 sessions (one additional paper on a ceramic topic was scheduled but was not given). The actual presentations included: Frasier D. Neiman and Julia A. King "Who Smoked Chesapeake Pipes?"; George L. Miller and Bernard W. Slaughter, "Sherds from an Unknown Diner"; Mark C. Branstner, "Nineteenth Century Consumer Choice on the Great Lakes Frontier: Ceramics, Core-Periphery Relationships, and Social Identity"; Rita Folse Elliott, "Millworkers, Creek Pottery, and Paleo: Urban Archaeology in Columbus, Georgia"; Wil Nagelkerken, "Stoneware Mineral Water and Gin Jugs Excavated in the Harbor of Curacao, Netherlands Antilles"; Mary Ellin D'Agostino, "The Chamber Pot in Seventeenth- and Eighteenth-Century Culture"; Alison Bell, "Material Culture on the Virginia Piedmont Frontier: Archaeological and Archival Comparisons with Tidewater Settlements"; and Larry Buhr, "Primitive Brickmaking in the Sierra Nevada Mining Districts."

WAC4 Conference 1999

World Archaeological Congress 4 (WAC4) was held at the University of Capetown from 8-15 January 1999. There is an extensive amount of information on the WAC4 website, including the abstracts of the symposia and the abstracts of those papers that had been received: http://www.uct.ac.za/depts/age/wac (Note: the files are huge, some require Adobe Acrobat.) An interesting assessment of the conference, "World Archaeology Congress 4: A Personal View," by J. Peter White (University of Sydney) recently appeared in the Society for American Archaeology *Bulletin* 71(2):24-25, for March 1999.

Two sessions focused on archaeological ceramics. A symposium (S130) entitled "Ceramics in Archaeology," organized by Maria da Conceicao Rodrigues, was held on Monday, 11 January, included seven papers (no abstracts are listed as available on the website). The papers were: "Contribution to the Study of African Iron Age Pottery of Northern Mozambique" (da Conceicao Rodrigues), "Ethno-archaeological Research into the Pottery of the Central Balkans" (Djordjevic-Bogsanovic), "Social Organisation of Pottery Production in Protohistoric Italy" (Levi), "Analysis of the Decline of Cizou Kiln in Guantai" (Liu), "An Archaeological Research on Origins of Using Fuel in Ceramic Industry in Northern China" (Quin), "Prehistoric Earthenware in Peninsular Malayasia" (Rahman and Muhamed), and "Iteration of Steppe and Wooded Populations of the Russian Plain in the Neolithic Age."

Michael Tite (University of Oxford) and Bill Sillar (now at the Institute of Archaeology, University College London) were the convenors of "Technological Choice in Ceramic Production" (symposium S088) held on Wednesday, 13 January which had 14 papers. These presentations included "Defining Cultural Traditions Through Technology and the Morphology of Prehistoric Pottery" (Colomer); "The Transformation of Tradition: The End of the Medieval Ceramic Tradition in Yorkshire" (Cumberpatch); "Understanding the Transition to Shell Tempered Pottery during the Late Woodland Period" (Feathers); "Pottery Coating in Sub-Saharan Africa: Technique, Meaning and Identification" (Gosselain); "Ceramics in South-eastern Zimbabwe since ca. 1400 A.D.: An Ethnoarchaeological Study" (Lindahl); and "Pottery Technology in Sub-Saharan Africa: Tradition and Innovation" (Livingstone Smith). The other papers were "Choosing a Pot for Tomorrow: A Model of the Social Motivation for Technological Change in Pottery Production in Prehistoric Central Italy" (Loney); "Why a Kiln? – Firing Technology in the Sierra de los Tuxtlas, Veracruz, Mexico" (Chris Pool [scheduled but not presented]); "Technological Choice in Chalcolithic Ceramics of Southern

Levant" (Roux); "Dung by Preference: The Choice of Fuel as an Example of How Andean Pottery Production is Embedded within Wider Technical, Social, and Economic Practices" (Sillar); 'Forming a Tradition" (Stilborg); "The Role of Strength, Toughness, and Thermal Shock Resistance in Determining the Choice of Temper in Ceramics: An Overview" (Tite); "In Search of Technological Choice in the Production of Some Ceramic Assemblages of the Ancient Near East" (van As); and "Forming Pottery: Choice, Continuity and Constraint" (Vandiver). Abstracts for the presentations by Colomer, Pool, Sillar, Stilborg, Tite, and van As are on the website.

Society for American Archaeology 1999

The 64th Annual Meeting of the Society for American Archaeology was held in Chicago, IL from 24-28 March 1999. The SAA currently has over 6,100 members; 3,040 persons registered for the meeting. Warren R. DeBoer (Queens College, CUNY) was the recipient of the SAA's 1999 "Award for Excellence in Ceramic Studies" for his contributions to ceramic ethnoarchaeology, ethnography, and archaeology in Peru and Ecuador. Warren was also recognized for his broad and enduring contributions to use-life and deposition analyses, and ethnoarchaeological inferences. Henry P. Schwarcz (Department of Geology, McMaster University, Hamilton, Ontario) was selected as the 1999 recipient of the Fryxell Award for Interdisciplinary Research in part for his contributions to ESR and Uranium-series dating, and the chemical analyses of food residues in pottery.

More than 116 oral presentations or posters concerned ceramic materials. Four sessions were devoted to archaeological ceramics and one symposium emphasized materials compositional analysis. One workshop, "Impressed Pottery: Problems and Solutions in the Methods of Data Recovery and Analysis of Fabric, Net, Cord, and Basketry Impressed Pottery," was organized and chaired by C. J. Minar but was open only to participants. These included C. J. Minar, P. B. Drooker, A.G. Henderson, J. M. Herbert, W. C. Johnson, R. Maslowski, and C. Reith. A general session, "Ceramic Studies," featured presentations by J. D. Stewart and K. R. Adams; K. L. Fangmeier; K. Dobschuets; J. Arthur; A. Pizza; N. Benco and M. Thieme; K. Michelaki; E. C. Wells; C. Descantes; Y. Yokoyama and H. Kajiwara; and H. J. Miller.

"Mesoamerican Ceramic Figurines, Too: More Interpretations," a symposium organized by Charles C. Kolb (NEH) and Cynthia Otis Charlton (Independent Scholar), included papers by James J. Sheehy and B. Maldonado Alvarez; Warren T. D. Barbour; Kim C. Goldsmith; Lisa Montiel; Janet Montoya; Sue Scott; Jan Olson, Michael Smith, and Elizabeth Dipippo; and Charles C. Kolb. Kolb chaired the session and Otis Charlton moderated the open discussion that followed. A symposium entitled" New Horizons for Ancient Maya Ceramics," co-organized by Heather McKillop (Louisiana State University) and Shirley Boteler Mock (University of Texas-San Antonio), was chaired by the senior organizer. Papers were given by J. Sabloff (read by Mock); F. Valdez, L. A. Sullivan and A. Manning; K. Sagebiel; G. Bey; S. Mock; C. Arendt. T. Powis and P. F. Healy; L. Kosakowsky; R. Fry; H. McKillop; D. Chase and A. Chase; L. Lucero; V. Heredia; K. Sunahara; and V. Ochoa. Elizabeth Graham and Richard E.W. Adams served as the discussants.

"Postclassic Systems of Production, Distribution, and Consumption in Central and West Mexico: Contributions from Materials Composition Analysis" was organized by Deborah L. Nichols (Dartmouth College) and Thomas H. Charlton (University of Iowa). The majority of the papers concerned ceramic or clay analyses. The participants included: D. L. Nichols, H. Neff, T. H. Charlton, and M.D. Glascock; G. Purcell, T. Hare, M. Smith, H. Neff, and R. Fauman-Fichman; L. Lambertino-Urquizo, M. Glascock and H. Neff; S. Velasquez, D. Rogers, Y. Sugiura, and J. Walsh; Hirshman, H. P. Pollard, H. Neff, and M. D. Glascock; and R. Garcia, H. Neff, M. D. Glascock, and Y. Ruanova. Other presentations were given by E. Brumfiel; L. Minc; P. Fournier, H. Neff, M. Glascock, T. H. Charlton, and J. Cervantes; M. D. Glascock; W. J. Parry, T. H. Charlton, and H. Neff; T.H. Charlton, H. Neff, M. Biskowski, M. Glascock, and H. Neff; C. L. Otis Charlton and H. Neff; T. H. Charlton, H. Neff, D. Nichols, C. Otis Charlton, and M. D. Glascock. The discussants were Fred Hicks and Dean E. Arnold. A more detailed review of this SAA meeting will appear this summer in *La Tinaja: A Newsletter of Archaeological Ceramics* 12(2).

Other Recent Conferences

Primera Mesa Redonda de Teotihuacan was held at the Centro de Estudios Teotihuacanos (Escuela de Manuel Gamio) in Teotihuacan, Estado de Mexico, Mexico, from 10-14 February 1999. The conference, organized by Instituto Nacional de Antropologia e Historia, Instituto de Investigaciones Esteticas (de Universidad Nacional Autonoma de Mexico), and Arizona State University, was free and open to the public, held entirely in Spanish, and included 36 papers. The organizing committee included Beatriz de la Fuente, Ruben Cabrera Castro, Maria Elena Ruiz Gallut, Saburo Sugiyama, and Miguel Angel Trinidad Martinez. Although ceramic material figured predominantly in the discussions of the chronological phases of Teotihuacan and the construction of its buildings, two papers dealt more directly with pottery. One was a paper by Michael Spence and Evelyn Rattray, "El 'Graffiti' en la ceramica teotihuacana," and the other by Cynthia Conides and Warren Barbour, "Una interpretacion de los tocados en Teotihuacan, Mexico."

The 1999 *Midwest Mesoamericanists* meeting held at the University of Illinois-Chicago's Chicago Circle Center from 5-6 March 1999 included 24 papers. One speaker's presentation emphasized pottery – Dean E. Arnold (Wheaton College, IL) "Managerial and Entrepreneurial Skill in the Evolution of Ceramic Production: A Case Study from the Present." Dean reported on aspects of his research at Ticul, Yucatan, Mexico.

The *Southern Arizona Protohistoric Ceramic Workshop* was held at Tubac State Park on 6 March 1999 and limited to 30 participants. More info can be obtained from Linda Gregonis (tel./fax 520/323-9338, e-mail Lmgregonis@msn.com).

Conociendos sin Fronteras/Knowing Each Other without Borders: Latin American and Latino Research at the Smithsonian Institution: A Conference of Research, Ideas, and New Visions, sponsored by the Latin American

Research Program in the Department of Anthropology, was held at the Smithsonian's S. Dillon Ripley Center in Washington, DC from 9-10 March 1999. Among the 33 presentation was one by Steve Velazquez (Collections Manager, Division of Cultural History, National Museum of American History) entitled "Economic and Social Boundaries in the Toluca Valley." The Toluca Valley, located immediately west of the Basin of Mexico, is the research locale for the ongoing (since 1995) study of environmental and social change during the Post Classic and contact/Colonial era in Central Mexico. The preliminary results of the Neutron Activation Analysis of Aztec and Otomi style ceramics suggests a complex pattern of local production and interaction with trade networks throughout the region.

On 13 March 1999, a symposium entitled "New Voices in Chinese Archaeology" (chaired by Kathy Linduff, University of Pittsburgh) and held at the annual meeting of the *Society for East Asian Archaeology*, included four presentations. Among these was a paper by David J. Cohen (Harvard University) "Pottery, Plants, and Paleoenvironment: Plotting China's Neolithic Revolution."

