

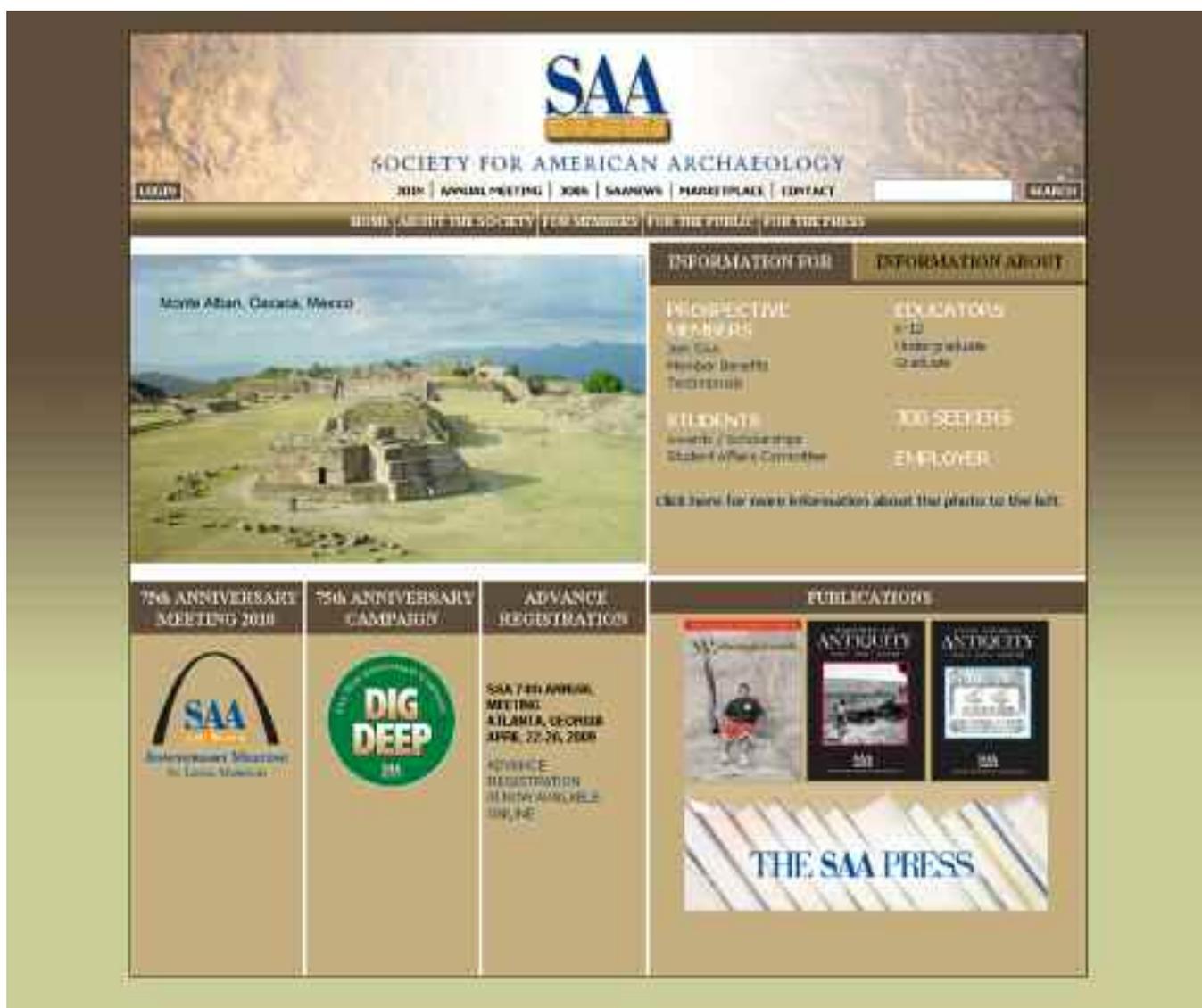
SAA **archaeological record**

MARCH 2009 • VOLUME 9 • NUMBER 2



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SAAWEB call for Member Photos

The Society for American Archaeology (SAA) invites its members to submit their archaeological photos for the homepage of the new SAAweb. SAA hopes to receive a range of submissions reflecting the diversity of experiences worldwide throughout the membership.

If you would like to submit an image for consideration on the SAAweb homepage, please contact Meghan Tyler, SAA's Coordinator, Membership and Marketing, at +1-202-789-8200 or meghan_tyler@saa.org. Please be sure your image meets the following specifications:

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Size: 487 pixels (width) x 290 pixels (height)

Layout: Horizontal

Photos should be submitted along with a caption of 20 words or less on the photo or 50 words or less accompanying the photo. The photographer's name and written permission from the copyright holder must also be included to be eligible for consideration. Submission of photo(s) does not guarantee placement.

the SAA Archaeological record

The Magazine of the Society for American Archaeology

VOLUME 9, No. 2

MARCH 2009

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[www.saa.org/publications/
thesaaarchrec/index.html](http://www.saa.org/publications/thesaaarchrec/index.html).

Past issues of the *SAA Bulletin* can be found at

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EDITOR'S CORNER

Andrew Duff

Andrew Duff is an Associate Professor of anthropology at Washington State University.

This thematic issue of *The SAA Archaeological Record* features several papers on “International Curation Standards” that were first delivered in a session at last year’s SAA meetings. These papers highlight the serious issues confronting those charged with managing the ever-increasing amounts of artifacts, records, plans, and digital data we generate. Though the session was subtitled “What’s Working? What’s Not?” these papers highlight solutions and describe the systematic practices devised in a variety of different settings. What struck me was the distinction between more centralized systems of, and approaches to, curation evidenced in the European examples, and the more individualized solutions devised by other institutions. I suspect much of the readership puts relatively little thought into the long-term curation of their collections and the challenges this poses, even though we have plans and agreements for the curation of our collections. I’d like to thank Lynne Sullivan for initially contacting me with the idea for these as a special issue and, especially, Jessica Johnson for coordinating their submission and editing these.

The issue also features an open letter authored by members of a recently convened meeting on ethics. They invite the participation of SAA members in a dialog (via “blog”) on several topics of broad concern. Topically focused, select excerpts from these web discussions will appear as brief pieces in future issues of *The SAA Archaeological Record*.

Mark Warner’s *The Recent Past* column raises the question of *American Antiquity*’s relevance for historical archaeologists, a matter worthy of concern to the general membership. Increasing differentiation within the Society has been a long-standing development, but I think it worth trying to minimize. The reading and publishing habits of scholars are frequently developed in graduate school, and if *American Antiquity* is not among the primary journals used and read by historical archaeologists, this will have long-term implications for the journal, and perhaps the SAA.

Finally, as you prepare your papers or posters for the Atlanta meetings, please consider submitting these to *The SAA Archaeological Record*—you can even do this before you head to Atlanta! I am especially interested in groups of papers that might appear as a thematic issue—something that can easily develop out of a session at the SAA meetings or from another venue—and would be happy to talk or correspond with anyone who would like to develop a group for a future issue. Individual contributions are ideally between 1500–2000 words (including any references cited and notes), with a few tables, illustrations or photographs. Thematic issues ideally consist of five or six papers that conform to the guidelines just noted. Please contact me with any questions, with items for the “Calendar” or “News and Notes,” “In Memoriam” notices, or to submit an article (duff@wsu.edu).



IN BRIEF

Tobi A. Brimsek

Tobi A. Brimsek is executive director of the Society for American Archaeology.

Communications Redux!

Last March this column was focused on communications between the Society and its members and the cost effectiveness and timeliness in the use of email. That continues to be the case and is even more important in this current global economic downturn. As a result, this column is once again devoted to ensuring that you are aware of SAA email addresses that need to navigate your spam filters successfully.

Spam Filters

Staff has continued to observe that emails sent from SAA's departmental mail boxes (membership@saa.org or meetings@saa.org, for example—see below for complete list) are not reaching some destinations due to the more sophisticated spam filters in use. The Society would appreciate it if you would set your filters to accept emails from a few different addresses within SAA.

SAA Email Addresses

The table below outlines the basic correspondence from the Society that you might expect to receive electronically and the origin of those emails. Of course, there are periodic staff changes and president rotations, but these emails will keep you current now. We will publish key emails for you to include in your systems to ensure you do not miss important communications from SAA. As mentioned, these are the most current:

Address	Nature of Emails
membership@saa.org tobi_brimsek@saa.org dean_snow@saa.org	renewal information, general information emails; election announcements, etc.
meetings@saa.org torgom_pogossian@saa.org meghan_tyler@saa.org	registration confirmations, acceptance letter from Program Committee (via SAA office); meeting updates; meeting announcements; call for submission announcements etc.
elections@vote-now.com	election ballots and follow-ups (each January-February)

No Marketing Via Email Policy

Please also note that marketing SAA products and services is **never** done by email! In fact, there is a Board of Directors policy in place that **prohibits** using email for marketing to the membership. What is key is that **critical communications are being sent electronically**, and the Society wants to ensure that your email system does not prevent you from receiving them. For example, there are ballot links, confirmations for meeting registration, and renewal notices, to name a few.

Please Keep Your Email Address Current

We currently have email addresses from 92% of the membership. Our goal is 100%! Please join your colleagues and provide us with an accurate email address. Should you need to make a change to your existing email address, you may do that online yourself or just drop the staff an email at membership@saa.org, and we will be happy to make changes to your record for you. The bottom line is that SAA wants to communicate to you on a timely and cost-effective basis. Email allows us to do that. Let's continue to put technology to work for the Society and member dollars toward programs, not administrative costs. Thanks!

Contacting SAA

You may address emails to a number of departmental addresses:

- | | |
|----------------------|----------------------|
| advertising@saa.org | gov_affairs@saa.org |
| headquarters@saa.org | meetings@saa.org |
| membership@saa.org | publications@saa.org |
| public_edu@saa.org | webmaster@saa.org |
| thesaapress@saa.org | |

or to specific staff members:

- tobi_brimsek@saa.org – executive director
- kevin_fahey@saa.org – manager, Membership and Marketing
- david_lindsay@saa.org – manager, Government Affairs
- maureen_malloy@saa.org – manager, Education and Outreach

➤ *IN BRIEF, continued on page 43*

AN OPEN LETTER TO THE SAA MEMBERSHIP

“This volume [*Ethics in American Archaeology*], while representing the next step in a sequence of expanding consideration of the important and complex issues outlined herein, does not mark the end of a process. It is not a final product.” —Bruce Smith, President, Society for American Archaeology (1995:5)

On October 1–4, 2008, 12 archaeologists of diverse backgrounds, interests, and ages, met at the Poynter Center for the Study of Ethics and American Institutions at Indiana University (IU), Bloomington, to discuss the Society of American Archaeology (SAA) Principles of Ethics and their implications for archaeological practice. The gathering was funded by IU’s New Frontiers Program, First Nations Educational and Cultural Center, and the Office of Multi-cultural Initiatives. Originally inspired by concerns of Native American archaeologists, our discussion highlighted the need for improving collaborative practice throughout our profession. We start from the position that collaborative practice underpins high-quality archaeology. We took the opportunity to review the Principles themselves, to think about possible changes or expansions, and to develop new tools for archaeologists to improve interactions with many affected groups, particularly Native American and Indigenous communities.

Dramatic shifts have occurred in the practice of archaeology in the United States as a result of legal mandates such as Native American Graves Protection and Repatriation Act (NAGPRA) and the 1992 amendments to the National Historic Preservation Act (NHPA). These laws reflect a challenging period in the history of archaeology during which the discipline incorporated Native American rights and concerns. The Principles of

Archaeological Ethics are a product of this transformational period.

Over time, dialogues resulting from legally required consultations turned into important working relationships and have led to equitable collaborations. At the same time, many members of the SAA continue to search for better ways to understand and enact their ethical obligations to Native Americans and descendant communities. The growth in the 1990s of public archaeology and the efforts to work with multiple stakeholders has led to a broader recognition of archaeology’s role in society.

The upcoming 75th anniversary of SAA’s founding; recent challenges in the legal arena of archaeology, such as current debates over regulations for culturally unidentifiable human remains (CUHR); and experiences with global archaeological discussions provide an excellent opportunity to open communication. As the SAA and profession have grown and diversified, we should continually reflect on our Principles and codes. We are seeking progress toward archaeologies that meet the needs of multiple communities.

The Principles of Archaeological Ethics were drafted as a living document. The drafting committee of the Principles planned for regular review so that the Principles continue to reflect the changes that occur within the discipline and its social context. Therefore, as we near the 20th anniversary of NAGPRA as well as SAA’s anniversary, we believe it is appropriate to incorporate what has been learned through consultation, collaboration, and public archaeology: the Principles should reflect the real change that has occurred in order to help current and future archaeologists navigate their relationships with Native, local, and descendant communities.

Archaeologists find themselves working with a wide range of communities; their success in practicing archaeology with integrity is fundamentally tied to their ability to establish good working relationships with Native American, Indigenous, descendant, and local communities. In the interest of developing resources and support for effective collaboration we identify the following focal issues for thoughtful discussion.

1. Consultation, reciprocity and partnership
2. Collaborative Stewardship
3. Research practice, accountability and integrity
4. Public engagement and responsiveness
5. The global contexts of local collaborations

We urge consideration of each of these issues with attention to the diversity of interests within and among these affected groups. Far from detracting from the rigor of archaeological science, a robust understanding of social context is a strength archaeologists bring to their practice.

Our next step will be to move beyond identifying these issues to a broader conversation among constituent communities. To this end, we have established an on-line information source and moderated blog. This blog (<http://archaeology-ce.info/>) provides a forum to discuss issues, provide tips, and describe successful and unsuccessful case studies. We invite you to visit the blog and submit an article, comment, or response. Over the next year, we will draw from these responses for publication in *The SAA Archaeological Record*. We also plan to engage with SAA committees; collaborate with other communities; and organize sessions at regional, national, and international archaeological meetings. We especially hope to col-

laborate with other communities, to gain wisdom and experience from cultural resources and heritage management professionals who are often on the front-lines of community collaboration and consultation. It is crucial to engage affected communities so that they may offer their own observations concerning archaeological ethics and collaboration.

