

the SAA Archaeological Record

MAY 2012 • VOLUME 12 • NUMBER 3



APPLICATIONS INVITED FOR EDITOR, THE SAA ARCHAEOLOGICAL RECORD

The Society for American Archaeology invites applications or nominations for the editorship of *The SAA Archaeological Record*. The magazine, which is received by all SAA members, is one of the Society's major venues for presenting itself to the archaeological community. The four-color magazine encompasses SAA business and commentary, news, regular columns, opinions, and articles related to the practice of archaeology. It is published five times per year.

The editor has overall responsibility for the magazine's functioning and final responsibility for all content. A broad knowledge of the practice of archaeology is important, although the editor also can appoint associate editors who complement the editor's expertise and who assist in soliciting and editing material. The magazine's production is done from the SAA office in Washington.

The editor position falls vacant on April 16, 2013 when the present editor, Jane Eva Baxter, completes her term. The editorship is preceded by an overlap period. The term of the editor is for a period of three years, which can be renewed once. The editor will be expected to provide some institutional support and to ensure that he or she has sufficient time to carry out editorial responsibilities; release time from university teaching commitments has been customary. The Society is prepared to consider a subvention to the editor for either release time or staff support. The proposal should indicate the requirements.

Available to discuss the post informally are the current editor, Jane Eva Baxter (jbaxter@dpaul.edu); past editor, Andrew Duff (duff@wsu.edu); and the chair of the SAA Publications Committee, Deb Nichols (Deborah.Nichols@dartmouth.edu).

To nominate someone, please send suggestions to Task Force Chair Andrew Duff (duff@wsu.edu) by July 1, 2012.

To Apply: Provide a proposal that outlines relevant qualifications, expected local institutional support arrangements and needs, and a current vita to Andrew Duff by August 15, 2012, preferably by email (duff@wsu.edu). Mailing address: Andrew Duff, Department of Anthropology, Washington State University, Pullman, WA, 99164-4910.

OPPORTUNITY—LAUNCH THE SAA'S NEW E-JOURNAL

ADVANCES IN ARCHAEOLOGICAL PRACTICE GOES ONLINE SUMMER 2013

The Society for American Archaeology seeks an energetic, creative archaeologist to serve as founding editor for a new, online only, peer-reviewed journal: *Advances in Archaeological Practice*. Applications are due by August 15, 2012.

Advances in Archaeological Practice will launch in Summer 2013. The new journal is envisioned as a quarterly, richly illustrated, full-color publication where relatively short contributions emphasize the application of methods and techniques in archaeology. The new journal will provide a peer-reviewed forum to discuss and share information about issues, policy, methods, and techniques in the practice of archaeology.

SAA members will be able to select this new journal as their primary membership benefit. The SAA Board seeks new ways to serve a global audience concerned with the hands-on practice of archaeology. Fieldwork, lab procedures, analytical techniques, public policy, ethics, training, business practices, and legislation are all potential topics.

The founding editor has a unique opportunity to shape a dynamic new journal. The editor has final responsibility for all content within general policies established by the SAA Board. The journal's production is done from the SAA office in Washington. The journal, including supplemental materials, will be served via Metapress.

The applicant for this position must demonstrate a clear commitment through past work experience and publications to the practice of archaeology. The applicant's diverse interests and broad professional network must be balanced by a commitment to detail and proven ability to meet deadlines.

The Society is prepared to consider a subvention to the editor for either release time or staff support. The proposal should indicate the requirements. The editor is expected to provide some institutional support for their office, and must demonstrate that he or she can devote at least quarter-time to this position.

The editor position will be filled in Fall 2012. The term of the editor is for a period of three years; it may be renewed once.

Individuals interested in discussing the post informally should contact Task Force Chair, Bill Doelle (wdoelle@desert.com) or SAA Publications Committee Chair, Deb Nichols (Deborah.Nichols@dartmouth.edu).

To Apply: Submit a letter of interest that outlines your relevant qualifications, shares your vision for the publication, and describes local institutional support commitments, along with a current vita, to William H. Doelle, Desert Archaeology, Inc. 3975 North Tucson Blvd, Tucson, AZ 85716; Tel: (520) 881-2244 Fax: (520) 881-0325 (email: wdoelle@desert.com) by August 15, 2012.

the SAArchaeological record

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Deadlines for submissions are: December 1 (January), February 1 (March), April 1 (May), August 1 (September), and October 1 (November). Advertising and placement ads should be sent to SAA headquarters, 1111 14th St. NW, Suite 800, Washington, DC 20005.

The SAA Archaeological Record is provided free to members and institutional subscribers to *American Antiquity* and *Latin American Antiquity* worldwide. *The SAA Archaeological Record* can be found on the Web in PDF format at www.saa.org.

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EDITOR'S CORNER

Jane Eva Baxter

First, a correction and apology I am titling, “Would the real governor of Florida please stand up.” In the January 2012 issue, Samuel Connell (Broadening the Scope of Archaeological Field Schools) erroneously identified the governor of Florida as Governor Rick Perry. I apologize; neither of us caught this error before the article went to print. In our defense, this article was coming to print at a time when the Republican primary race was in full force heading to Iowa, and Rick Perry’s name was all over the news as well as that of Florida Governor Rick Scott. While the error wasn’t noticed by any of us charged with editing and producing the magazine, it was noticed by our reader Robert L. Hoover, whose letter suggesting that Jeb Bush was actually the governor of Florida was printed in the March magazine. This erroneous correction was supposed to be followed by an editor’s note stating that the letter pointed out a valid error in the January issue, but also made an error of its own; misidentifying the Governor of Florida for the second time. However, the small editor’s note went missing in our final proof, and so we had error correcting an error. So finally, for the record, the Florida governor in question was Governor Rick Scott.

One article in this issue highlights a correction that many of us may wish to make when talking about archaeological work done by nonprofessionals. The article by Poetschat et al. makes a clear case for the use of the term “avocational” to refer to nonprofessional archaeologists who share the ethical principles and standards of practice adhered to by professional archaeologists. This distinction is becoming increasingly important as many nonprofessional “archaeologists” are being showcased on television programs that feature the looting of archaeological sites. The article on avocational archaeologists clearly defines the history and contemporary importance of nonprofessional archaeologists in our community, and distinguishes avocational archaeologists from other nonprofessionals with an interest in digging up the past.

Finally, I’d like to take a moment to note one decision I made that certainly was not a mistake; deciding to become the Editor of *The SAA Archaeological Record*. This issue features a call for nominations for the next editor of the magazine by task force chair Andrew Duff. I was surprised to receive a call from the task force nearly three years ago asking if I’d be interested in taking on the volunteer position of editor—honestly, I had never given the position any consideration on my own. Now that I’ve completed two years of my three-year term I can say that this has been one of the most rewarding decisions I’ve ever made, and I am still very grateful for and enthusiastic about this opportunity. If you have questions about the position, please feel free to contact me and as always keep your ideas for articles coming!

Photo Release Policy

I am disappointed by the response of Dr. Limp, on behalf of the SAA Board of Directors, to the cogent concerns raised by Dr. John Whittaker vis-a-vis the procrustean application of the Photo Release Policy [AR 12(2):3-4, March 2012]. I believe the SAA Board has not thought through the total ramifications of this policy.

I express my concern as a "senior" archaeologist dealing with research from a long career and responding to requests to write retrospective essays on salvage archaeological projects in the 1950s when I was a student and the 1960s when I directed my own field projects through Iowa State University. My field photographs include images of crews comprised of high school students who were not yet 18 (much less 21 which was the legal majority age then) and college students. I still communicate with some of these men and women, especially those who went on into anthropology. But I have no idea where the majority of students from decades ago reside or whether they are still alive. So I assume, since I could not get release forms from these individuals, that any field photos with their images could not be used in any SAA publications. Sad to say, some students in those images are now deceased, so the SAA could excuse me for not having their signed releases.

I should think that this policy would be of special concern to the History of Archaeology Interest Group in their laudable efforts to review and publish research on projects of the past. Will the SAA bar their publishing photographs of New Deal and River Basin Survey crews where it is not known if all individuals in historic photographs are dead or alive?

As a member of the SAA for some 50 years, I implore the Board of Directors to rethink the problems of their present Photo Release Policy and formulate a more reasonable one, especially as it regards the history of our discipline.

David M. Gradwohl
 Professor Emeritus of Anthropology and Founding Director,
 Iowa State University Archaeological Laboratory

SAA 2013 CALL FOR NOMINATIONS

The 2013 Nominating Committee of the Society for American Archaeology requests nominations for the following positions:

Treasurer-elect (2013) to succeed to the office of Treasurer for 2014-2016

Board of Directors member, Position #1 (2013-2016), replacement for current member Alston V. Thoms

Board of Directors member, Position #2 (2013-2016), replacement for current member Melinda A. Zeder

Nominating Committee Member, Member #1 (2014)

Nominating Committee Member, Member #2 (2014)

If SAA is to have effective officers and a representative Board, the membership must be involved in the nomination of candidates. Members are urged to submit nominations and, if they so desire, to discuss possible candidates with the 2013 Nominating Committee Chair Christopher D. Dore (email: chris@dore.us).

Please send all nominations, along with an address and phone number for the nominated individual, to:

Chair, 2013 Nominating Committee
 c/o SAA Executive Director
 1111 14th Street, NW Suite 800
 Washington DC 20005

or fax to 202 789-0284

or email to tobi_brimsek@saa.org

Please note that nominees must be current members of SAA. Nominations should be received no later than September 4, 2012.

**78th Annual Meeting Submissions Deadline:
 September 12, 2012. For in-depth information,
 please visit www.saa.org/annualmeeting**



VOLUNTEER PROFILE

John Norder

John Norder is an Associate Professor in the Department of Anthropology at Michigan State University and the Chair of the SAA Repatriation Committee.

If you had asked me twenty years ago how I envisaged my career in archaeology developing, I'd have detailed the philosophy and course of research that I am following to this day. When I took my first archaeology course in the spring of 1991, the instructor had just returned from a trip to Dickson Mounds, Illinois; a Mississippian period funerary site that had been developed into a museum, complete with an in situ exhibit of human remains. For those unaware, in 1991 Dickson Mounds was also the site of a protest by Native Americans, including members of the American Indian Movement (AIM). My instructor was there the day protests came to a head. In class, we were shown slides of AIM members jumping into the exhibit and reburying the skeletons. Students were aghast but the instructor maintained a neutral tone, simply noting that human remains were a contentious issue between Native Americans and archaeologists.

This was not a new issue for me. I had read Deloria's *Custer Died for Your Sins: An Indian Manifesto* in the 1970s with occasional refreshers in later years. I was more than familiar with the historical and then contemporary controversy surrounding the relationship between Indigenous communities and anthropologists. Furthermore, I already had an idea about how I would pursue my career goals as I began my training in anthropological archaeology. As I watched the slideshow and later as I followed the aftermath of the protests at Dickson Mounds, which resulted in the closure of the burial exhibit, I committed myself to the philosophy of "ask first, listen, respond accordingly, and pursue relevance."

Today archaeology is increasingly recognizing its presentist positionality toward the archaeological record and the important contributions of nondisciplinary voices and perspectives in shaping archaeological interpretations and critical discourse. Accordingly, the field has expanded to include ethnographic and community based participatory research (CBPR) methodologies as acceptable and common practice. For this, I can only say 'it's about time'. When I was applying for funding for my Ph.D. thesis research fifteen years ago, I was driven by my philosophy to

think about the relevance of my research for contemporary Indigenous peoples and their issues. In those proposals, I included a CBPR component that sought to provide a balance of archaeological and ethnographic approaches to the diachronic use and understanding of regional landscapes. However, the granting agencies at the time weren't biting: all stated that the project was too large for a single thesis to address. In comparable proposals I have submitted recently, the only questions or critiques have been in regards to methodological details. No concerns have been raised on the hybrid research designs either for my own work or for the work of those students I know who are doing similar types of research. It's impressive the difference a decade can make.

Today, I am in the unique position of being part of what many hope is a renaissance in the field of archaeology, with Indigenous participation and engagement occurring at multiple scales and becoming standard in practice and politics. My own work continues to evolve and the experience of being a part of larger cross-community dialogues, including my current work on the Society for American Archaeology's Committee on Repatriation, continues to expand my own views and perspectives on the potentials of archaeology. Through these interactions, I have learned my philosophy is one shared by many. Ask first: it's not just about the archaeological questions but also the people who may be impacted by the answers. Listen: politics are very real in contemporary archaeological practice and the price for not listening can have consequences. Respond accordingly: as with cultural anthropologists, archaeologists need to understand and respond to the full implications of the word 'no'. Pursue relevance: knowledge will always need to be generated for the sake of knowledge, but that knowledge needs to be considered and balanced against contemporary needs.



AVOCATIONAL ARCHAEOLOGY

A HALF-CENTURY OF INCREASING CONTRIBUTIONS

Cathy Poetschat, Marcel Kornfeld, and James D. Keyser

Cathy Poetschat has been an avocationalist for 25 years and is the chair of the SAA Council of Affiliated Societies. Reach her at poetschat@msn.com. Marcel Kornfeld and the University of Wyoming's Paleoindian Research Lab cooperate with avocational societies throughout the Rocky Mountains. James D. Keyser is a retired Forest Service regional archaeologist, now working with both the Indigenous Cultures Preservation Society and the Oregon Archaeological Society.

In naming the Society there was some discussion. “The American Archaeological Association” or “The Association of American Archaeologists” would not do. There already were too many organizations the initials of which were a triple “A.” Neither would “American Society of Archaeologists” do, because of the implication, at least to amateurs, that it was a society of professionals’. But *what would appeal to both amateur and professional?* Well, both groups were strongly for American archaeology. And that was it! The Society for American Archaeology! [Carl E. Guthe, 8th president of the SAA. *American Antiquity* 1967 32:437, emphasis added]

In the future as in the past, the gathering of information will depend to a great extent on cooperation between avocational and professional archaeologists [H. Marie Wormington, 35th president of the SAA, *Colorado Archaeological Society* 1978].

For all practical purposes until the late 1800s, all archaeologists were avocationalists because the discipline as we know it today had not yet developed. Yet avocationalists have made some of the most significant archaeological discoveries in both old and new worlds! Jacques Boucher de Perthes discovered ancient artifacts in deep geologic strata that turned out to be what we now know as Lower Paleolithic, and Johann Carl Fuhlrott discovered Middle Paleolithic Neandertal remains in Germany's Felderhof Cave. Heinrich Schliemann discovered Troy, and Cyrus Thomas demonstrated the continuity of Mound builders to modern Indians in the Americas. All of these men were avocational archaeologists, and the list could be expanded greatly with contributions by their contemporaries to the active community of avocationalists working in archaeology in the present day. Indeed, for those that work with avocationalists, every day yields new discoveries.

The purpose of our article is threefold. First, we briefly review the relationships of avocational and professional archaeologists. Second, we highlight selected avocational archaeologists

of the recent past and present to illustrate their contributions and the breadth of their roles. And third, we use one society (the Oregon Archaeological Society or OAS) as an example of what avocational societies all over the Americas are contributing to archaeology.

Avocational Archaeologists: Founding the SAA and Beyond

Carl Guthe's quote at the beginning of this article highlights the integration of avocational and professional archaeologists at the founding of the SAA in 1934 and shows his concern for ensuring that avocational contributions would be included. As at the national level, regional archaeological societies of this time were likewise composed of both avocational and professional members. For instance, the first Plains Anthropological Conference in 1931 was hosted by W.H. Over, an avocational archaeologist in Vermillion, South Dakota, who had an impressive publication record in both rock art research and excavation-based archaeology (*Plains Anthropological Society* 2011). There are other such examples across the continent.

Relations between the two groups, however, have not always been smooth. In 1963, Jane Kelley wrote, “Currently I have deep-seated doubts about the advisability of encouraging an interest in archaeology through amateur associations, the Boy Scouts, gem and mineral clubs, or lectures to the Rotary” (Kelley 1963:438), and a few years earlier Douglas Byers (1960) had expressed similar sentiments as a result of avocational over-exuberance in recovering artifacts from a Massachusetts site. Both were reacting to “projects” conducted by untrained avocationalists that resulted in probable loss of data. At the same time, avocationalists themselves were involved in serious discussions as to their own roles and responsibilities as a part of mainstream archaeology (e.g., Connor 1963; Steele 2011). Regardless of these sometimes strong differences in opinion (and some unhappy episodes), avocationalists have continued to make very significant contributions to archaeology throughout the last half century across North America (e.g., Chapman

1985; Frison 1984; Johnson 2006; Knudson 1995; LaBelle 2003). Such contributions are enshrined in SAA's Crabtree Award and numerous other awards and recognitions at national, regional, and local levels by archaeological societies and federal agencies. Indeed, federal archaeology utilizes and recognizes avocational archaeologists in programs as diverse as the BLM's "Making a Difference to the Public Lands" award, the US Forest Service Passport in Time program, and the widely used site stewardship program.

Selected Roles in the Past and Today

By the time of the SAA's founding, professional archaeologists were highly visible in the organization, but avocational archaeologists joined the new society and bought its journal (e.g., Griffin 1985:265), and for several decades these SAA members continued to perform archaeological tasks on projects throughout the country. From excavation and artifact analysis to final reporting and data syntheses, avocational archaeologists were particularly active in WPA projects that organized brigades of workers in pursuit of prehistory (e.g., Webb 1956). Often, but not always, these projects were under professional leadership, but many field crews were entirely made up of avocationalists, and others had supervisory positions. As the discipline grew, however, and salvage archaeology and CRM began to develop in the 1970s, professionals began to outnumber avocationalists on many projects. Avocationalists continued to play key roles in many states and took the leadership in some subsets of the profession such as the role of the American Rock Art Research Association. Today avocationalists constitute the vast majority of membership in state and local archaeological societies and far outnumber the professional community in their numbers. These people volunteer in an ever-widening variety of archaeological projects and other endeavors that are key components of our profession. These are as varied as excavations and rock art recording projects, site rehabilitation and stewardship, working with native and descendant communities, and fundraising and lobbying for legislation.

In the early years of salvage archaeology and CRM, avocationalists had a somewhat diminished role in mainstream archaeological projects, probably because the profession was struggling to define exactly what public archaeology should be. To counteract this and provide opportunities to utilize the enthusiasm and skills of avocationalists, significant efforts were initiated to train avocationalists as full-fledged archaeological assistants. Arkansas, Colorado, Kansas, Missouri, Oregon, and other states offer avocational training and certification (e.g., Davis 1991) designed to match avocationalists' interests with virtually the full range of professional activities. In addition to the old standby of excavation methods, avocationalist classes and workshops now teach specific analytical techniques of



Hester Davis (right) and Cathy Poetschat staffing the 2009 SAA Meeting Council of Affiliated Societies Booth.

flintknapping and lithic analysis, rock art recording and conservation, historic artifact recognition and restoration, and paleo-ecological study and reporting. In fact, there is almost no archaeological endeavor that does not offer some opportunity for avocational participation.

A further effort to reap the benefits of avocational and public enthusiasm for archaeology and keep these groups fully within the archaeological community was led by Earl Lubenski, who lobbied the SAA board of directors to create better relations with avocational societies. His efforts bore fruit in 1985 with the creation of the Council of Affiliated Societies (CoAS). CoAS affiliate members are archaeology societies (primarily avocational) in the United States and Canada that apply for membership and are approved by the SAA Board. The organization's mission is to benefit all member societies, advance the practice of archaeology, and promote communications among affiliate members and SAA members. At SAA Annual Meetings, CoAS sponsors the Archaeology Week/Month Poster Contest, hosts a CoAS booth in the vendor's hall (where information and literature about affiliate societies is distributed) (Figure 1), and sponsors symposia and workshops about avocational contributions

to archaeology and avocational training. At the SAA website is the CoAS webpage (saa.org/coas) where you can link to member websites and look at CoAS Newsletters. CoAS brings societies into contact with each other to share successful ways to accomplish their goals without “reinventing the wheel,” and encourages avocationalists and professionals to work together towards accomplishing more than either could do alone.

That all of these efforts have borne fruit is shown by the increasing roles and opportunities available for today’s avocationalists. A sampling of these can be gleaned by examining a few Crabtree Award winners from past decades. George Poetschat was the 2011 winner (see sidebar). Previous winners include Larry Kinsella of Illinois (2010), an avid collector who has contributed to the discipline as an archaeological technician on numerous projects and by conducting experimental archaeology with flintknapping, ground stone tool manufacture, firemaking, and atlatl manufacture and use. Larry has contributed to History Channel and Discovery Channel programs and presents demonstrations and workshops at museums, universities, and in various public programs. Eugene (Gene) C. Winter, Jr., (2005 winner) was an early member of the Massachusetts Archaeological Society, who participated in meetings and excavations beginning in the late 1940s and excavated at the Bull Brook site with the Vacarro Brothers. Gene was instrumental in forming the Maine Archaeological Society in 1956. Bob Patten (2004 winner) has long been studying chipped stone technology and has written books outlining his understanding of the manufacturing process, especially for Folsom artifacts. The 2001 winner was John D. “Jack” Holland, who also devoted considerable effort to understanding lithic technology, but perhaps most importantly he has gathered what is probably the most complete collection of North American chipped stone raw material. His collection, with over 22,000 samples, representing more than 1500 sources, and including material from all 50 states, was housed in the Buffalo Museum of Science, in Buffalo, New York, but has recently been moved to the Smithsonian Institution. Finally, Stuart Conner, the 1992 winner, has a long history of involvement in archaeology, including more than 30 professional-caliber publications in regional and national journals on topics as diverse as rock art, buffalo jumps, and vision quests.

Clearly, these are award-winning performances, equivalent to any professional contribution, but the reader must keep in mind that these few folks are not alone among the legions of avocationalists. Each of these winners represents literally dozens of others who make similar contributions to archaeology in any given year, and any state or regional archaeological society can name members who have made contributions equal to these. Avocationalists are also involved in writing for and editing society journals and newsletters, many of which are crucially important sources of archaeological information exchange.

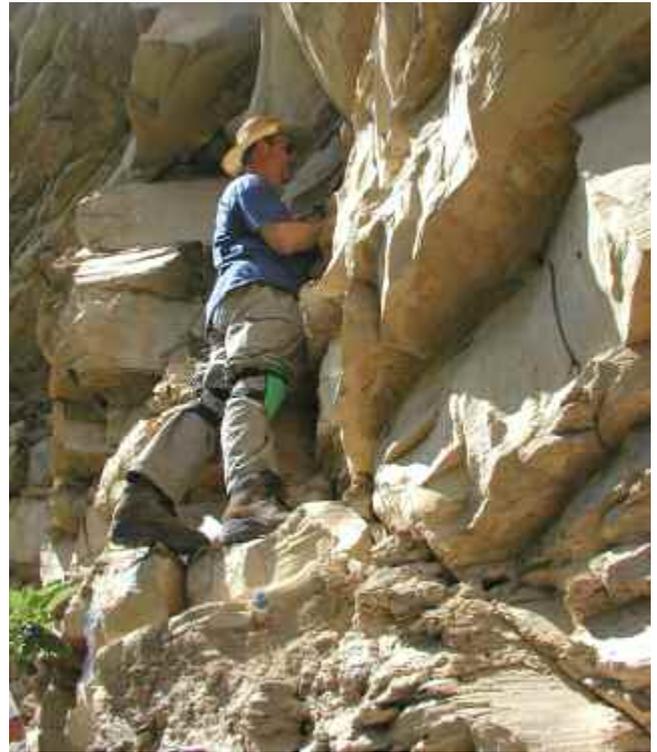


Figure 2. Mike Taylor recording rock art at the Bear Gulch Site, Montana in 2011.

For example, in Wyoming Grant Willson edited *The Wyoming Archaeologist* for 30 years, far surpassing the editorial tenure of most professional editors.