English Heritage Training Days included a two-day practical training session held at the Potteries Museum, Stoke-on-Trent, UK on 15-16 and again on 17-18 March 1999. The training, "A Practical Guide to Staffordshire (and Related) Ceramics of the 17th-19th Centuries," was designed to familiarize field workers with the types of Staffordshire post-medieval ceramics which are common at sites throughout Britain. The identification dating, and interpretation of Staffordshire wares, and domestic and industrial assemblages were reviewed. The sessions, organized by Sarah Jennings (English Heritage) had David Barker, Miranda Goodby, Deborah Ford, and Katey Banks as tutors. Additional information may be found on the Medieval Pottery Research Group website http://www.pmiles.demon.co.uk/mprg/mprg.htm

"La ceramique Mycenienne entre l'egee et le Levant: donnees recentes: Table Ronde a la memoire de Vronwy Hankey" was the title of a pottery conference held on 20 March 1999 at Maison de l'Oriente Mediterraneen – Jean Pouilloux (C.N.R.S., Universite Lyon), Lyon, France. This workshop on Mycenaean ceramics from the Aegean and the Levant included papers by J. Balensi (C.N.R.S.) and A. Leonard, Jr. (Tucson Univ.) "Propos d'introduction: Hommage a la memoire de Vronwy HANKEY"; P. Darcque (C.N.R.S.) "Les myceniens hors de Grece continentals: la ceramique & les autres temoignages archeologiques"; S. Muller Celka (C.N.R.S.) "Influences levantines a Medeon de Phocide?"; L. Steel (Edinburgh University) "A Reappraisal of Mycenaean Pottery from Cyprus"; M. Yon (C.N.R.S.) "Ateliers myceniens de Chypre: l'example du 'Style Pastoral' [Rude Style]"; A. Leonard, Jr. (Tucson Univ.) "The Larnaca Hinterland Project": J.-Y. Monchambert (C.N.R.S.) "Du Mycenien III C a Ougarir?"; N. Hirschfeld (Austin University) "Eastwards via Cyprus? The Marked Mycenaean Pottery of Enkomi, Ugarit, and Tell Abu Hawam"; J.-F. Sales (C.N.R.S.) "A propos de la ceramique mycenienne de la Necropole K de Byblos": S. Balensi (C.N.R.S.) "Relativite du phenomene mycenien a Tell Abou Hawam: un 'proto-marketing'?"; E. B. French (Manchester/BSAA) "The Contribution of Chemical Analysis to Provenience Studies." A general discussion that followed included presentations by A. Leonard, Jr. "Future of the Mycindex": J. Balensi and P. Darcque "Problemes de quantification"; and S. Muller Celak "Opportunite d'un 'Mycindex' pour le Grece continentale?" (Associate Editor's Note: Institutional affiliations are listed as they were received.) It is anticipated that these papers will be collected, edited, and published in a special volume of TMO (Travaux de la Maison de l'Orient), C.N.R.S.-Universite Lyon 2, 7 rue Raulin, F 69007, Lyon, France; Tel. 33-(0)472-71-58-30, fax 33-(0)472-72-08-59. Additionaal information may be obtained from Jacqueline Balensi at her e-mail address: Jacqueline.Balensi@mom.fr

The 16th Annual Visiting Scholars Conference of the Center for Archaeological Investigations, "Archaeometry as Anthropology: Material Culture and Technology," was held at Southern Illinois University at Carbondale from 20-22 March 1999. The approximately 20 conferees considered the role of archaeometry in Americanist, anthropologically-oriented, archaeological studies of material culture and technology. The thrust of the presentations was to enlighten archaeologist about the limitations of "high-tech" aspects of archaeometry. The focus was on archaeometry's role in illuminating the interrelations of human behavior, material culture, and technology in the past, and its place in teaching and research in archaeology as practices in the United States today. Further information can be obtained from Pru Rice, Department of Anthropology, Southern Illinois University, Carbondale, IL 62901-4502, or by e-mail archcai@aol.com

The Middle Atlantic Archaeological Conference was held in Harrisburg, PA, 9-11 April 1999. There were 12 sessions with 83 papers. A session entitled "A Pot's Eye View of Late Woodland Cultures along the Potomac Basin: An Examination of Ceramic Wares and Cultural Relationships," was organized and chaired by J. Sanderson Stevens and included ten papers. The presenters and their presentations were: J. Sanderson Stevens "Introduction"; Stuart Fiedel "Connecting Late Prehistoric Ceramic Lineages with Early Historic Ethnic-Linguistic Groups: Prospects and Problems"; Robert D. Wall "Late Woodland Ceramics and Native Populations of the Upper Potomac Valley"; Christine Jirikowic "Keyser Ware Ceramics at the Hughes Site and in the Potomac Basin"; and William C. Johnson "Cordage Twist Direction and Ethnicity in the Upper Potomac Basin: The Lurray Complex Conundrum." The other papers were by Michael J. Klein "Ceramics, Style, and Society in the Potomac Valley"; Maureen Kavanagh "Late Woodland Settlement in the Monocacy River Drainage"; Victoria Robertson, Dennis Knepper, and Carter Shields "Late Woodland Ceramic Typologies at the Fall Line of the Potomac River"; and Dennis B. Blanton "New Information from Recent Work at the Potomac Creek Site."

The biennial *Third Roman Archaeology Conference (RAC99)* and *9th Theoretical Roman Archaeological Conference (TRAC99)* were held as one event at the University of Durham, UK from 16-19 April 1999. The RAC sessions, sponsored by the Society for the Promotion of Roman Studies, included a paper by Jeremy Evans "Pottery in the North in the Fourth Century and Beyond?" in one of two sessions on The Late Roman Transition in the North. Of interest in TRAC99

was Hella Eckhardt's (University of Reading) contribution entitled "Illuminating Roman Britain" in which she presented the initial results of the first systematic survey of the archaeological contexts of lighting equipment from the province of Roman Britain. Information about RAC may be accessed at the URL http://www.dur.ac.uk/~drk0www3/ while TRAC is available on the website http://www.dur.ac.uk/~drk0www2/

The Society for Pennsylvania Archaeology (SPA) held its 69th annual meeting at Brookville, PA, 23-25 April 1999. Among the papers given was "An Examination of Dan River Ceramics from the Stewart (44PK62/2) and Graham White (44RN21) Sites" by Andrew J. Myers and A. Malinda Moses which concerned pottery from West Virginia.

Websites

The Foundation of the Hellenic World and Dartmouth College, particularly the Dartmouth Experimental Visualization Laboratory (DEVLAB), have been instrumental in developing the "Prehistoric Archaeology of the Aegean" website. This site includes textual information and images from Jeremy Rutter's lectures at Dartmouth, where he is Chairman of the Classics Department. The 29 lessons cover the Paleolithic, Mesolithic, and Neolithic of the Aegean; and Helladic, Minoan, Mycenaean, and Cycladic cultures through the twelfth century B.C.E. These lessons are preceded by separate sections on chronology and terminology, the environment, and the history of the discipline. There are images, bibliographies, and search capabilities for each section; a glossary and "Aegean Links" are yet pending. "Lesson 24: Mycenaean Pictorial Art and Pottery " considers frescoes and has a dozen subsections on pottery (Late Helladic I-IIA through Late Helladic IIIC). There are more than 80 pottery images in thumbnail (clickable to regular, and large original scan size). The majority of these images are from Rutter's own publications, and the bibliography has a useful section on physicochemical analyses and provenience studies. The URL for the ceramics section is: http://devlab.ac.dartmouth.edu/history/bronze_age/lessons/24.html

"A Prehistoric Pottery Processing Station in Lower Michigan" is a homepage prepared by William Topping at Ferris State University. An excavation at the Ross site (20 LK 98) is reported and includes an analysis of a processing station where marl was used to prepare ceramic paste. The geologic setting, artifacts recovered, pottery characteristics, a discussion of relevant literature, the analysis, a conclusion, and references are included. The URL is http://topping.www-user.imageware.com/research/pottery/rossite.htm

"Arqueologia de Mexico Norte/Archaeology of North Mexico" is a bilingual website based at the University of New Mexico that is devoted to the archaeology of Northern Mexico and is overseen by Robert D. Leonard and Christine VanPool. Among the pages are a useful bibliography by David Phillips and information on copper bells by Victoria Vargas. Also included is "A Field Guide to the Ceramics of the Casas Grandes Region of Chihuahua, Mexico" compiled by Christine VanPool, Rafael Cruz Antillon, Robert D. Leonard, and Gordon F. M. Rakita. The sherd images are quite good. The URL for the Spanish-language version is http://www.unm.edu/~paquime/ and for the English-language translation http://www.unm.edu/~paquime/engindex.html

"From Archaeology to Archaeometry and back to Archaeology" is the title of an archaeology-archaeometry homepage developed by Jan Gunneweg that emphasizes the Neutron Activation Analysis of ceramic materials. He is a Senior Staff member in the former Archaeometry Unit, Institute of Archaeology, The Hebrew University, 91905 Jerusalem, Israel (University Tel. 972-2-5882391, fax and home tel. 972-2-6234830, e-mail gunneweg@thum.huji.ac.il). The site includes: 1) Abstracts of more than 20 of Gunneweg's studies on the origins of pottery by means of NAA (among these are assessments of Eastern Terra Sigillata, Iron Age I ovens, Hellenistic braziers, Herodian oil lamps, pithoi, incense burners, Pseudo-Nabataean bowls, Canaanite storage jars, Edomite ceramics, Hellenistic and Roman stamped handles, and Nabataean Painted Fine Ware); 2) A report about the Qumran-Dead Sea Scroll Project involving the NAA derived provenience of ceramics from Khirbet Qumran; 3) A report on Iron Age Edomite anthropomorphic ceramics; 4) a report on Late Bronze Age II life-size ceramic "anthropoid coffins" [e.g., anthropomorphic] from Deir el-Balah; 5) a list of 30 of Gunneweg's jointly authored publications; and 6) a commemoration of the life of Iz (Isadore) Perlman who founded the Archaeometry Unit in Jerusalem in 1973. Gunneweg's site is at the URL http://pluto.mscc.huji.ac.il/~msjan/archaeom.html

"Canadian Clay Tobacco Pipe Industries/Les industries de pipe de platre du Canada" is a website dedicated to the 19th century Canadian clay tobacco pipe industry. Clay tobacco pipes were fabricated during a relatively short period from 1854-1902 in Montreal and Quebec City, Quebec, and St. John, New Brunswick. The URL includes "Canadian Clay Tobacco Pipe Centers," "Clay Pipe Centers Influenced by Canadian Makers" (Detroit, Michigan; Rouses Point, NY; and New York City), "and "Miscellaneous Information on Clay Pipes." The latter includes links to articles on clay tobacco pipes in Canada, the Society for Clay Pipe Research (SCPR) in the UK, Dutch clay tobacco pipes, and "Olde World Fine Clays – Reproduction Pipes." The URL is: http://www.virtlogic.ca/pipe/pipes.html

"The Louisbourg Archaeological Collection" at the Louisbourg Fortress, Nova Scotia holds approximately 69,000 Chinese export porcelain sherds dating from the 18th century. This corpus is the largest and most comprehensive archaeological collection of Chinese ceramics for this time period in North America. The ceramics include specimens from the household goods imported by French colonists, pieces imported by merchants in the town, and others obtained from East India merchantmen. Porcelain recovered from the ***Machault***, a French ship that sank enroute from Bordeaux to New France in 1760 are also a part of the collection. Five examples of the most common types of plates are illustrated on the website: http://fortress.uccb.ns.ca/china/exhibit.html

"Delft Pottery/De Delftse Pauw" is a bilingual English and Dutch-language site that presents a brief history of Delftware, describes the production process, elaborates genuine versus imitation Delft, provides a catalog of objects for sale, and directions to the factory (Deltweg 133, Postbus 400, 2600 AK Delft, e-mail address info@delftsepauw.com). The URL is: http://www.delftsepauw.com

"The Farnham Pottery Restoration Project" website documents a restored industrial site in Farnham, Surrey, GU10 5DP, UK. This post-Victorian era pottery is thought to be "a unique unchanged survivor" from the age of arts and crafts country potteries that once were common in the south of England. Among the structures restored by the Farnham Building Preservation Trust is a rare wood-burning bottle kiln last fired during the 1960s. The website includes an excellent narrative and superb images as well as a virtual tour of the pottery. The URL is: http://www.surreyweb.org.uk/farntrust/

Eric H. Cline (Department of Classics, University of Cincinnati, 410 Blegan Library, Cincinnati, OH 45221-0226, clinee@email.uc.edu) has recently announced the creation of "C.L.I.N.E. (**C**orpus of **L**ate Bronze Age **I**mports from the **N**ear East and **E**gypt)," an on-line and searchable database at http://oz.uc.edu/~clinee/CLINEDB.htm The database contains all of the worked objects imported from Egypt, Anatolia, Cyprus, Syria-Palestine, and Mesopotamia found in Late Bronze Age contexts within the Aegean region, as contained within Cline's Catalog II of *Sailing the Wine-Dark Sea* (Oxford, UK: Tempus Reparatum, British Archaeological Report S591, 1994) are included in the database. Search parameters include: catalog number, page number, category type, object type, material, excavation number, site, context date, content, country/region of origin, object date, description, and references.

"The Multilingual Dictionary of Pottery Words" by Robert Wilt, Edouard Bastarache, Ron Duncan, Colin Lewis, and Inge M. Poulsen, presently includes five languages: English, French, Spanish, Swedish, and Danish. Robert Wilt rjw@studiopotter.org is the organizer and is currently looking for volunteer translators for Portuguese, Italian, Norwegian, Finnish, and other languages that are restricted to the use of Latin character sets. The URL is http://mdc.net/~rjwilt/info/dict.htm Readers may also wish to refer to a very useful article written by Roger Marois and Edward Jelks entitled "Comparative Study of French, English, Spanish, and Portuguese Terms Relating to Prehistoric Pottery Decoration Techniques" that appeared in *Canadian Journal of Archaeology* 10:145-166 (1986).