What do we want from you? We invite your participation. Visit the blog; submit an article or respond to one that's posted; initiate discussion within your regional organizations. Make your voice heard.

We are writing to you, because we believe that the future of archaeological science depends on our continued proactive engagement with these challenges. The SAA developed out of a need to define what it means to be a professional archaeologist. As we approach the

major anniversary, it is again time to reflect on what it means to be a professional archaeologist in today's world.

"The ability to address difficult ethical issues in an ongoing process of critical reflection will be crucial in defining the future of archaeology as a profession."
—Mark J. Lynott and Alison Wylie (1995:9)

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Smith, Bruce A.

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WHY I GAVE AWAY MY AMERICAN ANTIQUITY

SOME THOUGHTS ON THE RELATIONSHIP BETWEEN HISTORICAL ARCHAEOLOGISTS AND AMERICAN ANTIQUITY

Mark Warner

Mark Warner is an Associate Professor in the Department of Anthropology, Sociology, and Justice Studies at the University of Idaho.

Early in my graduate career one of my faculty mentors called me and another graduate student into their office. We were called in because as part of a general office cleaning this faculty member was going to give the two of us about 25 years of *American Antiquity*, plus a couple of SAA Memoirs. We divided them up, each us getting about 12½ years of journals. At the time I was thrilled at the gift—I thought this was going to be an invaluable resource for me as I made my way through graduate school and my career as an archaeologist. Now many years after receiving that gift (and moving them about six times!), I have replicated the generosity of my former teacher and passed those journals (along with those I have accumulated since joining SAA in 1989 or so) on to a current graduate student here at the University of Idaho. Why?

The easy answer is that I have accumulated a lot of books and journals over a career in academia and something has to give. For those who know me, my office perpetually teeters on becoming a small-scale version of David Macaulay's *Motel of the Mysteries*. It is periodically imperative that I deaccession a lot of paper and giving away *American Antiquity* prevented a major bookshelf collapse. The more uncomfortable answer, however, is simply that as a historical archaeologist I don't find *American Antiquity* all that relevant to me as a professional. Simply put, there are other journals that I use more frequently, that I find more interesting to read, and that are more useful for me to teach from.

I will elaborate on this comment in a moment, but before I do I wish to make a clear distinction between the Society for American Archaeology as an organization and *American Antiquity*. I have the utmost respect for SAA and I recognize the organizations' long history of leadership on many fronts in the discipline of archaeology. I am glad to be a member of SAA and fully support the organizations' work in advancing the goals of all archaeologists in the United States—but the journal is another matter. What I have found over the 20 years since I started graduate school is that my use of *American Antiquity* is almost exclusively limited to referencing articles on technical issues in archaeol-

ogy (primarily zooarchaeology). In exploring “big picture” questions for the classroom or for my research, I find myself turning to *American Anthropologist*, *Current Anthropology*, or the *Journal of Social Archaeology*.

When asked to write about historical archaeology and *American Antiquity* for the *The SAA Archaeological Record*, I thought I should try to examine historical archaeology in *American Antiquity* in a somewhat structured manner rather than just shooting from the hip. To do this I tabulated the number of historical archaeology-themed articles published in *American Antiquity*, *American Anthropologist*, and *Current Anthropology* over the past twenty years (1987 to 2007). What I found was in one sense not surprising—in actual numbers there were more historical archaeology-themed articles in *American Antiquity* than were published in either *American Anthropologist* or *Current Anthropology*; but when viewed as a percentage of all archaeology articles published in the three journals, *American Antiquity* has published a smaller proportion of historical archaeology-themed articles than the other two journals (Table 1).

The exceedingly small percentage of historical archaeology articles in *American Antiquity* has been a point of informal discussion from time to time among some in SAA, with a common refrain being that historical archaeologists do not submit articles to *American Antiquity*. I do not have any data on submissions, but my suspicion is that this is a legitimate critique. We have by and large not flocked to submit to *American Antiquity*. Understanding why this is the case is probably an exercise in futility. The arguments I have heard are that historical archaeologists made a choice to split off from SAA some 40 years ago, so let them go their own way. In other words, who cares that there is very little historical archaeology published in *American Antiquity*? On the other hand, some think that historical archaeology has been marginalized by *American Antiquity*, where there has been a noted lack of interest, or at least active solicitation of articles, in historical archaeology.

One additional component of my brief survey that I did not

Table 1. Frequency of Historical Archaeology Articles in *American Antiquity*, *American Anthropologist* and *Current Anthropology*, 1987–2007. Totals are based on research articles and major forums only; Reports, interviews, commentaries etc. were not included in the totals.

	<i>American Antiquity</i>	<i>American Anthropologist</i>	<i>Current Anthropology</i>
Number of Articles	296	124	100
Historical Archaeology Articles	30	25	12
Percentage	10.14	20.16	12.00

quantify is recognition of how regularly I can find thought-provoking thematic issues on broad topics in journals besides *American Antiquity*. For example, *American Anthropologist* has published issues exploring race (1998, 100[3]), anthropology and historical archaeology (2001, 103[1]) and indigenous rights movements (2002, 104[4]), while *Current Anthropology* has published special issues on topics such as “Anthropology in Public” (1996, supplement) and “Culture” (1999, supplement), as well as producing thematic issues on “Anthropology and the Indigenous” (39[2]), “Placing Women’s Lives in Context to Theory” (2005 46[3]) and “Agency, Ideology, and Power in Archaeological Theory (1996 37[1]). What is striking about the above-noted examples (and others) is how differently the topics are framed in comparison to *American Antiquity*. The difference is an emphasis on the broader idea rather than a fixed point. While *American Antiquity* articles may well explore these same issues, the articles are overwhelmingly framed around a particular group, geographic region, or time period. Indeed, if one looks at the titles of *American Antiquity* articles over the last several years, scholars consistently define the parameters of their article as focusing on a place, group, or specific time period. This distinction on how articles are framed is subtle but very important. An article where, for example, the starting point is situating women and social theory is potentially much more interesting to me than a discussion where the focus is “studying gender in...(place x).” The latter (hypothetical) paper applies a broader conceptual argument to a place, rather than presenting an issue in a way that allows me to much more readily extrapolate the theoretical issues being explored to my scholarship. In *American Antiquity* that has already been done for me.

Finally, why does it matter that *American Antiquity* doesn’t publish much historical archaeology? One easy answer to this question is simply that it is wise to be creating a product that is pertinent to a broad range of your membership. The Society for Historical Archaeology just completed an extensive assessment of its membership. One of the findings of this survey is that just over 42 percent of the members surveyed are also members of

Table 2. Frequency of Major Journal Citations in Historical Archaeology. Regional or local archaeology journals and journals outside of anthropology were not included in the count

1993–1997	
<i>American Antiquity</i>	67
<i>Journal of Archaeological Science</i>	28
<i>American Anthropologist</i>	26
<i>American Journal of Physical Anthropology</i>	25
<i>Archaeometry</i>	18
<i>Current Anthropology</i>	17
<i>Journal of Field Archaeology</i>	17
2003–2007	
<i>American Antiquity</i>	58
<i>American Journal of Physical Anthropology</i>	42
<i>American Anthropologist</i>	37
<i>Ethnohistory</i>	21
<i>World Archaeology</i>	19
<i>Current Anthropology</i>	18

SAA. SAA was the single-most frequently mentioned organization cited by SHA membership. In contrast, SAA’s 2003 membership survey documented the fact that slightly less than 20 percent of the surveyed SAA members were also members of SHA. Any way you slice it people interested in historical archaeology comprise a substantial percentage of SAA’s membership.

To that end, I think there is something to be said for the journal published by the preeminent archaeological organization in the United States to maintain it’s relevance for a broad audience of archaeologists—and this is the crux of the matter. When I tabulated citation counts in *Historical Archaeology* for 1993–97 and 2003–2007, I documented a substantial drop in the number of times *American Antiquity* was cited in *Historical Archaeology*, both in absolute and in relative terms (Table 2).

In evaluating my commentary I want to emphasize it is clear, at least by my quick methods of assessment, that *American Antiquity* still commands the attention of many historical archaeologists, but I also want to suggest that my own waning enthusiasm for *American Antiquity* and the declining number of *American Antiquity* citations in *Historical Archaeology* may also be early warning signs of the problematic issue of *American Antiquity* losing relevance for historical archaeologists. Put simply, are the data in Table 2 a canary-in-a-coal-mine warning that historical archaeologists are turning away from *American Antiquity*? If that is the case I do not believe this is a good trend for the discipline of archaeology. If SAA is the professional organization for all archaeologists, then I would expect that its journal to be relevant for all archaeologists.

INTERNATIONAL CURATION STANDARDS

SHARING IDEAS FOR IMPROVED PRESERVATION AND ACCESS

Jessica S. Johnson

Jessica S. Johnson is Senior Objects Conservator at the Smithsonian's National Museum of the American Indian.

Many words have been written about the crisis in curation in the U.S and elsewhere in the world (Marquardt et al.1982). The need to ensure that archaeological collections are accessible, useful, and well-used resources is an acknowledged priority (Childs 2004). Archaeologists recognize the importance of recording and archiving the results of their work to the highest standards. However, it can be a struggle for repositories to find the resources to properly care for archaeological artifacts and records and perhaps more importantly to provide good access to this material and use it for meaningful research and education. At the 2008 SAA Annual Meeting, the Committee on Museums, Collections and Curation sponsored a session that took a broad look at successful case studies in the U.S., Canada, and Europe that preserve and share archaeological collections. The session was titled “International Curation Standards: What’s Working, What’s Not?”

The session came out of contacts made by our European colleagues dealing with these issues through a working group of the *Europae Archaeologiae Consilium* (EAC) (<http://www.e-a-c.org/>). Kathy Perrin, who writes here about a number of initiatives in the U.K. and Europe, contacted the SAA Curation Committee to begin to develop collaborative contacts “across the pond” with others working on curation issues. Through Perrin’s efforts as co-organizer, a number of her European colleagues generously travelled to the far side of the continent to the meeting in Vancouver and shared their broad experiences with the SAA. One result of the session is that Patrick Lyons, a member of the SAA Committee that sponsored the session, agreed to serve as a liaison to the EAC to support continuing information exchange.

Colleagues from the U.S. and Canada presented information about other innovative programs and initiatives that show how a collaborative approach and dedicated resources can take underutilized collections and combine preservation, access and use at the same time. This look across many different countries gave a far-reaching perspective on how many colleagues are dealing with the same issues.

In the end, what came out of the session was not a continuing list of bad examples where archaeological collections and archaeological research and knowledge suffer because of neglect—what’s not working in curation. What came across was an understanding that across the world, these legacy issues are being tackled and addressed in creative, collaborative ways. Resources are being broadly shared and the results are good for archaeology. In order to ensure these ideas are again shared more broadly, many of my colleagues who presented in the session agreed to write up their presentations for this issue of *The SAA Archaeological Record*. I give my whole-hearted thanks to them and hope that their experiences will give some of you ideas about how to better preserve archaeological collections and to use them in your own new and creative ways.

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A FUTURE FOR THE PAST

THE WORK OF THE ARCHAEOLOGICAL ARCHIVES FORUM IN THE UK AND THE EAC ARCHIVES WORKING PARTY IN EUROPE

Kathy K. Perrin

Kathy Perrin is Archaeological Archives Policy Lead with English Heritage and Chair of the Europae Archaeologiae Consilium Working Party on Archaeological Archives.

Archaeologists acknowledge the importance of recording and archiving the results of their work to the highest standards. However, sometimes it can be a struggle to find the resources to properly care for archaeological finds and records and perhaps more importantly to provide good access to this material and use it for meaningful research.

The advent of the digital age has resulted in many institutions finding new and innovative ways of getting the results of archaeology out to the world. These range from individual specialist group websites to the much wider vision of a project like Archaeological Records of Europe–Networked Access (ARENA), whose aim is to make digital archives of European archaeology freely available over the internet. There are other exciting changes in the way that the physical remains of archaeology are being made far more accessible to both existing and new audiences, such as the London-based archaeological resource centre, the London Archaeological Archive and Research Centre. This new development aims to collect and care for, provide access to and encourage research into, the finds and records of archaeological work in London. Also, within England, information about archaeology is about to become an integral part of information about the whole heritage environment through the ongoing development of digital networked heritage environment records.

The difficulty is that such forward-thinking initiatives can be hampered by a lack of basic infrastructure that supports the preservation of and access to the finds and information. In the UK the Archaeological Archives Forum, a consortium of all the major archaeological bodies in the UK, are working hard to build this infrastructure, thus ensuring that archaeological finds and records are properly cared for, documented, and made fully accessible.

Historical Background

England's problems have developed over time as archaeolog-

ical work left the province of the small independent researcher or university department and became an industry in its own right. Archaeological work had been carried out on a small scale up until the 1970s, when burgeoning town development combined with the advent of rescue archaeology to create a huge increase in excavation. Archaeological units were formed in most areas and large post-excavation backlogs built up as digging tended to continue all year. This situation was exacerbated in the 1980s when a government scheme to put unemployed people to work brought large numbers of mostly inexperienced extra staff into archaeological units, with a concurrent increase in output but often at the expense of quality and post-excavation programs. In the 1990s, a change in government policy saw the concept of “the polluter pays” applied to building development, and for the first time archaeological units had to compete for work that was now funded by private companies. Small rapid evaluations and an explosion in grey literature combined with a paring down of costs and even more pressure to reduce archiving procedures.