The Next Generation: Oregon Archaeological Society and Beyond

As a case example to show the diversity of activities and endeavors of a typical avocational archaeological society, we describe some of the major contributions to archaeology by the Oregon Archaeological Society (OAS). OAS is the primary organization to which the 2011 Crabtree Award winner, George Poetschat, devotes his efforts. OAS has a long history, and for its first decades it was primarily a collectors’ society, with all the resource stewardship problems that such a focus entails. However, even in the early years, OAS advocated professional ethics and members wrote and published several volumes on site excavations undertaken with professional supervision. In the mid-1970s, OAS restructured itself as an avocational society to focus on assisting professional archaeologists, and since that time OAS members have participated in every sort of archaeological activity. Obviously, we cannot detail all of these, but several contributions are worthy of special mention.

THE 2011 CRABTREE WINNER: GEORGE POETSCHAT



While many accomplishments may have won George Poetschat the Crabtree award, the letters of support for him help paint the personal picture, and come as close as possible to capturing his essential qualities as a friend, a volunteer, and a person. Their few words speak volumes:

“George is an all around good guy. He is a pleasure to work with, unless of course you fail to turn in your completed field forms and then he can use that firm, demanding approach to encourage you to make good on your promises.”

“George’s dedication to the fields of archaeology and rock art goes well beyond the technical and intellectual; on numerous occasions he and his wife, Cathy, have unselfishly and kindly provided accommodation and meals to visiting scholars from around the globe.”

“Our profession **needs** more George Poetschats!”

George Poetschat has been an avocational archaeologist for almost a quarter century, volunteering for projects around the world from Alaska, to the Caribbean, to Italy and maintaining his primary affiliation with the Oregon Archaeological Society. A tireless volunteer, George has participated in more than 80 archaeological projects including the underwater archaeological survey of the drowned Port St. Louis at St. George’s Harbor, Grenada, the excavation of Columbia Plateau pithouses and camas roasting pits, and the recording rock art in ten U.S. states and two foreign countries.

Early in this “second career” George parlayed his amazing talent for project organization into field supervisory positions on a couple of different projects. His reputation quickly became so esteemed in Passport In Time (PIT) circles that for a project director lucky enough to have George as a volunteer it was standard first day procedure to equip George with a clipboard, appoint him field supervisor, and then go on to other director’s tasks, confident that he or she had no need to fret about details for the rest of the week. I did exactly that on our first (of many) rock art recording projects together and I haven’t worried about project logistics, site mapping, or organization for the last two decades.

But George is much more than just a volunteer with a passion for detail. Although his college degree is in mathematics and his first career was in nuclear engineering, he has done as much field archaeology as most professional archaeologists and has an enviably prolific record of publication. In his more than two decades of work, George has presented papers at dozens of regional, national, and international conferences, authored or co-authored more than 35 publications in professional journals and monograph series, co-written two book chapters, and done the technical editing for ten different books and monographs.

His most recent project was the development and population of a database that included more than 3,000 linked scans of rock art for a major Plains rock art project. This work has already been used by other scholars to structure their own approach to data.

This focus on detail and professional publishing might suggest to those who don’t know him personally, that George is a drudge, concerned only with facts and figures; and an occasional field recorder has learned to their chagrin that George isn’t shy about calling attention to a mistaken data entry or a missing label. But anyone who has sat with him around the campfire or seen him enthral a class of eight- and nine-year-olds with the idea that they can stipple trace a “real Indian petroglyph” or paint their own pictograph, sees and understands the real person. So too, do Oregon Archaeological Society (OAS) newsletter readers who acclaim his illustrated travelogues about the rock art research group’s expeditions as “the best writing in *Screenings*.” Likewise, anyone who has had the good fortune of having George as a tour guide to the classic sites of Italian antiquity or the rock art of the Valcamonica will swear that their trip was a success specifically because George never missed a detail and did it all in good spirits.

George’s expertise also reaches into the classroom and the boardroom. He is an accomplished instructor, having taught compass use, mapping techniques, and rock art recording to more than 400 volunteers during two decades of involvement with the OAS training program. His maps grace dozens of reports, and many OAS volunteers credit him as the teacher responsible for their own proficiency in mapping and data recording. For the OAS George has served as both a member of the board of directors and as president of the organization, and he has also made a mark as a member of the publications committee for the American Rock Art Research Association.

Indeed, archaeology could use more avocationalists like George Poetschat!



Figure 3. The “Oregon Archaeology Celebration: Invitations to The Past” poster exhibit at the Oregon Museum of Science and Industry in 2010.

OAS members are the main source of public outreach in Oregon. In addition to the typical school programs and state or agency-sponsored initiatives such as archaeology month, OAS members have done several major, out-of-the-ordinary activities.

Member Mike Taylor (Figure 2) writes and distributes “Culture Watch,” a blog dedicated to spreading news of archaeological issues and discoveries to thousands of viewers who find his site by surfing the web. “Culture Watch” is Mike’s effort to put the power of modern communications technology to work with the premise that education, knowledge, and appropriately shared information leads to protection of archaeological resources. He has announced several local archaeological discoveries and problems that would otherwise have been buried in local historical society newsletters or city government reports and has enabled people to learn about and participate in archaeological projects that would otherwise have been “under the radar.”

Likewise, Cathy Poetschat has organized and promoted a traveling exhibit of all Oregon Archaeology Month posters called “Oregon Archaeology Celebrations: Invitations to The Past” (Figure 3). Due to Cathy’s untiring efforts, this exhibit has been shown in 14 Oregon museums and libraries, and one tribal casino. In this way the Archaeology Month message is maintained year round, comes to places that would otherwise be unaware of these activities, and reaches some people who are unaware that there is archaeology in Oregon.

In the 1980s OAS members produced “Digging Up The Past,” a pre-internet effort by OAS videographers to bring archaeology



Figure 4. Steven Satterthwaite teaching the excavation practicum at the OAS “Archaeology for The Curious” course in 2012.

to the general public. Produced, edited, and emceed by OAS members, more than a dozen programs on archaeological topics were presented on Portland Cable Access TV. Ranging from rock art to historic shipwrecks, and site looting prevention to Fort Vancouver excavations, each show repeated several times, and as anyone who was featured can attest, this program exposed a wide variety of people to some of the key issues in archaeology.

Finally, one of the key outreach activities is lobbying. Carol Steele, a professional lobbyist and OAS member in the early 1970s, led the OAS Archaeological Preservation Committee to craft and lobby for two bills—the Oregon Graves and Protected Objects Bill and the Oregon Archaeological Objects and Sites Bill—that were passed by the Oregon Legislature in 1977. These laws predate both ARPA and NAGPRA and have been amended and expanded several times, proving the power of grassroots politics to assist in the preservation of archaeological resources.

Like many avocational societies, the OAS is a ready source of labor to help in archaeological projects ranging from excavations and surveys to library research and laboratory processing and analysis of materials. But OAS has gone a step further. It has a press that has published more than 20 professional quality monographs and books since 1960 on site excavations, historic archaeological collections, and rock art research of several types. Not only does OAS publish these volumes, but it has sold more than 6,000 of them nationally and internationally. In addi-



Figure 5. Cindy Ede with her Chinook Indian weaving display at a Fair in Scappoose, Oregon.

tion, it has made copies of at least half of them available free of charge to libraries and research institutes throughout the western United States and Canada. As such, OAS—an entirely volunteer organization—has been the equal of any small university press. Other publications by OAS members on society-sponsored research projects include articles in regional, national, and international journals and volumes of collected papers. More than 20 OAS members have authored professional-quality publications, providing an output that has been the equivalent of a small university archaeology program (see oregonarchaeological.org/store).

OAS also sponsors a 40-hour long training course entitled “Archaeology for The Curious,” which is designed to introduce archaeology to both new and old members of OAS that wish to participate in archaeological projects. Given annually since 1992, the course brings many new members to OAS, and archaeologists in Oregon and Washington often specifically request volunteers who have attended this course. Steve Satterthwaite (Figure 4), current chair of the OAS training committee, coordinates and organizes all aspects of the class including all administrative, logistic, and financial aspects and the invitations to Forest Service, BLM, and Park Service archaeologists to teach various segments of the course.

Class and laboratory work in these training sessions ranges from simulated “hands-on” excavation, through site survey, mapping, and compass work, to laboratory processing and rock art recording. Each year attendance averages about 60 people, 40 of whom complete the full 40-hour course designed to enable

them to go directly on a project as an experienced archaeological volunteer. Many such members have participated in projects including the Woodburn Paleo-Archaeology project, Rock Art Research Group recording efforts, Fort Vancouver excavations, and BLM Clovis Quest survey and excavation.

OAS has been actively involved in site stewardship for more than a decade. Primarily in partnership with the US Forest Service, more than 20 sites are actively monitored by OAS members in National Forests and Recreation Areas near Portland. Site stewards write reports documenting the condition of, and threats to, sites so that federal archaeologists can focus their protection efforts toward the sites that need it most.

Several OAS members also help protect sites on private land. One of them, Cindy Ede (Figure 5), has been instrumental in protecting two major Columbia County sites threatened by local development. In 1984 she discovered that the Meier Site, a large Chinook plank house excavated in the 1970s, was looted and threatened by local development. Since then she has worked tirelessly to protect the site. That same year she noticed workers removing top soil from an area where she had seen a large pre-historic midden. She asked them to stop work and the next day archaeologists began a survey and excavation project on the Ede Site (35CO34) that revealed pit houses and occupation from 600 B.C. through A.D. 1250. Dr. Kenneth Ames, Anthropology Chair emeritus at Portland State University, and SAA Past President, notes that Cindy “has fought tirelessly to protect sites around Scappoose, working with both area tribes—Grand Ronde and Siletz—and professionals to preserve and protect the prehistory of Columbia County.”

Finally, OAS puts its money where its mouth is. The society offers two types of monetary grants each year. One type, the Loring Grant, is for members who are conducting research in the archaeology of Oregon and surrounding states. The other, the Roy Jones Scholarship, is a grant awarded to deserving students to assist with the completion of their graduate thesis or dissertation. Over the past 20 years individual grants have ranged from \$250 to \$5,000, and the yearly total has averaged over \$2,000. Results from these grants have ranged from completed Ph.D dissertations to publications in the OAS Press series.

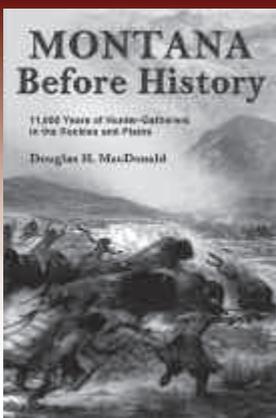
Conclusion

Over the last 50 years archaeological societies and their avocational members have contributed immensely to the overall archaeological endeavor. The contributions we’ve mentioned are just a few examples of what many similar organizations across the U.S. and Canada have achieved. Avocationalists are ready, willing, and able to help archaeologists on their projects. Why not get some working for you today?

Acknowledgments. Portions of this article draw heavily on the 2010 SAA CoAS sponsored symposium "Avocational Archaeologists Making a Difference: Who's Done it and Who's Doing It" (for abstracts see: www.saa.org/portals/0/abstracts.pdf). Specifically we rely on information provided in the posters by Alice Berkson, Lisa Anselmi and William Engelbrecht, Michael B. Collins and Clark Wernecke, Suanna Crawley and colleagues, and Leslie Shaw.

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NEW DEVELOPMENTS IN LITHIC ANALYSIS

LASER SCANNING AND DIGITAL MODELING

Michael J. Shott and Brian W. Trail

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Optical microscopes are a wonder of invention. They revealed a world of microorganisms previously unsuspected, and eventually led to the modern understanding of infectious diseases. Van Leeuwenhoek devised the first microscope around 1674, but not with the specific intent to revolutionize medicine or biology. Instead, he adapted a magnifying apparatus that Dutch cloth merchants used to gauge the mesh weave and thread count of fabrics. One result is a surprisingly direct link between quality control in cloth production and the germ theory of disease, mediated by optical devices developed for one purpose but soon adapted to others.

Recent history provides other examples of such instrumental exaptation. For instance, laser scanning is commonplace in medicine, engineering, and other fields, but is finding uses elsewhere. Archaeologists, for instance, are exploring scanning's potential for a range of documentary, educational, and research purposes; adapting for their own use a technology developed with other applications in mind just as scientists centuries ago adapted microscopy for their own purposes.

We describe a low-cost scanning system and explore its potential in lithic analysis. One aspect of this potential, geometric morphometrics (GM) is not itself a technology, but rather a set of concepts particularly suited to the analysis of the digital models produced by scanning. Accordingly, we also discuss the detailed GM characterization of stone tools. We, Shott in particular, are not technically astute. If we can accomplish what we report here, stubbed fingers and all, then anyone can. Interested readers should consult Shott and Trail (2010) for technical details and limited analytical results. No doubt other archaeologists are undertaking innovative studies that differ in important respects.

Scanning Technology

Computed tomography (CT) produces the best three-dimensional (3D) images, but CT scanners are neither portable nor inexpensive. Therefore, for practical purposes, structured light

and laser scanning are the available options (Archaeology Data Service 2010; Weber and Malone 2011). We use a NextEngine™ portable laser scanner and ScanStudio™ HD (high definition) software. Slizewski and Semal (2009:32) call this a “multi-laser” system. The system consists of the laser scanner, a data cable that connects the scanner to a laptop computer, and a revolving stand on which the scan subject is placed (Figure 1). Specimens are held in place with rubber-tipped gripper arms or set into modeling clay. Most of our use to date is in the laboratory, but the system fits in a padded carrying case the size of carry-on luggage and is designed for portable use. We have taken it to other laboratories for data collection.

To process images and create data files, we use a Dell Latitude D830 Intel Core 2 Duo laptop computer with a T7800 processor at 2.6 GHz and 3.5 GB of RAM to accommodate the large size of data files. We use an external hard-drive for permanent storage of all scanning data and high-density DVDs as an extra backup and for portability.

To produce 3D models, the system scans each specimen at fixed degree intervals on the rotating stand. Although there are setups that scan more than one small object (like teeth) at a time (e.g., Smith and Strait 2008), we are able only to scan single artifacts. Our protocol was developed by trial and error, considering object sizes and properties, the reflectance of surfaces, and related hardware/software capabilities. At the start, we place specimens 6.5 in (16.5 cm; ScanStudio specifications are in imperial units) from the face of the scanner. The range for image capture is 5–9 in. (13 cm–23 cm), important because the specimen rotates during scanning so is not always at the same distance from the scanner. Users choose the number of and angular distance between successive positions, at each of which the specimen is scanned.

Scanning was designed for standardized industrial objects. As complex, irregular objects with sharp, sinuous edges and tip and base extremities, stone tools pose unusual challenges. We find that a complete, accurate model requires eight scans of each tool



Figure 1. ScanStudio scanner with specimen in position for scanning.

at 45° intervals, first in vertical orientation and then in horizontal orientation. (Others report comparable experience, time and effort in stone-tool scanning [Slizewski and Semal 2009:133–136; Tucci et al. 2011]). The result is 16 scans per specimen.

We scan at an HD (high definition) speed of 105 seconds for each interval, a total of 840 seconds (14 minutes) per specimen. With handling and data processing, one scan family (i.e., one specimen with 8 scan intervals) takes about 16 minutes to finish. Of course, this is much longer than most manual schemes required to measure one specimen, but we note advantages that compensate for the initial investment of effort. There are faster, if more expensive and non-portable scanners on the market (e.g., Grosman et al. 2008:3104). We also are climbing a fairly steep learning curve and expect to reduce scanning and handling time with more experience exploring the optimal relationship between scanning time and data quantity and quality. Interactive 3D digital models can be distributed online, thus vastly expanding the accessibility of scanned specimens. Landmark-based geometric morphometric analysis described below is highly impractical using manual techniques, and 3D digital images are well suited to landmark placement and analysis of their configurations.

ScanStudio provides settings to accommodate the optical properties (e.g., luster, finish) of scanned specimens. To maximize data capture, we powder specimens to diminish the effects of unwanted light reflection and to maximize visibility, particularly at tips and base corners and along thin edges. In recent trials and our own experience, obsidian artifacts required developer (Slizewski and Semal 2009:136; Smith and Strait 2008:4-5) to absorb light.

The scanning process results in a digitized model of the specimen represented either by a “point cloud” or triangular mesh that links the points. The density of points or size of the triangles can be varied, thus altering the resolution and file size. The lower the point density or larger the triangle size, the fewer the points and larger the triangles used to make the mesh that represents the object in digital format. (Mesh size affected precision but not accuracy of volume measurements in Sholts et al.’s [2010:873] study.) We use a high-resolution setting for triangle size of .0075 in, with a range of .0050 in. to .0250 in. for capture of small, irregular details in our specimens.

The eight digitized images of a specimen from different angles relative to the scanner (a “scan family”) must be aligned to produce a complete 3D digitized image of the specimen. The alignment process can be done manually or automatically by ScanStudio via a best-fit algorithm. In objects of homogeneous surface appearance like many lithic sources, corresponding points on successive scan images may be few; when necessary, therefore, we use a water-soluble paint pen to mark points on the specimen to facilitate alignment. Otherwise, marking regular intervals on the rotating platform and/or using inclusions, natural variation in color or texture patterning or other unique features of the matrix of stone tools, suffice to identify corresponding unique points on two overlapping images.

After alignment, digital models are trimmed to remove extraneous material (e.g., the platform of the revolving stand), noise, or minor flaws arising in the scanning process. The aligned and trimmed scans then are fused. Fusing combines individual 2D scans into a single 3D one, removes overlapping and thus redundant data, and results in a single “watertight” mesh surface. Occasionally there are small gaps in the specimen’s point cloud or triangle mesh after fusing, fixed using ScanStudio’s Hole Fill feature.

Before fusing the scans to complete a 3D model, we use ScanStudio’s CAD feature, RapidWorks™ to orient all specimens uniformly. In fusing, ScanStudio reads the extremes of the data (i.e., the most distant points on the specimen’s surface) and fits a bounding box that encompasses the specimen, touching the tip and base corners and the widest part of the edges. Consistent orientation of specimens is essential when we import ScanStudio data into other applications for analysis, as detailed below.

The finished 3D model is saved as a .scn file or in other desired extensions. The initial scanning of a specimen creates a file of about 1.5 GB. After processing, a final model that accurately represents the specimen reduces to around 250 MB.

More sophisticated—and expensive—instrument systems

(Breuckmann et al. 2009; Slizewski and Semal 2009; Slizewski et al. 2010; Smith and Strait 2008) generally produce somewhat better results, both in amount of data or points captured and post-capture processing. To our knowledge, however, NextEngine performed reasonably well in all trials. On balance, we concur with Slizewski and Semal that a “high-priced scanner is not necessarily the best choice for every task” (2009:137; see also Weber and Malone 2011). Our experience also corroborates Smith and Strait’s (2008) conclusion that processing is more time-consuming and challenging than is data capture in the first place. Ultimately, we need more controlled trials using stone-tool subjects to identify both best practices in general (Archaeology Data Service 2010) and the optimal combination of price, performance (including accuracy and precision), and processing time and procedure.

Case Study

Both to test and illustrate 3D methods, we scanned and processed a set of casts of fluted bifaces kindly loaned by Mark Seeman from Kent State University’s teaching collection. Because of the sample’s small size and nature, we describe methods of coding and analysis, and then present results to illustrate the approach, not as substantive analytical conclusions. Figure 2 is 2D representations of completed 3D digital model of a Clovis specimen from our initial sample and a Folsom replica currently undergoing analysis. Slizewski and Semal (2009:133–134) report difficulty in capturing technological details like percussion rings, but our results differ. Figure 2a–b show clear details of faceting and ripple marks on these specimens.

Geometric Morphometrics and Landmarks

Orthogonal (i.e., mutually perpendicular) measurement schemes in lithic analysis involve linear dimensions (e.g., length, width, thickness). Such schemes preserve little geometric information about the relative position and orientation of dimensions. In the 1990s, biologists applied geometric morphometrics (GM) to the description and analysis of complex whole objects (e.g., O’Higgins and Jones 1998; Slice 2005). “Morphometric” means measurement and description simultaneously of size and shape, capturing the spatial or geometric relationship between plotted points (“landmarks”). Using landmarks rather than orthogonal dimensions, GM records more detailed information about whole-object form that may not fall along orthogonal axes, and facilitates analysis of such detailed, geometric data.

Morphometry analyzes the geometric configuration of landmarks placed on the surfaces of 2D and 3D objects. Shott and Trail (2010) discuss the ontological premises of two somewhat

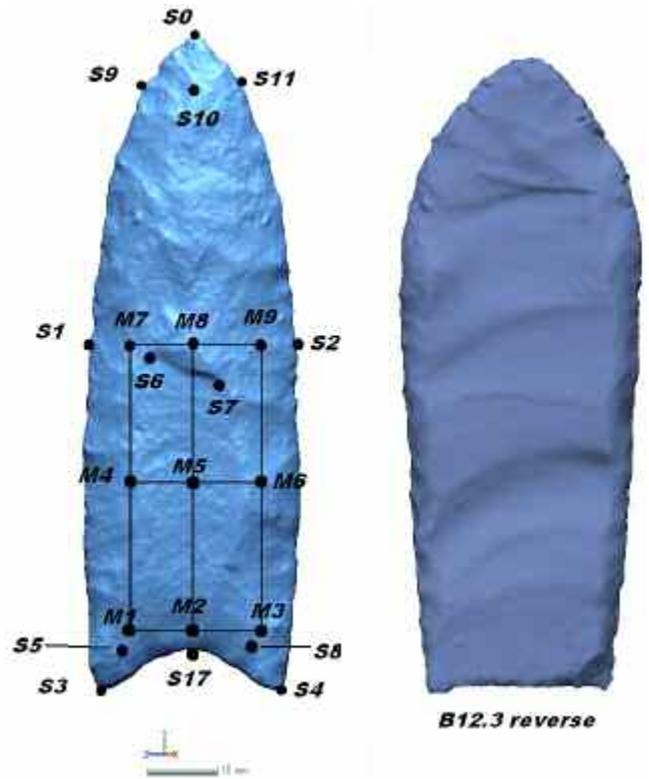


Figure 2. Completed 3D digital models (not to same scale). A. Clovis specimen, showing landmark coding scheme. Letter prefixes denote different landmark types, S for “single-point,” M for “mesh” landmarks. B. Folsom replica.

different views on the nature and validity of landmarks. Differences have theoretical implications, but our purpose here is to describe our use of scanning technology and GM analytical software. Therefore, we simply call all analytical points “landmarks.”

Coding Protocol

Once a watertight digital model is produced, it must be coded for analysis. ScanStudio calculates specimen volume (see also Grosman et al. 2008), a good general size measure that is useful in analysis of, for instance, allometric reduction of tools (Eren and Prendergast 2008; Shott et al. 2007). Users then define other variables suitable to their research questions.

We save the .scn file of each finished model as a .ply file. Then we import the .ply file into the shareware program Landmark™, which allows the placement of landmarks, characterized by their unique x,y,z coordinates, on the surface of specimens. Shott and Trail (2010) describe our coding protocol in detail; Figure 2a shows landmark locations on one face of the Clovis specimen.

Landmark spacing varies between specimens according to their size and outline length, and describe corresponding variation in size and shape. EVAN's (European Virtual Anthropology Network) R application provides other landmarking capabilities (O'Higgins et al. 2010). Obviously, the number and location of landmarks may vary by artifact type or research question. The resulting data file is a precise mathematical description of the specimen in Thompson's (1917:269) terms. Parr et al. (2011) described a new alternative that moots the need for landmarking.

Export to Morphologika

Archaeologists are beginning to use scanning and GM methods to study form in a range of 2D (e.g., Buchanan 2006; Cardillo 2006; Castiñeira et al. 2007; McPherron and Dibble 1999; Thulman 2006; Tompkins 1993) and 3D (Crompton 2007; Grosman et al. 2008; Lycett 2009) lithic types. Here we describe some aspects of 3D morphometric analysis we are pursuing.