"Limeonline" is a website devoted to "the world of lime" (lime, gypsum, plaster of Paris, etc.), including manufacturers, producers, associations, publications, research and development, agriculture, and kilns, among other topics. There are many useful links to papers, articles, and standards (including ASTM). The site is accessible at: http://www.limeonline.com

"Mineralogy Database" is a user-friendly Internet site created by David Barthelmy that contains more than 5,000 pages of mineral data on 3,968 individual mineral species. Mineral data are closely HTML-linked by crystallography, chemical composition, New Dana Classification, Strunz Classification, determinative mineralogy, alphabetical listing, mineral pictures, and other WWW site links. The URL for this valuable resource, which is easy to navigate and loads quickly, is: http://web.wt.net/~daba/Mineral/

"The National Park Service Technical Preservation Services for Historic Buildings" currently has 41 *Preservation Briefs* available on line at the URL http://www2.cr.nps.gov/tps/briefs/ The NPS *Preservation Briefs*, designed to assist owners and developers of historic buildings, include six of interest to readers of this column. Each brief contains historical data, information about repair and maintenance, and a bibliography or selected reading. Of particular interest are: Brief 5: "Preservation of Historic Adobe Buildings" (de Teel Patterson Tiller, 1978); Brief 7: "The Preservation of Historic Glazed Architectural Terra-Cotta" (de Teel Patterson Tiller, 1979); Brief 15: "Preservation of Historic Concrete: Problems and General Approaches" (William B. Coney, 1987); Brief 21: "Repairing Historic Flat Plaster-Walls and Ceilings" (Marylee MacDonald, 1984); Brief 30: "The Preservation and Repair of Historic Clay Tile Roofs" (Anne E. Grimmer and Paul K. Williams, 1992); and Brief 40: "Preserving Historic Ceramic Tile Floors" (Anne E. Grimmer and Kimberly A. Konrad, 1998).

"The Tennessee Archaeology Net" is a significant website located at http://www.mtsu.edu/~kesmith?TNARCHNET/archpage.html which includes more than 140 bibliographies on archaeological topics. Among these are a "Brick and Tile Bibliography" (46 items) compiled by K. Kris Hirst, and "A Bibliography of Ceramic Artifacts" (95 items), compiled by William Hampton Adams. These may be accessed at: http://www.mtsu.edu/~kesmith/TNARCHNET/Pubs/brickbib.html and http://www/mtsu.edu/~kesmith/TNARCHNET/Pubs/cerambib.html Also linked is a website mentioned in a previous column, "Ceramics Analysis: Course Bibliography" (Anthropology 652, Northern Arizona University, 1991-1994) by Barbara Mills and Kelley Hayes-Gilpin.

"Anthropology Resources on the Internet" is a comprehensive list of Internet resources that are directly and primarily of anthropological relevance. The site, which has frames and no frames versions, was originally compiled by Allen Lutins through 1998 and is now maintained by Bernard-Olivier Cist, clist@worldnet.fr The site's "Contents" include: Discussion Groups, News Groups, Software and Files, Web Directories, Archaeology, Linguistics, Cultural Anthropology, Physical Anthropology, Museums, Academic Institutions, Other Institutions, Commercial Sites, Journals, Other Anthropology Resources, and Awards Earned by this Page. Relevant sections with ceramic contents include: Archaeology (n = 123 entries), Archaeological Sites and Excavations (n = 33), Museums (n = 53), and Journals (n = 77). The URL is http://home.worldnet.fr/clist/Anthro/index.html

SARM 69 CERAMIC-1: A New Certified Ceramic Reference Material

L. Jacobson (Assistant Director, McGregor Museum, P. O. Box 316, 8300 Kimberly, South Africa) has informed me that a new, non-commercial certified multi-elemental ceramic reference material for inter- and intra-laboratory calibration has recently become available for use by laboratories conducting pottery compositional characterization studies. Additional information on certification and pricing can be obtained from W. A van der Westhuizen (Department of Geology, University of the Orange Free State, P. O. Box 339, 9300 Bloemfontein, South Africa, e-mail: vdwestw@glg.nw.uovs.ac.za) or from Jacobson (Telephone 053-842-0099, e-mail: jake@museumsnc.co.za).

Book Reviews

Michael D. Glascock, Associate Editor

Projectile Technology. Heidi Knecht (ed.). Plenum Press, 1997. xviii + 408 pp., includes index, $59.50 (cloth), ISBN 0-306-45716-4.

Reviewed by John E. Dockall, 48 Haumalu Place, Wahiawa, HI, 96786 USA

Projectile Technology, edited by Heidi Knecht, promises to be one of those volumes that stands out as a significant contribution to prehistoric technology studies. The contributed papers contain very important data, theory, and observations pertinent to all researchers in ethnoarchaeology, ethnography, experimental archaeology, and technological systems. The approaches are both innovative and timely and can be adapted to various types of archaeological data.

As with other Plenum volumes in the Interdisciplinary Contributions to Archaeology series, *Projectile Technology* is subdivided into five broad topics with one or more contributed papers. Part I, Introduction, features two papers by Heidi Knecht and Christopher Ellis. Knecht provides an in-depth review of archaeological and ethnographic research on projectile weapons systems. Ellis focuses more directly upon the ethnographic literature pertinent to the use of stone-tipped projectile weapons. This chapter examines the general uses of projectile weapons in warfare and hunting among a large number of North and South American groups, as well as the selection of raw materials: wood, bone, stone, bamboo. The data tables are especially informative as a research resource. Ellis also provides a decision tree and interpretive analysis of such factors as type of game, animal habits, technological choices and prey encounter methods and their influence on projectile technology.

Part II, Archaeological Perspectives, presents papers that address elements of projectile function, technology, and weapons design. Although the authors focus on archaeological databases, they do employ ethnographic observations as a point of departure for some discussions. John Shea discusses in detail the morphological, technological and functional evidence for technologically assisted hunting during the Levantine Middle Paleolithic. A regional production pattern of Levallois points and other blank types provides additional supporting data for arguments that Levallois points were frequently employed as projectile tips. Impact fractures, haft wear, and metric comparisons with Vail site Clovis points provide functional and metric indications of Middle Paleolithic projectile point use. Ratios of Levallois points and flakes between interior and coastal and Northern and Southern regions suggest differential hunting and associated behavioral differences in the Levant.

Bill Finlayson and Steven Mithen employ data from the site of Gleann Mor, Southern Hebrides, to investigate the long-held interpretation of upland microlith rich hunting camps and lowland microlith poor winter camps of the British Mesolithic. These inferences have assumed that microliths were typically employed as projectile points. The authors use a very detailed functional and morphological analytical program which calls into question current morphological microlith typologies and previous notions of function. Their analysis demonstrates the use of microliths in a variety of composite tool functions and that there are not sharp distinctions between morphological types.

Possible functional differences between side-notched and un-notched arrowpoints are investigated by Andrew Christenson. Given the co-occurrence of these morphologies throughout much of the North American Late Prehistoric this research is significant as it demonstrates no functional difference. Christenson illustrates these issues by analysis of a series of arrowpoints collected by John Wesley Powell from several Numic groups during the late 1860s and 1870s. Ultimately, his study revealed no evidence for a functional difference between side-notched and triangular arrowpoints.

Christopher Bergman and Edward McEwen examine the technological, functional, and social aspects of composite and sinew-reinforced bows. The authors provide a summary of each type of bow before detailed discussion of composite bow technology in Asia. They explore regional variability and the selection of raw materials for manufacture of composite bows. Most informative is their examination of the relationship between raw material selection and bow design.

Part III, Experimental Perspectives, presents a series of papers addressing the results of programs related to controlled replication and use of various projectile delivery systems using different raw materials. All studies are mainly directed toward the European Upper Paleolithic but the results can be applied to any time period.

Jean-Michel Geniste and Serge Maury illustrate one method of constructing detailed experimental programs for evaluating projectile technology. Their program was developed to address differences in methods of manufacture, use, propulsion, breakage, repair, and discard of Solutrean points from the French Upper Paleolithic. The resulting program of analysis is elegant in its flexibility to differing situations and in the kinds of questions that can be proposed. The authors emphasize the importance of considering technical knowledge and skills in designing weapons systems and how these factors are related to raw material/blank differences.

Heidi Knecht explores similar issues related to the manufacture and use of bone, antler, and stone projectile points. She provides a tabular synthesis of experimental studies providing information on the general structure and goals of each study. Knecht traces the intricacies of raw material differences and the relationship with methods of manufacture and overall weapon performance. Based upon experimental and archaeological observations, Knecht's study reveals that there are significant differences in the performance of stone, antler, and bone points and strategies for implement design and repair associated with different materials.

Pierre Cattelain tackles the question of identifying modes of projection of prehistoric weapons, specifically the bow or

spearthrower. The author details the spatio-temporal distribution and morphology of Arctic and Australian spears and spearthrowers in addition to bows and arrows from a variety of localities. Utilizing archaeological, ethnographic, and experimental data, Cattelain has identified a general relationship of spearthrower use in open environs with the bow enjoying use in a variety of environments. Although there are similar strategies of use for the spearthrower and bow, experimental data suggest that there may be differences in damage traces on projectile points used with either projection device: traces being more pronounced among thrown spears. There is a further question regarding the target accuracy of different delivery systems. An experimental program designed to assess the function of Gravette points employed both spearthrowers and bows. Like Geneste and Maury, Cattelain's program emphasizes flexibility in future studies.

The use of self-barbed antler points as fishing appliances during the Upper Paleolithic of Cantabrian Spain is addressed by James Pokines and Marcy Krupa. Lines of inquiry include the association of barbed points and fish remains from Late Upper Paleolithic contexts, ethnographic/ethnohistoric data, and replicative experiments. Their study provides a good example of use of multiple lines of evidence to address the relationship between subsistence technology and faunal data.

Ethnoarchaeological Perspectives, Part IV of Knecht's book, presents four papers which address topics such as weapons design, technological organization and toolkit variability, regional comparisons of hunting technologies and strategies. The authors also present cogent discussions of individual/group choices of suitable projectile forms to use in particular situations.

P. Bion Griffin discusses local and regional comparisons of projectile point design and form among the Agta of northeastern Luzon. Griffin identified formal style variability of projectile points among different groups of Agta that correlated with the degree of contact with non-Agta groups, general hunting success, and importance of hunting as a subsistence activity. Both single and multiple-component point forms are employed by the Agta with the number and morphology of arrow types varying between groups. Selections of appropriate point forms are also governed by a variety of logistical considerations associated with the hunt. These include solitary or group hunts, use of dogs, wet/dry season, prey size, and cover. Griffin's study is important in that he elucidates the factors that influence technical and logistical decisions faced by hunters in a variety of scenarios.

Toolkit composition and logistics of toolkit use and hunting gear among the Pume of Venezuela is explored by Russell Greaves. Greaves details Pume hunting technology and toolkits and proposes a research design to examine multiple functions of tools. Multifunctionality is addressed via rates of mobility and distances of hunting trips. Although designed for hunting, arrows and bows were used for a variety of functions based upon situations presented by each hunt. Bows were frequently used as digging sticks, clubs, or probes and arrows functioned additionally as probes and knives. Greaves asserts convincingly how aspects of multifunctionality should be reflected in archaeological material via use-wear, edge damage, breakage patterns, recycling, and discard patterns. Again, the ethnographic information demonstrates the importance of skills and knowledge associated with technological systems.

Laurence Bartram provides an interesting analytical comparison of Kua and Hadza hunting technology. Varying regional environmental and faunal differences in sub-Saharan Africa are shown to differentially influence hunting kit composition and hunting strategies. The design and use of bows and arrows is further related to the type of vegetative cover in Hadza and Kua hunting areas. Open cover of the Kalahari has structured Kua hunting with small bows and frequent use of game stalking techniques. Greater vegetal cover and rolling topography of the Hadza homeland are associated with the use of more powerful bows with greater felling power. Bartram demonstrates a definite link between strategies, technological choices, and environmental/geographic possibilities that can be translated to the archaeological record.

Part IV ends with a discussion and analysis of weapon selection among the Kalahari San by Robert Hitchcock and Peter Bleed. The authors frame their analysis in terms of behavioral ecology. The selection of hunting weapons and strategies is considered governed by prey species, habitat, and whether poison is employed. Event trees are used to diagram the flow of decisions and options related to various scenarios of Kua bow hunting and Tyua spear hunting efforts. There are appreciable performance and success differences between bow and arrow or spear-equipped hunting groups. The assessment of each technological system via ethnographic observations is an important contribution toward furthering our understanding of projectile technologies and hunting practices.