How has all this affected the archives? On a simplistic level it can be explained as follows. In the 70s and 80s most archaeologists did not have much time to consider the archives they were creating—attention was focused on excavation, recording, and publication. Such huge amounts of activity meant that large archive holdings were building up in unit stores and offices. In the 90s commercial practice meant that increased pressure of work due to contractual deadlines left the backlogs to be done only as and when time allowed, and the archives from later commercial development work often fell foul of inadequate monitoring by over-worked county archaeologists. As a result, large quantities of archives, often inadequately prepared and stored, were looking for homes in museums equally ill prepared to receive them for reasons detailed later.

In order to begin to tackle the problem, English Heritage car-

ried out a rapid scoping survey followed by a report that recommended a plan of action aimed at tackling the most pressing problems, but argued that success would only be achieved if all sectors involved in the archaeological process were to work together. In March 2002 the Archaeological Archives Forum (AAF) was formed and six months later it became a nationally representative body, when Northern Ireland, Scotland and Wales joined as members.

Current Situation

What are the problems? Three major challenges have been identified.

Documentation. This is the information provided with an archive to allow others to use it easily and can be as simple as clear labeling on boxes and paperwork, to the metadata we provide with digital files. The preparation of a clear and usable archive must begin before the team hits the ground and is not just a process tacked on at the end of the project.

Access. How easy it is to find and use the resource in archives? How many of the potential audience are able to reach it? Who are the potential audiences—schoolchildren, academics, the general public? We do not often think of the archive as a resource to be utilized in the same way that we do the publication; in fact, the same amount of care and attention should be expended on the archive so that it is well used and accessible.

Deposition. There are problems relating to deposition, such as the scale of the physical archive generated by fieldwork projects, its use, storage, access, discard, and curation. An increasing number of museums have difficulty housing new and especially large archaeological collections, and some stores are full or close to capacity.

Major Concerns

Archiving is a practice that can vary as wildly as just throwing everything in a box and giving it to the museum, to those who take immense care to ensure that everything is ordered, indexed, conserved, and packaged appropriately. The following have been identified as major concerns that need to be addressed:

Common standards. In the UK, there were no commonly held standards for the selection, preparation, and deposition of archaeological archives, nor was there a commonly held understanding of the differing roles and responsibilities of those dealing with the archive within the heritage sector.

Selection processes. There is a widespread reluctance to assess critically what should be kept and what can be dis-

carded. The common approach is to collect and keep everything on the basis that future generations will be better able to understand it. Past history argues against this theory—current trends demonstrate that archives are seldom revisited, and hard-pressed local authorities pick up on this information when making cost cutting decisions. It is important to become proactive in taking decisions about retention and to justify this decision-making process against sound research criteria. The danger is that if archaeologists do not bite this bullet, then in the UK, decisions will be made for us on the unacceptable basis of cost.

Temporary storage. Storage of sensitive archive material can become a problem in the temporary stores available to most archaeological practices. This includes documentary archives, as for example, photographic images require good storage conditions or they can fade, develop mold, or foxing. We have not recognized standards for these stores and yet archives can remain there for many years.

Access. We need to make the archives more accessible and capable of re-use. This is a complicated issue, beginning with simple problems such as providing a knowledgeable curator, to documenting archives clearly in order that future researchers can find answers easily, to even more complex issues such as making good use of the internet in order to reach new audiences.

Where do Archives Go?

Traditional storage arrangements within most of the UK mean archaeological archives are deposited in a local museum. However this poses the following problems:

Museums can often be old, inner-city establishments with limited storage space. These traditional museums are designed to house displayable objects, not boxes and boxes of bulk material such as animal bone and bits of broken pottery. Most museums in England have difficulty housing archaeological archives and an increasing number are turning them away.

Museums are now increasingly stretched for resources and many have lost the staff with archaeological expertise to utilize the archives. This means only limited re-use of the archive is possible in most cases.

The material and documentary archive is traditionally deposited together, a situation that does not happen with other collections. Documentary archives are normally the province of the local record office, which has specialist staff skilled in documentary archive conservation. This puts an extra burden on museum staff and resources.

There is a move away from traditional paper and photographic records toward “born digital” records, and digital records require active specialist curation not usually found in museums. Therefore, if an archaeological practice deposits a digital archive in a museum, what this can actually mean is that a disc will be put on a shelf to gather dust. Often the museum may have no means of providing access to the data present on the disc. However, we are moving toward a situation where specialist repositories will curate and provide access to digital records, but it is in its early days for a situation that needs urgent solutions—this is not solely for archaeological data.

In England there are few consistent charging, collecting, or accession standards in place for museums, a fact that causes real problems for many archaeological practices that have to produce archives to many differing standards.

There are now large gaps in collecting areas willing to take archaeological archives.

How do we change things for the better? Get people working together

It is important to ensure that all the differing groups working within the field of archaeology are on board with the solutions proposed. There have been many attempts to tackle some of these issues, but too often they have not succeeded because they have been done in isolation. Under the banner of a national AAF we have brought together representatives from across the UK Heritage Sector in order to deal with issues collectively. Working like this together means:

- More weight attached to initiatives
- More resources available
- More experience better results
- Taken more seriously by government

Below are some of the issues we have successfully tackled.

Disaster Management Planning. Most archaeological organizations operate within a health and safety code of practice, which means that the risk to staff is minimized as much as possible. However, most do not apply the same principles to the business side of their work, and as a result the irreplaceable information on which their livelihood depends is put at risk from both natural events such as fire or flood and man made events such as robbery or terrorist activity. The Forum has published guidance on disaster management planning for archaeological archives.

Standards for post-excavation archiving processes. We need commonly held transparent standards for the whole discipline, from the person writing the archaeological brief to the curator accepting the archive at the end of the process. Each must know and understand what others are doing, and why



Figure 1. “Best Practice in Archaeological Archiving” available: http://www.archaeologists.net/modules/icontent/inPages/docs/pubs/Archives_Best_Practice.pdf

and when they fit into the picture. It is recognized that two major pieces of guidance are especially necessary: selection policies and standards for temporary storage of archaeological archives.

A national framework for selection is needed in which regional, local, and site or project specific policies can be developed. It is important that the issue of what is retrieved in the field and later selected for retention is justified against sound policies at each stage of the process. This issue has been evaded for too long, leading to an almost critical overload of material that, because it cannot be weighed against sound selection criteria, is also vulnerable to disposal by hard pressed local authorities.

It is vital that sensitive archaeological material and records are not allowed to degrade due to inadequate storage facilities at any time. Museums are well regulated, but this is not the case for storage facilities in most archaeological practices. A recent survey demonstrated that nearly all units had dedicated stores for finds, but that almost none operated any form of environmental controls. In the case of documentary storage, the majority of units maintained these in standard offices, with all the inherent problems of fluctuating heat, light, and humidity. Standards for the temporary care of archaeological archives will be included within the standards document

The Forum has recently produced the national guidance document “Best Practice in Archaeological Archiving” (Figure 1), which covers all these issues. The document was launched at a national conference last May. The published guidance document is badged with the Archaeological Archives Forum logo in order that it be accepted on a multi-discipline basis across the UK.



Figure 2. Storage facility.

Deposition Standards. We need consistent standards for depositing archaeological archives across the whole country. The AAF completed work on reviewing current museum and record office standards for accession, charging policies and collecting areas and policies. We will be using these reports to leverage support at a national level for consistent standards across the board.

Training. It is vital that the young archaeologist begin their career with an appreciation for the importance of the archive resource and how it is best created and maintained. We are working to ensure that current training programs include archive processes for the wider profession.

Influencing government. Currently the historic environment is high on the agenda of English politics. The AAF are working to influence things in two ways. First, we wish to ensure that new legislation includes recognition of duty of care to the archives of archaeological investigation. The Forum has provided input into forthcoming government legislation and one of our members sits on the All Party Parliamentary Archaeology (APPAG) group. Second, we have also assisted in the production of standards for new Heritage Environment Record Centres that will evolve out of the current system of sites and monument records serving England's counties and districts. It is planned that these will become inter-linked information portals covering the whole historic environment.

Regional Resource Centres. It is clear to the majority of those involved in archaeology in England that we need a better answer to the storage and access issue. The most popular solution is to build a network of large archaeological resource centres that could maintain a dual function, one of storage (Figure 2) and the other of access and research. One such centre has already been built in London by the Museum of London, The London Archaeological Archive Resource Centre (The LAARC) and is operating very successfully. Centres such as

these mean plenty of access to curatorial support and advice, archaeological expertise to hand, good access to conservation support and massive opportunities for training research, teaching, and outreach including presence on the internet.

There are a number of other such initiatives beginning to spring up across England, but most have only reached the planning stage as there is not enough guidance, support, or funding available for such projects to easily succeed. However, we are currently undertaking a project which will deliver standards and guidance for setting up and running such centres. This, together with a strong policy statement by the Forum, will be enough to unlock funding streams to enable their development. In the meantime our current initiatives are putting the building blocks in place in order for these centres to operate smoothly.

Europe. We became aware through our involvement with the European Association of Archaeologists that similar problems exist in Europe. We are now working on a similar agenda with the Europae Archaeologiae Consilium (EAC), an organization representing the Heads of State Archaeology in Europe. An impressive list of some 15 countries has agreed to participate and a very active working group is now operating successfully. The primary objective of this working group at present is the delivery of agreed standards and guidance for European archaeological archiving. A project to complete this is in development and will be commissioned soon. We intend that this guidance will eventually form the basis for a Council of Europe monitoring standard.

Through this work it has become obvious that our experiences are not unique and are best tackled in a spirit of cooperation. We came to the SAA conference not only to share our experiences with our American colleagues but also in the hope of forging an ongoing link between the European Archives Working Party and our colleagues on the curation committee in the SAA.

Web Links for Further Information:

Archaeological Records of Europe - Networked Access (ARENA) <http://ads.ahds.ac.uk/arena/>

Europae Archaeologiae Consilium (EAC) <http://www.e-a-c.org/>

EAC Archives Working group <http://www.e-a-c.org/13-0-Archives.html>

The London Archaeological Archive and Research Centre (LAARC) <http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/>

UK Archaeological Archives Forum (AAF) <http://www.britarch.ac.uk/archforum/archives/>

CONSERVATION OF ARCHAEOLOGICAL ARCHIVES IN SWITZERLAND

WHAT'S WORKING, WHAT'S NOT, IN THE CANTON OF BERN

Barbara Chevallier and Cynthia Dunning

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Switzerland is a federal state composed of 26 cantons. The legal disposition of cultural heritage on the federal level attributes ownership and responsibility for the conservation of archaeological archives¹ to the canton they were found in.² They stipulate that the canton has the obligation to protect and preserve archaeological remains. By ratifying the Valetta Convention³ in 1996, Switzerland has recognized the necessity to enforce administrative and scientific control procedures to ensure the physical protection of archaeological heritage. The tasks required are conducting an inventory of all archaeological sites, the planning and executing of excavations, and the scientific study and publication of the results. The reports and remains must be accessible at all times and for future generations.

The cantons are responsible for defining legally how they carry out this conservation mission and to which authority they entrust it to. While all cantons have a cantonal archaeologist or a cultural heritage representative, 19 cantons have an archaeological service. Each service has grown individually, according to its history, the importance of archaeological remains, and the development of highways or railways within the canton. Therefore, sometimes the service comprises only two or three professionals or it may be more than 70 people strong, including archaeologists, excavation technicians, graphic designers, conservators, restorers, and surveyors. It belongs alternately to the Department of Building and Public Transportation, the Department of Interior Affairs or that of Education and Cultural Affairs. The long-term conservation of archaeological objects is sometimes the responsibility of the archaeological service or that of a cantonal museum. In several cantons the conservation and restoration of archaeological artifacts is carried out by conservator-restorers employed by the services or museums or by private laboratories. Only two cantons partially delegate archaeological excavations to private contractors; in all other cantons it is an entirely public endeavor. Within the federal framework, as discussed below, the policies adopted by each canton and the financial resources attributed to the conservation of

archaeological archives vary considerably. This paper focuses on the conservation policy adopted by the archaeological service of canton of Bern.

The Canton of Bern

The archaeological service of the canton of Bern belongs to the Office of Cultural Affairs, under the Department of Public Education. It is responsible for the inventory of all archaeological sites in the canton, for the planning and executing of rescue excavations, the archiving and long-term conservation of archaeological documentation and finds produced by the excavation, and finally for the scientific publication of the findings.

There are more than 3,500 archaeological sites in the Bern Canton. The terrain as well as the type of occupation is quite varied. These include medieval glass manufactures on the southern slopes of the Jura, lake dwellings along the lake of Biemme, medieval strongholds in the midlands, to prehistoric sites and Roman vestiges along alpine passageways; a great number of finds and documents are produced each year. Until recently, the archaeological service was faced with the problem of dispersal of its infrastructure: several storage places, offices separate from the excavation workshop and conservation laboratory, and three archaeological stations. Furthermore, the service, unable to deal with metal and organic finds, outsourced all conservation and restoration treatments demanded by these materials.

The cost of this dispersal in terms of money, energy and loss of information, in addition to the introduction by the state of new public management practices (rationalizing the costs and increasing efficiency), led the head of the service to develop new strategies. Practically, this resulted in:

- the contracting of a conservator to develop the conservation and restoration laboratory in order to deal—on a basic level—with all types of objects found in the Canton



Figure 1. Finds in the deposit area, ADB Bern, ©ADB Badri Redha.

- the search for a building suitable to house the offices of the archaeological service, the conservation laboratory, and the archives (both documents and finds)

In March 2006, the archaeological service moved, along with another state service (tax department), to an industrial building dating to the 70s. The strong point of this building for the archaeological service is its storage and mounting unit designed initially for assembling telephones, cash and ticket distributors. The unit was remodeled to suit the needs of the service.