The (formerly SUNY) Stony Brook University morphometrics website (<http://life.bio.sunysb.edu/morph/>) provides links to many GM shareware programs, and is a valuable general reference on GM analysis. Most shareware packages are designed for 2D data, but Morphologika™ (O'Higgins and Jones 2006) performs 3D GM analysis in the following steps:

1. Objects' x,y,z coordinates are "registered" through Generalized Procrustes Analysis (GPA). This controls for size differences between specimens and focuses analysis upon shape variation. GPA removes scale and orientation ("translation and rotation") differences, leaving shape as the sole dimension of variation. Shape variation among specimens is expressed as residuals to the coordinates of the mean shape (Crompton 2007:3).
2. Shape variation is analyzed via principal-components analysis (PCA). PCA extracts "relative warps," a GM term for the principal components extracted from the covariance matrix of interlandmark distances, i.e., PCA of Procrustes residuals. PCA of coordinates from full-tangent projection (analogous to the map projection of 3D topographic points onto 2D maps) projects results into "configuration space," (O'Higgins and Jones 2006), i.e., the space of the original specimens. Alternatively, PCA can be performed on raw Procrustes registration coordinates.
3. Form variation is expressed graphically in Cartesian transformation grids or thin-plate splines (tps). Tps represent specimens as deformations of a standard or original form. In concept, tps are infinitely thin planes whose grid lines are in strict linear and orthogonal alignment on the standard specimen. Thin-plate splines possess affine (tilting of plane surfaces) and non-affine (bending of surfaces) components that jointly accommodate any specimen to the standard (O'Hig-

gins and Jones 2006). The result depicts the specimen's departure from the standard in both affine and non-affine respects, i.e., 3D pattern and degree of difference between the specimens.

Morphologika PCA also displays the landmark configuration that corresponds to any position in a plot of two components, whether or not represented by an empirical specimen. This useful feature roughly specifies the morphospace (McGhee 1999) formed by the components, the set of possible or hypothetical configurations from which empirical specimens are drawn. This analytical device reveals the morphometric range within which empirical specimens and types occur and the trajectories through geometric space that morphotypes follow during their histories.

TPS. The tps of the reference standard appears as a uniform, undeformed orthogonal grid. To the extent that other specimens or types differ in shape, the reference tps must be altered by tilting or deformation to approximate their shapes. For our purposes, choice of a standard is arbitrary; we chose a Clovis specimen. As landmark points on other specimens depart from the equivalent position on the standard one, the plane is distorted in that region from its original configuration in order to accommodate the new positions. The resulting thin-plate spline (Figure 3) is a scaled graphical summary of the pattern and degree of specimens' departure from the standard. It is a graphic depiction of Thompson's (1917) precise mathematical description of the difference between standard and specimen.

Further Developments in Laser Scanning and GM

Beyond the pilot study described here, our current project involves 3D laser scanning and detailed morphometric characterization of Folsom-point replicas used in experiments that involved repeated cycles of use in firing, damage, rejuvenation, and continued use. Hunzicker (2008) described the main purpose of the original experiments. Because a cast was made of each point in each cycle of use, we have a physical record of the successive transformations of original specimens during those cycles. Resulting data were used to validate simple ratios like length-thickness as allometric reduction measures (Shott et al. 2007).

Our pilot study on Clovis-affinity specimens did not include blade-area mesh points that we now are applying to Folsom replicas. Because we place blade-area mesh points on each face, the distance between corresponding mesh points on opposing faces measures thickness and describes cross-section size and shape in that region. In Clovis data, their absence leaves tip and tip-area landmarks relatively isolated at one extreme of each specimen. For biological data, Slice (2005:19) suggested that isolated points act as outliers that skew results by inflating the

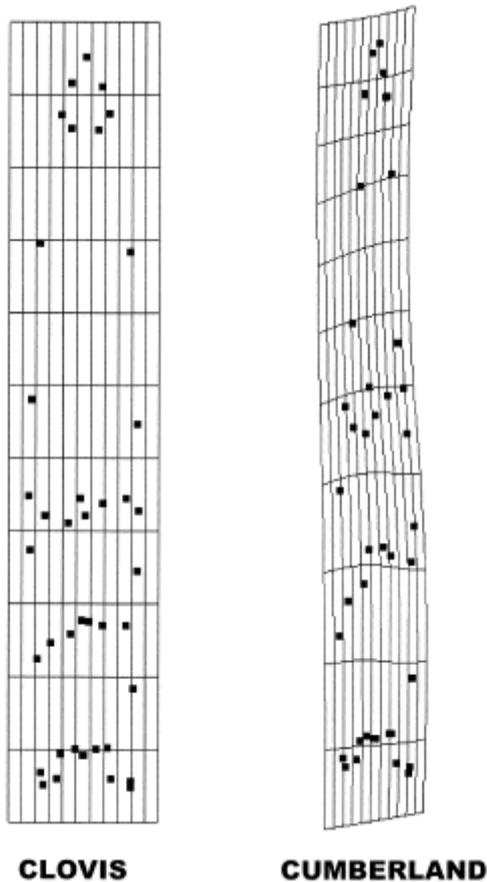


Figure 3. Thin-plate splines for Clovis standard and Cumberland comparator.

mean squared distance between landmark points. If such isolated points lie at or near the tip, then highly elongated specimens would yield the highest values for centroid size. Thus, blade-area mesh points serve to measure blade thickness and form but also to reduce measurement bias by skewing in the distribution of landmarks.

Landmark coding seems at least as well suited to the characterization of Folsom fluted points as to Clovis-affinity ones, based on current understandings of Folsom hafting technology. For instance, Bement (2002:138, Fig. 7.3; see also Ahler and Geib 2002: Fig. 20.1) believed Folsom fluting to involve foreshaft and splint, both of which were secured to points by lashing and mastic. Lashing near the proximal end would require edge abrasion, while splints could extend nearly to the distal tip. Our coding protocol records distal-most point of edge grinding, which marks the position of lashing, and also distal-most extent of fluting, which approximates the placement of the splint.

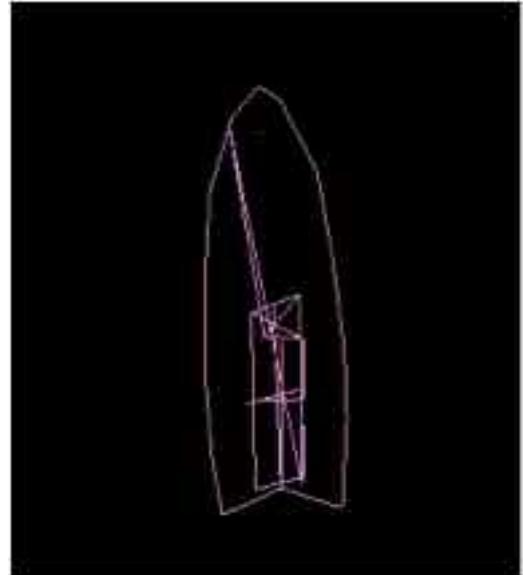


Figure 4. Wire-frame model of Clovis specimen.

Analysis of the Folsom data set is in progress, but we expect to refine existing reduction measures or to replace them with better, more detailed substitutes. Among other things, we can measure the correlation of other variables, like various allometric ratios (e.g., Eren and Prendergast 2008; Shott 2005) with volume. Because our coding is more detailed than in some past studies, we also predict that mesh landmarks will prove good estimates of blade area, so should correlate with volume.

Our current coding protocol and variables defined are strictly morphometric, i.e., consist of 3D landmark points and the distances and angles between them. Although more detailed than conventional orthogonal dimensions, data in this form still reduce complex wholes to cruder approximations. In biological morphometrics, the reduced data that result are called “wire-frame” models in which lines link the landmarks recorded (Figure 4 is a wire-frame model of the Clovis specimen). Using CAD software (e.g., Simon et al. 2009; Sumner and Riddle 2008), we hope to improve our approximations of whole-object form by incorporating data on cross-sections, angles, and longitudinal curvature of retouched edges, and on cross-section area and form at specified locations like the tip and haft areas. Edge angles have obvious functional implications, as may section areas and form (e.g., Hughes 1998). Longitudinal section form also possesses functional significance if, as in Folsom points, “Due to the full fluting, thickness and cross section shape were effectively held constant from tip to base” (Ahler and Geib 2002:375). The complex curves of retouched edges and the form

and area of sections both transverse and longitudinal can be measured by hand. The former sometimes are, with difficulty, the latter rarely to our knowledge. However much or little they are measured by hand on original specimens, these curves, edges, and sections may be more consistently and accurately recorded from 3D digital models.

Other Laser-Scanning Options

ScanStudio is a versatile system among whose chief virtues are portability and price. It is small and lightweight, and can be taken to museums or other collections locations. The basic system, supplied with a limited CAD component called Rapid-Works, costs approximately \$3000. This places ScanStudio at the low end of a price range that easily exceeds \$100,000 for more rapid, somewhat more powerful 3D scanning systems. These include hand-held scanners that compile 3D digital models in real time and thus moot the need for alignment and fusion.

Besides the whole-object laser scanning that we and others are undertaking, there are further options for archaeologists interested in digital models. These include studies of two-dimensional form based on photographs or digital images from flatbed scanners (e.g., Buchanan 2006; Thulman 2006). There also are varieties of contact digitizers. These instruments, using a swinging arm to mark x,y,z landmarks coordinates, are used widely in craniometric studies (e.g., Slice, editor, 2005) but also in archaeology (e.g., Braun et al. 2009; Clarkson et al. 2006; Lycett et al. 2006).

GM and Scanning: Documentary Value

Although scanning technology has great analytical value that others and we are pursuing, it also may prove an efficient way to document and, in a sense, preserve the private artifact collections that never will find their way into museums. These collections are multitudinous, the artifacts they contain practically beyond number (Shott 2008). In the aggregate, they are invaluable because they provide the largest samples and the fullest record of the underlying distribution and abundance of archaeological remains.

Scanning is rapid, accurate, and nondestructive. Portable scanners like ours can go to the collections. With scanning technology and software, we can produce accurate, full-size digital models of the artifacts in private collections. The digital archives compiled from such efforts will have intrinsic value just because they exist (e.g., Simon et al. 2009). But made available online in interactive form where archaeologists may measure dimensions or place landmark points suitable for GM analyses, they can dramatically increase the effective sample size for studies technological, typological, or stylistic (Breuckmann et al. 2009; Slizewski

ki and Semal 2009:132; Weber and Malone 2011). Long after collections are lost or withdrawn from access, their constituent parts scattered, sold, or destroyed, archaeologists can continue to excavate in digital archives.

Conclusion

Anyone who hasn't lived in a cave for the past 30 years knows how much technology and software have revolutionized the commonplace even as applications themselves have changed at dizzying rates. Recall the fate of floppy disks and videotapes. Laser scanning technology, related CAD software, and GM approaches all are changing rapidly. The hardware and software that we use may be updated or made obsolete before long. Our protocol is somewhat tedious to learn but offers great efficiency with time and experience. It is a version of the current state of the art in inexpensive scanning, but one that is apt to age rapidly. At the same time, other scanning systems deliver greater accuracy, but at a considerably higher cost (Slizewski and Semal 2009; Slizewski et al. 2010; Strait et al. 2009).

In the same way that the early modern cloth trade played a key role in the invention of the microscope, with all of the biological and medical consequences that unfolded over centuries, modern laser-scanning technology has revolutionized fields like medical imaging and diagnostics. It is just beginning to penetrate archaeology. In one small corner of the field, scanning technology and associated software can dramatically improve lithic analysis. New uses are being imagined every year, and growing numbers of archaeologists are exploring them.

Traditional lithic analysis mostly concerns technology, form and style. The more detailed GM-based characterization of specimens that laser scanning offers enables archaeologists to pose questions about degree and pattern of historical relationship and descent, about transmission modes and the role of drift, about the complex patterns of allometric variation that attend resharpening and reduction. Scanning technology and GM are methods that provide the new data to test theory never before contemplated. Using them, the next decade in lithic analysis should be exciting.

Acknowledgments. Gilbert Tostevin, John Soderberg and Hayley Jirasek of the University of Minnesota introduced Shott to scanning technology. David Hunzicker kindly loaned us casts of Folsom replicas and collaborates on their analysis. Marcelo Cardillo of the University of Buenos Aires, Norman MacLeod of the Natural History Museum of London, Paul O'Higgins of Hull York Medical School, Erik Otárola-Castillo of Iowa State Univer-

↳ SHOTT, continued on page 38

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DIGITIZING THE ARCHIVES OF ARCHAEOLOGY SERIES

Joseph A. Tiffany

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During the past year the Mississippi Valley Archaeology Center (MVAC) at the University of Wisconsin–La Crosse (UW-L) has digitized the 29-volume set of the Archives of Archaeology. This publication series was a joint project of the University of Wisconsin Press and the Society for American Archaeology (SAA) during the 1960s. Original reports in the series were published on opaque microcards. David A. Baerreis edited the Archives of Archaeology series for the SAA. The Archives of Archaeology as a concept was proposed at the 1959 meeting of the SAA at Norman, Oklahoma (Compton 1961:206). According to the inside back cover of the July 1960 *American Antiquity* issue (vol. 26, no.1), the Archives of Archaeology consisted of “occasional publication on microcard of primary documentation of archaeological material.” In the April 1960 issue of *American Antiquity*, Baerreis and Solon (25:623–625) explained that the Archives of Archaeology was created to disseminate original reports, resulting mainly from federally funded research projects, in an inexpensive format that would be accessible to researchers nationwide. The majority of the reports in the Archives of Archaeology series, and the series itself, were reviewed favorably in major professional journals. These journals include *American Anthropologist* in 1965 (Ascher 1965), *American Antiquity* in 1961 (Bell, Compton, Euler, Giddings) and 1964 (Di Peso), the *American Journal of Archaeology* in 1961 (Woodbury) and 1964 (Smith), *Ethnohistory* in 1961 (Woodbury), and the *Plains Anthropologist* in 1973 (Butzer).

Five Archives reports are dissertations or parts of dissertations (Table 1, reports no. 8, 10, 12, 15, and 28), with changes noted in four of them. Four of the original reports have been reprinted. They include *Ná'za*, the *Ponca Fort*, (report no. 3), which was republished by J&L Reprint Co. (Wood 1993) and is now available from Gustav's Library (gustavslibrary.com). *Climatic Change and the Mill Creek Culture of Iowa* (report no. 29) was published in the *Journal of the Iowa Archeological Society* (vols. 15–16, 1968–69) and is still available. *The Hohokam, Sinagua and the Hakataya* (report no. 5) was published with a new introduction by the author in 1975. Finally, for the Moberg report (report no. 14), an expanded and edited version by this author

was published in 2010 by the South Dakota Archaeological Society (*Special Publication 13*).

Three published books, now out of print, contain portions of research originally assembled for reports in the Archives of Archaeology series. The copyrights on these books were not renewed. Swauger's 1974 large-format *Rock Art of the Upper Ohio Valley* includes a greatly expanded treatment and discussion of the four sites he discussed in report no. 17 in the Archives series. In his 1978 introduction on the *Klamath Basin Petroglyphs*, Swartz notes that this published study is a much abbreviated version of his mammoth work that comprises report no. 21. Finally, a flatbed-scanned copy of Ellison Orr's original work (report no. 20), as well as other Orr reports, notes, and memorabilia, is available from Effigy Mounds National Monument (EMNM) near McGregor, Iowa, with electronic copies on file at the Office of the State Archaeologist of Iowa at The University of Iowa (OSA) and at MVAC. These electronic copies of Orr's work are of high quality—far surpassing the microcard version. The Archives of Archaeology series editors noted in their comments on the microcard for report no. 20 that they had trouble producing this number because of oversized maps and the like.

The Microcards

The format chosen for the Archives of Archaeology series was micro-opaques, and this format became a major problem in terms of both utility and accessibility. Unlike microfiche cards, micro-opaques have individual pages captured as positive photographs, substantially reduced in size and reproduced on both sides of 3 x 5 inch plastic cards for easy filing in a standard card catalog storage cabinet (another dead technology). The Archives of Archaeology series consists of several thousand pages imprinted on 172 cards (Figure 1).

While once promoted as the “wave of the future” for archival data storage in the pre-computer age (Jamison 1988), microcard technology never caught on as an archival tool. In his review Ascher (1965:584) was critical of the use of microcards as the

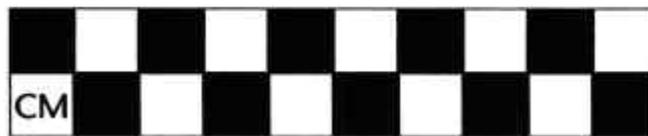
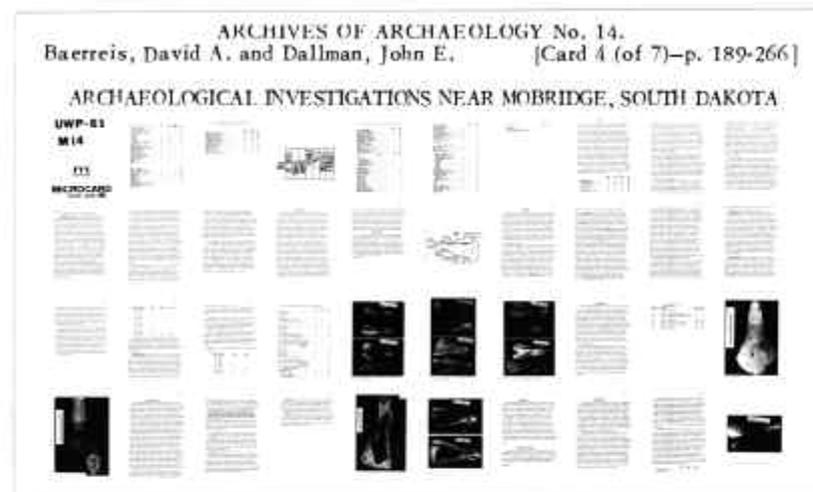
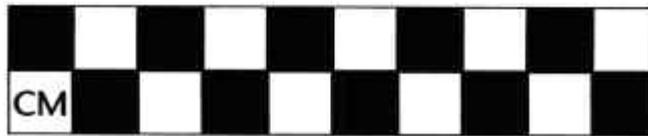
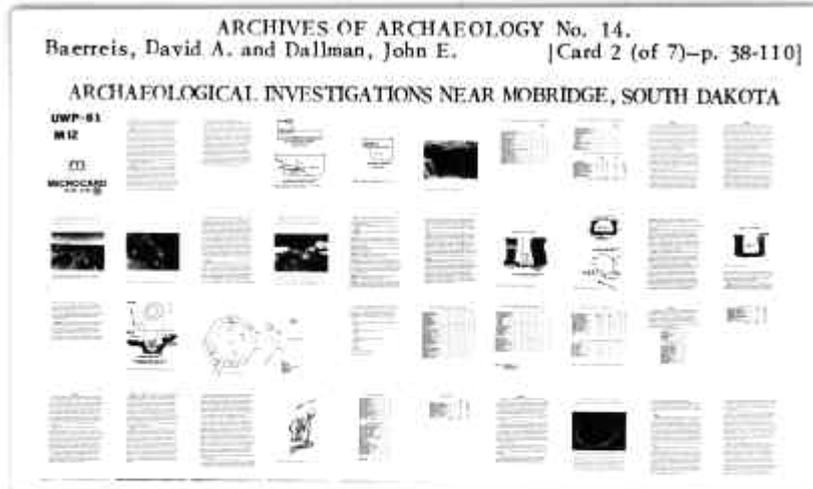


Figure 1. Images of a typical microcard (report no. 14).

storage method the SAA chose for the Archives series. The Archives of Archaeology reports in microcard format are now extremely scarce as complete sets and difficult to use, and it is virtually impossible to make readable paper copies of any image/page on the card. Reading one of these reports requires a special micro-opaque reader, a good opaque projector system, or at a minimum, a binocular dissecting microscope or low-power hand lens. We tried scanning and other methods, but because of the low resolution of the page images on the cards, making copies of the page images without a special and very expensive micro-opaque reader/printer is impossible.

Rapid copying, dissemination, and data-storage/retrieval capability are taken for granted today, as are archivally accessible, digitized archaeological reports, but the Archives of Archaeology series was conceived and implemented before the computer age. Because of their obscure microcard format, most of the pioneering reports in this series remain underutilized and largely unknown to the current generation of archaeologists and other researchers. Since the microcard format makes access and use very difficult, the purpose of this digitization project was to make the reports readily available as initially conceived by Baerreis and the SAA. Preservation and access to these reports are the key elements of this project.

After exhaustive search I could track down only two paper copies of original reports (report no. 14 by Baerreis and Dallman; report no. 20 by Orr) still in existence. The original of report no. 14 is now archived at MVAC. The various original manuscripts comprising report no. 20 and other related documents, as stated, are housed at Effigy Mounds National Monument. Other copies of Archives reports may be available elsewhere. For example Katmai National Park has a manuscript copy of Davis' original 1954 study (report no. 4; http://www.nps.gov/history/history/online_books/katm/hrs/hrsb.htm).

After consultation with the University of Wisconsin Press, I am unaware of any surviving subscriber's list. However, partial and complete microcard sets of the Archives of Archaeology series still exist. During work prior to the 2010 edited Mobridge report, I did a straightforward Internet search that identified only two complete sets of the series in university libraries. Since then, library databases have expanded dramatically as have Internet search capabilities. A recent simple search of WorldCat (<http://www.worldcat.org/>) for the Archives of Archaeology produced 34 libraries with sets. WorldCat is the largest online public access catalog available. If you search WorldCat by author for an Archives of Archaeology report, many more libraries may appear for that particular report compared to the results of the simple "Archives of Archaeology" search. Researchers undoubtedly have tracked down library sources for the Archives of Archaeology numbers they use in their research, but given their

irreplaceable nature, some libraries, as we have discovered, will no longer lend out their microcards on interlibrary loan.

WorldCat is the primary source to locate where all the remaining complete and partial sets of the Archives of Archaeology reside. The series needs the hand of a bibliographer to document fully the titles, number of pages, front matter, illustrations, contributing authors, and the like since I noted minor discrepancies in these data when comparing the primary sources used to assemble the final list in Table 1. For example, the same reports are cited differently by authors in their reviews compared with Table 1. Sometimes the title page is in the page count, but it is usually not. Report no. 12 includes an extra title page. One of the co-authors of reports 9 and 11 (Evans) is listed with a different middle initial, and so on. The information listed in Table 1 includes authors, titles, and publication dates and is derived from comparing the University of Toronto catalog listings against the Luther College (Decorah, Iowa) listings, a shorter list published in *American Antiquity* in 1961 (vol. 27, no. 2, p. 263), and the information on the cards themselves.

Digitizing the Archives of Archaeology

Both the SAA and the University of Wisconsin Press were contacted, and both confirmed in writing that neither organization holds a copyright on the Archives of Archaeology. Online searches further confirmed that neither organization had registered a copyright for the Archives of Archaeology, nor had any of the individual authors copyrighted their works. Once it was confirmed that the Archives of Archaeology reports are in the public domain, work then proceeded on the digitization project.

Since only one original paper report was available at MVAC for scanning and conversion to a searchable PDF format, another means for electronic data capture was necessary. After I discussed the situation with UW-L librarians, the university library purchased a *ScanPro 2000* in late 2010 for library use. The *ScanPro 2000* is a scanner that when combined with a computer can make digitized images from microfiche, microcard, or microfilm. Each image can be viewed, adjusted, scanned, and digitized rapidly. The UW-L library arranged a no-cost loan of one of the complete sets of the Archives of Archaeology from the University of Wisconsin–Madison Memorial Library. With the help of a small grant from the UW-L College of Liberal Studies, we were able to scan the entire 29-volume set in a little over three weeks.

After scanning several pages, we set a series of scan parameters that gave us the best collective images for each report. Each individual page on each microcard was copied, resulting in thousands of images. Each image was scanned and saved at 600 dpi as an uncompressed TIFF file. Next, the TIFF files were bundled by report and converted to JPEGs. The final product is 14.7 GB of data. The JPEG

Table 1. The Archives of Archaeology Series, 1959–1967.