This book is concluded by Margaret Nelson in a paper which addresses the key concepts presented by the authors. Nelson employs the great triad of lithic analysis; form, function, and design. An important aspect of this final chapter is the reiteration of the need for interdisciplinary research programs which embrace archaeological, ethnographic, and experimental databases.

To conclude, this book is strongly recommended to all archaeologists conducting research on technological systems. The versatility, depth, and breadth of the studies included in this volume represent a hopeful future of archaeology and interdisciplinary studies of material culture. Concepts and approaches contained herein are applicable to a broad range of artifact categories. This volume also illustrates the importance and value of considering material, social, and knowledge aspects of prehistoric and historic technology.

Use Wear Analysis on Bone and Antler Tools of the Mackenzie Inuit. Genevieve M. LeMoine. British Archaeological Reports (BAR) International Series 679, Oxford, England, 1997. 146 pp. ISBN: 0-86054-918-6. 40 Pounds Sterling (paper).

Reviewed by Susanne J. Miller, Faunal Analysis and CRM Services, 1450 Antares Drive, Idaho Falls, ID 83402 USA

This book is essentially the author's PhD dissertation (*Experimental Analysis of the Manufacture and Use of Bone and Antler Tools Among the Mackenzie Inuit*, 1991, Department of Archaeology, University of Calgary, Alberta, Canada).

The purpose of the research was to develop a suite of characters diagnostic of the design, manufacture, and use of bone and antler tools. The author first documented a series of mega- and microscopic alteration features developed throughout the experimental manufacture of bone tool replicas and their use in a number of tasks on a variety of materials. At each stage of bone and antler preparation and use, surface replicas were produced for microscopic study and compared with replicas from archaeological and ethnographic tools.

The MacFarlane ethnographic collection (1857, 1866) of Inuit tools from the Mackenzie Delta, Northwest Territories, Canada, served as models for this study. The experimental use wear features were then used as criteria to determine or infer the function of a set "unknowns", archaeological bone tools recovered from five sites in this region.

The book is well organized, with eight chapters and three appendices (including an extensive series of plates) covering the genesis of the study, the theoretical and methodological approach, results, and evaluation.

I recommend this book; its value and strength lie in the (1) results of the controlled experimental bone modification (manufacture and use wear), (2) organization and documentation of the response of bone surfaces to a variety of forces and activities, (3) high quality optical and scanning electron photomicrographs, (4) test comparisons with closely related archaeological assemblages, (5) evaluation of the reliability of tool function diagnosis utilizing the criteria developed, and (6) the excellent descriptions and illustrations. The study produced a comparative catalog applicable to the identification of bone taphonomy and tool manufacture and use in other archaeological assemblages and contexts.

I appreciate several of the author's caveats: (1) Only well-preserved bone and bone tool assemblages will be adequate for manufacturing and use wear analysis on the microscopic level. Preservation is initially determined by the degree of use degradation of the tools before loss or discard and by archaeological site conditions, but careful treatment of ALL bone during excavation, transport, and curation is essential. (2) Many production and wear features produced during tool manufacture will be obliterated with use, and the wear patterns of different uses will overlap, often making unequivocal diagnoses impossible. But utilization of accompanying suites of features, such as size and shape of the tool, consistencies in relative wear, location and intensity of wear, can help increase the reliability of interpretation. Of interest from this research, some tool uses produce very distinctive microscopic wear (for example, bone and antler use with wet materials) and very practical, physical reasons were found for some material and procedural choices made in bone tool manufacture and use. (3) Bone debitage is not to be treated lightly (or handled harshly) and is not only the domain of the faunal analyst. LeMoine points out that many clues to bone selection and conservation, reduction techniques, and sequences in tool manufacturing survive only in the debitage.

I am glad that the author was honest, confidently describing and defending the significant results and interpretation of the manufacturing and wear studies and the tests against archaeological counterparts. She did not force the data or extend the anthropological interpretation of Mackenzie Inuit "cognition", "behavioral modalities", "motor habits", and "design systems" beyond justifiable limits. Reaching toward an understanding of human thought processes and complex cultural milieus is the necessary and laudable goal of actualistic studies and archaeology. But we must use care in translating material evidence into time- and space-specific and transgressive human behavior, a caution recognized by LeMoine throughout this research.

The following observations fall into the obligatory category of review "criticisms". (1) The relatively few typographic errors do not detract from this presentation and are mainly errors linking text to tables, and the placement of tables in the text. (2) I can understand that economy of effort and cost led to the condensation of the numerous excellent plates in the appendix, but the separation of the legends from the plates (and at some distance from the text and from the artifact catalog) makes reading a little cumbersome. A selection of "classic" examples of photomicrographs and SEM images inserted in the text would have been welcome (see LeMoine, 1994). The plates are invaluable however and serious readers should not be deterred. (3) The references are appropriate to the time of the study, although lack some useful citations from U.S. and European work contemporary with and subsequent to the time of research. (4) I have obtained several desirable BAR titles in the past, particularly dealing with zooarchaeology and taphonomy, but have lamented the publishing quality. Accolades are now due to the BAR publishers/editors (U.S. investigators take note!) for greatly improved quality. (5) Readers will regret the missing affiliation and address of the author (normally presented on the inside title page, beginning of an abstract, or at the end of the introduction). LeMoine has and continues to contribute actively to the study of bone modification, manufacture and use wear, and would welcome contact from other researchers?

The primary contribution and value of this volume is as a concise descriptive catalog of bone response to modification under controlled experimentation, the testing of this information against relatively well preserved archaeological bone tools, a consistent attention to the research goals, and a subjective interpretation of the results. It should be read and utilized by specialists - archaeologists, faunal analysts and taphonomists. A recently published (LeMoine, 1994) condensation of this research is especially recommended to ALL archaeologists and taphonomists, not just those working in the far Northern Hemisphere.

Reference

LeMoine, G.M. 1994. Use wear on bone and antler tools from the Mackenzie Delta, Northwest Territories. *American Antiquity* 59: 316-334.

Lithic Implements and the Circulation of Raw Materials in the Great Hungarian Plain During the Late Neolithic Period. Katalin T. Biró, Hungarian National Museum, Budapest 1998. 350 pages, 8 tables and 4 figures in the text. Appendices with 49 tables, 49 plates with graphs, 26 figures, 17 plates with photographs, 15 plates with computer generated maps. ISBN: 963-9046-20-5, price unquoted (paperback).

Reviewed by Ludomir R. Lozny, Department of Anthropology, Hunter College, City University of New York, New York, NY 10021 USA

Katalin Biró undertook a task of Herculean proportions. The state of knowledge about the Late Neolithic Period of the Great Hungarian Plain and the vicinity serves as an example of the Augean stables. More precisely, it is the understanding of the distribution and use of various raw materials among the Neolithic communities, so flippantly approached by the previous scholars. One could say that the chore is overambitious and difficult to accomplish. But the author accepts the challenge and aims at creating some order out of the mélange of propositions concerning the data from the Neolithic period. The book presents a hypothetical model of the Late Neolithic flint procurement patterns, compared with the previous phases of the Neolithic Period. As Biró points out, the interest in flint procurement strategies, has been mostly generated by the works of non-Hungarian scholars. The presented analysis of the Hungarian-based assemblages, fills up the gap, and offers a thorough discussion on the topic. The author is fully aware, however, of the data limitations that thwarted the full accomplishment of the goal.

The book is divided into three parts, and each part is further subdivided into smaller chapters. In the first part (pages 7-31), Biró discusses chronological and geographical extend of the work, research history, and the applied methodology. The second part **(**pages 38-68), is in fact an extensive inventory of sites, and data presentation. And the third part (pages 69-87), contains analytical elaborations and model-building propositions. Biró aspires to take a different than traditional approach, but regardless of the intentions, the strongest point of the book is in data presentation and methods, while theoretical questions appear in the background.

The main purpose of the study is to examine a method of raw material sourcing and identification. The methodological problem Biró seems to be tackling is: how can we associate excavated assemblages with sources of raw material, either local or exotic, if we do not have good enough, and reliable archaeological information? The trouble, as the author indicates, lies in inconsistency in gathering data, generated by the use of diverse excavating techniques (she doesn't say what kind), or personal preferences of a researcher. The approach Biró undertakes is to establish objective criteria for comparative studies and, through selection, separate compatible data from various sites. The intention is to secure the comparativeness of considered assemblages. As she explains in her own words: "conclusions were mainly based on the material from large surface [block? - LRL] modern excavations, yielding large amount of data."

All raw materials discussed have been identified using the macroscopic approach. Biró reports on ca. 80 types of raw material segregated among the Neolithic assemblages, but only a few could have been identified without further examination. Particularly the highest quality materials, like the so-called *chocolate* flint from the Polish Jura, or the flint from Ukraine and Romania, all from regions outside of the Carpathian Basin. Conducting macroscopic studies, the author points out to certain observable preferences expressed by the prehistoric people, like a color of raw material which has been mostly utilized within the Carpathian Basin, but doesn't mention what is the color.

Macroscopically divergent specimens were further investigated using microscopic evaluations and x-ray spectroscopy, or a thin section analysis. The x-ray spectroscopy supported with fission track dating proved to be successful in determining sources of obsidian and distinguishing between local and exotic materials, e.g., between Turkish or Italian sources of obsidian and, what Biró calls as the Carpathian 2 (Hungarian) obsidian. The microscopic analysis of other rock types hasn't been very conclusive, although it helped to determine certain types like the *Mecsek* radiolarites. More conclusive are the sections on the so-called *Northern flint*, and the *Southern flint*. All macroscopically separated groups have been checked against the extensive type collection, known as *Lithotheca*. The analyzed materials are curated at the Hungarian National Museum in Budapest, and everyone who studies lithics from this part of Eastern Europe should refer to this collection.

The list of applied analytical technics is impressive, and I hope that the use of all of them was somehow justified. But I have questions about the principles behind the selective approach. For instance, why is the author saying that: "the **most important** [emphasis LRL] macroscopically separable type groups were systematically analyzed... ." Most important to whom? And what about those which are less important? Biró further states that "efforts were taken to include **all the really important** [emphasis LRL] raw material groups from archaeological localities as well." What are those "really important raw material groups"? What are the criteria for determining the importance? The unavoidable question is: how reliable is the applied method? Identification and sourcing of raw materials is a problem, and Biró does provide some insight how to cope with it; but the main emphasis is rather on the complexity of the problem itself. One more methodological problem is worth brief mentioning. The author has a strong opinion on the use of modern technology, especially computer aided procedures. Simply put, Biró is dissatisfied with some of them and calls these elaborations as "pseudo-statistical analyses." I fully agree with Biró that computer generated information may not be necessary to answer simple questions, no matter how fancy the graphs may look. But it is not clear to me what kind of statistical methods does she have in mind to answer what question. Moreover, is the problem of sourcing and distribution of raw material over large area a simple question? I do think that there are, indeed, archaeological questions that demand the quantitative approach, and distribution of a raw material is one of them. What Biro advocates is a "clear" (compatible? - LRL) data cataloging system, combined

with the limited use of quantitative methods "not distorting the real meaning of data at hand." But what is "real meaning of data?" Who determines what meaning is real? In my biased opinion, if we want to see general patterns, and make eloquent comments on them, we must applied methods that will make the generalizations possible. It seems to me that one of the possibilities is the use of a proper statistical procedure that will fit the data at hand, and provide meaningful insight into the investigated problem.

Nonetheless, there is a new twist into the old tradition. The novelty is in a very careful application of certain hypotheses borrowed from cultural anthropology, mainly those which may aid an explanation of the possible exchange patterns. Biró makes a point by saying that all the sources of raw materials known to us, should have been available to the prehistoric people. I would add a question to this statement by saying: if the sources of raw material were available to people (because they new about them), did they have access to these resources? Biró's statement seems logical, but is this something we want to know? My question is not about the availability of sources, but about the usability of them, and more specifically, about access/ preferences in the use of certain raw materials. I would like to know why people used this raw material and not the other one? Even if people new about the outcrops, would they have used the rock to make tools? My studies demonstrate that people have had specific preferences (cultural?) in terms of utilization of certain rocks. Ethnographic evidence show that some current indigenous knappers travel long distances to obtain particular materials. The abundance of raw material alone may be an issue when it comes to specific, expedient type of technology, where the preference is not on the yield maximization of the high quality raw material, but on the task being done. The question on the type of technology applied by the Neolithic communities never comes up in the book, but it hangs on through the pages. I would be very interested to know, for instance, why there is a qualitative difference among the assemblages from the Late Neolithic period and the previous stages of the Neolithic? What does it mean in technological and cultural terms?