Conservation of Archaeological Archives

Archaeological archives in Bern comprise paper, film and digital documentation of the excavations as well as the finds. Access to the documentation and finds is still given through independent data bases. Although many discussions have been held regarding the digitization of archaeological records and their accessibility via the internet, the service has been reluctant to invest massively in a digital network before defining precisely its needs and how they could be best met.

Instead, the archaeological service, conscious of its inability to scientifically exploit all the documentation issued by an excavation within a given amount of time, has invested in securing the long-term conservation of primary sources. The strategy to remedy the chronic loss of information is the introduction of a preventive conservation approach and the training of collaborators to develop it. To prevent the deterioration of the discovered patrimony, the service looks into the causes of this deterioration, whether inherent to the object itself or the environment surrounding it, and aims to reduce



Figure 2. Temporary storage area, ADB Bern, ©ADB Badri Redha.

their effect. In this respect, the care of written, graphic, photographic documentation has been entrusted to a trained archivist. Particular care is taken to ensure that the documentation supports (paper and film) meet long-term conservation requirements. They are stored in appropriate envelopes or containments that provide suitable barriers to pollutants, micro-organisms, and excessive humidity. They are kept in environmentally controlled storage rooms. All the data is microfilmed and kept in two different places: the Cantonal Archives and the Federal Military Department for the protection of data. Only part of the data is currently digitized (the slide collection and the plans are currently in that process) and therefore few of the documents are accessible via the computer. However, scientists have free access to the archive storerooms.

For the finds, the decision was taken to transfer the responsibility of their preservation to the conservation and restoration unit as soon as they leave the ground. In actual practice, archaeological remains are routinely deposited on the doorsteps of the conservation laboratory by the excavation teams, unless specific conservation skills are requested during the excavation. They come in standardized containers (Figure 1). Each item or group of items is identified with its excavation label. The objects are sorted in five different categories: metal, mineral, organic, skeletons, and samples and ecofacts in agreement to the conservation prerogatives of each material. Any find requiring an immediate conservation treatment is dealt with separately. Otherwise objects are packed in European standard-sized polypropylene boxes and duly labeled. Each box is given a number and is stored in the temporary storeroom to await further treatment. Built under-



Figure 3. Final storage area, ADB Bern, ©ADB Badri Redha.

ground, the temporary storeroom is fully air-conditioned, the climate is monitored (Figure 2). It is equipped with an electronically controlled storage system. Each box is stored at random; each box can be retrieved at any time. Its content is registered in the data base under the box number (18,000 slots). Metal follows a different route, it is either temporarily stored in a special storeroom (low humidity level 30 percent) or directly taken to the laboratory to be x-rayed, desalinated, sandblasted, according to the different needs.

As a rule, once the excavation is finished, the standard process of preparing the remains for their study, washing, numbering, sorting and assembling begins. Any special treatment envisaged is discussed between the conservator and the archaeologists; otherwise, each specific material undergoes a designed procedure in agreement with preventive conservation measures. The aim of the procedure is twofold: to stabilize the deterioration process of the object, and to ensure the legibility of the find for archaeological purposes. Between conservation and restoration treatments, sorting, and studying, the finds go back and forth into the temporary storeroom. Beyond the qualities of environment and accessibility this temporary deposit offers, it has also given, for the first time, visibility to the amount of material in progress, or more bluntly stated, our backlog. We are now able to assess statistically the volume of material retrieved per excavation, monitor the state of the finds under our supervision, their rhythm of deterioration, and set priorities according to conservation imperatives and no longer only upon archaeological criteria.

Eventually, once the remains have been studied, they are

definitively packed and deposited in the final storage room (Figure 3); it is designed to receive Euro-sized palettes. Once again, the environment is controlled, attention is paid to the quality of the packaging materials used, and access to the finds is given through the conservation unit. In the absence of a central digital network, we navigate between separate data bases thanks to the inventory number of the site composed of 12 digits indicating the commune, the site, the year, the number of interventions within that year.

Preventive conservation, a policy to further develop in the future

The path chosen by the Archaeological Service in Bern has been to transfer the responsibility of archaeological finds to the conservation and restoration department as soon as possible (Figure 4). The emphasis is given to comprehensive management of the finds, strict preventive conservation measures, high standards for the storage, and long-term backup of conventional documentation. Although the implementation of preventive conservation measures has considerably improved the state of conservation and integrity of the finds, experience has shown that environmental control, appropriate registration, cleaning, and stabilization procedures under the supervision of the conservation department are not entirely sufficient to ensure that conservation aims are fulfilled and archaeological requirements are met.

Because it is not always possible to foresee how long an archaeological project is going to last from its initial phase to the publication of the results, because of the need for further scientific investigations to be carried out, because each stage



Figure 4. Conservation and restoration laboratory, ADB Bern, ©ADB Badri Redha.

of the archaeological and conservation operational chain is not always carried out by the same partners, it is necessary to improve the dialogue among archaeologists, conservators, and restorers. At each stage of an archaeological project, archaeologists must understand the importance of reducing the impact of physical and chemical alteration for objects to be preserved, while conservators and restorers must accept that the artifacts must be drawn, photographed, analyzed, displayed and generally made accessible for them to fulfill their archaeological purpose.

Preventive conservation goes beyond the strict enforcement of indirect interventions designed to reduce the impact of natural, human, structural, or institutional induced risks. It means continuous training, a multidisciplinary approach, and documenting both archaeological and conservation data. It can best be carried out when the conservation department is involved from the onset of an excavation and a line of budget is reserved for the implementation of conservation measures.

Two years have past since the Archaeological Service in Bern moved to its new premises. The benefits of uniting the archaeologists, the field workshop with the archaeological archives (documents and finds) as well as developing the conservation and restoration laboratory are yet to be completely exploited and understood.

Notes

1. In Switzerland the definition for archaeological archives given by Brown (2007:3) is generally accepted: "Archaeological Archives: All parts of the archaeological record, including the finds and digital records as well as the written, drawn, and photographic documentation." Duncan H. Brown, *Archaeological Archives, A guide to best practice in creation, compilation, transfer and curation*. Archaeological Archives Forum, Longridge (Available at <http://www.archaeologists.net/modules/icontent/>

inPages/docs/pubs/Archives_Best_Practice.pdf)
 2. RS 210 CCS art 723 and 724, RS 101 art 78
 3. European Convention on the protection of the archaeological heritage (revised). Concluded at Valetta, January 1992. Available: http://untreaty.un.org/unts/120001_144071/17/10/00014368.pdf.

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FROM THE DUST TO THE DISK

COLLECTION AND PRESERVATION OF DIGITAL EXCAVATION DATA IN BADEN-WÜRTTEMBERG

David Bibby

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Germany's political system is federal. Each individual federal state has its own archaeological department. The economic standing of a state has an influence on the archaeological situation found there.² Baden-Württemberg in southwest Germany is a large state with a surface area of almost 36,000 km² and a population of almost 11 million. Only Bavaria and North Rhine-Westphalia have larger populations; Bavaria is the only state with a larger area. Although Baden-Württemberg is only one of 16 states within the Federal Republic, it is an important economic "motor" for the whole of Germany, and with a GNP of 421 billion US Dollars in 2006, its economy is stronger than Austria, Norway, Denmark, Ireland, New Zealand, or Mexico with GNPs of 284, 216, 202, 180, 1.2 billion US Dollars in 2006 respectively. Baden-Württemberg's relative economic health of the past three decades has reflected on the material resources available to the archaeological service within the state. More problematic are personnel and labor costs, as they cause increasing overhead rather than the fixed costs for material and equipment.

Each state-employed archaeologist is responsible for more than one project. If the excavation is lucky it will have one trained field technician permanently on site and perhaps an experienced assistant. The rest of the workforce is made up of workers on limited contracts and sometimes students. The crew often has a strong element of long-time unemployed individuals supported through government employment schemes. The staffing of projects should be kept in mind while reading this paper. A recording system for digital excavation data that is both simple enough for the personnel to use easily and effectively in the field, and robust and scientific enough to offer a perspective for access to the data in the future, is necessary. It must cope with sites as diverse as tumuli of various eras, hillforts, prehistoric settlements, lakeside dwellings, and underwater sites of various epochs in varying landscape conditions—from the high plateaus of the Swabian Alb and the afforested mountains of

the Black Forest, to the low lying waterlogged sites and the underwater archaeology of the perialpine lakes, not to mention large urban medieval and Roman excavations. Virtually all excavation campaigns in Baden-Württemberg are carried out under rescue conditions. The development of a system to cope with data from such varied excavation situations is an ongoing process. This is a snapshot of the present state of development in Baden-Württemberg.

Digital data has been collected on some excavations in Baden-Württemberg for over 15 years and on most of them for around five years.³ The basic visual drawn record—the plans and sections—is based on tachymetric survey used in conjunction with the proprietary AutoCAD-based archaeological software "ArchaeoCAD"⁴ (Figure 1). With ArchaeoCAD it is possible to automatically draw plans with any number of archaeological features, either by reading the specially coded ASCII files downloaded from the Total Station into the program (the standard method) or (if conditions allow) by creating digital plans directly on site through ArchaeoCAD's online interface "Aspect3d." This approach is augmented by much use of 2D digital photorectification—once again using proprietary software, in this case "PhotoToPlan."⁵ The mainstay of the written record is the proprietary database "ArchaeoDATA," at present based on Microsoft Access. Scan data, both terrestrial laser scans and lidar, is becoming increasingly important.

Over the last decade the hardware and software had become more or less standard and interchangeable between excavations. But each excavator had collected his or her data in his or her own way, which has led to a myriad of variations. This situation was and is ultimately unsatisfactory. The key to successful data preservation is structured data collection. There has to be some common denominator, even if at only a very basic level—safeguards to ensure data integrity and security as well as some guarantee that future users of the excavation data will have an approximate knowledge of what

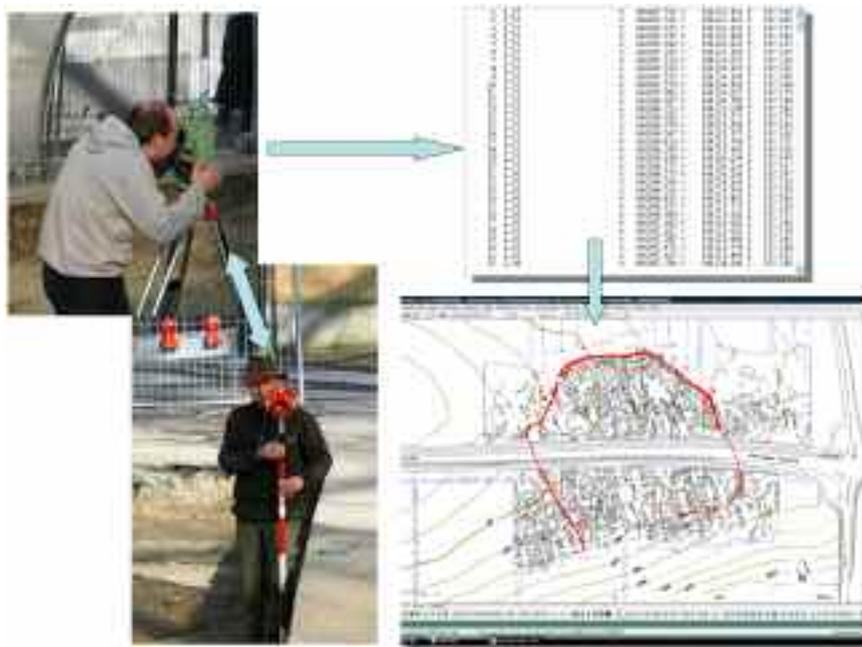


Figure 1. Data collection on site with "AutoCAD."

to expect. For this reason, in 2005, a small working party was created, comprised of archaeologists specializing in various epochs, as well as technicians from urban, rural, and wetland excavations. Their task was to make recommendations on data collection and structure, and create a set of instructions guaranteeing the usability and "ergonomy" of the system in the field. The data structure had to be rigid enough to fulfill the objectives outlined above, as well as flexible enough to cope with all types of archaeology in Baden-Württemberg, ranging from Paleolithic to modern, from plains to wetland, from deep urban excavation to afforested mountainous areas as already mentioned.

The scheme resulting from the working party's efforts is really nothing more than a virtual filing system, in fact based loosely on the paper filing system to be found on many pre-digital excavations in Baden-Württemberg. It is rigid enough at the higher levels to provide for orderliness and flexible enough further down to allow for the inevitable idiosyncrasies of the individual archaeologist. Although the structure (Figure 2) is honed into the system of the Baden-Württemberg state archaeological department, it is designed to be an adaptable, platform-independent repository that can be used for any sort of digital excavation data. It is in fact nothing more than directory-structure with a set of rules stating what goes where. With a minimum of adjustment it can be used on any site under any topographical conditions with any hard and software anywhere in the world. In the case of Baden-Württemberg, the centrally issued excavation number

at the top of the hierarchy is of fundamental importance. It describes not only the excavation; it also constitutes the inventory number of all the finds emanating from the said excavation, thus interfacing to the Central finds archive in Baden-Württemberg.

The excavator has not been left to figure out the system alone. A set of instructions describing what goes where, as described above, is always issued with a "blank" directory-structure. This system is present standard procedure for the collection of digital excavation data. There are thus grounds for optimism on *structured* data collection on excavations in Baden-Württemberg and the archiving of the data as well as data *recoverability*. This point is equally as important and complementary to smooth data collection; much excavation data gets stored at the field report stage, with little chance of it being scientifically written up immediately. The final report is likely to appear some time after the conclusion of the excavation.