Report	Description	Report	Description
No. 1	<i>A Report on a Bluff Shelter in Northeastern Oklahoma (DI-47)</i> . By David A. Baerreis and Joan E. Freeman. 1959, i-xii+320 pages, 5 cards. With an appendix on plant material by John Curtis and an appendix on skeletal material by Aaron Elkins.	No. 14	<i>Archaeological Investigations near Mobridge, South Dakota</i> . By David A. Baerreis and John E. Dallman. 1961, i-iv+498 pages, 7 cards.
No. 2	<i>An Archaeological Report on a Cave Deposit (DI-30) in Northeastern Oklahoma</i> . By Joan E. Freeman. 1959, vii+97 pages, 2 cards. With an appendix on the skeletal material by Aaron Elkins.	No. 15	<i>Kamchadal Culture and Its Relationships in the Old and New Worlds</i> . By Chester S. Chard. 1961, i-iv+236 pages, 4 cards.
No. 3	<i>Ná^mza, the Ponca Fort</i> . By W. Raymond Wood. 1960, i-x+153 pages, 3 cards.	No. 16	<i>Pre-ceramic Japan: Source Materials</i> . By Harumi Befu and Chester S. Chard. 1961, 626 pages, 9 cards.
No. 4	<i>Archaeological Investigations of Inland and Coastal Sites of the Katmai National Monument, Alaska</i> . By Wilbur A. Davis with assistance by James W. Leach. Foreword by William S. Laughlin. 1954 (revised 1960), i-xi+205 pages, 3 cards.	No. 17	<i>Petroglyphs of the Upper Ohio Valley, I</i> . By James L. Swauger. 1961, 76 pages, 2 cards.
No. 5	<i>The Hohokam, Sinagua and the Hakataya</i> . By Albert H. Schroeder. 1960, i-v+ 209 pages, 4 cards.	No. 18	<i>Pottery and Artifact Provenience Data from Sites in the Painted Rocks Reservoir, Western Arizona</i> . By Alfred E. Johnson and William Wasley. 1961, i-vi+56 pages, 2 cards.
No. 6	<i>Documentation for Some Late Mogollon Sites in the Upper Little Colorado Drainage, Eastern Arizona</i> . By Paul S. Martin, John B. Rinaldo, and William A. Longacre. 1960, i-ii+197 pages, 3 cards.	No. 19	<i>Cachimbos de Alagoinhas</i> . By Thales de Azevedo and Maria David de Azevedo. 1957, i-iii+ 21 pages, 1 card.
No. 7	<i>Japanese Source Materials on the Archaeology of the Kurile Islands</i> . Edited by Chester S. Chard. 1960, 391 pages, 6 cards.	No. 20	<i>Iowa Archaeological Reports, 1934-1939</i> . 12 volumes (nos. 7 and 9 not copied). By Ellison Orr. With an evaluation and index by Marshall B. McKusick (29 pages). Publisher's note printed on the first card (2 pages). 1963, 1673 pages, 36 cards.
No. 8	<i>Site DI-29, a Rockshelter in Northeastern Oklahoma</i> . By Joan E. Freeman. 1960, i-xiii+288 pages, 5 cards. With an appendix on skeletal material by Aaron Elkins.	No. 21	<i>Klamath Basin Petroglyphs</i> . By B. K. Swartz. 1963, i-v+556 pages, 21 cards. Illustrated by Joyce Speer.
No. 9	<i>Salvage Archaeology in Oklahoma. Papers of Oklahoma Archaeological Salvage Project, Volume I</i> . By James B. Shaeffer. 1960, i-v+217 pages, 3 cards. With identifications and morphology by Alice M. Brues [and others]. Norman, Oklahoma, The University of California Research Institute.	No. 22	<i>Artifact Descriptions and Proveniences for the Ringo Site, Southeastern Arizona</i> . By Alfred E. Johnson and Raymond H. Thompson. 1963, 61 pages, 2 cards.
No. 10	<i>An Anthropometric and Morphological Analysis of a Prehistoric Skeletal Population from Santa Cruz Island, California</i> . By Thomas W. McKern. 1960, i-ii+39 pages, 1 card.	No. 23	<i>The Hazzard Collection</i> . By Floyd W. Sharrock. 1963, i-xiv+292 pages, 5 cards.
No. 11	<i>Salvage Archaeology in Oklahoma. Papers of Oklahoma Archaeological Salvage Project, Volume II</i> . By James B. Shaeffer. 1960, i-v+233 pages, 4 cards. With identifications and morphology by Alice M. Brues [and others]. Norman, Oklahoma, The University of California Research Institute.	No. 24	<i>Documentation for Chapters in Prehistory of Eastern Arizona, II</i> . By Paul S. Martin, John B. Rinaldo, and William A. Longacre. 1964, i-iii+362 pages, 7 cards.
No. 12	<i>The Chronological Significance of Maya Ceramics</i> . By George C. Vaillant. With a foreword by James C. Gifford, 1961 1927 (1960), i-xi+ 427 pages), 7 cards.	No. 25	<i>The 1959-1960 Transwestern Pipeline; Window Rock to Flagstaff</i> . By Alan P. Olson. 1964, 100 pages, 2 cards.
No. 13	<i>Documentation for Prehistoric Investigations in the Upper Little Colorado Drainage, Eastern Arizona</i> . By John B. Rinaldo, William A. Longacre, Leslie G. Freeman, and Paul S. Martin. 1961, i-iv+156 pages, 3 cards.	No. 26	<i>Test Excavations at Maria Camp, British Honduras</i> . By David M. Pendergast. 1965, 47 pages, 1 card.
		No. 27	<i>Documentation for Chapters in Prehistory of Eastern Arizona, III</i> . Paul S. Martin, James N. Hill, and William A. Longacre. 1966, i-iii+351 pages, 6 cards.
		No. 28	<i>The Archaeological Sequence from Sipolite, Oaxaca, Mexico</i> . By Donald L. Brockington. 1966, i-xiii+419 pages, 7 cards.
		No. 29	<i>Climatic Change and the Mill Creek Culture of Iowa</i> . Edited by David A. Baerreis and Reid A. Bryson (with other contributors). 1967, i-iv+673 pages, 10 cards.

files are searchable with OCR conversion available on Adobe Acrobat 8 Professional, but there are limitations with data searches.

The quality of any captured image is a product of the original page. These reports were produced on manual typewriters, thus letter impressions on a page and from page to page can be quite variable even when electric typewriters were later used, making accurate OCR difficult. Images of line drawings copied much

better than photographs. The photographs in the originals are quite variable in quality, and especially in contrast, from page to page and report to report. Finally, each digital image from the microcards was made by scanning through plastic of a greatly reduced positive photographic image. As a result, the scanning produced fine images of some pages, while others are a little soft or can be gray-toned, and photographs as noted tend to be "indifferent," with details lost.

We did some testing with images trying to enhance them in Adobe Photoshop, but the process was far too time consuming, and frankly, the originals were not that good in the first place. Users of the bundled PDF reports, however, can save individual pages and open them in Adobe Photoshop and adjust the levels. These adjustments can help on some photographs, but on others the quality of the original is so poor that digital enhancement does little good. As mentioned, difficulties in producing the card imagery were noted by the original editors, especially with the Orr reports (no. 20) because of oversize maps in the reports. We made copies of both reports 14 and 20 of the Archives series from the microcards so that our project would result in a complete digital set of all the reports from the microcards. Researchers interested in Orr's work should contact the Iowa OSA or EMNM. The PDF of report 14 is available from the scanned original document at MVAC as well as the converted version from the microcards.

Storage, Distribution, and Availability

This digitization project will make pioneering and important archaeological research of national significance widely and easily accessible in a systematic way to researchers, students, and the general public, which was the original purpose of the Archives of Archaeology. Through time, however, the feature-rich nature of PDFs may create difficulties in long-term preservation. Science-fiction buffs will note that in Arthur C. Clarke's 1973 classic *Rendezvous with Rama*, "The Ramans do everything in threes." With this in mind the data storage and access to the digital Archives of Archaeology is as follows. MVAC has a set of the original TIFFs and the bundled report JPEGs on its file server, and the Iowa OSA has a set of the bundled report JPEGs on its file server. Digital Antiquity (<http://www.digitalantiquity.org/>) has a set of the unbundled TIFFs and the report JPEGs and will host them online in their digital repository this spring on The Digital Archaeological Record (tDAR; <http://dev.tdar.org/confluence/display/TDAR/Home>). Finally, the University of Wisconsin Digital Collections Center (UWDCC <http://uwdc.library.wisc.edu/>) will make a metafile conversion of the original TIFF images and host the Archives of Archaeology on their web page in the near future. The MVAC and OSA sets are project archives, while tDAR and UWDC will provide ready online access to the Archives of Archaeology for study and downloading as well as maintenance of all the original TIFF images. Recall that we are unaware of the existence of an original report distribution list for the microcard series; however, tDAR and UWDCC will notify the Online Computer Library Center, Inc. (OCLC) when the Archives are launched. OCLC and its cooperating libraries and institutions produce and maintain WorldCat. Thus, those libraries and institutions that now have the microcard version will be made aware of the electronic version of the Archives of Archaeology for their library users.

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LOW STAKES, HIGH IMPACT LEARNING

A PEDAGOGICAL MODEL FOR A BIOARCHAEOLOGY AND FORENSIC ANTHROPOLOGY FIELD SCHOOL

Heidi J. Bauer-Clapp, Ventura R. Pérez, Tiffany L. Parisi, and Robin Wineinger

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Excavation and laboratory analysis of excavation data are critical components to the education and training of students interested in archaeology, bioarchaeology, and forensic anthropology. The January 2012 issue of the *The SAA Archaeological Record* featured an insightful Special Forum on Innovations in Archaeological Field Schools to illustrate key aspects of the archaeological field school experience. In this article, we outline a field school in bioarchaeology and forensic anthropology designed to address the unique issues fundamental to working with human remains.

Challenges and Limited Opportunities

Excavation and analysis of human skeletal remains are generally not part of traditional archaeological field schools in the United States, and rightfully so. However, this leaves students with few opportunities to develop skills in these areas. A brief Internet survey (utilizing Google and field school listings on shovelbums.com and archaeological.org) revealed fewer than 10 field schools in either bioarchaeology or forensic anthropology offered during the summer of 2012 in the United States. There are at least twice as many offerings outside the United States, but this is still a mere fraction of the number of archaeological field schools.

While these search results are by no means an exhaustive representation of all bioarchaeology and/or forensic anthropology field schools, they do illustrate two specific challenges for students. First, the majority of such opportunities are outside the United States, and combined costs for tuition, room and board, and transportation can be prohibitively expensive. In addition, field schools outside the United States will not expose students to U.S. laws associated with human remains, including unmarked burial laws, the Native American Graves Protection and Repatriation Act (NAGPRA), and the American justice system. Second, these field schools—both international and domestic—focus on either bioarchaeology or forensic anthropology, requiring students to choose an area of specialization, perhaps before developing a clear understanding of the similarities and differences between these two subfields.

Field and Laboratory Methods in Bioarchaeology and Forensic Anthropology: Course Design

Field and Laboratory Methods in Bioarchaeology and Forensic Anthropology, offered by the Department of Anthropology at the University of Massachusetts Amherst (UMass) is designed to provide broad exposure to both bioarchaeology and forensic anthropology and is framed around three goals: (1) to recognize

what constitutes data in the fields of bioarchaeology and forensic anthropology; (2) to understand how bioarchaeological and forensic fieldwork is conducted and get students comfortable with the idea of working in the field; and (3) to understand how field data is analyzed and interpreted in the laboratory. The five-week course is offered over the summer and is divided into three stages to mirror the course goals. Students initially read relevant literature, learn field techniques such as mapping, familiarize themselves with lab equipment, and gain hands-on experience working with real human skeletal remains through lab exercises. The second portion of the course is spent in the field excavating, and the final portion is spent in the lab analyzing field data and producing a written report to summarize results.

Prior to the excavation phase students are divided into two teams, one excavating in a bioarchaeological context and one in a forensic context. Communication between the groups is constant, so all students leave the course with nearly equal exposure to both subfields. Throughout the course students utilize the UMass Osteological Trauma Lab and the Taphonomy Research Lab (see Figure 1). Together the labs provide students with a comprehensive basic training that emphasizes the symbiotic relationship between taphonomy, bioarchaeology, and forensic anthropology and/or forensic archaeology.

This course provides a low-stakes, high-impact opportunity to learn excavation and laboratory analysis methods through two specific pedagogical choices. First, the field school utilizes “burials” and “crime scenes” built with plastic skeletons. (Plastic skeletons are used during excavation only; all lab work is conducted with real human skeletal remains.) Learning excavation on constructed sites allows students to focus on the learning process without worrying about making mistakes that could be costly in a traditional research-oriented field school.

Second, the course features a peer education component, with students working as a team to determine the best course of action for each step in the excavation and analysis processes. This course is not designed to provide students with specific instructions on how to excavate and analyze data, but rather expose them to the relevant literature, methods, tools, and technology, then place them in a situation where they must think about how to apply these elements. Our peer learning approach enables students to identify their own research goals and plan how these goals might be achieved. This pedagogical approach creates a democratic discourse easing potential alienation between the students and the instructor while promoting reciprocal critical learning. Thus, the learning process is negotiated, with leadership by the graduate student instructor. This is a vital learning-how-to-learn skill, providing students with leadership roles and conflict-management skills that enhance their learning outcomes.

The course design emphasizes how bioarchaeology and forensic anthropology work in the “real” world. On the bioarchaeology side, students study NAGPRA, ethical and legal issues such as looting, and respectful treatment of skeletal remains. In addition, students are encouraged to consider how bioarchaeological research could be conducted in an engaged manner: What opportunities exist for collaborative work? Is there a role for descendant communities in research design? How do anthropologists share their results with a diverse array of interested groups?

On the forensic side, students are often attracted to the discipline through programs like *CSI* or *Bones* and come into the course thinking forensic anthropologists utilize flashy tools and run around solving crimes. Our course has been designed to provide a more realistic picture of what forensic anthropologists actually do. Students are also exposed to violence theory as a means to think about how the cultural contexts of violence are just as significant as the act of violence itself. Finally, students explore the emotional reality of working with human remains in a forensic context. Guest speakers discuss their experiences in the field and offer suggestions on mentally preparing to work with recently deceased individuals who likely died in a violent manner.

Finally, we address the reality that there are few available jobs in bioarchaeology and forensic anthropology. Students are encouraged to think about their career trajectory and how to best situate themselves to



Figure 1: The Taphonomy Research Lab is a 75-acre facility on the campus of the University of Massachusetts Amherst offering students hands-on research experience in taphonomy, field methods, and decomposition.

take the next steps. We bring in professionals who work in bioarchaeology and forensic anthropology—from both academic and non-academic settings—to help students understand what jobs in these fields actually look like.

Student Perspective: Robin Wineinger, Bioarchaeology Team

Nothing is more effective than hands-on experience in the field. Low stakes excavation makes it possible for students to gain experience without the risk of professional backlash. This method allowed us to become familiar with the basics of field and lab methods as well as develop an understanding of the large amount of data that need to be recorded, the importance of accuracy, and how much patience is needed during excavation.

Another essential component of this class was the opportunity for peer learning. Prior to beginning excavation, we participated in laboratory activities to introduce bioarchaeology and forensic techniques, including the basics of ballistics, ceramic dating, sexing and aging the skeleton, and distinguishing faunal from human remains. This was beneficial because we worked together and discussed our conclusions.

After the excavation we moved back into the lab to assess the information gathered in the field and I was chosen as the lab coordinator for the bioarchaeology group, which allowed me to utilize leadership skills I did not know I had. My team was able to exchange ideas in a risk-free setting and learn from each other while we collaborated to create a report based on our findings. Each student came from a different academic background, and most of us (me included) had no prior field or lab experience. Through this course we all gained essential laboratory and field skills and a better understanding of the fundamentals of bioarchaeology and forensic anthropology.



Figure 2: Students excavate a plastic skeleton as part of the bioarchaeological team in the 2010 field school.

Student Perspective: Tiffany Parisi, Forensic Anthropology Team

When there is a forensic implication tied to the exhumation of human remains, there is no room for investigative error. However, within the environment of this course, we were given the opportunity to conduct a forensic investigation where errors were not dire, and were actually beneficial to the learning process. As students, we were given free reign of the investigative process and had to apply the theory we learned in the classroom to actual field conditions. While we strove for perfection, mistakes were inevitable. However, since our site was specifically designed as a learning opportunity we were able to learn from our mistakes and focus on our specific interests without external distractions or professional consequences.

The field school was structured around student-directed field and lab work so we were often in the position of needing to explore different ways of conducting our investigation. Even when students had previous excavation experience, we were largely trained in different techniques. Our group discussions were an exercise in learning how to communicate effectively within a diverse team dynamic as we discussed the importance of different possible techniques and how the application of each could be beneficial to our success. In previous field experiences I have seen how detrimental poor communication can be, but I felt that the low-pressure nature of this field school contributed to our ability to overcome our disagreements. This experience enabled us to learn about the whole picture of the investigative process and learn how to navigate this process in a professional and efficient way.

I have always been drawn to pursuing a career as an applied, public anthropologist, and this course introduced me to ways in which issues of public involvement, NAGPRA, and non-academic writing could be viewed in a positive manner as each served as complementary parts to a larger system. I took this new-



Figure 3: Students search for clues on where to begin excavating as part of the forensic team in the 2010 field school.

found passion with me and have developed a forensic anthropology summer camp for 4th–8th graders that Robin Wineinger and I will teach in July 2012 through the Smithsonian Institution. It is my hope that this experience will allow the public to become involved and interested in anthropology and establish the importance of historical stewardship and connecting with our past.

Instructor (Heidi Bauer-Clapp) and Director (Ventura Pérez) Perspectives

As a graduate student instructor for this course, I gained experience by leading teams in the field, but with the same low-stakes setting as the students. I was able to focus on the logistics without the added pressure of developing a research agenda, which proved to be a tremendous asset when planning my own fieldwork. In addition, facilitating the peer-learning process strengthened my ability to communicate with students, mediate conflicts, and foster a student-centered teaching approach as I encouraged students to apply what they have learned without looking to me for answers.

As director of the field school and a bioarchaeologist working in Mexico, the abovementioned benefits are significant. My graduate students have honed their teaching and logistical skills before setting foot on the site. They have thought about time management and have become balanced, independent researchers who are willing to ask for and listen to advice from multiple voices. In addition, in the years to come I expect some of the Spanish speaking undergraduates who matriculate through our field school to find their way to some of the sites I am working at in Mexico, ready to begin work immediately. Indeed, my newest Ph.D. student and one of the co-authors of this article, Tiffany Parisi, followed this very path.

Foundational Learning Experience

Ideally, students leave this course with an understanding of the broad scope of bioarchaeology and forensic anthropology. Students are in a better position to make informed decisions when choosing a subfield, entering graduate school, or seeking employment. In addition, students will be well-situated for future field experiences, as they have already spent time becoming comfortable working in the field, communicating with team members, and understanding the consequences of mistakes made in the field or lab. This course is not designed to replace a more traditional research-focused field school but rather provide students with a skill set that can be applied in a variety of settings.

For more information on Field and Laboratory Methods in Bioarchaeology and Forensic Anthropology offered in the summer of 2012 at UMass please visit www.umass.edu/bioarchaeology.

A BIOARCHAEOLOGY OF SOCIAL IDENTITY

Sabrina C. Agarwal

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The unique nature of the human skeleton as the creation of both biological and cultural influences is central to the field of bioarchaeology. The details of the life you lead, including such things as the amount of physical activity you have, the food you eat, or number of children you bear, can all leave traces in your skeleton. This gives the bioarchaeologist the ability to do more than just describe the anatomical details of ancient bones, but actually use the clues observed in the skeleton to decipher aspects of past lifestyle and behavior. Biocultural approaches in bioarchaeology emphasize the synergistic relationship of social, cultural, and physical forces in shaping the skeletal body (Armelagos et al. 1982).

Recently, bioarchaeologists have become interested in the study of social identity in the past. Identity is composed of multiple features that are connected together to create an individual personhood, and can be an individual perception or imposed by a larger community. Gender, age, class, ethnic affiliation, and religion all represent forms of social identities (Knudson and Stojanowski 2008), and one's identity is not composed of one of these forms but rather an intersection of multiple social variables. How do we go from looking at dry and static bones to reconstructing social lives? The first key has been the greater contextualization of archaeological skeletal remains. Recent studies have emphasized the deeper understanding of past life ways gained through the close and simultaneous consideration of archaeological, historical, and ethnographic sources of data along with skeletal analyses (Blakey and Rankin-Hill 2004; Buikstra and Beck 2006). The second key comes from the realization that the human skeleton is more than a record of one's life—it is literally a product of that life. While the shape and size of the human skeletal body is the result of millions of years of evolutionary history and trajectories laid down during genetic development, individual life history plays a significant role in creating each person's unique skeletal morphology. Lived experiences over the entire life cycle, even experiences *in utero*, play a role in build-

ing the final skeleton that we observe in the archaeological record. Approaches that recognize the cumulative nature of biosocial influences over the lifetime are crucial to unraveling the social lives of past people.

The Sex and Gender of Bone Loss

The study of social identity in bioarchaeology has particularly focused on identities based on gender, age, or health (Holimon 2011). I became interested in the sex and gender of disease early in my graduate career at the University of Toronto, where I focused on what is regarded as a well-known "female" disease—osteoporosis.

Osteoporosis is a loss or change in the amount (bone density) and/or organization of bone tissue with subsequent increase in bone fragility (or fracture). It is a growing health concern in the aging populations of developed countries; in the U.S. alone it is reported that osteoporosis is a major health threat for 44 million Americans, with one out of every two women, and one in four men over 50 expected to suffer from an osteoporotic-related fracture in their lifetime (National Institute of Health 2006). Women lose bone earlier and more dramatically than men, and as such are at a much greater risk for osteoporosis. While bone loss is clearly related to menopause and age, it is known that additional factors such as ethnicity, nutrition, physical activity, pregnancy, and lactation all play an important role in bone maintenance (Ward et al. 1995).

While there have been many studies of bone loss in bioarchaeology that recognize the multifactorial etiology, bone loss in the past is still generally regarded to be an inevitable consequence of menopause and aging (Macho et al. 2005). When I began my research in osteoporosis I was struck by how many historical populations show differing patterns of bone loss as compared to modern populations. Specifically, bone loss in the past is often seen in young-aged individuals,

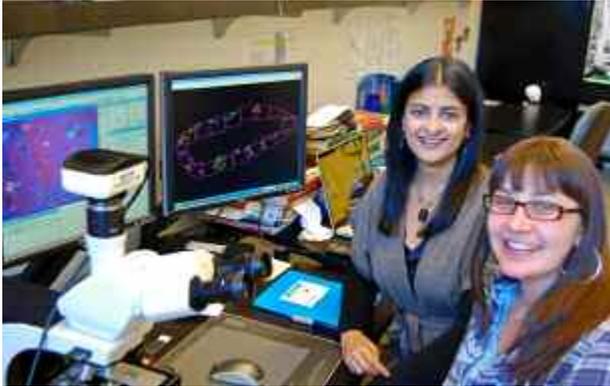


Figure 1. Sabrina Agarwal in her lab with Graduate Student Melanie Miller.

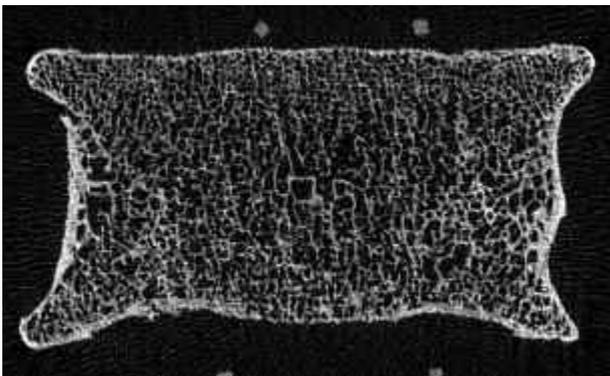


Figure 2. Peripheral quantitative tomography (pQCT) image of a human vertebrae.