The third part of the book, the analysis (pages 69-87), is the most interesting, promising, and a bit disappointing at the same time. My feeling is that it has not been given enough attention from the author. After extensive introduction and a very lengthy data presentation, Biró seems to slow down at the most interesting moment - discussion and analysis of the data. Perhaps such imbalance could be somehow explained by the opening line for this section, in which the author states that: "there was no possibility for a large-scale, representative analysis of the lithic assemblages...". Two elements of this statement grasp my attention: what is a large-scale analysis?, how large a sample must be to be large enough?, and what does it mean a representative sample in reference to an archaeological sample? Representative of what? How can we ever expect to have a representative sample of something which is unknown in its entirety? The assemblage collected is itself a sample of what has survived until our times. What we retrieve from the ground is a sample of a sample. What sort of representativeness can we expect?

Another issue refers to technological and typological observations. Biró's typology is primarily based on morphological determination. Block and nodules of raw material and their residuals (cortex) form the first typological group. Most typical are corticated nodules, although decorticated ones (Biró calls them "pre-cores") have also been recorded. The second group contains cores and exhausted cores. There are three different core technology traditions characteristic for the Late Neolithic Period: 1. large conical, prismatic blade cores, 2. micro-cores, and 3. irregular-globular flake cores. Blade cores and micro-cores producing blades and micro-blades are associated with the high quality raw materials, whereas the lesser quality materials produced mostly flake cores. However, Biró concludes that blades have been produced from various raw materials, including lower quality limnoquartzites. These information may concern American scholars, especially those who deliberate on the existence of blade technology in North America. It looks like the quality of raw material may not be an issue in blade producing technology. There is also a certain percentage of core utilization observable, especially as burins.

Finally, the author provides a hypothetical model of the distribution of raw materials in the Late Neolithic Period in the Carpathian Basin. We learn that: 1. obsidian - spread all over the discussed territory; the frequency of the use of obsidian changes during the Late Neolithic; 2. limnic and hydroquartzites distribution pattern resembles obsidian, but no local centers have been distinguished (like those in case of obsidian distribution); 3. the distribution of the *Northern flint* is based on a long distance trade of the high quality material: in the Middle Neolithic it is mostly *Jurassic Kraków* flint, and during the Late Neolithic - *Volhynian\Prut* flint becomes dominant; the author does not elaborate on the possible causes for the switch; 4. finally, the *Southern flint* is very limited in all phases.

Based on the model of raw material distribution, the author hypothesizes on the possible trade relations in the Late Neolithic. In discussing the possible structure of the exchange system, Biró applies a limited ethnological approach, based on models borrowed form the older anthropological literature. Especially one of the presented ideas is most interesting to me. It is about the exchange system which could have involved "reciprocity and redistribution." However, I would like to see more archaeological evidence that prompted that assumption. Nonetheless, all the suggested procurement strategies which have been, according to Biró, characteristic for the Neolithic Period, i.e. expeditions, symbiotic type of collaboration, military actions, and redistributive system, are worth of further, detailed discussion. Thus far we know that: 1. expeditions - could be assumed on archaeological evidence of advanced posts in the direction of the sources from the homeland (Early Neolithic); 2. symbiotic type of collaboration - is questionable, but it seems logical (Middle Neolithic); 3. military actions - could be concluded on the assumption that the Lengel people controlled the critical resources (Late Neolithic).

The hypothetical model of exchange systems is complemented with equally hypothetical model of trade routes. Biró suggests that most of the exchange happened along the watercourses, which seems logical considering that the area is surrounded by chains of high mountains. It would be interesting

to find out if some floating devices could have been used too. In general, the presented model is sketchy, but the author introduces some interesting ideas (I personally like the term "obsidian road;" it appeals to me, for it could indicate that people do value quality and will undertake difficult tasks to get what they want at any time). My general reading of the whole exchange-trade routes section is that we have strong archaeological evidence of influences coming from the North, and expressed in the occurrence of high quality raw materials, whereas the south is mostly contributing cultural traits, for instance tells. I wish the author would elaborate more on that issue since it is associated with one of the critical topics of the presented book.

For everyone who enjoys the type of work, strong on data presentation and methods, this book is one of them. It introduces and discusses many issues, but also leaves a handful of them unanswered, or roughly touched upon. I mostly value the book for discussing the significance of sourcing of raw materials and introducing some propositions to explain the exchange and trade strategies among the Neolithic populations. Biró commences specific investigation, but many questions remain open for further examination. As a matter of fact, the author provides a few good hints for possible topics of quite a number of Ph.D. dissertations. The sourcing studies are significant to answer some of the key questions about the economy, mobility, and decision-making characteristic for the past societies, and the author is fully aware of that fact.

Prehistoric Long-Distance Interaction in Oceania: An Interdisciplinary Approach, edited by Marshall I. Weisler, New Zealand Archaeological Association Monograph #21, 1997, ISBN: 0-9597915-4-X, NZ$45.00.

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This volume of fourteen edited papers, most of which were presented by archaeologists and geologists at a Society for American Archaeology symposium in Los Angeles in 1994, is mostly about the geochemical characterization of sources of fine-grained rock on islands in the Oceanic Basalt province of the Eastern Pacific Ocean. It is also about the hope that it will someday be possible to identify patterns of interaction in the prehistory of the islands of central and eastern Polynesia and eastern Micronesia through the routine application of standard geochemical characterization techniques such as x-ray fluorescence (XRF) to the fine-grained rock flakes and tools commonly found in archaeological sites throughout much of the region. Fine-grained rock is important in this regard because pottery, which is used for sourcing and provenance studies in the Western Pacific, is rare or absent on most islands in the Oceanic Basalt province.

As this volume documents, impressive progress is being made in the field identification and geochemical characterization of fine-grained rock sources through much of the region. Three chapters, in particular, present detailed results of field surveys whose goal is to document the range of source variability on an island or island group. Clark and his colleagues in Chapter 5 provide XRF data on seventeen samples from eight quarries on Tutuila Island, American Samoa which very greatly augment the characterization of sources on this island. Their work reinforces and expands upon the discovery by Best and colleagues that Tutuila was "a major 'industrial' centre, producing basalt rock adzes (or possibly preforms) for inter-island transport" (p. 74). Rock sources in the Southern Cook Islands have been extensively studied. The regional study of Sheppard et al. (Chapter 6) samples fine-grained rock from 24 possible source locations on Rarotonga, nine on Aitutaki and its associated reef islands, another 9 on Atiu, and one on Ma`uke. A survey of the small island of Mitiaro shows that it lacks outcrops of unweathered igneous rock. In all, Sheppard and his colleagues provide XRF geochemical characterizations of forty-two geological samples. Weisler's survey (Chapter 9) of the marginal islands of Mangareva and Pitcairn in southeast Polynesia reviews his earlier characterization of the important Tautama basalt quarry on Pitcairn and of several potential sources of fine-grained rock on Mangareva, none of which shows evidence of having been exploited in prehistory. Additional source data for specific island groups is added by Rolett and his colleagues (Chapter 8), who provide some source data for the Marquesas, without any claims for exhaustive coverage, and by Ayres and his colleagues (Chapter 4), who present preliminary results of INAA characterization of possible sources of the columnar rock used to build the Micronesian site of Nan Madol in Pohnpei.

These island and group-specific surveys are supplemented by the long-term efforts of Sinton and Sinoto to establish an XRF geochemical database for Polynesian adze studies at the University of Hawaii (Chapter 11). Their database now contains 152 samples from 36 quarries including 12 quarries from Hawai'i, four from Tutuila Island in Samoa, four from the Cook Islands, two from Pitcairn, five from Easter Island, four from the Marquesas, and five from the Society Islands. This database is supplemented regionally by data from the Auckland XRF laboratory and by analyses conducted at Michigan State University, Washington State University and by the XRAL Company. There is some suggestion that the Washington State University laboratory returns analytic results that are different from the others, and the issue of inter-laboratory comparability is clearly recognized by most of the contributors to this volume. As Sinton and Sinoto show (Chapter 11), the analytic results from Hawaii and Auckland compare very favorably, and one hopes that the other laboratories will participate in future tests.

One result of this accumulation of source information is that confident assignment of an archaeological sample to a particular source is now more difficult than it has ever been. Quarries that archaeologists once believed to be geochemically distinct now appear to be tendencies along continua as new, geochemically similar sources are found and as additional samples from known sources begin to expose the true range of intra-quarry variability. Just a few years ago many researchers considered it possible to distinguish important sources with just three major or minor elements. Best et al. (1992), discriminated among Western Polynesian sources using

the major elements iron, titanium, and phosphorous, while Weisler (1993) showed the utility of the minor elements strontium, zirconium, and niobium. Allen and Johnson in Chapter 7 show that these elements are of limited use in sourcing artifacts today. Their plots of these elements for Aitutaki artifacts, quarries and select sources show considerable overlap among sources, with unknowns falling between source clusters as often as they fall within. Representative error bars, a most welcome addition to Allen and Johnson's plots, show that the graphic symbols typically used to represent source samples give a false impression of precision. In the case of the ratio of niobium to strontium, the error bar is greater than 20% of the axis range. The situation has become so complex that three major or minor elements are far too few to be useful. Weisler and Sinton (Chapter 10) show that six major elements---silicon, titanium, potassium, iron, phosphorous, and magnesium---are needed to discriminate among their sample of 28 quarries from seven archipelagoes. They even provide the information needed to construct a key using the six elements, but none of the contributors to this volume uses the scheme to source artifacts.

This situation has left the field with no clear consensus on the best way to provenance and source unknowns. Instead, contributors to this volume address the problem of multiple geochemically overlapping sources in four ways.

Weisler and Sinton attempt to source unknowns with an element-wise comparison against quarry averages expressed as two standard deviation ranges of the observed variability. This procedure mis-characterizes the multivariate elemental space occupied by the actual quarry materials by ignoring the covariances among elements. Its use of two standard deviation ranges as the standard of comparison ensures that actual source variability is not fully taken into account. In fact, using this procedure, a geological sample used to establish the geochemical variability of a quarry stands a good chance of not matching the source from which it came.

Woodhead and Weisler (Chapter 13) press the search for distinctive elements into the realm of radiogenic isotopes of Pb (lead), Sr (strontium), and Nd (neodymium). The ratios of these in rocks of the region today depend upon the nature of the parent material, as is the case with other elements, and additionally on the age of the rocks. The hope here is that this second axis of variation, along with the extreme precision with which these isotopes can be measured, will effectively discriminate potential sources that would otherwise overlap. The preliminary data presented in this chapter do support the authors' optimism, but at the same time leave room for some skepticism. For example, they use Nd/Sr plots to confirm a previous attribution of two specimens from a rockshelter on Mangaia, Cook Islands to a source on Tutuila Island, Samoa, but their comparison omits source data from the Marquesas presented later in the Chapter, which appear to match the Mangaian artifacts, too. Detailed studies in the Marquesas show that the Pb isotopes alone cannot distinguish among the islands, but that the Pb isotopes combined with the Sr and Nd isotopes do make the necessary distinctions among the sources. Unfortunately, two of the three unknowns for which sourcing was attempted fall outside the multi-dimensional spaces defined for the known sources. These results clearly indicate the need to press the search for additional sources in the Marquesas or to broaden the potential source area to include islands and quarries outside of the Marquesas.

Another attempt at a solution depends on the notion of a "provenance environment," which Weisler and Sinton describe as a "blending of an archaeological problem orientation with geological knowledge of the region of interest." In a practical sense, this tactic makes source attributions easier by limiting the number of potential sources, effectively reducing the number of geochemically overlapping possibilities. Given the degree to which the known sources overlap geochemically, some tactic of this type is necessary in the absence of more sophisticated statistical treatments, but it does lead to some curious results. Rolett et al. (Chapter 8) restrict the potential sources of fine-grained rock collected from the important Ha`atuatua dune site to five potential sources in the Marquesas. Additionally, they note that among these sources the Eiao Island source was the most important. Artifacts that match the geochemical composition of the Eiao source are plausibly assigned to it, but the fact that the geochemical composition of the artifacts falls within the range of variation known for rocks from the northern, central, and southern Marquesan Islands necessarily diminishes confidence in the source assignment. Although the attribution of an Eiao source is probably correct, given the ethnographically documented importance of the quarry there, it is certainly the case that discovery of one or more quarries elsewhere in this incompletely surveyed archipelago could cast the Eiao source attributions into doubt.