So far, only current collection of digital excavation data according to the rules set out by the working party in 2005 has been described. However, as indicated above, a large amount of born digital data exists emanating from excavations that took place before the working party was formed. How might we deal with this material? Can this data be "whipped into shape"? The answer, perhaps surprisingly, is a simple "yes"! Present experience shows that it is possible to introduce all previously collected digital excavation data into

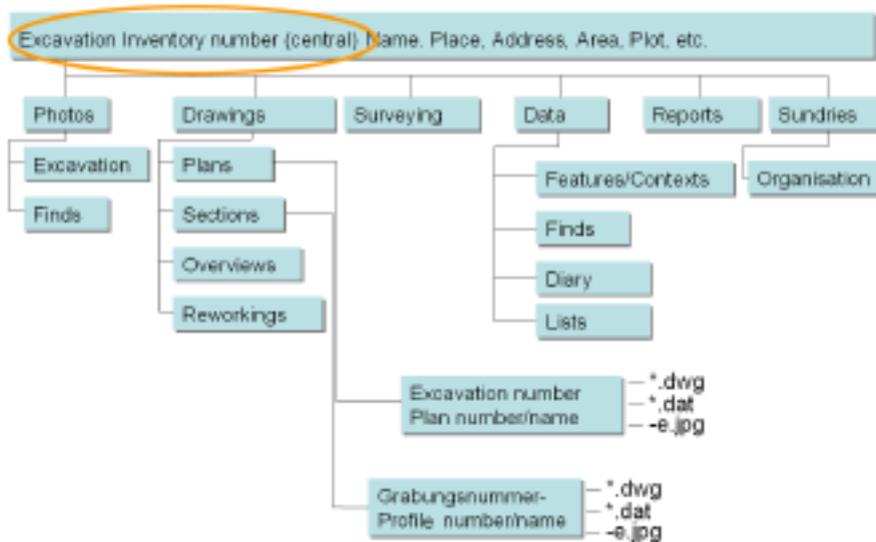


Figure 2. Data structure for collection of digital data on excavations in Baden-Württemberg.

at the very least the upper levels of the data structure without vainly trying to hammer a square peg into a round hole. Always aware of the subtle and diplomatic “human touch” vital in dealing with other people’s digital data, the present author⁶ travels to the excavator discussing how far it is possible to go in restructuring the data before the law of diminishing returns sets in. The most naive questions possible are thereby asked, both of the data and its originator. This work

tends to cost both parties some nerves and a certain amount of time. It is, however, time well spent, as it is the one and only opportunity to “get it right” and to preempt any difficulties that a future worker would surely have with the uncommented digital data. The result that emerges is a partially structured data set (in the sense of the recommended data structure) and a text-paper, a sort of handbook, a guide as to how to deal with this specific data, with a description of its



Figure 3. Excavation geometry (extent of excavation) and metadata from the excavation in ADAB, the archaeological GIS in Baden-Württemberg.

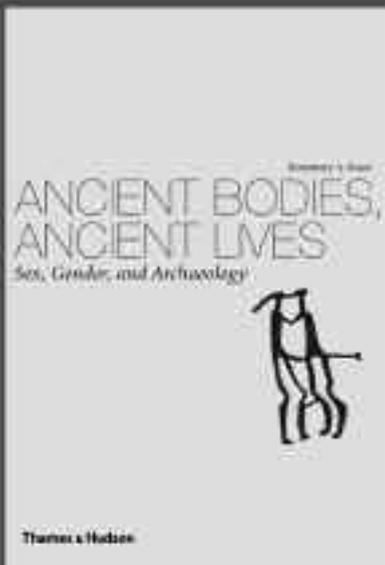
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deviations from the standard structure, as well as a table of its contents—thus offsetting the difference between this older data and the well-structured data of present and future projects.

Once collected, the data is transferred to a state-owned server run by hired hardware professionals who guarantee (by contract) not just the secure archiving of the data but also its continued future readability and accessibility—i.e., the successful migration of the data. The server being Raid 6, the data can survive defects in two hard disks. Various safeguards are run on the data at input and output, including check sum and virus checks. Further safeguards are triple tape backups. An SQL database with web front end to enable data-name, meta-data, and data searches for those with rights to access the database is at the time of writing in the planning stage.

A project to provide wider access to the excavation data is now at the experimental stage: the excavation geometry can be uploaded to our ADAB-WEB⁷ (a general sites and monuments data base) with its GIS-functionality and web-based front end. This visualized geometry is attributed with the excavation number and meta-data about the excavation and will interface, via the centrally issued excavation number, to the central finds archive as well as to the digital data of the excavation in question (Figure 3). This paper has illustrated the process of structured digital excavation data collection, storage, and retrieval in Baden-Württemberg, and demonstrates the pivotal role of the officer responsible for digital excavation data in this process.

Notes

1. <http://www.rp.baden-wuerttemberg.de/servlet/PB/menu/1147356/index.html> (in German)
2. A detailed discussion of the archaeological situation in Germany can be found at http://kenny.aitchison.typepad.com/discovering_the_archaeolo/germany.html
3. This paper does not address the problem of archiving existing *paper* excavation data. It introduces and describes the presently developing strategy for collecting and preserving previously extant, present and future *digital* excavation data in Baden-Württemberg.
4. ArchaeoCAD and ArchaeoData are developed and marketed by Arctron Ltd. (www.arctron.com)
5. Developed and marketed by Kubit Ltd. (www.kubit.de)
6. With the post of *Referent für digitale Grabungsdokumentation*, "Officer responsible for digital excavation data"
7. Information on ADAB-WEB at <http://adabweb.itmaters.de/php/trasse.php> (in German).

ARCHAEOLOGICAL COLLECTION REVIEW AT PARKS CANADA

Virginia Myles

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Parks Canada is a federal government agency that manages national historic sites, national parks, and national marine conservation areas. Through its programs, the natural and cultural areas of Canada, for which Parks Canada is responsible, are protected and presented for present and future generations. Parks Canada administers 42 national parks and three national marine conservation areas, and 158 of 778 national historic sites are also administered by Parks Canada. This paper describes the status of Parks Canada's archaeological collection and provides an overview of the ongoing National Collection Review initiative that is to review the historical (Parks Canada's term for interpretive collection) and archaeological collection. The paper focuses on the archaeological collection and its contents, records, and systems. It also outlines challenges and possible solutions and summarizes a key directive on acquisition and disposal that will help with the implementation of the archaeological collection review.

Parks Canada's archaeological collection consists of over 32 million objects and specimens from the historic and pre-contact eras that represent a cross-section of human habitation and activities spanning almost 11,000 years. The sites represented range from underwater shipwrecks to large urban and military sites (Figure 1) to pre-contact habitation sites. Over the years, Parks Canada's archaeologists have excavated or surveyed over 10,000 sites. Most archaeological objects are now recovered during excavation or survey occurring in the course of projects initiated to address specific operational concerns or knowledge goals, or are discovered during site or park maintenance projects. Objects are inventoried and evaluated relative to project goals and, where possible, with respect to their historic value. Some objects are conserved, some are used for display or report illustration, and some may be incorporated into reference or type collections.

Over the decades, site collections have been amassed to considerable proportions as the number of national parks and

national historic sites has grown. Parks Canada's long-term obligation is to manage, protect, and present archaeological resources along with its other cultural resources. The only other federal agency that has a mandate to manage archaeological collections in Canada is the Canadian Museum of Civilization. Most of Parks Canada's recovered archaeological objects and associated records are stored in Parks Canada's repositories located in service centers across Canada in the cities of Halifax, Quebec City, Ottawa, Cornwall, Winnipeg, and Calgary (Figure 2). Collections are also stored and/or displayed at a few large sites such as Dawson Historical Complex and the Fortress of Louisbourg National Historic Site, and in various interpretation centers in national parks or national historic sites. Objects are also increasingly left *in situ* and in some cases may be reburied or redeposited on site. Examples of reburial include human remains and associated funerary objects (Parks Canada 2008a) and shipwrecks reburied underwater.

The National Collection Review began with focus on the large quantities of historical and reproduction objects housed in the Ontario Service Centre, Ottawa. In 2005 the review expanded to include archaeological collections, and an archaeology subgroup was formed, and a strategy and recommendations completed. The first review objective was to establish the priorities for acquisition, retention, and disposal of holdings. It was recognized that criteria for decision making was required in order to evaluate historic value via our system of cultural resource levels and that inventories and evaluations of existing collections must all be completed. Although Parks Canada's archaeological collection overall is in good shape, a second objective was to improve care and management of the retained objects. To attain this, information was gathered on the state of facilities and practices. Increased access to the collection was the review's third objective. Objects are often displayed on site (Figure 3), and service center collections are currently accessible to staff. Visitors are invited to view objects and are welcome when



Figure 1. Archaeological excavation Dufferin Terrace 2004, Quebec City, Parks Canada. Photo by Michel Élie.



Figure 2. Archaeological Lab Layout, Ontario Service Centre, Cornwall, Ontario, Parks Canada. Photo by Stephen Lohnes.

they request to see specific objects or components of the collection. A recent viewing of objects from archaeological sites at St. Lawrence Islands National Park for the Mohawk Council of Akwesasne at the Ontario Service Centre's Cornwall lab is an example of this practice. However, general access to the Canadian public could be improved.

To date, ongoing operational work on the collections and extra funding has helped maintain the collection and deal with accumulated backlog. From 1990 to 1996, the threatened archaeological collection project provided resources for service centers to go through their collections and assess their condition, evaluate their historic value, and take remedial action where required. This work has continued in some service centers for several years. In 2003 the Collection, Curation, Conservation and Material Culture Research study identified challenges and made recommendations, such as a review of the collection and a pilot study for historical objects.

In 2003, the Auditor General of Canada reported on federal collections for the first time, which provided the real impetus for the current collections review project. Although Parks Canada was able to report on and show that they are managing the collections adequately, we were not able to report on the state of the collection consistently, particularly on the condition ratings of objects. Parks Canada's 2005 Annual Report also noted that we did not have a precise count of the number of archaeological objects, nor had we undertaken an overall condition rating for archaeological objects and records. The figures compiled describing the archaeological collection for the 2003 Auditor General of Canada's report illustrated gaps in inventory (28 percent need completion), evaluation for historic value (60 percent need completion),

and problems with the varied approaches that were and are used in the accounting for objects. These are all areas of focus for the current collection review and demonstrate the need for an information management system to improve access to information and our reporting capacity.

The development of a unified set of databases, named the Cultural Resource Information System (CRIS), is currently underway. A needs assessment has been done and a business case prepared. CRIS will provide a single point of access to consistent, integrated information, applications, and tools for Parks Canada's cultural resources. It will significantly improve access to this information for staff, partners, visitors and the general public. It will streamline the many individual systems that are currently in use into a single, standardized information system. Currently there are six different databases for archaeological resources, and at least two are near their technological life's end. The next stages for CRIS include application development and testing, creation of tools for users, training, system implementation, data conversion and the population of the new system. The CRIS project is directly linked to the collection review, which will update records, complete the inventory and evaluation so that conversion into the new integrated system can take place.

Several new and some revised policies, directives and guidelines relating to collections management will help in managing and reporting on the archaeological collection and in making decisions regarding acquisition, retention and disposal. A key directive currently in final draft form is a management directive (MD) entitled *Acquisition and Disposal of Historical and Archaeological Objects and Reproductions* (Parks Canada 2008b). Other directives under review include MD



Figure 3. Display of archaeological objects representing literacy, the domestic arts and religion for the Congregation of Notre Dame, display housed in the De La Perelle House, Fortress of Louisbourg National Historic Site of Canada, Parks Canada. Photo by Heidi Moses. 6302e.

2.1.23: *Collection Management System: Archaeological Research Services* (Parks Canada 1986) and MD 2.3.4: *Repatriation of Moveable Cultural Resources of Aboriginal Affiliation* (Parks Canada 2000). The acquisition and disposal directive has been developed to facilitate and ensure professional approaches to acquisitions and disposals that follow Parks Canada's *Cultural Resource Management Policy* (Parks Canada 1994). This directive will provide the basis for decision-making, complement the existing collections management directives, and will serve as the foundation for their future updates.

Justifications for object acquisitions are elaborated in the acquisition and disposal directive and must meet the Parks Canada's Scope of Collection Statement, relate to Parks Canada's mandate, and be required for program purposes. Repositories must have the capacity to store the objects and meet any special requirements, such as for organic materials, and the objects must not be a threat to health or safety. Methods of acquisition for archaeological objects include archaeological investigation, donation, and purchase if it is



Figure 4. Archaeological Object Reference Collection, Quebec Service Centre, Quebec City, Parks Canada. Photo by Jean Jolin. P0003033.

part of the acquisition of real property, for example, when land is acquired by Parks Canada.

Although not encouraging disposal, the acquisition and disposal directive also provides a professional, consistent, and conscientious approach to disposal (disposal meaning the removal of an object or reproduction from Parks Canada's ownership and/or custody). It recognizes that for specific reasons, such as loss of historic value, archaeological materials may be considered for disposal. When considering the possibility of disposal of objects, safeguarding cultural resources and their historic value is paramount. Justifications for disposal are elaborated in the directive and are very specific. Reasons for disposal may include being surplus to program needs; a threat to health and safety; the loss of historic value or physical integrity; or claims upon objects for legal or ethical reasons, such as restitution or repatriation. The means of disposal for archaeological objects will be determined case-by-case and can include gratuitous transfer (i.e., donation), discard, or destruction (if objects have lost their historic value, are extensively damaged, or are a threat to health and safety), or reburial on site. Sale of archaeological objects is not an option.

Through the collection review, several challenges for the archaeological collection are being addressed. For example, field collection practices need to be reported on in a consistent way to understand the sampling and culling procedures carried out in the field. Parks Canada's new archaeology guidelines (2005a), recording manual (2005b), and permit system (2005c) now require archaeologists to include these details in collection plans and reports. Once objects are collected, another challenge is how to address the disposal of objects that have been identified as having no historic value and that are surplus to Parks Canada's needs. This challenge

is being addressed by the policy tools mentioned above, and through case-by-case evaluation during the collection review. Although some staff have felt that disposal of archaeological objects is not an option for ethical reasons, other archaeologists and collections managers with huge collections of redundant objects with no historic value have made decisions regarding what to retain.