Figure 3. Graduate student Patrick Beauchesne in the Skeletal Biology Lab UC Berkeley.

is similar in both males and females, and there is a low prevalence of fragility fractures. I have since realized that there are no given or universal sex-related patterns of bone loss geographically or temporally in the past. What work by myself and other researchers has shown is that bone loss can tell us much more than just the deterioration of bony tissue with age; it can also tell us about the social lives people had before they aged.

A Historic Example

The study of bone loss I have made at two contemporaneous British Medieval archaeological samples, one excavated from a deserted medieval rural village, Wharram Percy, and the other from an urban setting in London, illustrates the variation we see in aging and fragility of the skeleton. The rural sample, Wharram Percy, dated between the eleventh and sixteenth centuries, is located in North Yorkshire, England (Mays 2007). The second sample was drawn from two combined urban archaeological samples excavated from the city of London, England: St. Nicholas Shambles, an early medieval parish cemetery dated archaeologically to the eleventh and twelfth centuries (White 1988), and the East Smithfield Black Death cemetery from the Royal Mint site in London, one of the first Black Death cemeteries dated to A.D. 1349 (Hawkins 1990). I examined patterns of age-related change in the microarchitecture of the trabecular bone (the honeycomb inside layer of bony tissue) in the vertebrae (specifically the 4th lumbar bone of the lower back) in both the rural and urban skeletal samples—and the results were surprisingly different.

In the rural Wharram Percy sample, both males and females showed a loss of trabecular bone between young and middle age, with no change in trabecular structure seen in old age. These patterns of bone loss in young age, and the equal loss of bone in both sexes in old age, differ from modern populations that show females to suffer bone loss post-menopause and typically greater loss of bone overall as compared to males. In contrast, in the urban sample only the females showed a loss of bone between middle and old age, a pattern similar to modern populations. So why does the rural sample show such different patterns of age-related bone loss as compared to modern populations, and why do patterns in rural Medieval women look so different as compared to urban Medieval women?

I have suggested that both reproduction and physical activity would have played important roles in bone loss and fragility in both of the medieval communities (Agarwal 2012). Reproductive behaviors, specifically high parity (the number of off-

spring born) and extended breastfeeding, in the rural medieval women would have dramatically altered their lifetime hormonal milieu as compared to modern women, and could have buffered them against dramatic menopausal bone loss. Further, levels of physical activity for the rural medieval peasants would have been very high as compared to modern populations (Gies and Gies 1990). Both sexes would have had very arduous lifestyles that would have helped maximize bone mass accretion during growth and helped prevent bone loss later in life. In comparison, while the urban medieval communities would have more active lifestyles than our own, life in the urban setting came with more gendered activities and occupations. The lack of intense activity for urban women as compared to the rural women could explain their more modern patterns of postmenopausal bone loss. Also, urban women would have had different reproductive behaviors compared to rural women, with likely shorter periods of breastfeeding and more common use of wet nursing (Gies and Gies 1981), which again could explain their more modern patterns of bone loss.

Age and Gender Identity

Variation in bone loss in the medieval populations is not just related to reproduction or activity, but specifically to the gendered differences in these behaviors within and between the groups. This means that patterns of bone loss, or variation in any aspect of morphology on the skeleton, can help us make valuable inferences about social lives and identities. This has led myself and my students at the Skeletal Biology Lab at UC Berkeley to continue research on the influences of variation in bone morphology, and how we can use this work to inform our understanding of age and gender in the past and present.

This includes work such as directly examining the effects of reproduction on bone metabolism, looking at the synergistic link between factors such as diet and activity, and looking the plasticity of skeleton during growth and development. It is increasingly evident that what is really important is how influences are played out over the life course of an individual, and the cumulative effect they may have on the skeleton that we observe. Thinking of these influences over the life course allows us to go beyond the skeletons we observe and can give us a glimpse into the social worlds that the bodies we look at once inhabited.

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A BIOARCHAEOLOGY OF CAPTIVITY, SLAVERY, BONDAGE, AND TORTURE

Debra Martin and Anna Osterholtz

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Although we started our careers at very different times (Debra received her Ph.D. in 1983, Anna will likely complete hers in 2013), we have converged on a topic that has captured our imaginations as well as kept us up at night with images of people in pain and circumstances of untold horror. Our current research delves into the origins and evolution of culturally sanctioned violence used to subdue, capture, enslave, or torture humans.

As anthropologists, we use bioarchaeology as a means to *explain human behavior*. In this case, we want to understand the biological impacts of prolonged periods of abuse at the hands of others or what it means to be literally worked to the bone as a slave, captive, or indentured servant. We work with theories about the ways that nonlethal and lethal violence are used to subdue and exploit humans. Captivity, slavery, and torture are very old and ancient practices, going back as far as there are written records. Bioarchaeology can make important contributions to explaining how violence is used to create and reinforce particular kinds of social orders.

Bioarchaeology is the analysis of human remains in a richly detailed and nuanced context that integrates biological, cultural, and environmental data from a number of sources. Joanna Sofaer captures the essence of this kind of integrated research when she says “we cannot take an empiricist view and assume that osteological data speak for themselves . . . as the body is simultaneously biological, representational and material” (2006:11). Bioarchaeology is informed by the use of frameworks, models, and theories that aid in thinking through the different ways that bodies can reveal the effects of past behaviors. The work we do in studying violence is a form of archaeological witnessing of horrific past events that helps us sharpen our understanding of what motivates and drives the systems of power that use violence (see Schepers-Hughes and Bourgois 2004). Shining a light on these complex behaviors can reveal how violence is embedded in social structures.

How can bioarchaeologists differentiate violence on the body that is related to captivity, bondage, or slavery from other possible causes? One example is a series of studies we conducted on a group of women who lived among an Ancestral Pueblo community around 1,000 years ago (Martin et al. 2008). Integrating skeletal analysis, mortuary context, archaeological reconstruction, and neuropathology, we were able to use multiple lines of evidence that all pointed to captivity and enslavement. A subgroup of women showed injury recidivism, that is, repeated trauma and injury over the course of a lifetime (see Judd 2002 for one of the first studies linking injury recidivism to violence in ancient societies). Indicators included healed cranial depression fractures likely due to blunt force trauma obtained during raiding and abduction of females. These women also had a variety of healed fractures on the lower body, as well as localized trauma to the joints (e.g., dislocated hip joint). These may be the result of punishment or harsh treatment. These women also had indicators of poor health (infections, nutritional problems). Months or years of hard labor resulted in pronounced muscle markers, traumatic osteoarthritis, and trauma-induced pathologies in these women. They were recovered from burial contexts different from individuals who did not have bodies wracked with trauma and pathology. In this case, the women seem to have been placed without any intentionality or grave offerings and in abandoned pit structures.

Philip Walker (1989) found patterns of healed cranial depression fractures on men and women from a southern California group also from about 1,000 years ago. However, there was not a pattern of injury recidivism or differential burial context, and this led him to suggest that the head wounds were related to ritualized violence during periods of environmental stress. In this study, Walker was the first bioarchaeologist to show that blows to head severe enough to leave cranial depression fractures could have caused some brain injury. He made the initial connection between healed head wounds and long-term behavioral changes in the form of



Figure 1: Debra Martin working in her bioarch lab with undergraduate student, Kristin Halsey.



Figure 2: Anna Osterholtz in the Sheilagh Brooks Osteology Research Lab at UNLV.

migraine headaches, dizziness, impaired judgment, and other side effects of traumatic brain injury.

We extended Walker's observations by working with a neuropathologist (Bradley Crenshaw) who examined the crania of the Ancestral Pueblo females with head wounds. We learned that brain injury results when external forces are applied to the outside of the skull and are transmitted to the brain. The damage occurs in two places: at the coup (where the blunt force is applied) and the contra-coup (where the brain slams into the opposite side of the skull from the force of hit). A multitude of side effects are possible, depending on which parts of the brain are most damaged. As an example, one female (age 30 at the time of death) had survived a crushing blow that affected a large area at the top of her head. Dr. Crenshaw analyzed the extent of her injuries and felt certain that she would have had life-long behavioral challenges. Given the size, location, and status of her injury, she may have had problems not only with migraines and dizziness, but also with motor control, balance, and general coordination. In addition to healed head wounds, this woman also had a dislocated hip that could have been from poor balance and problems with motor coordination, both of which are long-term side effects of traumatic brain injury.

Bioarchaeology of the Atlantic slave trade in the Americas was pioneered by Michael Blakey (1998) with his oversight of the African Burial Ground Project. He and his students documented the ways that the skeleton reveals the accumulative effects of subjugation and hard labor. Their findings show how pronounced musculoskeletal markers and traumatic pathologies leave signs that suggest excessive, grueling, and long hours of physical labor. The bones tell a story of individuals being worked beyond their physical capabilities.

Dealing with the bioarchaeology of torture and executions has also revealed that there are key patterns revealed on the skeleton. The assemblage at Sacred Ridge, Colorado, for example, is made up of the remains of at least 33 people who were killed, dismembered, and placed in a pit structure around A.D. 800. Examination of the foot bones of these individuals shows a pattern of injury that is consistent with hobbling and torture, which would have been a tremendously performative aspect during the massacre. Individuals would have been forced to watch their kin being hobbled by blows and cuts to the sides of the feet and tortured by beating the soles and tops of the feet. Peeling of the bony tissue as well as cut marks, buckling of the bone, and other marks consistent with torture and hobbling are present on adult remains of both sexes. Hobbling would have made it impossible for the individual to physically move or flee; this has both physical and psychological effects. Hobbling is visible through the damage to the sides of the feet, caused by both blows and cutting of the ligaments that stabilize the foot for walking and running. Torture through beating the soles of the feet has a long and diverse history worldwide. Torture cements the social control of a captive by literally giving the aggressor power to inflict pain (or to stop the infliction of pain). These types of injury have absolutely no utility after death, and so must have been perpetrated prior to death.

How Can These Data from the Bodies of Former Captives and Slaves Aid In Understanding Modern Day Slavery?

The current relevance of these types of behaviors cannot be overstated. Media images and descriptions provide daily references to the global trafficking of humans in an under-

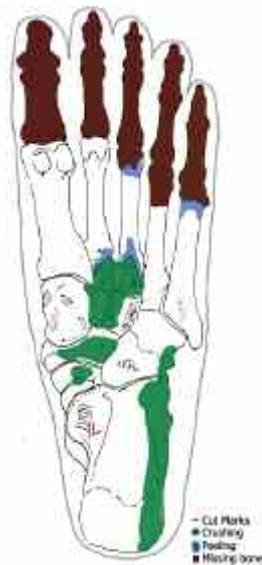


Figure 3: Diagram showing torture and disarticulation of the foot bones. The blue area represents places of bone crushing, green represents bone peeling, and brown is missing digits. Slash marks on the tops of the bones represent perimortem cut marks.

ground slavery movement that affects at least 27 million people worldwide. We also know that in war-torn regions and places defined by sectarian violence, people are kept captive and are at times tortured or ceremonially executed as a way of sending particular kinds of messages to the witnesses.

Using theories about the ways that violence permeates a social system, direct violence is the physical bodily harm done to individuals, and the bones of these people can reveal at least some of that. As important as this is to document, even more so is structural violence that includes laws, social programs, and political economic systems that utilize the by-products of violence: subordination and fear in the maintenance of inequality. It is culturally sanctioned violence that makes direct and structural violence look and feel normal.

Bioarchaeology is uniquely suited to provide data on direct, structural, and cultural violence because it has the potential to integrate evidence from many different levels of analysis. From the bones of those that suffered, to the manner that they were interred, to the larger community that they lived in, and finally to the regional context in which the political and economic events played out.

Still, there are many challenges in reconstructing captivity, slavery, bondage, and torture. Pain is notoriously difficult to

document and even more difficult to objectively score, since each individual will feel pain at differing intensities. Equally difficult for us as bioarchaeologists, and even more important for us when examining concepts such as torture in a performative light, is the impact that another person's pain has on a witness. In some ways, being forced to watch someone you care for in pain may be as powerful as being subjected to such pain yourself. Not only is someone you care for in distress, but you have no power to mitigate the situation. Pain is inherently relatable, so the examination of pain is a way to humanize work such as that seen at Sacred Ridge, where the scale of the massacre has a tendency to overwhelm individual observations. Through our collective studies of these kinds of violence, we can get an idea of what that individual felt and imagine ourselves and our families in a similar situation.

Bioarchaeology has only begun to scratch the surface of understanding the biological effects and social contexts of captivity, slavery, bondage and torture. These data from the bioarchaeological record show patterns in trauma and injury that provide important insights into the ways that violence is used to inflict pain and suffering in the service of larger political, social, and ideological agendas.

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THE BIOARCHAEOLOGY OF VIOLENCE

INFUSING METHOD WITH THEORY

Ventura R. Perez

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My relationship with violence has always been complicated. I was six years old when my father first put me in a boxing ring, and to this day my preferred method of stress reduction is the heavy bag that hangs in my basement. I fought in and out of the ring until I was eighteen and never considered my actions to be violent or thought much about the concept until I was twenty-one. That year I was working at a level-one trauma center in Atlanta, Georgia as a security guard. On Thanksgiving Day, in the late afternoon, we got word that a gunshot victim was on his way in by ambulance. I helped unload the stretcher, and he died as we wheeled him in to the ER. A few minutes later his mother arrived and was told her son was dead. She wandered out into the parking lot and collapsed screaming “My God, I’ve lost both of my sons today.” As it turned out, during dinner the brothers had got into a fight and one of them drew a gun and shot the other. Now one was dead and the other was going to prison. It was at this moment that I began to see violence in a profoundly different way. Although I did not have the vocabulary to explain what I had seen, I would ultimately spend the next half of my life studying the effects of interpersonal and institutional violence. The path was long and complicated, winding through forensic anthropology, archaeology, and ultimately biological anthropology.

Today, I am constantly struck by how much change has occurred over the past decade in the theoretical and methodological approaches to understanding violence in ancient and historic populations. Bioarchaeologists have begun to move away from the narrow lenses of trauma analysis or pattern recognition to the analysis of conflict patterns as they pertain to systems of power and violence. Over the past thirty years, the analysis of human skeletal remains from archaeological sites has shifted from a solely descriptive endeavor to a scientific subfield that embraces hypothesis testing in the context of anthropological archaeology. The difference between skeletal analysis and bioarchaeology is that the latter employs an interdisciplinary and cross-cultural research tool that can aid in the analysis of a wide range of data on violence.

In his article “Bioarchaeology as Anthropology” (2003:27), Armelagos notes that “scientists’ perceptions of their discipline clearly influence how they frame their research agenda.” Bioarchaeology is at its best when infused with a four-field approach to the analysis of human remains. This is particularly true when bioarchaeologists are exploring the topic of violence. I was fortunate to receive my M.A. and Ph.D. in a true four-field department. I took courses in linguistics, cultural theory, archaeology, and biological anthropology. My dissertation included chapters on taphonomy, bioarchaeology of the Greater Southwest, and violence theory. As a faculty member in that same department, I now find myself serving as a committee member for graduate students in all four subfields. What I have to offer these students and my colleagues is an understanding of the necessity of a holistic approach to violence studies.

My work ranges from pre-Hispanic archaeological sites in southern Zacatecas, Mexico to drug cartel violence in Ciudad Juarez and is embedded in a biocultural model. What I find exciting about the new directions that bioarchaeology is taking in 2012 is that not only are we seeing more researchers embracing a biocultural approach in their analysis and interpretations of skeletal material evidencing violent trauma, but there is an attempt to incorporate an interdisciplinary methodology in order to have a meaningful dialogue around the ideas of interpersonal and institutional forms of violence. This is crucial if we are going to engage in a narrative of violence that can be understood not as a bifurcated analysis of literal versus metaphorical but rather as a complicated aesthetic.

Bioarchaeology offers a useful approach to the classification and interpretation of traumatic injuries that are often indicative of conflict and violence (Walker 2001). Bioarchaeology accomplishes this by bridging the chasm between biology and the social and environmental dimensions of the populations being engaged. This approach has allowed me to move seamlessly between projects that focus on the pervasive, ancient, and infinitely varied forms of violence that are gen-



Figure 1: Ventura R. Pérez at age six, photo by Grant Elementary School, Moline, Illinois

erally a poorly understood central facet of human life. The starting point is always the skeleton or the body and the physical manifestation of the violence, but my real interests lie in the normalization of the use of violence. By combining the skeletal data with archaeological, ethnohistoric, historic, and/or contemporary documentation, I am able to create potent models for understanding past populations.

An example in my own research comes from the Greater Southwest where the range of variability in the disarticulated and extremely processed human remains from a number of sites makes suspect the notion that one overarching activity, such as mini-armies carrying out public executions, warfare, witchcraft retribution, or cannibalism, could account for the differences. All of these are quantifiable in their placement, type of modification, degree of breakage, and pattern of cutting, but represent what I have termed “check-list” osteology, where the data is without context. This reflects why it is important that bioarchaeology continues to move away from its reliance on data collection that considers only the presence or absence of taphonomic information and, in doing so, focuses on a descriptive account of the processed human remains, largely ignoring or, at best, glossing over the many categories of human behavior that produce such assemblages.

If we were to simply look at the taphonomic sequencing on the remains at the Ancestral Pueblo sites of Peñasco Blanco and La Plata, and the epiclassic site of La Quemada, we would see considerable overlap in how the remains were culturally modified. However, when we layer in a more complex analysis of the cutmarks and processing, we begin to see that some of the disarticulated assemblages have nothing to do with violence and everything to do with burial rites, veneration, or consecration. Burial rites (unrelated to violence *per se*) may be occurring simultaneously with acts of violence and intimidation.

It takes careful examination of each assemblage as part of the total site reconstruction to see the difference. My analysis of these three sites started with a detailed analysis of per-

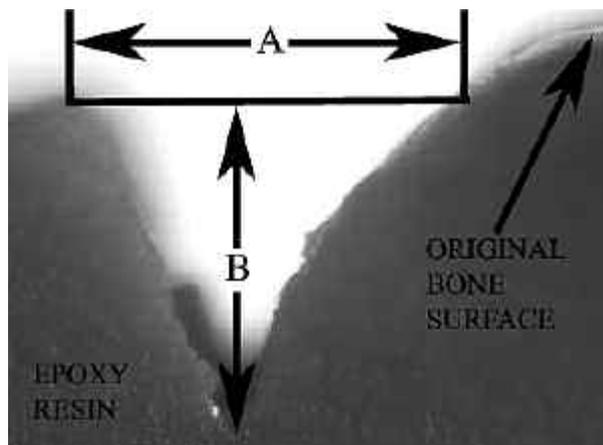


Figure 2. Measurements taken of cross-sectioned replica of bone with cutmarks to determine the maximum width and depth of the cutmark kerf.

imortem and postmortem tool-induced alterations on the human remains. The human remains were analyzed for patterns pertaining to health, trauma, and postmortem modification. Bones were then coded for the presence or absence of cultural and noncultural taphonomic processes. The placement, orientation, and form of cutmarks were then used to identify the types of tools that produced the marks, as well as to infer cultural processing as there is a direct correlation between tool type and mark characteristics (see Pérez et al. 2008 for detailed references).

The taphonomic analysis was the first step discriminating between direct forms of violence (i.e., sharp force trauma) and veneration (postmortem mortuary practices). The next step was to develop an explanatory model for the violence that did not use a single disciplinary lens. This is because such models are not sufficient to provide the temporal and spatial expanse or the cross-cultural analysis that an interdisciplinary approach to the study of violence offers (Pérez 2010). The theoretical framework I developed for analyzing the violence at Peñasco Blanco, La Plata, and La Quemada uses the concept of the “politicization of the dead” (Pérez 2012). This is based on the idea that the corpse is a transitional object for the victors and the vanquished that centers on the passage from life to death. The body is not only socially constructed as an object of knowledge but is also culturally shaped by the actual practices and behaviors of the group. This means the manipulation of the corpse holds significance for both those committing violence to the corpse and the community to which the corpse belongs.

Thus, the manifestation of the physical violence exemplifies intricate social and cultural dimensions. This is why Whitehead (2005:23) argues that acts of violence and warfare should be viewed as cultural performances that may be unfamiliar to “Western cultural experience.” His concept of the poetics of violence is one to which I ascribe and continue to build on using a biocultural paradigm. I argue most of the violence practiced in human societies is not considered deviant behavior. In fact, it is often seen as honorable when committed in the service of conventional social, economic, and political norms, and this is what Galtung (1990) and others are referring as structural violence. These social and cultural contexts are what give violence its power and meaning. They create a normalizing force known as cultural violence. To see violence as only an aberrant behavior committed solely by deviants blinds us to the role violence has and continues to play in the foundation of many human societies. The symbolic aspects of violence have the potential to create order and disorder depending on the specific social context within which the violence is expressed. This is the apparent paradox of violent studies. Most cultures feel their safety lies in their ability to control violence with violence. While people fear and abhor violent acts they see as senseless, they are more than willing to condone the “legitimate” use of violence to promote social control and economic stability. Sluka (1992:28) refers to this apparent paradox as the dual nature of conflict. Violence and conflict often have the ability to unite, create stability, and be progressive while at the same time generating the antithesis of these positive forces.

Bioarchaeology can be a powerful tool in deciphering the physical alterations left on the human corpse along with the death space and place it occupies offers similar challenges. The presence of offerings and types of preparation of the body can be related to politics, gender, power, and ritual. For populations that practice ancestor veneration, death does not end a person's participation in the life and activities of his or her community. Instead, it initiates a different mode of participation. The re-incorporation of the dead is often made tangible through material objects and human remains. These mortuary practices often create artifacts on the bones that can be misinterpreted as violent trauma. The identification of violence and trauma requires a nuanced and detailed analysis of both material culture and human remains. Thus, for the new bioarchaeologist the examination of cultural taphonomic indicators allowed the recognition between veneration and violent trauma. By placing skeletal assemblages into the larger cultural and environmental dynamics it becomes possible to explore the fundamental ways in which violence is linked to cultural and social factors within populations.

Within the research on violence, the challenges facing bioarchaeologists include the substantial range of different definitions and the equally substantial range of opinions about which definitions should carry authoritative weight. This is due in part to the prismatic nature of violence; similar actions can have vastly different consequences in temporally and spatially distinct cultures. It is for this reason I think it is critical to identify your positionality and to define how you want your audience to understand your definition of violence. Trauma analysis and violence theory are not mutually exclusive, but they are not interchangeable. As mentioned above, the word “violence” is loaded and it should be unpacked by the researcher at the onset of his or her work. We are beginning to see cultural, structural, and direct forms of violence being used by bioarchaeologists to clarify the range of violence being seen within a given population. However, I would caution my colleagues to move beyond Galtung's (1990) work on these concepts and to be clear about the genealogy of the theoretical perspectives you are infusing in your work. Specifying the genealogy of the violence paradigms upon which you are drawing becomes more important if you choose to nest the ideas of cultural, structural, and direct violence into a system of poetics that are culturally and historically specific and or embedding structural violence within broader theoretical modeling like debt theory or critical structural-Marxist theory.

Crapanzano (1986:238) noted “Violence rarely, if ever, exists in a pure form. It always has a narrative dimension.... We play with our stories in ways we cannot with the violence itself.” The performance and memory of the violence being discussed by bioarchaeologists are not static but are given new life by our work. They are being shaped and are shaping the cultural and structural violence implicit within the systems in which we work. That being said, I am excited by the promise of what is to come in violence research in bioarchaeology.

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THE BIOARCHAEOLOGY OF CARE

Lorna Tilley

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In early Neolithic Vietnam, a young man survived from early adolescence into adulthood completely paralysed from the waist down and with very limited use of his upper body. Dependent on others for meeting his most basic needs, Burial 9's survival was only possible because of the high-quality, dedicated, and time-consuming care he received.