A second example of the provenance environment approach is provided by Weisler (Chapter 9) in a study of the remote, small islands of the Mangareva and Pitcairn groups. Archaeological excavations on Henderson Island, which lacks volcanic rocks entirely, yielded pieces of fine-grained rock and vesicular oven stones that must have been imported. For both of these materials Weisler limits the provenance environment to Pitcairn, which has a large quarry site at Tautama, and to Mangareva, which has so far yielded no evidence of prehistoric quarrying. Both islands are potential sources of vesicular oven stones. Weisler uses zirconium, strontium, and niobium to assign the Henderson fine-grained artifacts to Pitcairn and Mangarevan sources. Many of the artifacts fall within the range of variability described for the Tautama quarry, the potential source closest to Henderson, and a few fall within the range of potential Mangarevan sources, but some of them fall outside the ranges established for both potential sources in a region of the diagram that other contributors to this volume show is occupied by materials from the Society, Cook, and Samoan Islands. The provenance environment approach leads Weisler to the conclusion that these artifacts derived from Mangareva and Pitcairn, which implies that the geochemical variability of the fine-grained rock outcrops on these islands hasn't been characterized fully. The oven stones prove even less tractable, most of them falling outside of the ranges for Pitcairn and Mangareva volcanics on a silica-alkali plot. Weisler's solution here is to note that the Mangarevan volcanics are tholeiitic while those of Pitcairn are alkalic; oven stones that fall outside the known geochemical ranges for these islands are assigned to Pitcairn if they can be classified as alkalic and to Mangareva

if they can be classified as tholeiitic. It might be the case that this procedure yields correct results. On the other hand, it is certain that imports from farther afield, if they are present, won't be recognized in the Henderson assemblages. These results of the provenance environment approach seem out of place in a volume devoted to long-distance interaction.

A fourth solution is proposed by Sheppard et al. (Chapter 6) and Allen and Johnson (Chapter 7) in their independent work in the Cook Islands. Their approaches begin by breaking assemblages of unknowns into groups. Sheppard et al. accomplish this with a cluster analysis of geochemical data and Allen and Johnson through in-hand petrographic characteristics. The geochemistry of each of the groups is compared against likely sources using a variety of plots; likely matches are compared using standard petrographic techniques. The result is a combination of sourcing, where unknowns are matched to a particular source rock exposure, and provenancing, where a yet-to-be-discovered source is indicated. The results of these analyses are extremely interesting for the Pacific prehistorian. Most of the fine-grained rock used prehistorically was derived locally, within the Cook Islands. Tool-quality rock from the southern islands of Mangaia and Rarotonga is widely distributed among the geologically impoverished islands farther north, with little or no movement in the opposite direction. Interestingly, there is substantial evidence for prehistoric use of low quality rock, probably collected as cobbles from stream channels, on the southern islands where higher quality rock is readily available. Both studies indicate that fine-grained basalts from Tutuila Island in Samoa to the west and from Ra'iatea in the Society Islands to the east made their way to the Cook Islands in prehistory. Allen and Johnson's geochemical data from the stratified Ureia site support Walter's (1990) conclusion that extra-archipelago interaction was at a peak between A.D. 1000 and A.D. 1500, with a marked decline thereafter.

Given the preliminary nature of most of the geochemical sourcing results it is not surprising that this volume contains little interpretation of the meaning of interaction patterns for prehistory. Three chapters do provide interesting perspectives that serve as a backdrop for this type of interpretation. Green and Kirch's (Chapter 2) model of interaction system development is drawn from their recent syntheses of the prehistoric transfer of materials during the Lapita horizon, which was ancestral to the societies that developed on the islands of the Oceanic basalt province. They see a movement over time toward more regionalized exchange systems, with little or no very long distance exchange, and reduced complexity. The clear message here is that the researchers in this volume should not expect to find a great deal of long distance interaction. Finney (Chapter 3) makes the useful point, based on his long experience sailing the Pacific in the canoe Hokule'a, that long distance interaction by canoes involves a series of smaller-scale, relatively intense interactions as the long-distance voyagers stop at islands along the way and wait, often for considerable lengths of time, for favorable sailing conditions. Earle's (Chapter 14) long history of comparative work on the development of political economies among chiefdoms leads him to characterize the power base of Polynesian chiefdoms as rooted in the subsistence economy and not in the production and exchange of valuables. It is the case that adzes of fine-grained basalt were one of the primary tools used by peoples of the region to establish and expand their subsistence economies. If Earle is right, however, the movement of these tools from one island to another has more to do with righting imbalances in the availability of raw materials than it does with the development of the political economy.

In this context, there is some potential ambiguity in the term "commodity," which several authors use to refer to an item found on an island different from its island of origin. Political economists generally reserve the term for things produced for exchange value, especially in societies in which there is a well-developed division of labor. In most of the cases analyzed in this volume, fine-grained rock is unevenly distributed at the scale of the archipelago, so that production for use value in many cases would have resulted in transport of materials from one island to another. In addition, the division of labor was weakly developed throughout the region and it is only in the most politically stratified societies, as for example in Hawai`i, that chiefs did not regularly participate in subsistence production. But even at the Mauna Kea adze quarry in Hawai`i, one of the world's largest pre-industrial stone quarries, there is no real evidence for chiefly control of production for exchange value. In fact, McCoy (1990) argues that the quarry was a common resource exploited by all of the chiefdoms on the island.

What does the future hold? On the methodological front, increased use of multi-variate exploratory statistics (Baxter 1994; Baxter and Buck in press), today carried out routinely only by researchers at Auckland, will likely prove useful as the number of source and artifact samples increase. These analyses should not focus exclusively on sourcing, but should also work to identify provenances that have not been discovered in field survey. The results presented in this volume show that interpretation depends critically on knowledge of the sources and the interpretive field will likely remain fluid in the near future as field exploration yields new sources. In this environment, Parker and Sheppard (Chapter 12) make the reasonable suggestion that researchers develop a probabilistic assessment of confidence in source attribution. Buck and colleagues (1996; Baxter and Buck in press) develop a Bayesian approach to this problem, and its further development and routine application to the geochemical analyses of fine-grained basalt from the Oceanic basalt province would aid investigation and interpretation of the simple, small-scale regional exchange networks that waxed and waned through the prehistory of the region.

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GIS Guide to Good Practice. Edited by Mark Gillings and Alicia Wise with contributions by Mark Gillings, Peter Halls, Gary Lock, Paul Miller, Greg Phillips, Nick Ryan, David Wheatley, and Alicia Wise. Based on a web-based publication from the AHDS Guides to Good Practice, Archaeology Data Service located at the following address: http://ads.ahds.ac.uk/project/goodguides/gis/. This will also soon be available in hardcopy under AHDS Guides to Good Practice, Oxbow Books, ISSN: 1463-5194.

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Have you ever wished you could find a how-to guide to integrating your excavation data in a Geographic Information System (GIS)? Are you concerned about the accuracy of the digital data you have acquired? Are you looking for a definition for DEM, GeoTIFF or SDTS?

The answers to these questions can be found in the GIS Guide to Good Practice, a web-based document designed to assist individuals and organizations involved in the creation, maintenance, use and long-term preservation of GIS-based digital resources. Written for specialists as well as students, this volume is the perfect teaching aid for any course focusing on GIS and archaeology.

The GIS Guide to Good Practice was created by the Archaeology Data Service a division of the Arts and Humanities Data Service (AHDS), University of York, UK. The latter is currently involved in the publication of eighteen guides which are aimed at providing the humanities research and teaching communities with practical instruction in applying recognized standards and good practice to the creation and use of digital resources. The AHDS is a digital archiving service in the UK consisting of six distributed services catering for the needs of researchers in archaeology, history, performing arts, text studies, and visual arts. Some of the Guides focus on methods and applications relevant to humanities disciplines, such as history, archaeology, visual arts, performing arts and textual and linguistic studies. Others address those areas with cross-disciplinary boundaries. All guides identify and explore key issues and provide comprehensive pointers for those who need more specific information. As such they are essential reference materials for anyone interested in computer-assisted research and teaching in the humanities.

Although the primary audience of this Guide is the British organizations that plan to deliver their data to the ADS, the information included in this Guide is valuable to any archaeologist using GIS. In fact, only chapter 6 of this Guide addresses issues specific to ADS.

The Guide combines the look and feel of a textbook and the functionality of a well-designed web page. A navigation graphic quickly takes the reader to the table of contents, glossary, and bibliography as well as to the next or previous page. Each time a word from the glossary or a reference appears on a page it is hyperlinked to its corresponding entry on the glossary or bibliography pages. The page design is clean, pleasing to the eye, and loads quickly. Each sub-section is stored as an individual HTML page that is easy to read and quick to load. Moreover, the navigation graphic is present both at the bottom and at the top of each page, which means that the reader does not need to scroll through the whole page to go to the next document. While the contents are organized as a book, hyperlinks have been used in sections 7.4 and 7.3 to allow access to the same information but as if it was a quick reference and a step-by-step guide. These, therefore, are short-cuts to the critical information necessary to the creation of digital data. Section 7.4 refers to sections that address topics such as vector and raster models, various data capture techniques (i.e. digitizing vs scanning), spatial data sources, issues involved in creating and documenting a GIS database. Section 7.3, on the other hand, was built to serve as a pathway through the guide. In other words, it takes the reader through the specific steps involved in creating digital data: digitizing, scanning, the integration of aerial photographs and finally, the maintenance process.

Although the Guide is not software specific, a person new to the process of creating digital data can use it to learn about the process and data. The authors have focused on key issues that are critical to the production of efficient, well-documented GIS data sets. The guide is divided in 7 chapters that provide a thorough introduction to GIS as applied to archaeology. Section 2 takes the user on a tour of the history of GIS in archaeology. It also highlights the increasing impact GIS is having in the context of CRM, landscape archeology, and intrasite studies. Core references are provided to assist readers with all of these topics. This section also provides links to practical information such as the University of Sydney's web-based documents: "GIS in Archaeology Bibliography" and "Archaeologists using GIS".

The most valuable part of this Guide is Section 3. Although it has been titled "the basic data types", Section 3 covers most issues related to the data acquisition process. Introduction of the vector and raster data types is only one of the many topics addressed. Anyone gathering spatial data will find in Section 3 the information needed to understand projection issues, data precision and accuracy, and scale and resolution. Sub-section

3.6 introduces the reader to the process of integrating digital and non-digital data sets into a GIS: paper maps, plans, coordinate lists, aerial photographs, DEM and others. It looks at scanning, digitizing and discusses graphic formats. Spatial data standards such as SDTS, DLG and DXF are introduced and on-line references provided. A detailed description of terrestrial survey data and GPS data was also included. Because the integration of aerial and satellite images will be discussed at length in two other Guides, these are discussed very briefly. Sub-sections 3.7 through 3.10 focus on the acquisition and storage of attribute information. They include a brief description about database design as well as references to recognized publications. This section of the Guide is by far the most useful and is recommended by this author to anyone building a GIS database. While the information presented here will most definitively help archaeologists, it will also be useful to biologist, geographers, historian, i.e. anyone in need to integrate maps, plans, site coordinates and existing digital data.

Section 4 discusses the procedures and considerations involved in the effective structuring, organization and maintenance of an active GIS database. It addresses choices that will need to be made with respect to GIS software, and the data types to be used. The section discusses issues related to the integration of attribute data and the need for agreeing on standards endorsed by the archaeology profession as a whole. Finally, issues of copyright and citations are addressed.

The aim of Section 5 is to discuss the importance of careful documentation. Because of the complexity of GIS data, it is very important to record as much information as possible about the creation, maintenance or modification of a data set. This information is crucial to assess whether the data are appropriate for one's specific needs: date of creation, last update, original scale or resolution. In effect what to record and when, in order to facilitate the convenient discovery and re-use of both active and archival GIS-based data resources. The concepts of documentation and metadata are explained with a practical example, that of the Dublin Core, the metadata standard for resource discovery adopted by the ADS.

Section 6 is a practical discussion about the process involved in preparing data for depositing them with the ADS. In Section 7, a comprehensive glossary and a carefully selected set of bibliographic references are provided to enable individuals to study various GIS topics in more detail.

It is also important to note that this guide is concerned solely with archaeological data and GIS, whether derived from excavation, regional survey, archival research, intra-site analysis or any other archaeological endeavor. It is not concerned with the integration, archiving and accessing of data destined for study, maintenance and future re-use within CAD systems. This topic will be covered in detail in the forthcoming CAD and Excavation and Fieldwork guides to good practice.

As it stands today, the GIS Guide to Good Practice, is a valuable contribution to the field of archaeology at large. If it continues to grow, the Guide could become a major web resource for anyone involved in GIS and archaeology. American archaeologists should be aware that the discussion on documentation and metadata presented here is specific to the UK. Those interested in learning more about the metadata standards established for the United States should contact the Federal Geographic Data Committee (FGDC).