An overall challenge is the backlog of objects that need processing, including inventory, evaluation, condition assessment, and decisions regarding object retention or disposal. It has been recognized that the backlog and review will require financial and human resources and to this end a five-year strategy with a plan and business case has been prepared to request the needed resources. Parks Canada has many impending staff retirements, and this departure of corporate memory will affect the ability to inventory and evaluate objects properly. Throughout, staff members will need to be aware of any legal obligations with respect to objects, for example, obligations under treaties with First Nations or legally binding agreements with communities that must be respected in any decisions regarding disposition of objects.

Another challenge is that of access to the large collection located in Parks Canada repositories across Canada (Figure 4). Parks Canada staff hope to better communicate to the Canadian public and interested professionals about the collection and provide access to objects and related records via existing tools and networks and outreach programs. In addition, another challenge facing some service centers is the lack of space to accommodate growing collections. Use of rolling racks and other space-saving storage systems has helped somewhat. Other service centers facing moves to new storage facilities wish to review their collection before moving, especially their holdings of large objects such as industrial components. Each situation will be approached on a case-by-case basis following the new acquisition and disposal directive.

In summary, solutions to Parks Canada's archaeological collection challenges are being explored and addressed. Foremost is the completion of the collection review and implementation of the five-year plan, and the development of the Cultural Resource Information System is ongoing. Finally, access to objects will be improved when a suitable publication vehicle is found and information about the archaeological collection is incorporated in the Parks Canada archaeology website, and inclusion of archaeological objects in outreach projects is fostered through national public archaeology guidelines, which are in their initial stages of development.

Acknowledgments. I would like to thank Jessica Johnson and Kathy Perrin for organizing this session on archaeological collections and inviting me to present this paper at the 2008 SAA Symposium in Vancouver. Also, thanks to the Parks Canada Service Centre staff and Archaeological Resource Management colleagues who provided me with information for this paper. Any errors or omissions in this paper are my own.

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CREATING DIGITAL ACCESS TO ARCHAEOLOGICAL COLLECTIONS

THE VIEW FROM MARYLAND

Julia A. King

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A number of years ago, when I was serving as the director of the Maryland Archaeological Conservation Laboratory, the state's archaeological collections repository, Lead Conservator Howard Wellman attended a meeting of the Washington (D.C.) Conservation Guild on the preservation of digital media. During one of the presentations, Howard listened as a conservator with the U.S. National Archives and Records Administration talked about the coming challenges of preserving digital media. While I have forgotten the details of what Howard reported about the meeting upon his return, I do remember with astonishing clarity what I heard as the take-home message: "If you think preserving and managing archaeological objects and collections is expensive, just wait until you are confronted with collections in the form of digital media." At the time, I thought, that's a pretty strong and even scary statement, one that was probably exaggerated to make a point. Alarmist! Today, many years later, I have to wonder, could I have been any more clueless?

My primary purpose is to describe the state of Maryland's project to digitize its archaeological collections as part of the ongoing effort to preserve, create access, and generate use of those collections. The digital delivery of archaeological information has tremendous promise and is the wave of the future, but the creation, management, and long-term preservation of digital information is challenging, complex, and (as I now appreciate) expensive, and requires a discipline-wide discussion about the process and its many implications. In many ways, this essay is also about "how I got a clue." Creating electronic access touches on many issues in archaeology, from questions of classification and typology to the challenges of preserving digital media and the information contained on that media. From my own experiences struggling to digitize Maryland's collections, I have learned that digital technologies indeed represent the next—but sometimes scary—frontier in archaeological collections research and management practices. There is an urgent need for guidance

in the use of digital technologies—guidance which I am convinced will need to come from or largely through the professional societies. I refer not only to technical guidance, although that in and of itself is critical, but I also refer to guidance with the modern-day social and cultural issues increasingly evident in the use of digital technologies in and beyond the field of archaeology.

In Maryland, the majority of archaeological collections are deposited with the SHPO at the Maryland Archaeological Conservation Laboratory, a relatively new facility dedicated in 1998 (Figure 1). The SHPO often describes the MAC Lab, as it is typically called, as a "state-of-the-art" facility, and, in terms of archaeological conservation and collections management, the MAC Lab is, it is true, hard to beat. What the MAC Lab and its designers did not anticipate, however, was the far-reaching way in which digital technologies would very soon impact the collection, use, and archiving of archaeological information. The facility's resources for taking advantage of these technologies were not well-developed, and, in many ways, the challenges the MAC Lab faces are probably similar to the challenges many other archaeological repositories face.

Beginning in 1998, staff at the MAC Lab made a concerted effort to develop a plan for creating digital access to the collections, in large part because the facility is located in a rural and relatively remote area, at least an hour's drive from the state's population centers. The plan depended on raising more than \$400,000 from outside sources (mostly federal) and then matching those funds with our own cash and in-kind services. Although the project is not yet complete, the state's archaeological collections are now more accessible than they have ever been; it is also the case that much more remains to be done.

In consultation with archaeologists working in Maryland, the MAC Lab staff began by identifying who they saw as the



Figure 1. The Maryland Archaeological Conservation Laboratory (credit: Maryland Historical Trust).

primary audience for digital collections from Maryland: the academic and professional communities (including students) and, to a lesser extent, the general public. This does not mean the general public does not use or benefit from the resources developed for the professionals, nor that the lab's staff are indifferent to the public's interest in the collections it ultimately owns. Instead, our reasoning went that, with limited funds, digital archaeological information placed in the hands of professionals would be more likely to generate new findings and interpretations about Maryland's past, findings and interpretations that could be disseminated through other means, including publications, museums, schools, historical societies, and so on. Indeed, the MAC Lab now has a staff member focused on public education about archaeology.

Once our primary audience was identified, the MAC Lab approached the electronic delivery of archaeological information from three directions: the first includes web-based artifact type descriptions and studies; the second includes the electronic delivery of field and laboratory information from 40 of the state's most important archaeological sites, including the full range of paper and photographic records as well as any data files; and the third, which was undertaken in conjunction with a number of institutions in the Middle Atlantic region, includes a format that assembles, by archaeological site, site descriptions, artifact images, both searchable and downloadable data bases, maps, reports, and a wealth of other information.

Diagnostic Artifacts in Maryland

In 2002, the MAC Lab launched *Diagnostic Artifacts in Maryland* on the web (<http://www.jefpat.org/diagnostic/index.htm>, Figure 2). This effort, which was funded by the National Center for Preservation Technology and Training, initially assembled information on historic and pre-contact ceramic types typically recovered from Maryland sites. The *Diagnostic Artifacts* website presents published and unpublished information in one easily accessible, easily viewed place for the use of researchers, cultural resources management (CRM) consultants, and students working in Maryland. Visitors to this website will find written descriptions of ceramic types, a number of high-quality, high-resolution images representative of each type and its attributes, and an extensive bibliography. For pre-contact ceramics, information on radiocarbon dates and the geographical distribution of ware types is also included. This digital ceramic type collection has become legendary in the Middle Atlantic region, and the MAC Lab staff finds their colleagues repeatedly citing the website.

Recently, a "Small Finds" section was added to the *Diagnostic Artifacts* website, including leather ornaments, cufflinks, bodkins, and smoker's companions (Rivers-Cofield 2008). Other sections of the *Diagnostic Artifacts* web page under development include late eighteenth- and nineteenth-century ceramics as well as a section on botanical data recovered from nearly 100 Maryland sites. Long-range plans call for other artifact classes, including projectile points.



Figure 2. A screen image from the web site *Diagnostic Artifacts in Maryland*. This page describes Potomac Creek ceramics, a Late Woodland/Contact-Period ceramic type found in Maryland and Virginia (credit: J. Patterson Park and Museum).

Creating a Records Database for the State's Most Important Collections

The second effort involves the digitization of the artifact catalogs and records from 40 of the State's most important collections. Funded in part by two grants from the National Endowment for the Humanities, this project includes all of the field and laboratory data, including artifacts, associated with 40 collections representing a range of time periods and regions in Maryland. Digital records include an artifact database of materials organized first by site and then by provenience or context record, as well as an electronic copy of paper and film records generated during the course of excavation and analysis. This project, arguably the largest and most ambitious and the one that is not yet completed, reveals the challenges of creating electronic access to collections.

Although the MAC Lab had about \$400,000 total of direct funding for this project over several years (including grant and state operating funds), the facility could only afford to digitize 40 collections, or, in sheer terms of artifact count, about a third of the state's holdings. Staff also found, not surprisingly, that these 40 different collections represented 40 different data recovery strategies with a wide assortment of record types and a variable amount of information. Further, cataloging systems were also highly variable. Indeed, this project, more than any other, revealed the criticisms made by Ian Hodder (1999:30) and others concerning archaeological

method and the challenges of documenting "archaeological reasoning processes." Organizing these records into one meaningful and manageable system was a struggle, and we continue to grapple with finding a cure that is not worse than the disease. Nonetheless, problematic as the process was, a researcher can now search and find just about any record from any one of the 40 sites, including artifact catalogs and databases, plans, sections, provenience cards, photographic images, and reports, and view or download the information. One can request all plans produced for a site, for example, or all records, including plans, associated with a specific unit or provenience. These records are first presented as thumbnails and, if desired, a high resolution image can be downloaded. The information is easily and quickly accessible, and the original records are, for the most part, out of circulation, enhancing their long-term preservation. Researchers can peruse an on-line finding aid that describes each archaeological site, its history and excavation, and the nature of the artifacts and records associated with each collection (<http://www.jefpat.org/NEHWeb/Assets/Documents/HomePage/Final%20Introduction.htm>).

A Comparative Archaeological Study of Colonial Chesapeake Culture

The third project involved the development of the website, *A Comparative Archaeological Study of Colonial Chesapeake Culture* (www.chesapeakearchaeology.org), funded in part by the National Endowment for the Humanities and the Virginia



Figure 3. A screen image from the web site, *A Comparative Archaeological Study of Colonial Chesapeake Culture* (credit: Julia A. King).

Department of Historic Resources (Figure 3). Led by the MAC Lab, *A Comparative Archaeological Study* was developed by a consortium of researchers from a number of institutions located in Maryland and Virginia. Unlike the database built to manage the electronic information from 40 very different sites, this project is more narrowly focused on post-contact society in the Chesapeake, specifically the period from about 1620 until 1750. Staff began by assembling information, including artifact catalogs, for 18 sites that subsequently organized to fit a template facilitating comparative research.

Visitors to the website can view a map of where sites are approximately located and select those of interest for further examination. Visitors can then peruse narrative descriptions about the sites, including summaries that describe the site's history, its excavation, and the artifacts and other forms of archaeological information recovered from the site. They can examine site plans, view images of artifacts recovered from the sites, and enlarge these images that are then available for use in presentations (although not for publication). They can even search the master catalog database, a function that has proven useful for researchers interested in particular classes of artifacts. Currently under development is a section listing all known seventeenth- and eighteenth-century sites in Maryland and Virginia, part of the effort to make as much information publicly available as possible about this period in Chesapeake history.

From Here to There

The digital projects described here are, in many ways, works in progress. Some projects are farther along than others, each has a slightly different audience, and each reaches that audience with varying levels of success. Having lived with

these projects for 10 years before leaving the MAC Lab for St. Mary's College, I look back with mixed thoughts, from "Wow, *isn't what we have done great?*" to "My God, *what were we thinking?*" Having minimal computer experience but vitally aware of the future of digital technologies, we were in many ways moving forward blindly. Even now, as sophisticated as the MAC Lab may be as an *artifact* repository, it is clear that the facility still struggles to build a sophisticated infrastructure and realistic plan for achieving a digital archaeology in Maryland. In part this is the nature of state government: as part of the Maryland Department of Planning, the MAC Lab competes for limited state resources. With the current problems on Wall Street, those resources have become even more limited.

Jessica Johnson and Kathy Perrin, organizers of the session where this paper was first presented, invited participants to consider, what's working and what's not in the field of archaeological collections management? As a former director of the Maryland curatorial facility, I would argue that, at least in the U.S., we have only begun to consider the role of digital technologies in archaeological collections management. While a number of books have been published on the broad role of computers in archaeology (e.g., Evans 2005; Lock 2003), and while most archaeologists now use digital technologies in their work (for report production and image capture, for example), minimal consideration has been given to the long-term preservation and accessibility of the materials generated through this work (and, by accessibility, I don't mean just the ability to "find" objects or records within a repository. I also mean the ability to get relatively quick access to the data represented by these materials for research and interpretive purposes). The archaeological collections management literature, which has enjoyed considerable growth covering a wide range of topics in the last 20 years, has yet to consider the challenges of managing digital collections in the kind of detail afforded physical collections. We have, in the U.S. and elsewhere, a critical need for a professional conversation about the future of digital technologies, especially the question of the sustainability of digital media through long-term preservation and access. For example, nearly all collections generated today contain at least one and typically more CDs with images, databases, reports, and other forms of information stored on them. While many states, including Maryland, have published detailed standards and guidelines for processing, conserving, packaging, and transferring physical collections—down to the size of the artifact bags and the information to be included on labels—the guidelines for creating, handling, managing, and sustaining digital media are woefully underdeveloped (Maryland provides an excellent example; see Seifert 2005:27). Best practices for archaeologists (and for collections repositories) are *urgently* needed, if the MAC Lab's experience is any indication.

Of equal urgency is the need for conversations and perhaps

even debates about cataloging processes, the generation of archaeological databases (databases used for research as opposed to those used for managing collections), and technologies that allow relationships to be identified among even the most disparate archaeological data sets.