Looking after those who are unable to look after themselves is a behavior that defines what it is to be human. Evidence suggests health-related care has been practiced within the human family at least the last 100,000 years, and some biologists even claim caregiving was essential human evolution. Certainly, our response to the health needs of others embodies a wealth of information about ourselves and our community, reflecting cultural norms and values; collective knowledge, skills and experience; social and economic organisation; and, more prosaically, access to the resources that allow the support of someone experiencing disability. It follows that where healthcare practice can be identified in the archaeological record, it has the potential to provide important—and possibly unique—insights into the lives of those under study.

This is where the bioarchaeology of care comes in.

“Bioarchaeology of care” can be employed as an umbrella term to include any and all bioarchaeological research into healthcare provision. More narrowly defined, it's a term I've appropriated in my Ph.D. research to describe a specific methodology I've developed for identifying and interpreting evidence for health-related care. In what follows I'm going to describe this new approach.

Definitions, Qualifications and Caveats

First, some background. In archaeology, the experience of pathology during life is expressed in human remains through lesions in bone or anomalies in preserved soft tissue. Health-related care provision is inferred from physical evidence that an individual survived with, or recovered from, a disease or injury likely to have resulted in serious disability. “Care” is operationally defined as the provision of assistance to an individual experiencing pathology who would otherwise have been

unlikely to survive to achieved age-of-death. “Disability” refers to a state (temporary or longer-term) arising from an impairment in body function or structure that is associated with activity limitations and/or participation restrictions, and given meaning in relation to the lifeways in which it is experienced.

What healthcare comprised depended on the nature of disability, context in which it occurred, and care recipient characteristics. For bioarchaeology of care research purposes, this care may be divided into “direct support” (e.g., provisioning, nursing, physical therapy) or “accommodation” of difference (e.g., strategies that enable a level of participation in social and/or economic activity). Care may begin as “support” and convert to “accommodation” as an individual recovers (but is left with some disability)—or *vice versa*.

There are obvious provisos. Care can *only* be inferred with reference to what is known about the contemporary social, cultural, economic, and physical environments. What constitutes health, disease, and disability is understood very differently in different cultures; the bioarchaeology of care can only postulate disability where there is evidence of significant physical impairment. Furthermore, everybody experiences disease in their own way—disability for one person may not be a disability (or not the *same* disability) for another. Assumption of the need for care—as well as the conclusion that care was provided—must always err on the side of caution.

Finally, the bioarchaeology of care approach can only be employed at a case-study level—at least when dealing with skeletal remains (the focus of the rest of this article). Most pathologies won't ever manifest in bone, and this means that in any prehistoric community the extent of past burden of disease—and consequently frequency of caregiving in response to this—must remain unknown.

Interrogating the Evidence for Care Giving: The Bioarchaeology of Care Methodology

The bioarchaeology of care methodology comprises four distinct stages of analysis, each building upon the observations and conclusions of the previous one. Although unplanned, these stages parallel those of Christopher Hawke's famous



Figure 1: Lorna at Kuelap

“Ladder of Inference”—the first stage concentrating on description and measurement, and the last wholly dedicated to interpretation.

All stages of the bioarchaeology of care necessarily derive from the set of human remains displaying evidence of disability. These remains possess the dual identity of “actor” and “artifact”; actor, because the skeletal elements represent a once-living person who faced the challenges of disability, and artifact because the skeletal indicators of disability only exist by virtue of the care that helped this person to survive long enough for the pathology to register in bone. This reading of the bones as simultaneously signifying individual (subject) and invention (object) underpins the analysis of care in prehistory.

Stage 1 is triggered by human remains showing evidence of living with, or following, a serious pathology. It records every aspect of the remains, their recovery context, and details of contemporary lifeways. Indicators of pathology are described, and diagnosis is attempted. If specific diagnosis is impossible, lesion characteristics may still provide clues to disease impact. The information recorded at Stage 1 is the foundation for all subsequent analyses.

Stage 2 considers the likely clinical and functional impacts of the pathology on the subject. Modern clinical sources are used to assess likely clinical impacts. Human biology has remained the same over millennia, allowing extrapolation from current knowledge of disease symptoms and complications. Tuberculosis or a compound limb fracture elicited the same basic physiological responses in the past as they do in the present. Estimating functional impact looks at the likely demands, obstacles, and opportunities in the contemporary lifeways environment, and evaluates the probable effects of pathology symptoms on the subject’s ability to undertake tasks of daily living, or to participate in their community, without assistance. The goal of the second stage is to establish whether, on balance of probability, the individual experienced a disability requiring either “direct support” or “accommodation” in order to survive. If the answer is yes, then we infer care.

Stage 3 identifies what—in broad terms—this care likely comprised. The goal is to produce a “model of care” within the parameters of the possible and the probable given the contemporary context. This model also considers how many people may have been involved in caregiving (in small groups care likely involved most members, to compensate for increased resource demands and/or reduced economic contribution of caregivers) and duration of care-provision. The fine details of care will always be inaccessible. For example, in any particular case we can’t know whether herbal remedies were used, or whether caregiving required prayers, spells, or exorcism. But basic practices don’t change. Haemorrhages must be staunched; bedridden individuals kept well-nourished, clean, comfortable, and regularly repositioned to aid circulation and prevent pressure sores; people with high fever kept hydrated. Often the more practical components of treatment can be deduced with some confidence from knowledge of the likely clinical and functional impacts of disease.

Stage 4 unpacks and interprets the model of care developed over the first three stages. It explores what the constituent elements—singly or in combination—suggest both about contemporary social practice and social relations and about group and individual (care-recipient) identity.

While each case of care is unique, there is a fundamental principle to be observed in *all* cases of health-related care: recognition that care is the product of agency. Caregiving is an intentional, goal-directed response to a perceived health crisis, and often consists of complex, interrelated, continuously refined and negotiated behaviors carried out over time. The decisions reached in relation to giving *and* receiving care hold the key to interpretation, and Stage 4 focuses on the likely choices made (and aspects of identity underlying these) that contributed to achieving the care outcomes observed in the skeletal remains under study.

In relation to *caregiving*, questions might consider, for example, what options were likely available for caring, which appear to have been adopted, and why; comparison of the potential costs and benefits of choices available and those selected; what the ability to provide care suggests about group organization, practice, and history; and what the decision to give care, as well as the type and extent of care given, suggest about general norms and values of the group.

In relation to *receipt* of care, a picture is drawn of what, within that lifeways context, the likely “normal” role of someone from the same demographic as the care-recipient may have been. What was the likely impact of disability on the care-recipient’s ability to fulfil this role? What alternative roles were available? What sort of personality characteristics might have been needed to manage pathology-imposed limitations—and what sort of personality might have

inspired others to support or accommodate this particular individual's needs, possibly in difficult circumstances? Attempting to identify characteristics of a person known only through their bones is speculation, but it's speculation based on a solid platform of reasoning. There is little as intimate as the experience of disability. We can never know with certainty how a prehistoric individual coped, but in cases of extreme disability we might be able to infer some broad character traits and behavioral strategies that were called upon.

Figure 2 illustrates the bioarchaeology of care methodology in action, using the example of the young man from Neolithic Vietnam introduced earlier. Although abbreviated, it gives some idea of the information available from the remains of someone who lived with disability (see Tilley and Oxenham 2011 for detail).

What Next—And Why?

In the bioarchaeological literature there are many cases of survival with disability. For example, the Neandertal Shanidar 1 survived cranial trauma, amputation of the right arm, various other injuries and osteomyelitis (Trinkaus and Zimmerman 1982)—suggesting “support” during acute injury and “accommodation” afterwards. Born with a mesomelic form of dwarfism, Romito 2 survived in mountainous, Mesolithic Calabria (Fraye et al. 1987); his remains display upper and lower limb abnormalities rendering “normal” male hunter-gatherer activity impossible—suggesting “accommodation.” In the early Italian Neolithic a woman survived for years with the increasingly savage effects of tuberculosis (Canci et al. 1996), impacts of which include pulmonary haemorrhage, respiratory infection, fever, pain, and finally, in this instance, spinal disintegration resulting in reduction or loss of lower body mobility—suggesting initial “accommodation” followed by “support.”

In some studies the likelihood of care is briefly acknowledged, although not elaborated. But in most it's ignored, and valuable information is lost. Wherever evidence in human remains meets the criteria for inferring care, there is a role for a bioarchaeology of care analysis.

Our knowledge of what happened in prehistory will always be partial. When we focus on issues such as care, which are intrinsically emotive, value-laden, and ultimately reliant on interpretation, it will also be contentious. However, the bioarchaeology of care methodology provides a structured, systematic, and transparent framework for analysis, enabling inference and interpretation to be scrutinized, challenged, and—where appropriate—changed.

Equally important, a bioarchaeology of care focus opens the way to a level of engagement with prehistory that helps us to

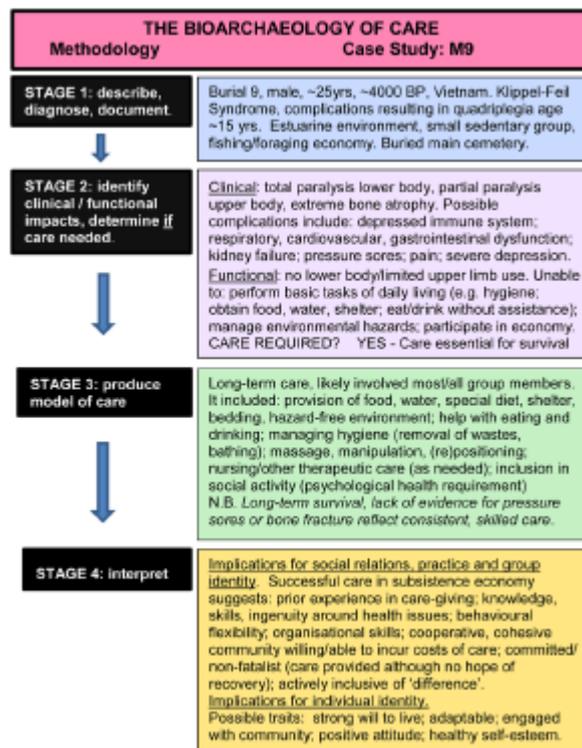


Figure 2: The four stages of the bioarchaeology of care methodology applied to the case of a young man from Neolithic Vietnam who lived with quadriplegia.

meet our responsibilities, as archaeologists, to (re)produce the past in a way that captures the complexity, the sophistication, and the humanity of those who have gone before. In this case, the focus on caregiving in the past also provides a new perspective for looking at the meaning and practice of this behavior in the present.

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THE BIOARCHAEOLOGY OF MIGRATION

Tiffany Tung

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Settling in a new land with different landscapes and food choices, strange customs, and unfamiliar people can be an overwhelming experience filled with challenges and opportunities, and this holds true for immigrants of today and the distant past. My father, who emigrated from China as a young adult, along with his mother and siblings, tells of sailing under the Golden Gate Bridge on Thanksgiving Day in 1951. Friends met them at the port and took them to a traditional Thanksgiving dinner—turkey, potatoes, pies, the works. “America really is the land of plenty!” To their chagrin, they eventually learned that Americans didn’t feast like that every day, but they were still overwhelmed by the new foods. Over time, my family’s diets and palates changed, and so too did the chemical make-up of their bones. Though undetected by them, their strontium, carbon, and nitrogen isotope ratios were changing by virtue of their newly consumed food and drink. Fortunately for bioarchaeologists, we can detect dietary changes through isotope testing and use that information to identify immigrants at archaeology sites and examine how immigrants differed from locals in terms of health and lived experience.

Throughout time, immigration and forcible relocation, as in slavery, abductions, and human trafficking (see Martin and Osterholtz, this issue) has led to major transformations in demography and cultural practices for both local and nonlocal groups, and it can contribute to new kinds of hierarchies. These can lead to very different life experiences and health outcomes for the foreigners and locals. Thus, a goal of a bioarchaeological study of migration (and foreigners, more generally) is to explore how that “outsider” status may have shaped one’s health. Did outsiders suffer poorer health relative to the locals? My aunt, for example, suffered from tuberculosis shortly after her arrival to the U.S. and was placed in a tuberculosis sanitarium where she eventually recovered. She likely contracted the disease on the crowded 19-day ocean journey in the bottom level of the ship. That particular immigrant experience shaped other aspects of her health,

both short and long term. Did immigrants of the distant past also have greater risks for disease? How else did their experiences differ from the locals? And importantly, how can we detect immigrants in a skeletal sample?

Trophy Heads and Strontium Isotope Analysis

I became interested in using bioarchaeological techniques to identify foreigners and examine their health profile in my study of the Wari Empire (A.D. 600–1000) from the central, highland Peruvian Andes. I, along with my colleague Kelly Knudson, used strontium isotope analysis to determine whether human trophy heads from the site of Conchopata were local or foreign (Tung and Knudson 2011). Wari iconography depicted Wari warriors carrying trophy heads, but it was unclear if they were the heads of (local) venerated ancestors or foreign enemies (Figure 1).

Before I describe our findings, I briefly explain some basic tenets of strontium isotope analysis, which is a technique that can help establish whether a person is from the area where they were buried (i.e., local or foreign). Various levels of strontium isotopes are found in different types and ages of bedrock, and because those vary in the Andes (and other world regions), we can estimate whether a person grew up in a particular geological zone. The ratio between ^{87}Sr and the stable ^{86}Sr ($^{87}\text{Sr}/^{86}\text{Sr}$) is constant as it moves through the food chain. Thus, the bedrock and soil, the plants grown in that soil, and the animals and humans that eat those plants all have the same strontium isotope ratio. As Douglas Price and colleagues (Price et al. 1994) first demonstrated in their study of a Southwest population at Grasshopper Pueblo, this makes it an ideal technique for determining whether an individual is from a particular region. If the strontium isotope ratio obtained from a skeleton is distinct from that of the local area, then the person is likely a foreigner.

Local strontium isotope ratios can be determined by testing

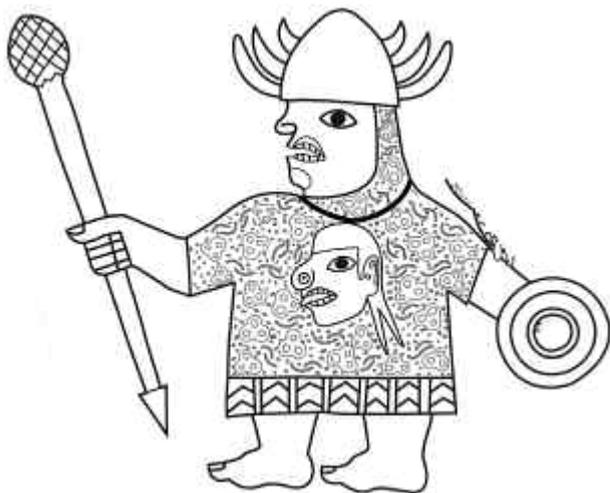


Figure 1: Wari warriors wearing trophy heads appear on enormous ceramic vessels from ritual buildings at Conchopata. It was unclear whether the trophy head was from a local venerated ancestor or a foreign enemy until strontium isotope analysis was conducted.

local soils and archaeological samples of local small animals that don't range far and wide (i.e., they eat only locally grown foods). Comparing the strontium isotope ratio in teeth and bones provides further distinctions, revealing whether childhood was spent in one locale and adulthood in another.

Because teeth form in the early years, the strontium (and other) isotopes from a child's food source are forever "locked" into the dental enamel. In contrast, bone is constantly remodeling, so strontium isotope ratios obtained from bone reveal the geological locale of one's food source in the last few to 10 years of life, depending on which bone is sampled. My father, for example, should have strontium isotope ratios in his teeth that match the soils of their family farm near Chongqing in Sichuan province, China, and his bones should reveal the mixed source of foods in his adult diet.

At the Wari site, we determined the local strontium isotope ratio with local soil and local, modern guinea pigs that consumed local foods. Results showed that the burials under house structures were local—as expected—and that the vast majority of trophy heads from ritual structures were foreign.

This, along with iconographic data that depicted Wari warriors carrying bound prisoners and trophy heads, further confirmed that the trophy heads were foreign captives brought back to the site for sacrifice and transformation into

war trophies. After identifying the locals and foreigners, questions about differences in health profiles and exposure to violence could be addressed. The mostly foreign trophy heads exhibited slightly more violence-related cranial trauma than did the locals and significantly more *cribra orbitalia*, a lesion on the orbital roof indicative of general physiological stress (Tung 2012). This suggested that these two groups, who differed by place of origin, had quite distinct lifeways.

Body Modification and Strontium Isotope Analysis

In some regions, the study of body modification practices can be used to differentiate locals and foreigners. My great-aunt was an obvious foreigner—her tiny, bound feet marked her, and many other Chinese women, as foreign-born in the Bay Area where many Chinese settled. In the ancient Andes, it was the head, not the feet, which visibly marked people's place of origin. At the urban center of Tiwanaku in highland Bolivia, occupied in the sixth to eleventh centuries A.D., Deborah Blom identified nonlocals based on cranial modification styles (Blom 2005). Reshaping of the skull must occur in infancy when the bones are malleable, so this bodily



Figure 2: Students who collaborate with Tiffany Tung are preparing dental enamel samples in the Isotope Laboratory in the Department of Earth and Environmental Sciences at Vanderbilt University. Students are Jasmine Kelly (Martin Luther King Jr. High School) and Jared Sninsky (Vanderbilt University).



Figure 3: The ritual room from where human trophy heads were recovered at the Wari site of Conchopata, Peru.

marker of identity was imposed early in life by parents or other community members, forever marking one's cultural affiliation. Blom found that local, highland populations elongated the skull, making it slope upward, while nonlocals flattened the skull from front to back (known as fronto-occipital modification), and both types were observed at Tiwanaku, suggesting that it was a cosmopolitan center with diverse populations residing there (or at least being buried there).

Blom's findings were further tested by Kelly Knudson and colleagues (Knudson et al. 2004) using strontium isotope analysis, which showed that three out of ten sampled individuals were foreign (Knudson et al. 2004). However, all three had been previously identified as dedicatory offerings based on associated artifacts and their burial in a ceremonial complex (Couture and Sampeck 2003). Thus, it is unclear whether they represent voluntary migrants who settled at the urban center and assimilated into Tiwanaku society or whether they were people or ancestral mummy bundles abducted specifically for use as dedicatory offerings. Nonetheless, the cranial modification and strontium isotope data show that Tiwanaku was an urban and ceremonial center used by people from diverse areas, in some cases as a new residential destination and for others as a final mortuary and ceremonial resting place.

Patrilocal vs. Matrilocality

Bioarchaeological techniques can also be used to investigate gender-based migration patterns. If sex-based differences in migration are detected, then it may be possible to reconstruct community organization as it relates to rules of marriage. At Conchopata, mentioned above, the strontium iso-

tope ratios from the "normal burials" (i.e., not trophy heads) showed that men and women were local, suggesting regional endogamy.

Across the globe, at a Late Stone Age (~4,500 years ago) site near Eulau, Germany, Wolfgang Haak and colleagues (Haak et al. 2008) found that male and child burials had strontium isotope ratios expected for the local region, while the adult females did not. Thus, they suggest that this group practiced exogamy, and that they were patrilocal: nonlocal females moved to the male's residence and then had and raised children in the local area. This would explain why the males and children had local strontium isotope ratios and the females did not.

I, along with my colleague Steve Wernke, are examining similar research questions at an Inka and early Spanish colonial site in southern, highland Peru, where male and female burials have been excavated from Inka-era burial towers (A.D. 1450–1532) and a colonial chapel (A.D. 1540–1575) (Figure 4). The two waves of colonialism—first Inka, then Spanish—may have altered marriage practices in that peripheral region.



Figure 4: Tiffany Tung excavating human burials at the Inka and early Spanish colonial site of Malata in southern, highland Peru.

Modern Applications of the Bioarchaeology of Migration

According to the Pew Hispanic Center, there were an estimated 11.2 million people identified as “illegal immigrants” in the U.S. in 2010. Sadly, many people die trying to enter the U.S. without detection, whether on crowded ships from Asia or crossing the desert from Mexico. Those who die at the Mexico-U.S. border are often unidentified, their bodies never claimed. The majority come from Latin America, especially Mexico, and bioarchaeological techniques are helping to identify those unclaimed corpses. While DNA testing is one method of identification, it requires that family members reveal that a loved one attempted to cross the border and that they give a sample for DNA testing, requirements that leave many silent. Strontium isotope analysis, in contrast, can be used to narrow down the regions from where a migrant came without asking family members to identify themselves or necessarily give bio-specimens. Chelsey Juarez (Juarez 2008) has been creating a modern strontium isotope map of Mexico by analyzing teeth of Mexican immigrants whose birth locations are known, and she has identified three distinct regions thus far: (1) Mexico City; (2) Jalisco and Guanajuato; and (3) Michoacan. She then examines the strontium isotope ratios of teeth from corpses found at the border to see if they match any of the known regions in Mexico. As she continues to document the strontium isotope ratios from other regions in Mexico and Latin America, her work is providing an important first step in identifying a deceased person's place of origin. This will increase the likelihood of a positive identification, so once-unidentified bodies can be repatriated to the family for mourning and proper burial rites.

In the investigation of migration patterns in the past and present, bioarchaeological methods provide reliable ways to detect the movement of people across the landscape. These studies can then help to clarify our understandings of what motivates a person to leave a land with known kith and kin for a strange, new place filled with odd customs, unintelligible languages, and total strangers. Although that journey may sometimes lead to death, violence, or a compromised state of health, problems in one's homeland and/or the allure of novel economic opportunities, possible marriage partner, among other benefits, have and will continue to motivate people to migrate to new lands.

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REPORT FROM THE SAA BOARD OF DIRECTORS

Janet E. Levy

Janet E. Levy is the Secretary for the Society for American Archaeology

The SAA Board of Directors met on April 18 and April 21, 2012, at the annual meeting in Memphis. The April 18 meeting was chaired by Alex Barker for President Limp who was unable to attend, and attended by Secretary Janet Levy, Treasurer Christopher Dore, and Directors Eduardo Neves, Kelley Hays-Gilpin, Patricia Crown, Karen Hartgen, Alston Thoms, and Melinda Zeder. President-elect Jeff Altschul, Secretary-elect Christina Rieth, and incoming Directors, Suzanne Fish and Sarah Herr, attended as guests; Executive Director Tobi Brimsek attended *ex officio*. The April 20 meeting was chaired by President-elect Jeff Altschul, and was attended by Secretary Levy, Secretary-elect Rieth, Treasurer Barker, Executive Director Brimsek, and Directors Neves, Hays-Gilpin, Thoms, Zeder, Fish, and Herr.

In his written report to the Board, President Limp discussed several of the past year's accomplishments. These include the solid financial status of the Society; a very successful first *Conferencia Intercontinental* held in Panama City, Panama, in January 2012; initial planning for an online version of *Current Research* in order to bring back this popular feature; publication of Kindle versions of several SAA Press Books; successful interactions with the Smithsonian Institution about a proposed exhibit of artifacts from the Tang shipwreck (the problematic exhibit is being reformulated); initial planning for the first Student Day, to be held at the annual meeting in 2013 in Hawaii; authorization of funding for a three-year test of offering child care at the annual meetings; and a decision to initiate a new fully on-line journal, *Advances in Archaeological Practice*. President Limp also noted how important the contributions of both SAA Board members and SAA staff are in achieving the Society's goals.

Director Zeder updated the Board on arrangements for the upcoming conference "Archeological Preservation, Avocational Metal Detecting, Ethics of Archeology," hosted by the National Geographic Society (NGS) and organized by the SAA, Society for Historic Archaeology, and NGS. Responding to the controversy over the NG Channel *Diggers* program, this May 4, 2012 conference will bring together different stakeholders with goals of developing concrete recommendations for television programming consistent with ethical archaeological guidelines, and developing the outlines of a code of best practices for avocational metal detectorists.