General information: Four additional guides in this series are being developed by the Archaeology Data Service. They cover the archiving of digital excavation records, data derived from aerial photographs and remotely sensed images, CAD datasets, and archaeological geophysics information. For more information about these Guides in particular, please see: http://ads.ahds.ac.uk/project/goodguides/g2gp.html

Information about the AHDS Guide to Good Practice series can be obtained at: http://ahds.ac.uk/public/guides.html. For a hardcopy version of the GIS Guide to Good Practice, contact Oxbow Books, Park End Place, Oxford, OX1 1HN. Their email address is: oxbow@patrol.iway.co.uk

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Conversations with Lew Binford: Drafting the New Archaeology. Paula L.W. Sabloff, University of Oklahoma Press: Norman, 1998. 108 pp. $9.95 (softcover). ISBN: 0-8061-3059-8.

Reviewed by Thomas J. Riley, College of Arts, Humanities and Social Sciences, North Dakota State University, Fargo, ND 58105 USA

The "drafting" in the title of this little book is an apt term, since the volume is a melange of information from and about Lewis Binford and the New Archaeology that is little more than a draft itself. The meatiest part of this volume is a postscript by Jeremy A. Sabloff describing Binford's intellectual legacy, though even here the context of Binford's work is not dealt with in a satisfying manner. The book ends with a short description of Binford's fieldwork. It is so short that one is left wondering about the utility of the description. Followed by a short selected bibliography of Binford's works and suggested readings in the New Archaeology, one is left wondering if much of this book is filler to make up the requisite pages in the last quire.

In six hours of interviews with Binford in 1982, the author tried to elicit how the "New Archaeology" arose and the role that Binford played in its rise. The first question "Why did you develop the New Archaeology?"clued me into the fact that Paula Sabloff, despite her association with a first rate historian of archaeology, is not herself an assiduous student of the history of archaeology. While Binford's answers to Sabloff's questions promise some interesting insights, they are seldom attained in this little book, perhaps because of the way the interviews were handled, but more likely because of the tangents the interviewer followed.

The book provides some interesting trivia about Binford's life, but not the thoughtful reflection that we find in, say, Collingwood's Autobiography. We discover that Binford was born to a hardworking father from Appalachia, a labor organizer in the coal mines, and a mother who came from a Tidewater Virginia family with pretenses. The strife between the families was obviously great, and Binford's father, who settled in Virginia after his marriage, is said to have successfully taken him out of the influence of his mother's family. We learn of Trixie,

Binford's dog, that he inhaled when he played trumpet in a band, and that he didn't complete OCS during the Korean War. While there is information important here for an historian to mull over, the lack of organization and the pure trivia of some of it, does not make for a satisfying volume. His initial archaeological survey in the Ryukyus while he was a corporal in the Armed Services, for instance, was the first non-Japanese archaeology conducted in those islands, whether Binford realizes that or not.

A chapter of the book deals with Binford's intellectual roots at Michigan, and his continual naive search for patterns to emerge from the archaeological record the way Spaulding's early uses of statistics had suggested that they would. The characterization of anthropology in the late fifties is simplistic to say the least, with little attention given to the influence of Walter Taylor, Jo Brew, and a number of other Harvard trained archaeologists of the late 30's and early 40's whose work constitutes the underpinnings of the New Archaeology.

Binford was influenced heavily by Leslie White as counterpoised to Julian Steward, although little attention is paid to the intellectual grappling of that time period at Michigan where White's broad ideas were being refined and modified by Sahlins and Service as they explored "specific" as opposed to "general" evolution. I hadn't realized that Binford had driven White to the Darwin's Century seminars in Chicago in 1959. It was a truly transformative few months in his life.

I came across a dittoed paper that Binford produced as a student at Michigan in 1958, where he outlined as an engineer might, how culture was an integrated system, and that culture change was systemic. It was an original paper for the time, and shows how Binford had, as he states in this little book, brought his background in the life sciences with him to archaeology. I wish it had been mentioned in the book.

The introduction of statistics to archaeology, in great part by Spaulding, was an important variable without which the New Archaeology could not have gotten started, and in this book Binford talks of how important this was to the refinement of his own ideas, especially after he discovered that problem orientation was the key to statistical work.

While this book is meager in regards to the background and the context in which Binford worked, it gives a perspective on his students and colleagues, and on the way he thought about archaeology. Binford has been a strong-willed individual, and his approaches to archaeology have sometimes worked and sometimes failed, partly because he has always had a fascination with data and often has been unable to capture its nuances.

We find here, for instance, that Binford was enamored of the attention to field detail espoused by Fay Cooper-Cole, but his own field work at Hatchery West is unimpressive in this regard. The book is fascinating in this and other revelations. Unfortunately, one has to be an historian of Americanist archaeology to appreciate them.

One other failing of the book is its age. We have a snapshot here of Binford as he saw himself back in 1982, some 16 years ago, and well before the influence of "Post Processual" archaeology had pecked away at the facade of the older "New Archaeology". How would Binford position himself today? The interviews in this book can not tell us this. They are of archival, rather than contemporary import, and perhaps the biggest failing of the book is that it fails to satisfy us about Binford today. What does he think now about his life, the important influences on his work, the place of the New Archaeology in the history of the discipline. I am sure his current perspective would be a different one, if only in a Heraclitan way.

While the book can be interesting, the buyer should be warned that this is not a contemporary work, and is of mainly archival importance. I recommend it as an interesting little tidbit of the history of archaeology, but I would not recommend it to the general reader in archaeology.

The Discoverie of the Large, Rich and Bewtiful Empyre of Guiana. Sir Walter Ralegh (1596), transcribed, annotated and introduced by Neil L. Whitehead, Volume 77 in the American Exploration and Travel Series. University of Oklahoma Press, Norman, 1997. viii + 232 pp, 2 maps, 8 plates, glossary, select bibliography, index. ISBN: 0-8061-3020-2, $19.95 (soft cover).

Reviewed by Felicia R. Beardsley, Department of Anthropology, University of California-Riverside, Riverside, CA 92521 USA

This book is a transcription of the historical narrative of Sir Walter Ralegh's voyage to Guiana in 1595, introduced and annotated with admirable skill by Neil L. Whitehead. The annotations which accompany the narrative place Ralegh, the voyage, and his observations into an historical context that is intended to offer an objective atmosphere for interpretation and understanding on the part of the reader. This in itself represents an effort to buck the historical trends revolving around Ralegh, who was and still is a controversial figure in the politics of his time. His character and reputation have overshadowed his accomplishments, and have followed him through life, death, and the centuries afterward. Ralegh was a scholar and, as Whitehead describes him, an intellectual man of action (p. 11), who matched intellectual risk with physical consequence in the most dramatic ways (p. 7). This was at least part of his apparent failing.

Ralegh was part of the larger colonial push by the British Empire into the New World, in an empire versus empire race with the Spanish to acquire, expand, and dominate this new resource base. Unfortunately, his efforts became imbedded within the competing interests positioning themselves at the highest level of the British monarchy. His philosophical approach to reportage on local conditions within the region was at odds with some of the nobles in court. They expected commercial and economic observations on the potential for exploiting local resources; he, on the other hand, provided a disinterested, scientific (or what was scientific for the time) account of his voyage and explorations, and even described his own failure to reach his chief destination, the rumored location of *Manoa*, the City of Gold, or as the Spanish referred to it, *El Dorado*. The latter had a direct effect on the coffers of the monarchy

and as such, was considered a breach of faith and a disloyal action; he had failed to fulfill his obligation and promise to the queen. For this he was condemned to death.

Whitehead tackles the various barbs and challenges put forth by Ralegh's critics with adroitness and acumen. He effectively reviews the past criticisms of Ralegh and his narrative, and through an anthropological assessment of the *Discoverie* demonstrates its utility as ethnographic observation from its historical account of native Guiana in 1595.

As an avid reader of ship logs, journals, diaries, and travel and exploration narratives for my own work in Pacific archaeology, I find Whitehead's presentation of Ralegh and his narrative both fascinating and refreshing. For historical narratives within the Pacific, Marshall Sahlins, Greg Dening, and others have done much the same kind of exegesis; this is nothing new in our region. However outside the region, commentaries such as Whitehead's represent an important step in the interpretation of New World, extra-colonial encounters. Whitehead sets the context, while Ralegh's compulsion for detail and accuracy in observation drives the content—such a combination leads one to ask, what is the controversy that has confounded historians, geographers, literary scholars, and even anthropologists?!

From Whitehead's detailed discussion, the controversy that has lasted centuries has been fueled by the historical portrait of Ralegh himself. He was unlike his contemporaries in many ways. He was careful to act with a diplomatic circumspection toward the native populations (p. 16), for example, and he maintained a statesmanlike approach toward colonization (p. 15), which was an attitude built on previous experience in Virginia that colonization could rarely succeed in the face of indigenous opposition (p. 15). In a text Whitehead refers to as proto-ethnographic (p. 24), Ralegh places himself within the context of the times and provides insights into late sixteenth century Guiana that go beyond those supplied by his Spanish competitors; he puts a face on the people with whom he interacted, fully communicating his understanding of local customs, politics, and economics through detailed rendering of his conversations with native leaders (p. 16). It is precisely from texts like the *Discoverie* that we gain fundamental insights into historical circumstances of polities, alliances, trading networks, and something of the intangible cultural life, traditions, and activities of a group of people.

The book is divided into two principal sections: the first consisting of an introduction and two chapters that outline the historical context of the *Discoverie*; the second a transcription of Ralegh's narrative. A glossary follows, offering the reader a translation of various obscure and archaic terms used by Ralegh. The first section of the book presents the results of an enormous interdisciplinary undertaking that combines information generated by the likes of anthropologists, literary scholars, historians, geographers, and archaeologists. Whitehead navigates the reader through a discourse on the various criticisms that have amassed over time regarding Ralegh and his narrative, the information contained in the narrative and how he obtained it, and the interpretation of that information. In short, in two well written chapters, Whitehead evaluates the basic issues that have attracted so much commentary in the past, and places the *Discoverie* in an historical context, in light of other contemporary "discoveries."

The first of the main chapters in Part 1, "The *Discoverie* as enchanted text," takes on the historiographic representations and interpretations of historians, literary scholars and others who have commented upon Ralegh and the text of the *Discoverie*. A central issue to the discussion is Ralegh's authorship of the *Discoverie* and how it was constructed from a combination of experience, observation, and interrogation of both the Spanish and indigenous populations (p. 108). Whitehead not only discusses at length the credibility of Ralegh's account, he also builds his case for the *Discoverie* as a synthesis of a wide range of ethnographic information garnered principally by the Spanish, with critical details added from Ralegh's own encounters on the lower Orinoco (p. 109). In short, Whitehead uses this chapter to set up the reader for what is to come, an anthropological assessment of the *Discoverie*.

The second chapter, "The *Discoverie* as ethnological text," is an anthropological dissection of the text. Whitehead sets out to demonstrate the intelligibility of Ralegh's observations, that they are not simply a literary act of colonial appropriation (p. 107), but depict native cultures in a socially significant and meaningful dialogue that can only be obtained by actual experience. In essence, he concludes, Ralegh has made a regional ethnology accessible and suggested ethnological connections that are not evident from the Spanish accounts (p. 109). Together with other contemporary records and the data from archaeological and modern ethnographies, the text of the *Discoverie* provides a tool that perforce increases our own understanding and appreciation of this region during the early era of western expansionism, exploration, and dreams of colonial domination.

Part 2 is Ralegh's narrative. Whitehead's transcription is a faithful rendition of the first edition of Ralegh's text (sixty-four leaves) produced in 1596, with as little alteration as possible from the original (other than changes in certain typographical conventions; p. vii). According to Whitehead, subsequent editions printed in 1596 contain various and subtle changes from the first; most of these amount to typographical variants. The text has been reprinted many times, as Whitehead tells us, beginning with Richard Hakluyt's first edition of *The Principal Navigations* (1600) and in what is likely to be the first edited and annotated edition issued, printed by the Hakluyt Society in 1848 (edited by Robert Schomburgk). There are many other editions and versions as well.

Whitehead worked in Guiana and visited many of the places traversed by Ralegh. He notes that Ralegh's descriptions are not simply a fantastic projection of the colonial mind as his critics have accused, but a reasonably accurate attempt to depict the landscape of the region. Ralegh has been charged with blending fact and fiction, and creating enchanting, bewitching landscapes. This, according to Whitehead, is far from the truth. Ralegh's descriptions are clearly constructed from experience and observation. In fact, Whitehead concludes, the *Discoverie* can stand on its own as a competent and informative account of Guiana at the end of the sixteenth century.

So, what does this have to do with the world of

archaeometry? Actually, everything. Historical narratives offer insights into the technology of the times. From texts such as these we can discern places and methods of mining or metallurgy, movement of materials from raw sources to the finished products, processes of creation that will certainly affect what we as archaeologists and archaeometrists study and investigate. They help us formulate the questions to ask and suggest possible solutions toward the resolution of those questions.