Several institutions and organizations have already stepped up to the plate to begin these conversations, most notably the Archaeoinformatics initiative (www.archaeoinformatics.org) funded by the Andrew W. Mellon Foundation. This project aims to “design, seek funding for, and direct a set of cyber-infrastructure initiatives for archaeology,” developing “interoperability of [Archaeoinformatics] projects with other relevant data-sharing initiatives.” Archaeoinformatics also “offers to work with professional organizations and federal agencies to promote policies that will foster the development of cyberinfrastructure for archaeology,” and has hit the ground running, offering a survey on their web page designed to assess the current state of the use of digital technologies in the discipline and identify needs and future directions for their work. With its strong support from Mellon, the Archaeoinformatics initiative has the potential to move forward with confronting the challenges of a digital archaeology, and the organization’s commitment to working with the professional societies promises benefits the societies would likely not achieve on their own.

Nonetheless, the professional societies *must*, in my opinion, take an even more active role in the effort to explore the use of digital technologies in archaeology. The societies are membership-based organizations with large audiences and the resources to create discipline-wide conversations about archaeological practices, reaching members and other audiences (including elected officials through government affairs programs) that may not be, on their own, drawn to the subject of digital technologies in archaeology. An unparalleled example of how the societies can effect change, I would argue, is revealed by the success of the SAA’s Committee on Museums, Collections and Curation to raise awareness about the “crisis” of archaeological collections management. Today, most archaeologists recognize the importance to the discipline of collections and archaeologists’ responsibility for insuring the long-term preservation of those collections. The curation “crisis” persists, to be sure, but, as a profession, we are in a much better position concerning collections awareness than we were, say, even ten years ago.

The preservation and ongoing accessibility of digital information is, in and of itself, a phenomenally huge undertaking. Yet, there is more to it than the technical aspects of preservation, organization, metadata, accessibility, and sustainability. Social and cultural factors will, in both subtle and not-so-subtle ways, shape the form of a digital archaeology. Debate continues about how the web affects social change,

for example, and there has been discussion about how digital technologies influence how past cultures are represented. Further, disciplinary practice is itself embedded in social and cultural practice. Race, ethnicity, gender, and geographical location, for example, have been found to influence the forms and use of and access to digital technologies in other disciplines (especially in terms of power dynamics), and we should anticipate their influence in archaeology (Cameron and Kenderdine 2007; Spender 1995; Stewart Millar 1998; Travers 1999). The professional societies provide a ready-made infrastructure for not only disseminating guidance and other forms of information about the move toward a digital archaeology, but for engaging a conversation about the social and cultural impacts of these new technologies.

The professional societies are responding. The SAA has established the Digital Data Interest Group (DDIG), organized to promote the preservation and sharing of archaeological data that are maintained in digital form. SAA’s Committee on Museums, Collections and Curation likewise has an important role to play, given the preservation challenges of digital media as well as the Committee’s impressive track record with changing attitudes about and toward collections. DDIG and the Committee on Museums, Collections and Curation are natural partners. And, in a recent issue of *The SAA Archaeological Record*, SAA President Dean Snow calls attention to an upcoming “Conference of Computer Applications and Quantitative Methods in Archaeology,” recognizing that “the development of a cyberinfrastructure for archaeology is a matter of urgent importance.” The Society for Historical Archaeology and the American Institute of Archaeology are likewise sizing up the problem. Creating a broad and, perhaps most importantly, inclusive awareness seems to be one of the primary challenges.

Our colleagues in the United Kingdom have already charted a possible course with the very impressive Archaeology Data Service hosted by the University of York (<http://ads.ahds.ac.uk/>), and the Archaeoinformatics initiative has expressed its commitment to a broad effort. Additionally, the success of a growing number of projects demonstrates the transformative power of a digital archaeology. Indeed, the pieces of a digital way forward for those of us generating, managing, and using archaeological collections in the U.S. and elsewhere are becoming increasingly evident. As members of the various professional societies, we must actively encourage and support our organizations as they chart this course.

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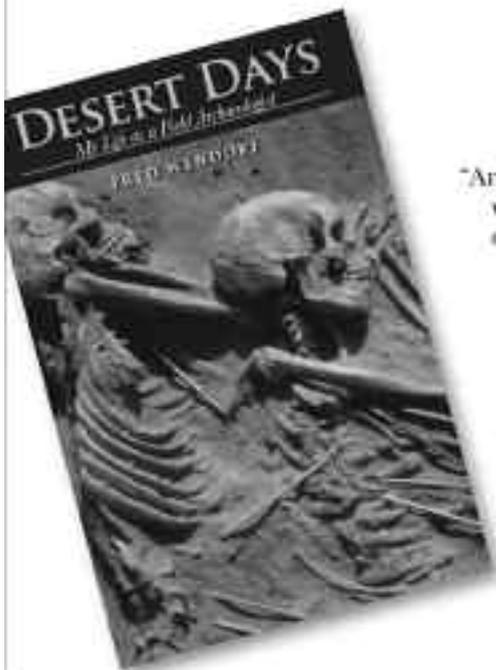
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THE LOGAN MUSEUM OF ANTHROPOLOGY'S COLLECTIONS ACCESSIBILITY PROJECT

A MULTI-PHASE APPROACH TO IMPROVING PRESERVATION AND ACCESS

William Green and Nicolette Meister

William Green is Director and Nicolette Meister is Curator of Collections at the Logan Museum of Anthropology, Beloit College.

The Logan Museum of Anthropology has served as a teaching museum of Beloit College since the museum's founding in 1893. The museum's mission is to build, preserve, research, exhibit, and interpret anthropological collections in order to foster learning about the world's cultures, past and present; about anthropology; and about museology. The museum strives to foster experiential learning in an undergraduate, liberal arts context while conducting important anthropological research and curating significant collections (see, e.g., Whiteford 1956). This article focuses on the museum's archaeological collections and the multiphase approach we are implementing for improving preservation of and access to these collections.

The Logan Museum houses approximately 15,000 ethnographic and 280,000 archaeological objects from 123 countries and 157 Native American tribes. Collections derive from research expeditions, field schools, gifts, exchanges, and purchases. Building upon a large collection originally exhibited at the World's Columbian Exposition in 1893, the museum has acquired internationally renowned collections. Particular strengths in archaeology include European Paleolithic, North African, Wisconsin, Great Plains, Southwestern U.S., Mesoamerican, and South American collections. The museum has conducted and sponsored extensive research and educational use of these collections by our own students and faculty and by visiting scholars.

In the 1990s, the museum rehoused certain collections, including European Paleolithic material, North African Paleolithic and Epipaleolithic collections, and Precolumbian ceramics in a state-of-the-art visible storage facility and in high-quality steel cabinets. The visible storage facility was the central feature of a \$4,000,000 museum renovation project funded largely by private foundations and individual donors. The steel cabinets were obtained through a National Science Foundation systematic collections improvement grant. The remainder of the collection, though, was housed

in inadequate, outdated, poorly accessible, and overcrowded conditions. Most material was stored in acidic cardboard boxes on press-board shelving units with narrow aisles in a poorly lighted part of a non-climate controlled teaching lab. Many objects within the boxes were tightly packed in moldy or deteriorating containers. Physical and intellectual access to these collections was poor and declining, impeding the museum's ability to fulfill its mission.

In 2002 we developed a strategic plan that identified collections improvement as a key goal. We obtained two detailed assessments of the existing conditions before deciding how to remedy them: we secured a Conservation Assessment Program survey grant from Heritage Preservation and a Museum Assessment Program grant from the American Association of Museums (both programs are supported by the Institute of Museum and Library Services). The grants entailed self-studies and allowed us to bring professionals in architecture, conservation, and museum administration to evaluate the condition of collections and facilities and to help prioritize collection needs. The assessments recommended specific short- and long-range courses of action for the purpose of improving collections care. Soon thereafter we began the self-study phase of the American Association of Museums' accreditation process. Obtaining accreditation requires adopting policies and procedures that meet the AAM's high expectations and its "characteristics of an accreditable museum." The latter include good stewardship of the resources the museum holds in the public trust and, more specifically, mission-guided access to and preservation of its collections (AAM 2005).

The self-studies and external assessments served as springboards to the next phases of what we began calling our Collections Accessibility Project: clarification of goals and objectives, detailed project planning, and proposal writing. Overall goals were to:

- Replace inappropriate and substandard storage equipment
- Mitigate inappropriate environmental conditions
- Alleviate overcrowding and lack of accessibility, and
- Create new space for the growth of collections.

After identifying specific collections needing attention (essentially, all archaeological collections not already housed in the facilities upgraded in the 1990s), deciding to rehouse them, and determining to seek funding from the National Endowment for the Humanities (NEH), Division of Preservation and Access (Grants for Stabilizing Humanities Collections, currently Humanities Collections and Resources; see NEH 2008), we conducted the following preparatory activities.

Survey. We surveyed the storage areas targeted for upgrades through a volumetric assessment of stored collections. Each segment of the collection was examined to assess its size, significance, existing storage space and housing, and potential for growth. We also projected future space and housing needs of the collections.

Pilot project. We conducted a pilot rehousing project to develop and refine a standard rehousing methodology and to assess potential problems. The pilot project involved purchase of new storage furniture using museum funds and hiring of temporary staff to rehouse a small portion of the collection.

Research. We conducted extensive background research on collection move projects, which involved attending conferences and seminars and visiting museums that had recently completed storage upgrades. The importance of consulting with museums that had completed similar projects cannot be overstated (e.g., Benson et al. 2001). Colleagues were eager to share what worked and what did not, offering ideas and solutions that were invaluable to our planning and proposal writing. Other valuable resources we used included the courses in collections storage, digitization, preservation of various material types, and grant proposal writing offered by the Campbell Center for Historic Preservation Studies in Mt. Carroll, Illinois.

Conservation consultation. Like many small museums and college/university museums, the Logan Museum does not have a conservator on staff. For this reason we contracted with a conservation consultant to conduct a site visit. During the site visit the conservator evaluated the museum's preservation activities and reviewed and consulted about project methodology and standards. In addition, the conservation consultant was written into our NEH grant proposal to conduct two site visits to evaluate practice and progress and to conduct staff training in packing and mount making.

These steps led to development of a plan to move most North American collections into a new set of steel cabinets to rest above the set that houses the Paleolithic collections in a climate controlled storage area. As an active teaching museum rather than a collections repository (see Sullivan and Childs 2003:47 on this distinction), we wanted to maximize access while enhancing preservation, so we decided against simply placing most collections back in boxes on shelves. The cabinets feature gliding drawers equipped with stops to ensure they could not accidentally be pulled out of the cabinets. Housing collections in drawers rather than boxes enables visual accessibility and reduces handling, which enhances preservation. Collections associated with material already housed in the visible storage facility would be moved to new, stationary shelving in that facility. Associated data on all collections would be entered into the museum's collections database.

NEH Preservation and Access grants require cost sharing. For every dollar of federal funds requested, the recipient must contribute one dollar in cash or effort. Following a helpful review of our draft proposal by NEH staff, we developed a two-year project timetable and a budget of \$710,253, which included about \$500,000 in cash outlays for equipment, supplies, and added staff (about two-thirds of this figure was allocated to the rehousing of ethnographic collections, which is beyond the scope of this article). Contributed effort alone could amount to, and match, only a little over \$200,000. Fortunately, a bequest from the estate of an alumnus supplied the \$150,000 needed to make up the difference in cost sharing. Just as fortunately, NEH approved our grant proposal on its initial submission. The grant thus provided \$355,126, cost-shared by contributed effort plus the bequest.

The standard procedure for rehousing collections began by removing collections from their boxes and other non-archival containers and checking them against catalogue records. Not unlike other museums with a history of over 100 years of acquisitions, the Logan Museum has used multiple, unrelated cataloguing systems to register its collections. In addition to these museum cataloguing systems, many collections are labeled with numbers assigned by the original collectors. This is why many objects—especially the early acquisitions—have three different numbers written on them. We checked and cross-referenced all catalogue numbers to ensure our database reflects accurate catalogue information. Staff and students placed small objects in 4-mil polyethylene bags and archival specimen trays. The collections then were rehoused in the new cabinets after the drawers were lined with 1/8" polyethylene foam for padding. Large objects not placed in bags or trays often were protected with simple storage mounts within the drawers. Most collections now are housed by site, provenience, and material type. Clear labels on cabinets and drawers, object lists within



Figure 1. Patrick Johnson cataloguing objects in preparation for rehousing. Note old storage boxes in background.

drawers, and labeled bags and trays permit users to learn the contents of cabinets and drawers without rummaging through them.

We originally estimated that about 69,000 archaeological objects would be rehousing during the project. This turned out to be a gross underestimate despite the survey we had completed. Our current count of rehousing objects is 178,672 (see Table 1). The undercount was due to several factors, including that many of the collections were packed tighter than our sample had suggested. Also, many collections had not been catalogued. The uncatalogued material could not be rehousing until we conducted research to determine provenience and to help us decide on proper cataloguing procedures, which could differ depending on available information. Fortunately, student assistants and an endowed fund for a visiting curatorship allowed us to allocate additional staff hours to researching and cataloguing these collections. Our visiting curator of archaeology and her assistants relied extensively on field maps, field notes, and other primary records to reconstruct collection provenience and history.



Figure 2. Bone tools and ceramics from Alfred Bowers collection (North and South Dakota) rehousing in new cabinet, showing visibility and accessibility.

While not envisioned in the original project outline, this work helped identify the sites and within-site proveniences from which these collections derived. We entered information on each collection into our Microsoft Access™ database, ensuring intellectual as well as physical accessibility to the collections.

For large collections derived from field schools and other major projects, we wrote site summaries to promote awareness and future use of the material. Our work on collections from the regionally significant Wisconsin Northern Lakes Project of 1965 through 1968 exemplifies the usefulness of cataloguing and site summary preparation. Northern Lakes Project Director Robert Salzer had reported (1969) and published in summary form (1974) some collections from these field schools, but the rehousing project allows the full scope of the collections to be appreciated: material from 88 surveyed and excavated Northern Lakes sites, totaling over 96,000 objects, has now been catalogued and rehousing. Only about 15 percent of this material had been reported. Rehousing of these collections already has facilitated additional in-



Figure 3. Stone and bone tools and experimental archaeology materials from Halvor Skavlem collection (Wisconsin) rehoused in new cabinet, showing visibility and accessibility.

house research on Northern Lakes material as well as research by investigators at the University of Wisconsin-Milwaukee and Washington State University.