Executive Director Tobi Brimsek then discussed the highlights of her report to the Board. The SAA offices moved to new space in June 2011. The new location is near the Metro and restaurants and other services. The space is on an upper floor, not in the basement as before. The staff are very pleased with the new space. She described several changes in District of Columbia laws that impact how nonprofit corporations are run; these particularly impact how boards conduct business electronically. The SAA Bylaws will be updated to meet these new requirements. The Executive Director went on to discuss activities in Government Affairs. Little has been accomplished in the Congressional arena because of partisan gridlock. The SAA has sent letters to support preservation projects in various cases, and SAA members have testified on behalf of the Society before the State Department's Cultural Property Advisory Committee. The Executive Director reported that membership for 2011 was 6939 members, which is slightly lower than membership in 2010, but current membership is up slightly from spring of 2011. The Memphis meeting met its registration goals before the meeting started, and this should have a positive impact on membership. SAA activities in the area of Information Services have been busy over the past year, and this is expected to continue with several online initiatives, including a new journal and revival of *Current Research*. She closed by summarizing activities by herself and SAA staff in the areas of Education and Public Outreach, Publications, and Marketing.

Secretary Janet Levy reported the results of the elections. Jeff Altschul was elected as President-elect. Christina Rieth was elected as Secretary-elect; Sarah Herr and Suzanne Fish were elected as new Directors; and Elizabeth Chilton and Lynne Sullivan were elected to the Nominations Committee. Total ballots sent out were 7867, and 1,771 (22.5%) were returned; this is a slightly higher percentage than last year.

SAA Treasurer Christopher Dore reported on SAA's currently good fiscal condition. The Society has an annual operating budget of approximately \$1.6 million. Budget year 2011 was profitable for the Society because of income from dues, meeting registration from the Sacramento meeting, and investments which have been moderately successful even in the current difficult investment atmosphere. However, operating expenses are increasing, in part for reasons beyond SAA's control such as



SAA Board of Directors (Not pictured: SAA President Fred Limp). Front row, left to right: Suzanne K. Fish, Christina B. Rieth, Tobi A. Brimsek, Kelley Hays-Gilpin, and Janet E. Levy. Second row, left to right: Sarah A. Herr, Alston V. Thoms, Eduardo G. Neves, Jeffrey H. Altschul, Melinda A. Zeder, and Alex W. Barker.

changes in regulatory requirements, and needs for improved information technology. Certain sources of income, such as institutional subscriptions, are declining and will probably not rebound. Treasurer Dore recommended allocations of surplus to the SAA's Reserves Fund, as well as to funds focused on specific projects, such as upgrading information technology. The Treasurer also discussed the need to reevaluate policies about the allocation of monies from endowed funds to take into consideration maintenance of value over time, as inflation impacts the value of the principal in each fund.

Following reports from the officers and Executive Director, the Board turned to consideration of agenda items. Board members

were pleased to be able to allocate enough of the 2011 surplus to the Reserves Fund to raise reserves to 97 percent of one year's operating budget. A full year's budget held in reserve has been the Society's goal for about 15 years and we are in sight of accomplishing it. The Board also allocated surplus funds to the Technology Fund, the New Journal Start-up Fund, and to the Special Projects Fund (to fund a ballot on the bylaws, which is necessary to meet new regulations of non-profit corporations). The Board charged the Investment and Finance Committee to develop a policy for the dispersal of revenue from endowed funds that will take account of inflation and growth of funds over time, and will maintain the purchasing power of each fund, not just its absolute dollar amount.

Following reports of the successful first *Conferencia Intercontinental*, the Board agreed that SAA will hold a second *Conferencia* in 2014. We have learned a lot about the management and logistics of this meeting which will, we are confident, make the next one even more successful.

In the arena of publications, the Board confirmed that Christopher Pool and Gabriela Uruñuela will serve as coeditors of *Latin American Antiquity (LAQ)* for an additional year, ending their terms in 2014. The Board initiated a task force to choose new coeditors of *LAQ*. At the same time, the Board initiated a task force to choose a new editor of *The SAA Archaeological Record* to replace Jane Eva Baxter when her term ends in 2013. The Board confirmed the appointment of Christian Wells as the coordinator of an online version of *Current Research*; the goal is to post the first entries by the end of 2013. Finally, the Board directed the Executive Director to implement plans for a new, fully online journal, *Advances in Archaeological Practice*. The Board also initiated a task force to choose the first editor of the new journal.

During lunch on Wednesday, April 18, the Board was joined by Dr. Pedro Francisco Sanchez Nava, director of the Consejo de Arqueología of the Instituto Nacional de Antropología e Historia (INAH) of Mexico and Dra. Nelly Garcia Robles, of INAH's Coordinación Nacional de Arqueología. Our conversation confirmed the desire of SAA and INAH to continue close ties and collaboration.

At the close of the meeting on Wednesday, the Board was joined by Paul Welch, program chair for the Memphis meeting, who made some suggestions for future program chairs. We were also joined by Elvis, who congratulated Paul on a job very well done.

On Saturday, April 21, the Board had breakfast with chairs of SAA committees and organizers of interest groups, reviewed the processes for submitting reports and budget requests and for recruiting new members for committees, and discussed other issues. That day, the Board met during lunch with Ken Sassaman, incoming editor of *American Antiquity*, Chris Pool, coeditor of *Latin American Antiquity*, Ken Ames, editor of *The SAA Press*, Jane Eva Baxter, editor of *The SAA Archaeological Record*, and Deborah Nichols, chair of the Publications Committee. We had a general discussion about ongoing initiatives for SAA's publication program.

Also on Saturday, the Board was joined by T.J. Ferguson, chair of the Government Affairs Committee; David Lindsay, Manager, Government Affairs; and Lynne Sebastian, president of the Register of Professional Archaeologists (RPA). The discussion

focused on preservation issues related to shale oil and gas exploration ("fracking"), much of which in the eastern U.S. is being conducted on private land, and which impacts large land areas. This creates very difficult problems with implementing Sec. 106 mandates. RPA and SAA will continue to monitor the situation, and collaborate on future actions.

Shereen Lerner, chair of the Fundraising Committee (FC), reported to the Board on planning initiatives in the FC. The Board emphasized its interest in developing a method for recognition and ongoing acknowledgment of contributions in honor of or in memory of an individual, but a method that does not lead to proliferation of small funds with restrictive endowments.

Robert Connolly and Stephen Whittington of the Public Education Committee (PEC) reported to the Board on initiatives in public education; Connolly, incoming chair of the PEC, and his students have made excellent progress on updating the Public Education web pages on the SAA website. Laura Short, chair of the Student Affairs Committee (SAC), joined the Board to discuss detailed plans for the first Student Day, which will be held at the annual meeting in Hawaii. Student Day will occur on Saturday and one-day registration for students will be available. SAC is working with the Local Arrangements Committee in Honolulu to contact both high school and college students to encourage them to explore SAA. In the morning, special one-hour "learning labs" will be held, including "How to Apply for a Job" and "The SAA and Your Future Career in Archaeology." The SAC has developed additional creative ideas for the event. Also during our meeting, the Board changed the deadline for submissions to the Student Paper and Student Poster Awards, pushing the deadline much closer to the annual meeting. We hope this will encourage more submissions.

The Board discussed plans for its Fall meeting, when it will focus on the detailed report from the Task Force on Professional Development that outlines many opportunities for SAA to contribute to continuing education and professional development of its members. In closing, the Board sincerely thanks outgoing committee and task force chairs, and those who have written significant reports for their service to the Society: Caryn Berg, Marc Bermann, Chip Colwell-Chanthaphonh, Karen Harry, Margaret Heath, TR Kidder, Sarah Herr, Bradley Lepper, Jeanne Lopiparo, Emily Mclung de Tapia, Tomás Mendizábal, Sarah Neusius, Patrick Lyons, William Reed, Daniel Sandweiss, Margaret Scarry, Monica Smith, James Snead, Dean Snow, Miriam Stark, Renee Walker, Joe Watkins, and Paul Welch. President Limp also wished to sincerely thank outgoing directors Karen Hartgen and Patricia Crown, as well as outgoing Treasurer, Christopher Dore, for their service to the Society.



SOCIETY FOR AMERICAN ARCHAEOLOGY

77TH ANNUAL BUSINESS MEETING

MINUTES OF THE MEETING

Janet E. Levy, Secretary

Treasurer-elect Alex Barker called the SAA's 77th Annual Business Meeting to order at 5:10 PM on Friday April 20, 2012, after a quorum was determined to be present by the Secretary. Dr. Barker chaired the meeting, after explaining that President Fred Limp was unable to be present due to illness. He asked for the minutes of last year's business meeting in Sacramento to be approved. The motion was moved, seconded, and approved by the members present.

The Chair read President Limp's report to the members. The President thanked the Nominations Committee, chaired by Dean Snow, for their work on putting together an excellent slate of candidates. He thanked the outgoing Board members, including Treasurer Christopher Dore and Directors Karen Hartgen and Patricia Crown.

The president's report thanked all committee and task force chairs who are cycling off this year: Caryn Berg, Marc Bermann, Chip Colwell-Chanthaphonh, Karen Harry, Margaret Heath, T. R. Kidder, Sarah Herr, Bradley Lepper, Jeanne Lopiparo, Emily Mclung de Tapia, Tomas Mendizabel, Sarah Neusius, Patrick Lyons, William Reed, Daniel Sandweiss, Margaret Scarry, Dean Snow, Miriam Stark, Renee Walker, Joe Watkins, and Paul Welch. He also thanked Monica Smith and Jim Snead for their comprehensive report on child care. He urged members to submit their names as volunteers for committees, when the call for volunteers goes out in the fall. He also thanked all members who agreed to run for office. The Society is a volunteer organization that depends significantly on the contributions of its members to governance, outreach, meetings, and other projects.

The President thanked Paul Welch (Program Chair) and Jeanne Lopiparo (Annual Meeting Local Advisory Committee Chair), and their respective committees, for developing a successful meeting. He thanked Alison Rautman for her hard work during her term as editor of *American Antiquity* and welcomed incoming editor Ken Sassaman. He announced that the most recent

two years of *American Antiquity* will soon be available to members electronically.

The President especially noted the excellent work of Executive Director, Tobi Brimsek, and the SAA staff, including Shelley Adams, Lorenzo Cabrera, David Lindsay, Maureen Malloy, John Neikirk, Meghan Tyler, and Cheng Zhang. The Society is extremely fortunate to have a truly exceptional professional staff.

Turning to financial matters, the President was happy to tell the membership that the SAA is fiscally healthy and has reached a Reserves target of 97 percent of annual operating budget. This puts us very close to a achieving a long-term goal of setting aside 100 percent of annual operating budget in the Reserves Fund. The Chair was able to announce at this point that registration for the Memphis meeting had reached 3926 individuals, making this the third-largest SAA meeting in history.

Christopher Dore, Treasurer, gave his report. The SAA is fiscally strong. The Society has about \$5 million in assets, \$1.1 million in liabilities, and an annual budget of approximately \$1.6 million. Our current financial situation is good in part because of the well-attended annual meeting in Sacramento. Our investments have done reasonably well, despite a mixed equities market. During the last year, the Investment and Finance Committee worked with the Board to update our investment policies. The Committee has just been tasked anew to evaluate our investment policies to ensure that we not only grow the size of our investments into the future, but that our investments maintain their value and are hedged from inflation.

Our financial strength has allowed the SAA board to undertake new initiatives to better support the members and their work. These undertakings are a direct result of members' dues payments and additional contributions to the Society's endowments.

There is enough surplus to set aside 97 percent of annual operating budget as a reserve fund. Although the Society is financially healthy, there are things to watch for and which will require careful budgeting. Our membership numbers are flat. There are new regulatory measures that the SAA must comply



Jeffrey Altschul



Christine Rieth



Suzanne Fish



Sarah Herr

with, equipment that needs to be replaced, and there is a decline in the amount of revenue from several sources including advertising and journal subscriptions. Next year, dues will probably rise a small amount, but meeting fees will remain the same.

Janet Levy, Secretary, gave her report. She announced the results of the elections: Jeffrey Altschul, President-elect, Christine Rieth, Secretary-elect, Suzanne Fish and Sarah Herr, new members of Board of Director; Elizabeth Chilton and Lynne Sullivan new members of the Nominations Committee. There were 7,867 ballots distributed, and 1,771 returned for a return rate of 22.5 percent, slightly better than recent years.

Executive Director Tobi Brimsek gave her report. She noted that this has been a year of changes for the Society and its staff, beginning with a move to a new headquarters in downtown Washington, D.C., easily accessible to the Metro. A long-desired new submission system for the annual meeting will debut in May, 2012, for the Hawaii meeting. This on-line system has

been created to SAA's specifications. Current Research will reappear in the coming year, as an on-line resource. Several of SAA Press's titles are now available for the Kindle®. She reported that Government Affairs has kept up with numerous legislative and regulatory issues on multiple levels, and has submitted comments and/or testimony on several issues. Public Education and Outreach has participated in the National Council for the Social Studies and has initiated a new project to adapt parts of the Project Archaeology curriculum to meet initiatives in science education in the Washington, D.C. school system.

She thanked the staff for their work, including Meghan Tyler, SAA's Manager, Membership and Marketing; Cheng Zhang, Manager, Information Services; Lorenzo Cabrera, Coordinator Membership and Marketing; John Neikirk, Manager, Publications; Maureen Malloy, Manager, Public Education; David Lindsay, Manager, Government Affairs; and Shelley Adams, Coordinator, Financial and Administrative Services. She closed by encouraging members to attend the 78th annual meeting in Honolulu, HI.

Following the report of the Executive Director, Chair Alex Barker and President-elect Jeffrey Altschul collaborated on presenting four Presidential awards chosen by President Limp to acknowledge special contributions to the Society. Three Presidential Awards were given to Barbara Arroyo, Daniel Sandweiss, and Tomás Mendizábal for their valuable contributions to the success of the first *Conferencia Intercontinental*. The final Presidential Award was given the Christopher Dore for his many contributions to the development and implementation of the new journal (see below for more details). Then, President-elect Altschul moved to the lower platform to present awards and scholarships. Heather Lapham, member of the Committee on Awards, read the citations for awards and some of the scholarships. Chip Colwell-Chanthaphonh, out-going chair of the Native American Scholarships Committee, read the Native American Scholarship citations. The Award and Scholarship citations follow this report.

During the awards presentations, the president-elect announced the creation of a new journal, *Advances in Archaeological Practice*, a quarterly, peer-reviewed, online publication focusing on application of method and theory to archaeological problems. The Society has conducted market research which indicates significant interest in this resource, especially from the private and government sectors.

After presentation of awards and scholarships, the recipient of the Lifetime Achievement Award, Dr. Bennie C. Keel, spoke to acknowledge his teachers and mentors, students and colleagues.

Following presentation of the awards, the chair provided some

background to a recent e-mail communication from SAA to its members about volunteering at the 2013 Boy Scouts of America (BSA) Jamboree. This e-mail generated many responses, both pro and con. He then announced that the SAA would not sponsor a booth at the Jamboree. However, the Board will discuss other options for communicating with BSA to improve implementation of the Archaeology Badge and avoid damage to archaeological resources.

We will now turn to presentation of ceremonial resolutions. Ceremonial resolutions were prepared by chair of the committee, Dean Snow, and read by Past-president Lynne Sebastian. The first resolution thanked the retiring officers, Treasurer Christopher Dore and Board Members Karen Hartgen and Patricia Crown for their service. The resolution then thanked all of those engaged with the planning of the annual meeting including the staff, especially Tobi A. Brimsek, the Executive Director; all the volunteers who worked at Registration and other tasks; the Program Committee, chaired by Paul Welch and including Jim Aimers, Gayle Fritz, Laura Junker, Kandace Holtenbach, Ian Kujit, Jorge Montenegro, Jill Neitzel, Mark Slaughter, Kathryn Twiss, and Mark Wagner, and supported by graduate assistant Kayleigh Sharp; and the Annual Meeting Local Advisory Committee, chaired by Jeanne Lopiparo. All other committee chairs and members completing their service and other members who have served the Society on its committees and in other ways were also thanked. Sincere wishes were expressed for the safety of those members of the society who are now serving in the armed forces: may they return safely to their homes and families.

Last, a resolution of sympathy was proposed to the families and friends of Brian Hesse, Robert Navias, Lewis R. Binford, Edmund Carpenter, Ray Crook, Barbara Hall, George Odell, Mary Ann Ianuario, Malcom C. Webb, Richard Yarnell, Thomas C.C. Birchett, Elizabeth Brumfiel, Ellen Abbott Kelley, Angela von den Driesch, Norman H. Steggell, David Breternitz, Robert Leonard Hall, Alberto Rex Gonzalez, Virginia Fields, Bruce Dahlin, Bernard Wailes, Christopher Peebles, Gregory Possehl, Dylan Breternitz, Glen Greene, Melburn Thurman, and Bruce Moses. The members rose for a moment of silence in honor of our departed colleagues.

Treasurer-elect Alex Barker concluded by speaking on behalf of President Limp, and extending again SAA's very special appreciation to Executive Director Tobi Brimsek and the SAA staff, as well as to Alison Rautman, outgoing editor of *American Antiquity* and to outgoing members of Board of Directors, Christopher Dore, Patricia Crown, and Karen Hartgen.

The Chair called for a motion to adjourn, which was made and seconded. The meeting was adjourned at 6:05 PM.

REPORT OF THE PRESIDENT

Fred Limp

Good afternoon and welcome to the 77th annual meeting of the Society for American Archaeology. Fred Limp, President of the Society for American Archaeology, is unable to attend due to illness, but is recovering and sends his regrets. I'm Alex Barker, Treasurer Elect of the SAA and an officer of the Board. I would like to call the Annual Business Meeting of the SAA to order. The agenda is printed on page 5 of your program.

I thank the Nominating Committee, chaired by Dean Snow, for an outstanding slate of candidates, and to thank all the candidates, both those who were elected and those who were not, for their exemplary willingness to serve the Society. I also want to acknowledge and thank our outgoing officers and Board members, Christopher Dore (Treasurer), Patricia Crown (Director), and Karen Hartgen (Director).

I am very pleased to inform you that under the firm fiscal reins of Christopher we have now reached a reserves target of 97 percent of our operating budget and the Board has designated a new target of 100 percent. The target of having 100 percent of our operating budget in reserves has been a goal of the board for 15 years. We are very nearly there.

As you know for the last few years we have a new system for selection of Committee members and Chairs. With limited exceptions (specialized award committees, for example) all members of all committees are selected from those applying in the open call in November. I urge all of you to submit your names. In the recent needs assessment nearly 40 percent of those responding to the survey indicated a willingness to serve on a committee. The Board votes on the Committee Chair but from that point forward committee formation is the responsibility of the Chair and the Board Liaison. The Board has no further involvement. A second change is that no one may serve more than two consecutive two-year terms. And award committees only one term. While this does mean that we often lose experienced members, it also means that there are a great many new opportunities open for your service.

Committee Chairs and Task Force Chairs who are cycling off this year are: Caryn Berg, Marc Bermann, Chip Colwell-Chanthaphonh, Karen Harry, Margaret Heath, TR Kidder, Sarah Herr, Bradley Lepper, Jeanne Lopiparo, Emily Mclung de Tapia, Tomas Mendizabel, Sarah Neusius, Patrick Lyons, William Reed, Daniel Sandweiss, Margaret Scarry, Dean Snow, Miriam Stark, Renee Walker, Joe Watkins, William Reed and Paul Welch. We all owe all of them a great deal for their service.

I am very pleased to announce that we have 3,926 registered for this meeting. That makes this the third-largest meeting of all time. The meeting's success is the result of many people's hard work. We need to thank Program Chair Paul Welch and his committee and Local Arrangements Chair Jeanne M. Lopiparo. We must also acknowledge with gratitude the work of SAA's executive director, Tobi Brimsek, and the SAA Staff: David Lindsay, Maureen Malloy, John Neikirk, Meghan Tyler, Cheng Zhang, Shelley Adams and Lorenzo Cabrera. The Society is extremely fortunate to have a truly exceptional professional staff. It is a pleasure to see the combination of their professional experience and skills and the superb volunteerism and capabilities of the membership working together.

Another result from the needs assessment was that the membership indicated that major value of their membership was to be found in the meetings and in the journals. The journals in turn are a reflection of the hard work of the editors, reviewers, and everyone who is involved in their production. *American Antiquity* has been under the able editorship of Alison Rautman who is cycling off, and on behalf of all the members we wish to thank her for her service to the Society. Ken Sassaman is the incoming editor for *American Antiquity*, and we welcome his new ideas and directions.

There is an exciting new development with the journals. As you know the articles from the most recent two years of these journals were not electronically available. Within about a week this gap will no longer exist and ALL *American Antiquity* and *Latin American Antiquity* content will be electronically accessible. The most recent two years to members and the older content in JSTOR. In a separate but related action Current Research will be returning. It will be electronic and we will be sending out details on it to all members over the coming year.

I want to mention one final matter before the new business. Recently you received an e-mail from the Public Education

Committee inviting members to participate in a Boy Scout National Jamboree activity that would occur in 2014. This effort was proposed by PEC to address an ongoing complex issue. The Boy Scouts have had an archaeology merit badge since 1997. When properly executed the merit badge educates and creates a citizenry that is supportive of archaeology. We have been led to believe, however, that in some cases merit badge activities have actually led to damage to archaeological resources. The PEC hoped that a SAA sponsored booth at the Jamboree might serve to educate participants about stewardship of archaeological resources. Such a booth, however, would have substantial cost to the SAA and unknown exposure, and since the e-mail the Board and PEC have received many comments—strongly pro and strongly con. At its Wednesday meeting, the SAA Board voted not to sponsor a booth at the Boy Scout Jamboree in 2013.

Is there any new business from the floor? Hearing none, we will turn now to the ceremonial resolutions. Dean Snow is not only the Chair of the Ceremonial Resolutions Committee, but the entire Committee. Unfortunately, Dean is also unable to attend due to illness, and I now call on past SAA President Lynne Sebastian to present the ceremonial resolutions.

Thank you Lynne. It is always sobering to realize how many good friends and colleagues we have lost each year.

In closing, Fred wanted to say that it has been an honor and privilege to serve as SAA President this last year. I want to again extend a very special thanks to Tobi Brimsek and the SAA Staff without whom this job would be impossible.

I also want to again say thank you to the outgoing Chair and Task Force Chairs, to Allison and to the three outgoing Board members, Christopher Dore, Patricia Crown and Karen Hartgen for their contributions and hard work. It has been a pleasure to serve with them, and I know you all appreciate their excellent service to the Society for American Archaeology.



2012 AWARDS

SAA award recipients are selected by individual committees of SAA members—one for each award. The Board of Directors wishes to thank the award committees for their hard work and excellent selections, and to encourage any members who have an interest in a particular award to volunteer to serve on a future committee.



Presidential Recognition Award

BARBARA M. ARROYO

For her initiation of the idea of the Conferencia Intercontinental, her tireless efforts working with the Society's Board to define the character of the conference, and her continuing superb advice and guidance throughout the process, we proudly present this award to Barbara M. Arroyo.



Presidential Recognition Award

CHRISTOPHER D. DORE

For his leadership and efforts in the identification of the need for a new journal for the society, for his market research defining the role and objectives of the journal and for his comprehensive fiscal planning, all of which have placed the new journal in an excellent position for its long term success and continuing value to the membership, we proudly present this award to Christopher D. Dore.

Presidential Recognition Award

TOMÁS ENRIQUE MENDIZÁBAL ARCHIBOLD

For his outstanding contributions and tireless efforts to the success of the first Conferencia Intercontinental, including arranging local sponsorships, navigation of and coordination with local agencies and authorities, assistance in translation and many other actions both large and small, we proudly present this award to Tomás Enrique Mendizábal Archibold.