As I sit here in Micronesia, half a world away from my home and research base, I am confronted on a daily basis by such questions, and find myself resorting to local oral histories and the observations of those who met these cultures in the pre-colonial centuries, in what might be described as the twilight of their purely traditional existence, before their entrance into a global arena of western (and eastern) explorers, blackbirders, whalers, traders, slavers, and eventual colonizers. For the Pacific and Micronesia in particular, the volumes of the Hakluyt Society and the *History of Micronesia* series published out of Canada provide many of the source documents for the region, and include annotated and contextual discussions to accompany the historical narratives. Whitehead's effort falls within this same genre of travel literature, broadly categorized; however, he has taken the next step and addressed past critics as well as placed the historical text within a context directed toward anthropologists, archaeologists, and historians. Under these circumstances, books like Whitehead's presentation of Ralegh's *Discoverie* take on a greater importance and relevance. I highly recommend this book and others produced in a comparable vein for both edification and entertainment.

The Apalachee Indians and Mission San Luis. John H. Hann and Bonnie G. McEwan, University Press of Florida, Gainesville, 1998. XIII + 208 pp., 120 color illustrations, appendix, bibliography, index. $49.95 (cloth) or $24.95 (softcover). ISBN: 0-8130-1564-2.

Reviewed by Jorge Garcia-Herreros, Cultural Resource Consultants, Houston TX, 77065 USA

This book is a compilation of an archival and archaeological study on the Apalachee Indians and the mission San Luis located between the Ochlockonee and the Aucilla rivers in the panhandle of Florida. This work summarizes the archaeological data that has been uncovered for the past fifteen years, along with the archival research that accompanied it. The book begins by giving a brief overview on what is the Apalachee province and the first contact the Apalachee Indians had with Europeans. Although, within the first chapter a brief explanation is given of the Apalachian social structure and religion, it is but a glance of what is to follow.

Within the first chapter the prehistory of the Apalachee is also mention. This includes their belief system and their participation in the Mississippian tradition. In this chapter the authors explain, briefly, how by interpreting some of the archaeological record, some insight is gained into the belief system of the prehistoric Apalachee. An explanation of the daily life of the prehistoric Apalachian is described, but is never explained how the authors formulated or arrived at these explanations. Overall, the first chapter gives a good background into the Apalachee Indians and the region. It also tantalizes the reader with graphically appealing pages that make the book very enticing. The chapters that follow delve deeper into the Apalachee, mission San Luis and the Spanish culture in *La Florida*.

The first contact between Native Americans and Europeans brought many issues that changed and disrupted the Native Americans way of life, within the second chapter of this book some of these issues are mention. Starting with the reasoning why the Apalachee rendered obedience to the King of Spain. This also included the introduction of a new religion by the friars that came with the Spaniards and the missions that they established. The book gives the Apalachee perspective on how they saw the coming of the Spaniards and their reasoning in accepting their religion and culture. At the same time in mentions the revolts that occurred to resist the Spanish influence and rule. Within this chapter the authors give an excellent explanation as to the initial efforts of the Spaniards in establishing the mission effort. It gives a good historiography of why it took 25 years to established the first mission in the Apalachee region. This chapter also explains the customs that the Apalachee warrior had and how they were affected by the Spanish intrusion. After giving a good historical account of what occurred in the Apalachee region with the Spanish intrusion, the authors back this up with some of the archaeological findings discovered at the site.

After a general background is given in chapters one and two, the authors begin to talk about mission San Luis and its formation in chapter three. In this chapter a detailed genealogy is given of the Florencias family that had a major contribution in the Apalachee province and the formation and collapse of mission San Luis. Also in this chapter a detailed explanation of the archaeological findings at this site is also given. It includes the use of topographic mapping to show the presence of roads and the location of buildings within the site. In this section the authors should have explained how they applied these topographic maps in order to understand the location of the buildings within the site. Aside of this oversight, it does show the different tools that are used in order to investigate an archaeological site.

This chapter begins to show the archaeological findings and the archaeology that was conducted at this site. The artifacts that are found at this site and specifically in the council house are graphically appealing. It shows the vast material culture that the Apalachee possessed and the Spanish influence on this material culture and consequently their living culture. It also gives a good description of the excavations that were conducted on the church and the discovery of the use of the golden triangle. This is a system of measurement employed in the construction of churches since 300 BC. Within this chapter the entire layout of the site is explained, including buildings such as the friary, the fort and the artifacts that were found within each structure. It describes the weapons that were found

within the fort and also some of the tools discovered. The authors give a good insight into the communal organization of this mission by describing the buildings excavated and the artifacts that were recovered. Overall, in this chapter the authors basically describe most of the components that made up Mission San Luis, demonstrating the Apalachee and the Spanish influence that made this a community.

This book also gives a very vivid and clear description of the ball game and the rituals that accompanied this "sport." It includes the translation of a ball game manuscript that was written by Pastor Juan de Paiva. This insightful description of the ball game includes its origins, the myths that accompanied it, and the viewed that the Spanish had towards it. This view shows how the Spaniards regarded the customs and behaviors of the Apalachians.

In the following chapters the authors begin to explain the possible causes of the collapse of the mission system within Florida. The book mentions all the possible causes that contributed to the collapse of Apalachians and mission San Luis. It includes factors such as the demographic decline of the Apalachians due to disease. The authors show this by including the mission census to show a gradual decline of the Apalachian population over the years. The raiding activity that increased in the latter part of 1670's is also mention as a caused of the gradual decline of the Apalachee. The problem that the Apalachee faced was severely compounded by the influx of Spanish ranching. The book also makes reference to the inefficiency of the Spanish governors that aggravated the Apalachee-Spanish relations. In order to show some of the tense relations that existed, the book includes some of the letters written by Apalachee chiefs to the King of Spain. The letters really give an insight to the plight of the Apalachians. The authors explain that with the increased raiding activity of the early 1700's by the English, the Apalachicola and the Creek, the mission system was at and end in Spanish Florida.

The book concludes by describing the abandonment of mission San Luis and the migration routes of the surviving Apalachee. After the abandonment of mission San Luis the book mentions the northward, eastward, and westward migrations routes of the Apalachee. The authors show each migration route and describe the fate of the Apalachee that took each one of these routes. This gives a closing to the Apalachee and mission San Luis.

In conclusion, this book shows a vivid picture of mission San Luis and the archaeological findings at this site. A particular critique of this book pertains to the explanation of how the site was excavated; or the lack thereof. The authors seem only to touch on this subject briefly. Otherwise, keeping in mind that this book was written for the general public it is appealing both graphically and historically. It gives an insight into the plight of the Apalachee and how they had to adjust to the European influence. This book captivates the time period in the way it presents the information within its pages. Overall, the authors contributed to archaeology and history by presenting archaeological findings in a manner that the general public would find appealing. In total, this is a well-written and engaging book.

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We hope to have funding finalized for the post to be available by the beginning of autumn this year. Applications should be sent to and more information may be obtained from: Dr. Jan Heinemeier, AMS 14C Dating Laboratory, Institute of Physics and Astronomy, University of Aarhus, DK-8000 Aarhus, Denmark. Phone: +45 89 42 37 18; fax: +45 86 12 07 40; e-mail: jh@ifa.au.dk

Meetings Calendar

Susan Mulholland, Associate Editor

* = new listings; + = new information for previous listings

1999

June 20-24. Coastal Sediments '99: Scales of Coastal Sediment Motion and Geomorphic Change. Long Island, New York, USA. Nicholas C. Kraus, USAE Waterways Experiment Station, Coastal & Hydraulics Laboratory (CEWES-CC) 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, USA; tel: 601-634-2016; web: www.coastalsediments.org

June 21-24. Fourth International Airborne Remote Sensing Conference and Exhibition. Westin Hotel, Ottawa, Ontario, Canada. ERIM Airborne Conferences, Box 134008, Ann Arbor, MI 48113-1008, USA; tel: 734-994-1200 ext. 3234; fax: 734-994-5123; email: wallman@erim-int.com; web: www.erim-int.com/CONF/conf.html

June 26-July 1. Clay Minerals Society 36th Annual Meeting. Purdue University, West Lafayetter, Indiana, USA. Patricia Jo Eberl, Clay Minerals Society, PO Box 4416, Boulder, CO 80306, USA; tel: 303-444-6405; fax: 303-444-2260; email: peberl@clays.org

June 28-July 2. 9th International Symposium on Nondestructive Characterization of Materials. Sydney, Australia. D. Manley, Ctr. For Nondestructive Evaluation, 102 Maryland Hall, Johns Hopkins University, Baltimore, MD 21218, USA; email: cnde@jhu.edu; web: www.cnde.com

Aug. 3-11. XV INQUA Congress 1999. Durban, South Africa. Theme: Enviornmental Background to Hominid Evolution in Africa. Mrs. E. Aucamp, PO Box 798, Silverton, Pretoria 0001, South Africa; fax: 27-12-8411221; email: eaucamp@geoscience.org.za; web: inqua.geoscinece.org.za

Aug. 22-26. Annual meeting, American Chemical Society. New Orleans, Louisiana, USA. American Chemical Society, 1155 16th St. NW, Washington, D.C., USA; tel: 202-872-4600; web: www.acs.org

Aug. 23-29. 8th International Congress of the International Council for Archaeozoology. University of Victoria, Victoria, British Columbia, Canada. ICAZ '98, Conference Management, Division of Continuing Studies, University of Victoria, PO Box 3030, Victoria, BC V8W 3N6, Canada; email: ICAZ@uvcs.uvic.ca; web: http://www.uvcs.uvic.ca/conferce/archzool/.

Sept. 9-10. 9th International Conference on Luminescence and Electron Spin Resonance. Rome, Italy. PR & Co., V. le Manlio Gelsomini, 26, 00153 Roma, Italy: tel: 39-6-574260; fax: 39-6-5748203; email: b.fersini@flashnet.it

Sept. 9-11. 3rd International Conference on Archaeological Prospection. Munich, Germany. Jorg Fassbinder, Ref. Archaeol. Prospection & Arial Archaeology, Bayer. Landsesamt fur Denkmalpflege, Postfach 10 02 03, D-80076 Munchen, Germany.

Oct. 4-8. 13th Congreso Nacional de Arquelogia Argentina. Cabildo Municipal, Cordoba, Argentina. Casilla de Correo 1082, Correo Central 5000, Cordoba, Argentina; fax: 5451-68-0689; email: 13cnaa@ffyh.unc.edu.ar; web: www.filosifia.uncor.edu.

Oct. 28-Nov. 1. Conference: Clovis and Beyond. Santa Fe, New Mexico, USA. Clovis and Beyond Conference; tel: 505-982-8520

Nov. 5th European Meeting on Ancient Ceramics (EMAC' 99). Athens, Greece. See web page http://161.116.85.31/emac/athens.htm.

Nov. 7-11. Multidisciplinary Conference on Working with Human Remains. Colonial Williamsburg, Virginia, USA. Williamsburg Institute, P.O. Box 1776, Williamsburg, VA 23187-1776, USA; tel: 800-603-0948; fax: 757-565-8630; email: dchapman@cwf.org.

2000

* May 15-19. 32nd International Symposium on Archaeometry. Mexico City, Mexico. Archaeometry 2000, Instituto de Investigaciones Antropologicas, UNAM, Circuito Exterior s/n, Ciudad Universitaria, Del. Coyoacan, Mexico City, D.F. 04510, Mexico. http://www.arhcaeometry.unam.mx; email: archaeom@servidor.unam.mx; fax: 52-5-622-9651/665-2959.

* June 15-18. 6th International Conference of the Association for the Study of Marble and Other Stones in Antiquity (ASMOSIA), Venice, Italy. Lorenzo Lazzarini, Laboratorio di Analisi dei Materiali Antichi, Dipatimento di Storia dell'Architettura, S. Polo 2554, I-30125 Venezia, Italy. Fax: 39-41-715449; email: lorenzo@brezza.iuav.unive.it

* June 18-23. 17th International Radiocarbon Conference, Judean Hills, Israel. PO Box 29041, Tel Aviv 61290, Israel. tel: 972-3-5175150; fax: 972-3-5175155; email: trgt@netvision.net.il; web: http://www.radiocarbon.co.il/

July 10-14. 50th International Congress of Americanists. Warszawa, Poland. "The America's Universal Messages for the XXI Century." 50 ICA-CESLA, ul.Zurawia 4, PL-00-503 Warszawa, Poland; tel: 48-22-6253098; fax: 48-22-6253170; email: 50ica@cesla.ci.uw.edu.pl.

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