Presidential Recognition Award

DANIEL H. SANDWEISS

For his tireless organizational efforts and superb coordination, his promotion of the program, his review process of the abstracts and construction of the program and his many other tangible contributions that have made the Conferencia Intercontinental a success, we proudly present this award to Daniel H. Sandweiss.



Gene Stuart Award

MIKE TONER

Mike Toner, a Pulitzer Prize-winning author and writer for *American Archaeology*, has earned the 2012 Gene S. Stuart Award for his responsible and entertaining writing about the inherent problems associated with shipwreck and underwater archaeology. "The Battle for the Dunkirk Schooner" presents an ethically responsible and engaging view on the issues of antiquity ownership and the dangers of raising a shipwreck. His article describes an early 19th century schooner that lies at the bottom of Lake Erie, and explores the legal issues that have arisen between a private salvage firm and the state of New York, both claiming rights to the wreck. Mike Toner has brought an archaeological find and preservation issues to the attention of the public in a way all archaeologists can be proud of. This is Mr. Toner's second Gene S. Stuart Award.

Ethics Bowl



WINNER: NORTHERN ARIZONA UNIVERSITY



Fred Plog Memorial Fellowship
JOSHUA WATTS



Douglas Kellogg Fellowship
JOE D. COLLINS, JR.



State Archaeology Week Poster Award

Each year the State Archaeology Week Poster Contest is held at the annual Meeting, sponsored by the Public Education Committee and the Council of Affiliated Societies. Winners are decided by a vote of those viewing the posters and turning in a ballot included with their registration packets. The winners are:

- First Prize: WYOMING*
- Second Prize: OHIO*
- Third Prize: CALIFORNIA*

Arthur C. Parker Scholarship for Archaeological Training for Native Americans and Native Hawaiians

ASHLEIGH THOMPSON
(RED LAKE BAND OF CHIPPEWA INDIANS)



NSF Scholarships for Archaeological Training for Native Americans and Native Hawaiians

JOSHUA CASTLEMAN (MUSCOGEE CREEK NATION)



Dienje Kenyon Fellowship
ANGELA R. PERRI [PERRI]



JOEL NICHOLAS (HOPI)

AUTUMN WHITEWAY (METIS)



SAA Native American Undergraduate Archaeology Scholarship

LAURA JANE BRANDON (WAYWAY-SEECAPPO FIRST NATION)



SAA Native American Graduate Archaeology Scholarship

NICHOLAS LALUK (WHITE MOUNTAIN APACHE)



Student Paper Award

SEAN B. DUNHAM

This year's SAA Student Paper Award is presented to Sean B. Dunham of Michigan State University for his paper "Late Woodland Landscapes in the Eastern Upper Peninsula of Michigan." Dunham's thoughtful examination of the relationship

between people and their physical environment in the Great Lakes challenges the assertion that Native Americans lived in a "pristine wilderness" in the era prior to European colonization and suggests that Late Woodland peoples actively shaped their environment. He specifically employs General Land Office surveys, habitat information, and site distribution to reveal evidence for anthropogenic modification of the landscape in the Late Woodland. His conclusion that human agency in the form of dynamic subsistence practices and conscious habitat maintenance characterizes the Late Woodland has significant implications for landscape studies in Michigan's Upper Peninsula and throughout the Eastern Woodlands.

Dissertation Award

CHRISTOPHER MOREHART

Christopher Morehart's dissertation, *The Archaeology of Farmscapes: Production, Place, and the Materiality of Landscape at Xaltocan, Mexico* (Northwestern University, 2010) details the evolu-



tion of a Postclassic Period agricultural landscape in the area of Xaltocan in the Basin of Mexico. Synthesizing remote sensing, survey, soil chemistry, archaeobotanical, and excavation data, the author meticulously reconstructs how farmers dealt with shifting material, social, political and ideological factors in developing and experiencing the chinampa farmscape. The work connects daily agricultural practices with

larger political processes, including Aztec conquest, by revealing how political relations, communal relations, and systems of property, were manifested in the fields and their use. Guided by innovative conceptualizations of "choreogeography" and materiality, the author shows how chinampa system dynamics can be understood only through synthesizing ecological with practice-oriented, phenomenological perspectives. In its multifaceted and multiscale approach, the research illustrates the potential of agriculture landscapes for re-envisioning the dynamics of prehistory.

BOOK AWARDS

The Society for American Archaeology annually awards a prize honoring a recently published book that has had, or is expected to have, a major impact on the direction and character of archaeological research, and/or is expected to make a substantial contribution to the archaeology of an area. The Society for American Archaeology also annually recognizes a book that has made, or is expected to make, a substantial contribution to the presentation of the goals, methods, and results of archaeological research to a more general public.

Book Award

MATTHEW RICHARD DES LAURIERS



Island of Fogs: archaeological and Ethnohistorical investigations of Isla Cedros, Baja California is an important study of maritime adaptations along the West Coast of North America over about 12,000 years, which draws on sophisticated theoretical arguments, the author's own research, and a

wide range of archaeological data and ethnohistorical sources from elsewhere along the coast. Clearly written and beautifully argued, the book argues that the first settlers of the island were fully-fledged maritime hunter-gatherers. It also develops telling analyses of the gradual population growth and more specialized adaptations that followed. This is a very important monograph that will exercise a profound influence both on California and Baja archaeology, and also on the study of maritime hunter-gatherers generally.



Public Audience Book Award

TERRY HUNT AND CARL L. LIPO

Statues That Walked tells a story of state-of-the-art, multidisciplinary research and sophisticated settlement archaeology. In the process, Terry Hunt and Carl Lipo have revolutionized our knowledge of Easter Island's first settlement and later past and effectively raised serious questions about, and, indeed, probably have debunked, the long-held theory that Easter Island is a classic case of ecological Armageddon. Previous research has been much preoccupied with the unique statuary on the island. Hunt and Lipo place the great figures in a much broader context, and, in the process, have set future research, not only on Easter Island but throughout Polynesia, on a new footing. And they succeed in doing all this in a way that is accessible to the widest possible audience.



Award for Excellence in Archaeological Analysis

JAMES SKIBO

James Skibo has earned the SAA's Award for Excellence in Archaeological Analysis for his life-long contributions to the field of archaeological ceramic studies. Through a combined approach relying on ethnoarchaeological and experimental research, Dr. Skibo's many publications have provided concrete examples of how the methodological analysis of ceramics can be bridged with theory and how it can be used to address questions of broad anthropological interest. He has authored dozens of articles and an impressive ten books, including the 1992 book *Pottery Function*, which remains the definitive work on pottery use-alteration. The substantial impact of his work is reflected in the large numbers of citations that it has received by scholars working throughout the world. The SAA is proud to present this award to Dr. Skibo.



Award for Excellence Public Education

EDUCATION OUTREACH PROGRAM OF THE OFFICE OF ARCHAEOLOGICAL STUDIES [ERIC BLINMAN ACCEPTING AWARD]

For its leadership in archaeology educa-

tion, including its interactive programs for sharing archaeology throughout the state and engaging New Mexicans in protecting the archaeological record, we proudly present this award to the Education Outreach Program of the Office of Archaeological Studies.



Crabtree Award

JOHN T. DOWD

John T. Dowd is a well-known and respected avocational archaeologist whose archaeological activities began in the 1960s and continue today. He has personally recorded 90 sites in 66 Tennessee counties, but he is particularly regarded for his publications on Middle Archaic and Mississippian sites in middle Tennessee, especially his monograph on the Anderson site. He has consistently published the results of his field investigations and continues these efforts today with two recent publications and another forthcoming in the e-journal *Tennessee Archaeology*. Mr. Dowd has spent most of his life developing archaeological skills and encouraging avocational archaeologists to thoroughly document their work. He has served as a founder, active member, contributor, and officer in many Middle Tennessee archaeological organizations, and he has regularly presented archaeological programs to local groups. Mr. Dowd stands as an exemplary model for the best kind of avocational archaeologist and is fully deserving of the Crabtree award.



The Fryxell Award for Interdisciplinary Research

CHRISTINE HASTORF

Christine Hastorf has earned the SAA's Fryxell Award for Excellence in Interdisciplinary Research in the Botanical Sciences for her significant contributions to archaeological method and theory on two fronts: her investigations and their publication, and her teaching and mentoring. Through the rigorous application of paleoethnobotanical data and direction of interdisciplinary research projects, Dr. Hastorf has made significant contributions to the archaeological study of food systems, household production, gender, and political complexity. Her work has been particularly influential in Andean South America, but she has also contributed to North American and Near Eastern paleoethnobotany and archaeology. While her numerous published books and articles have advanced interdisciplinary archaeological research, she has

also done so through regularly organizing collaborative symposia and projects with her colleagues, and is a tireless mentor to both undergraduate and graduate students. Dr. Hastorf's career exemplifies how biological approaches to the archaeological record contribute to theoretical topics in anthropology, as well as a wide range of regional archaeological studies.



Lifetime Achievement Award

BENNIE C. KEEL

We give Bennie C. Keel the 2012 SAA Lifetime Achievement Award for his lifelong service to the profession. Dr. Bennie C. Keel has shaped cultural resource management in the United States. He oversaw large-scale preservation projects in South-eastern archaeology; he helped found the field of cultural conservation; and he established federal archaeology across several agencies (Bureau of Land Management, Army Corps of Engineers, US Forest Service, Department of Defense). He helped write the Archaeological Resources Protection Act and the Abandoned Shipwreck Act; he helped craft the first national regulations for burials and sacred objects involving federal action or public lands; and he supervised the development of the first National Archaeological Database and Archaeological Sites Management Information System. Bennie C. Keel is also a fine teacher and active scholar. He is devoted, accomplished, and encouraging to his students. His contributions to Southeastern archaeology have made him a leading expert in Cherokee and North Carolina archaeology. Dr. Keel's passion for public archaeology, for the preservation of America's cultural heritage, and for archaeological professionalism is a model for future generations.

CEREMONIAL RESOLUTIONS

The Resolutions Committee offers the following resolutions:

Be it resolved that the appreciation and congratulations on a job well done be tendered to the

Retiring OFFICERS

Treasurer Chris D. Dore

and the retiring BOARD MEMBERS

Patricia Crown
Karen Hartgen

To the Staff, and especially Tobi A. Brimsek, the Executive Director, who planned the meeting, and to all the volunteers who worked at Registration and other tasks;

To the **Program Committee**, chaired by

Paul Welch
Kayleigh Sharp

and to the **Committee Members of the Program Committee**

Jim Aimers	Jorge Montenegro
Gayle Fritz	Jill Neitzel
Laura Junker	Mark Slaughter
Kandace Hollenbach	Kathryn Twiss
Ian Kuijt	Mark Wagner

To the **Annual Meeting Local Advisory Committee**, chaired by

Jeanne Lopiparo

And to other **committee chairs and members completing their service** and to the many members who have served the Society on its committees and in other ways;

And sincere wishes that those members of the society who are now serving in the armed forces return safely.

Will the membership please signal approval of these motions by a general round of applause.

And be it further resolved that thanks again be given to those who inform us of the deaths of colleagues, and finally,

A resolution of sympathy to the families and friends of

Ellen Abbott Kelley	Brian Hesse
Lewis R. Binford	Mary Ann Ianuario
Thomas C.C. Birchett	Bruce Moses
David Breternitz	Robert Navias
Dylan Breternitz	George Odell
Elizabeth Brumfiel	Christopher Peebles
Edmund Carpenter	Gregory Possehl
Robert Crook	Norman H. Steggell
Bruce Dahlin	Melburn Thurman
Virginia Fields	Angela von den Driesch
Alberto Rex Gonzalez	Bernard Wailes
Glen Greene	Malcom C. Webb
Barbara Hall	Richard Yarnell
Robert Leonard Hall	

Will the members please rise for a moment of silence in honor of our departed colleagues.

Respectfully submitted,

Dean Snow (Lynne Sebastian read the resolutions in Dean Snow's absence)

on behalf of the Resolutions Committee

ROBERT LEONARD HALL

1927-2012

Robert L. Hall, 85, died March 16, 2012, of complications of carcinoid cancer. He had retired as Professor emeritus from University of Illinois-Chicago in 1998.

Bob Hall was born in Green Bay, Wisconsin. The household of his youth included three generations of his mother's family, all enrolled members of the Stockbridge Mohican tribe. His grandmother maintained relationships with her cousins, nieces and nephews who lived on the two neighboring reservations, Oneida and Menominee. Knowledge experienced with his Indian community infused Bob's work with insights and depth culminating in his masterwork, *An Archaeology of the Soul: North American Indian Belief and Ritual*, 1997. Bob prepared the illustrations and did the design, as well, for this book.

Hall received all his degrees from University of Wisconsin, Madison, the Ph.D in 1960. His dissertation was published in 1962 as *The Archaeology of Carcajou Point, with an Interpretation of the Development of Oneota Culture in Wisconsin*. His interest in archaeology began in boyhood with his friend, Warren Wittry, and working in Green Bay's Neville Public Museum while in high school. As a senior in 1945, he placed second in the national Westinghouse Science Talent Search. Service as Seaman 1/C with the Navy, 1945-46, preceded college and student work with Wisconsin State Historical Society, leading to a curator position in anthropology 1949-1953. Field experience came with the Smithsonian River Basins Surveys Missouri River projects. With his Ph.D. obtained, Hall became Director of Institute of Indian Studies, University of South Dakota, 1959-1961, then Curator of Anthropology, Illinois State Museum, 1962-1967, a year teaching at Marquette University, 1967-1968, and finally in the anthropology faculty at University of Illinois-Chicago, 1968-1998.

Bob's web page at UI-C lists his interests as Symbolism and Ritual, Chronological methods, Mesoamerican Connections; Plains and Midwestern Archaeology and Ethnology. Many years ago he presented a paper demonstrating that thatch and wood posts from a house in the Cahokia area radiocarbon-dated several hundred years apart, alerting Midwest archaeologists to significance of what is used for dating. His work at Cahokia also revealed ritual recappings of mounds with colored clays, the meanings of which he suggested from Midwestern Indian color symbolism.



He expressed concern in the 1970s over "a growing trend for archaeologists to be more concerned about how Indians made their livings, than about what Indians thought it was worthwhile to live for." His interest in the latter culminated in his masterwork *An Archaeology of the Soul*. Along with his fieldwork and museum research on Midwest and Plains archaeology, ethnohistory, and cultures, Hall visited sites and read deeply in Mesoamerican data including archaeoastronomy. His extraordinary power of visual synthesis and mathematical ability led to a number of hypotheses and readings, including on connections between Mesoamerica and North American Plains and Midwest societies. Superbly collegial and never aggressive, Bob remained unruffled by mainstream archaeol-

ogists' reluctance to follow his arguments. The Santa Fe Institute recognized his scholarly status by inviting him to co-author the position paper "Cosmology and Society in the Ancient Amerindian World" and give his own paper, "The Role of Metaphor in Perceived Cosmologies: Variation and Redundancy in Metaphors of Sky-Earth Dualism," at a 2010 workshop.

Among his honors, Hall received the Lapham Medal from the Wisconsin Archaeological Society in 1953, and was presented a blanket by the Wisconsin Ho-Chunk in 2006. In 2008, the Midwest Archaeological Conference gave him a Distinguished Career Award, and his retirement in 2003 elicited a festschrift for him, *A Deep-Time Perspective: Studies in Symbols, Meaning, and the Archaeological Record—Papers in Honor of Robert L. Hall*, published by the *Wisconsin Archeologist* (84[1-2]).

Hall's major retirement project is *Touching History: Four Centuries of Indian-White Relations Told as a Family Story*, chronicling his Hall and Native American lineages from seventeenth-century Connecticut on to twentieth-century Wisconsin. Robert Hall is survived by his wife Barbara, their daughters Jane Taylor, Kathryn Hall, Martha Hansen, and Susan Hall, and four grandchildren.

—Prepared by Alice Kehoe from a biography co-authored with Robert Hall, *Encyclopedia of Global Archaeology*, Springer, forthcoming, with assistance from Barbara and Kathryn Hall.

ALBERTO REX GONZALEZ

1918–2012

Alberto Rex Gonzalez, 92, died March 28, 2012 in La Plata, Argentina. Rex Gonzalez was a leading figure in South American Archaeology. A former medical doctor from Universidad Nacional de Cordoba (Argentina), he attended Columbia University at the advice of Julian Steward, Wendell Bennett, and Alfred Mettraux, becoming a member of one of the most memorable generations of anthropologists. He received his Ph.D. from the Department of Anthropology in 1948, and became the first archaeologist from South America to receive a doctoral degree from a US institution. He became a professor at Universidad Nacional del Litoral in 1953. He served in different positions in Argentina: at Universidad Nacional de Cordoba; Universidad de La Plata, where he served as Director of the Museum's Archaeology Division; and later, Director of Museo Etnografico Universidad de Buenos Aires (1984–1987). For two years (1966–68), he was visiting professor at Harvard University. In 1987, he was a Fellow at Wilson Center for Advanced Research, and in 1989 was a Fellow at the German Institute of Archaeology in Bonn.



He was President of the 37th Congress of Americanists. He participated actively in other Americanist Congresses: in Costa Rica (1959), Vienna (1960), Mexico (1962 and 1974), Seville and Madrid (1964), Rome (1968), Lima (1970), Paris (1976), and Colombia (1985), and he served as vice-president or secretary for all of these events. He played important roles in the implementation of cultural heritage management programs as special consultant for UNESCO's projects in Nubia (Sudan), Incallajta (Bolivia), and Cuzco-Puno (Peru).

Rex Gonzalez received honorary doctorates from the National Universities of Tucuman, La Plata, Cordoba, Salta, and the title of Emeritus Researcher from CONICET, Argentina. The Society for American archaeology presented him with the Fiftieth Anniversary Award in 1986 for Outstanding Contributions to American Archaeology. In 1999, he was awarded the Bicentennial Medal from the Smithsonian Institution.

One of Dr. Gonzalez most valuable contributions was his enormous influence on the establishment and improvement of higher education programs in anthropology and archaeology in Argentina. Dr. Gonzalez used his influence to establish the Congress of Argentinean Archaeology to further promote the discipline, which led to the establishment of several undergraduate programs and graduate programs offering doctoral degrees. These experiences and developments spread to different Latin American countries elevating archaeological studies as a popular and well-known discipline in the region. The legacy of these efforts are programs that continue to prepare hundreds of young students, who will be instrumental in the future development of Argentinean archaeology and beyond.

During his over 70 years of practicing archaeology, Dr. Gonzalez' main concerns were the defense of cultural patrimony, the protection of aboriginal peoples' rights, and the development of scientific policies. Perhaps his greatest and most long-standing scholarly interest was in the problem of evolution, an interest that he attributed to F. Ameghino's pioneer work. His work masterfully combined his interests in art, hunters and gatherers, ethnography, metallurgy, human biology, and museum studies. He published extensively on an array of themes, most notably: *Arte Precolombino de Argentina* (1977, Filmediciones Valero), *Las Placas Metálicas de los Andes del Sur. Contribución al Estudio de las Religiones Precolombinas* (1992, KAVA), and *Cultura de La Aguada* (1999, Filmediciones Valero), but his most outstanding contribution is his research on Intihuasi and Ongamira Caves, Tafi and Aguada cultures. In 2000, he published *Tiestos Dispersos* (Emece Press), where he defined himself as a "militant" archaeologist. Although autobiographical, the book contains hundred of anecdotes written in a very strait forward way with a philosophical touch that gives depth to Rex Gonzalez legacy. A true Americanist, he will be missed and remembered fondly.

—Mario A. Rivera, PhD RPA

POSITIONS OPEN

POSITION: BIOANTHROPOLOGIST OR ARCHAEOLOGIST

LOCATION: BURNABY, BRITISH COLUMBIA

The Department of Archaeology at Simon Fraser University invites applications for a three-year Limited Term Assistant Professor position (with possibility for renewal and/or opportunity to apply for the position if it is approved as a tenure-track position) specializing in bioanthropology or environmental archaeology, beginning 1 January 2013. We seek an individual with an established research program in bioanthropology or environmental archaeology as well as proven ability to publish results and secure research funding. The bioanthropologist must have expertise in human osteology, with specialization in forensics preferred. The environmental archaeologist requires expertise in archaeological science or quantitative applications, with a focus on human-environmental interactions. Regional area of specialization is open. The successful applicant must demonstrate potential for effective teaching at the undergraduate level, including general archaeology courses as well as upper division courses in human osteology or environmental archaeology. A Ph.D. is required at the time of appointment. Applications should include a curriculum vita, the names and addresses of three academic referees, and a written statement of research and teaching goals. Applications or inquiries should be directed to Dr. Catherine D'Andrea, Chair, Department of Archaeology, Simon Fraser University, Burnaby, B.C., V5A 1S6 (adandrea@sfu.ca). The closing date for application submission is 1 August 2012. All qualified candidates are encouraged to apply; however Canadians and permanent residents will be given priority. Simon Fraser University is committed to employment equity and encourages applications from all quali-

fied women and men, including visible minorities, aboriginal people, and persons with disabilities. This position is subject to budgetary approval. Under the authority of the University Act, personal information that is required by the University for academic appointment competitions will be collected. For further information see: http://www.sfu.ca/vpacademic/Faculty_Openings/Collection_Notice.html.

NEWS AND NOTES

The 70th annual Plains Anthropological Society Conference will be held in Saskatoon October 3 to 6th, 2012 at the Delta Bessborough Hotel, Saskatoon's "castle on the river". The conference organizers, Drs. Margaret Kennedy and Ernie Walker, along with the Saskatchewan Archaeological Society, hope you will be able to attend. For details on registration, sessions and special events, please see details on our conference website: pacSK2012.com.

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CALENDAR

2012–2013

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The Fourth Conference on Eurasian Archaeology. *Fitful Histories and Unruly Publics: Rethinking Community and Temporality in Eurasian Archaeology*. Cornell University. <http://blogs.cornell.edu/adamsmith/eac/>

NOVEMBER 14–18

111th AAA Annual Meeting, San Francisco, CA (<http://aaanet.org/meetings/>),

2013

JANUARY 9–12

The Society for Historical Archaeology's annual Conference on Historical and Underwater Archaeology; Ramada Leicester Hotel and University of Leicester, Leicester, England, UK. Abstract submission deadline – July 9, 2012. Contact: Dr. Sarah Tarlow, School of Archaeology and Ancient History, University of Leicester, Leicester LE1 7RH, Leicester, England, UK; email sat12@le.ac.uk; fax +44 (0)116 252 5005

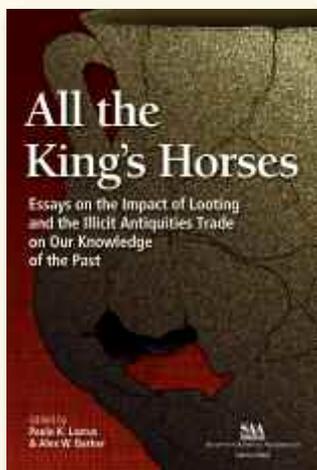
APRIL 3–7

78th Annual Meeting of the Society for American Archaeology. Honolulu, Hawaii. www.saa.org.

MAY 26–31

International Rock Art Congress. Albuquerque, NM. www.ifrao2013.org

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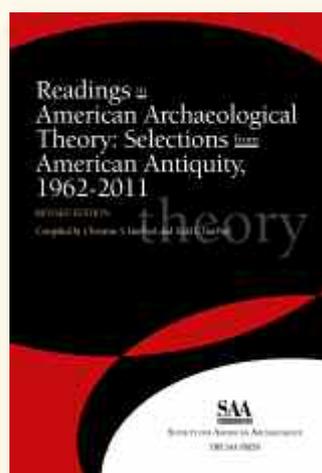
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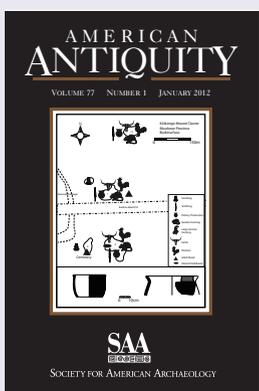
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