Not surprisingly, in retrospect, properly rehoused collections generally require more space than jam-packed collections, so we found that we had underestimated the amount of new storage space the rehoused collections would require. To accommodate this material, we acquired additional storage furniture through reallocation of savings from several grant expense lines and through generous contributions from private donors.

During the course of the project we found that some collections were unsuited for our permanent collection due to their lack of documentation. Because they could serve as educational resources in other collections, we deaccessioned such material (or transferred it, if it had never been officially accessioned) from the permanent collection to our hands-on educational collection or to Beloit College's anthropology department for class use. In response to interest expressed by alumni wishing to build teaching collections, we deaccessioned over 600 undocumented specimens to the Gabel Museum of Archaeology at Boston University and the California State University-Channel Islands anthropology department. The project also located several collections that needed to be transferred to other museums or agencies, including the National Park Service, Wisconsin Historical Society, University of Wisconsin-Milwaukee, and Burnett

County (Wisconsin) Historical Society. These collections had been on expired loans or had never been formally acquired by the museum. Reuniting collections at their rightful repositories helped us resolve issues regarding ownership and freed valuable space for our own collections.

We augmented the collections rehousing project with a map preservation and accessibility project, supported by an NEH Preservation Assistance grant. While field maps proved vital in cataloguing and rehousing collections, most of the maps had been stored tightly rolled for decades and were fragile and extremely difficult to use. With the assistance of a conservator, we built a humidification chamber in which the maps gradually were "relaxed" so they could be stored flat. We flattened over 100 field maps in this way and are storing them in new flat-file cabinets in acid-free folders or loosely rolled in archival map boxes. The field maps will be scanned to increase accessibility and decrease handling.

As we complete the rehousing of collections and maps, we have already begun the next phases of the overall Collections Accessibility Project: converting our collections catalogue from paper-based and MS Access™ database formats to a Re:Discovery Proficio™ database and developing virtual access to collections via the Beloit College Library's digital collections portal. This work, supported by a grant from the Institute of Museum and Library Services, will use Content-DM™ to make collections visible to web search engines. Our ethnographic collections form the initial focus of this work,

Table 1. Logan Museum of Anthropology archaeological collections rehoused 2006–2008.

Project	Number of catalogued and rehoused objects
Beloit Archaeological Survey, Wisconsin (William Green and Sara Pfannkuche, 2004)	502
Domeier/Watson Mound Group testing, Illinois (Robert Salzer, 1974)	2,067
Chapin St. Parking Lot site (Historic) testing, Wisconsin (William Green and Shannon Fie, 2006)	5,672
Havey site (Paleo-Indian), Wisconsin	902
Highsmith site (Woodland) excavation, Wisconsin (Robert Salzer, 1959-1961)	7,476
La Magdalena excavations, Queretaro & Guanajuato, Mexico (William Godfrey, 1958 & 1960)	10,394
New Mexico excavations (Paul Nesbitt field schools, 1929-1938)	8,535
Northern Plains surveys & excavations (Alfred Bowers, 1929-1931)	20,457
NWR site (Woodland) testing, Wisconsin (David Overstreet, 1987)	188
Pecatonica River survey, Illinois (Robert Salzer, 1974)	8,000
Southwest surveys (Frank Jones, III, 1964-65)	4,285
State collections (non-Wisconsin)	6,214
Wisconsin collections (general)	7,412
Wisconsin Northern Lakes surveys & excavations (Robert Salzer field schools, 1965-1968)	96,568
Total	178,672

but the archaeological collections eventually will be added.

In retrospect, we have met the four overall goals of the rehousing project—improving storage and environmental conditions, alleviating overcrowding, improving accessibility, and creating space for collections growth—while addressing newly arising issues and preparing for follow-up phases of collections management and use. We learned a great deal about our holdings while enhancing physical and intellectual access to material that had been poorly documented and difficult to use. We will be able to use the results of this project in drafting a collections plan that identifies strengths and weaknesses of the holdings and helps us focus future decisions on collections use and management, including acquisitions and deaccessions.

Overall, our Collections Accessibility Project helps to fulfill our mission as a teaching museum. Through their broader and deeper engagement with collections, students gain valuable hands-on museum experience and skills as well as a holistic understanding of proper documentation and the value of systematic cataloguing. Other measures of project effectiveness we plan to assess include collection use trends and numbers of student and other projects and publications. External reviews such as the AAM subsequent accreditation review scheduled for 2012 also will help assess the value of this work.

Acknowledgments. For their invaluable work on this project we thank Loran Berg (archaeology move coordinator), Anna Berg (ethnology move coordinator and pilot rehousing project assistant), Sara Pfannkuche (visiting curator of archaeology), and the many students who have assisted us. We also thank the National Endowment for the Humanities for financial support. Any views, findings, conclusions, or recommendations expressed in this article do not necessarily

reflect those of the NEH.

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INTEGRATION OF TRIBAL CONSULTATION TO HELP FACILITATE CONSERVATION AND COLLECTIONS MANAGEMENT AT THE ARIZONA STATE MUSEUM

Teresa Moreno, Chris White, Alyce Sadongei, and Nancy Odegaard

Teresa Moreno is Associate Conservator, Chris White is Project Manager, Nancy Odegaard is Conservator, and Alyce Sadongei is Assistant Curator, Native American Relations, all with the Arizona State Museum at the University of Arizona.

For over one hundred years the Arizona State Museum (ASM) has been an incomparable resource for exploration of the cultural heritage of the American Southwest and northern Mexico. Created by territorial legislation in 1893, ASM is the State of Arizona's official museum and is a research unit of the University of Arizona (UA). It is the oldest and largest anthropology museum in the region and it reflects the university's national leadership in anthropology and archaeology. Home to the very founders of Southwest archaeology, ASM is renowned for its leading research and extensive collections.

The museum's collection of Southwest Indian pottery is one such notable collection and is the largest and most comprehensive of its kind. It consists of nearly 20,000 whole vessels, of which 25 percent are ethnographic material. The remaining 75 percent are archaeological and were collected primarily by ASM and UA excavations covering all major Southwest cultures and some in Sonora and Chihuahua, Mexico. The archaeological vessels span the period from the first century A.D. through European contact. This includes the type collections representing both prehistoric Hohokam and Mogollon cultures, while the ethnographic collection continues to grow every year with continued acquisition of contemporary Native American pottery. In 2000, the ASM pottery collection was designated by the National Trust for Historic Preservation as an Official Project of Save America's Treasures, and in 2006 it was recognized by Arizona Governor, Janet Napolitano, as an Arizona Treasure.

These cultural treasures are not without their problems and their preservation has been a serious concern for ASM conservators and collections managers for many years. In 1999 the ASM conservator proposed to the museum's director and collections managers a project to assess, conserve, and preserve this valuable collection. Thus began the Pottery Project. At the start of the Pottery Project the collection was stored in

five different storage rooms spread throughout two different buildings, neither of which provided stable environmental conditions (Figure 1). Many repairs to the pottery, both ancient and modern, were structurally unstable as a result of aging and degrading adhesive and fill materials. Many of the ceramics suffered damage caused by efflorescence of salts and overcrowded conditions in storage rooms. Overcrowding has also been a problem in facilitating access to the collections. In addition, of the 20,000 ceramics, approximately 5,337 were identified as potentially NAGPRA-eligible cultural items. This had a significant impact on the way ASM conservators and curatorial staff planned for the preservation of the collection.

The Pottery Project Consultations

Addressing the preservation needs of the ASM pottery collection has been a major goal for the museum and is outlined in the museum's Strategic Plan. Significant planning and fundraising to build a new environmentally controlled storage area for the pottery, to provide improved access for researchers, students and the public, and to carry out conservation condition survey and treatment began in 1999. The designation of the collection as an Official Save America's Treasure Project in 2000 helped to support further grant proposals and fundraising initiatives.

Due to cultural sensitivities surrounding the curation and conservation of the NAGPRA-eligible materials, ASM staff determined that planning for conservation survey and treatment, and the move of the collection to upgraded storage could not proceed without direct input from the Tribes. In 2001, a proposal submitted by ASM Conservator, Nancy Odegaard, and ASM Assistant Curator for Native American Relations, Alyce Sadongei, to the U.S. Department of the Interior, NAGPRA Grant Program was awarded. The primary goal of this proposal was to fund consultations with Tribal repre-



Figure 1. Example of vessel storage conditions prior to the Pottery Project.

sentatives to help reevaluate the museum's curation and preservation practices and to facilitate repatriation requests, should the outcome of the consultation warrant any claims.

The first objective was to consult with tribes from the Southwest to determine the appropriate care, treatment, and disposition of NAGPRA-eligible cultural items in the ceramic collection. It was proposed that up to three representatives from Southwest area tribes, culturally affiliated to the collection, would be invited to attend a consultation at the ASM. Having three representatives from each tribe present would allow for maximum discussion between tribal members,

among the different tribes, and with ASM staff. Targeted representatives included: NAGPRA officials, tribal elders or cultural experts, potters or artisans, collection managers, and tribal archaeologists. Each tribe identified the appropriate individuals to attend the consultation. The second objective was to develop appropriate and culturally sensitive guidelines to assist in the packing, transporting, and rehousing of the NAGPRA-eligible cultural items in the collection. It was later determined that the guidelines produced as a result of the consultations could be generally applied to the conservation and curatorial management of the entire collection.

Table 1. North American Tribes invited to participate in the ASM Pottery Project Consultations.

Arizona	Ak-Chin Indian Community, Cocopah Tribe, Colorado River Indian Tribes, Ft. McDowell Mohave Indian Community, Fort Mohave Indian Tribe, Fort Yuma-Quechan Tribe, Gila River Indian Community, Havasupai Tribe, Hualapai Tribe, Kaibab-Paiute, Navajo Nation, Pascua Yaqui Tribe, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, San Juan Southern Paiute, Tohono O'odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Indian Tribe
New Mexico	Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, San Felipe, San Ildefonso, San Juan, Santa Ana, Santa Clara, Santo Domingo, Taos, Tesuque, Zia, Zuni
California	Diegueno
Northern Mexico	Mayo, Northern Tepehuan, Pima Bajo, Seri, Southern Tepehuan, Tarahumara, Wariho, Yaqui (Yoeme)

The NAGPRA Grant proposal identified 45 tribes from the Southwest who were invited to participate in the consultation (Table 1). To prepare for the formal consultation, two pre-consultation meetings were held to seek feedback on the agenda and content areas. The first pre-consultation took place on September 18, 2001 at the Gila River Indian Community. Tribal representatives from the Ak-Chin Indian Community, Tohono O'odham Nation, Salt River Pima-Maricopa Indian Community, and Gila River Indian Community participated. The second pre-consultation took place on October 26, 2001 in Albuquerque, New Mexico. Tribal representatives from Jemez Pueblo, Pueblo of San Ildefonso, Pueblo of Acoma, and Santo Domingo participated.

After these pre-consultation meetings, ASM staff recognized that the opinions tribes have regarding their own ancestral pottery differ. The communities who had maintained a continuing tradition of pottery making had significantly different opinions regarding the conservation and long-term care of pottery than, for instance, tribes whose pottery tradition is known primarily via the archaeological record. The recognition of these differing opinions was beneficial to museum staff as they moved forward with the consultation process. The first formal consultation was held on November 28 and 29, 2001 at the UA. ASM hosted 37 participants representing 17 tribes. The same participants returned in November 2003 for a second formal consultation. In October 2005, ASM conservation staff traveled to western Arizona to hold field consultations with three western tribes who had not previously been able to attend the consultations at ASM. These included: the Cocopah, Fort Yuma (Quechan), and Colorado River Indian Tribes.

At these three consultations a number of issues regarding access, exhibition, storage organization, support material, examination techniques, destructive sampling, packing, and conservation treatment were addressed. ASM staff compiled a list of questions for discussion and the results of these discussions helped to formulate the "Guidelines for NAGPRA Pottery: Relocation and Management" (Figure 2). A final consultation for the Pottery Project was held on August 11, 2006 at the UA. At this time participants received copies of the

"Guidelines for NAGPRA Pottery: Relocation and Management," which were based on the recommendations made in the earlier consultations. These guidelines, created for the relocation and management of the NAGPRA-eligible pottery, have also served as guidelines for museum conservators and collections managers when working with non-NAGPRA pottery collections whenever possible.

Conservation Condition Survey of ASM Pottery Collection

The Pottery Project consultations also sought to gather thoughts from participants on broader aspects of collections care and preservation as well as on specific questions being asked by ASM conservators. As part of the Pottery Project, a systematic conservation condition survey of ASM's entire collection of whole vessel pottery was conducted and this information was compiled in a database, which has allowed museum conservators to develop and refine a system to quickly and efficiently process large quantities of condition and curatorial information. The caliber of this project and the data generated was so great that the project would not have been possible without the creation and use of the database. Conservation goals for the survey included determination of preservation needs regarding stabilization of failing adhesive joins, desalination priorities, and required storage supports. The most ambitious aspect of the research was the survey of adhesives used in repairs to the pottery.

Adhesive Repairs. The objective of this adhesive survey was to document the range of materials used to repair pottery vessels, including original indigenous period-of-use through the nineteenth and twentieth century restorations made by archaeologists and museum curators to the implementation of modern conservation treatment documentation. The result is a body of information that documents the adhesive choices for over 7,500 vessels. Most importantly, this survey has identified where there are adhesive failures and vessels that are structurally at risk. The success of the adhesive identification has provided valuable information on virtually every vessel that underwent repair. Identification of the indigenous repair materials has provided information on the

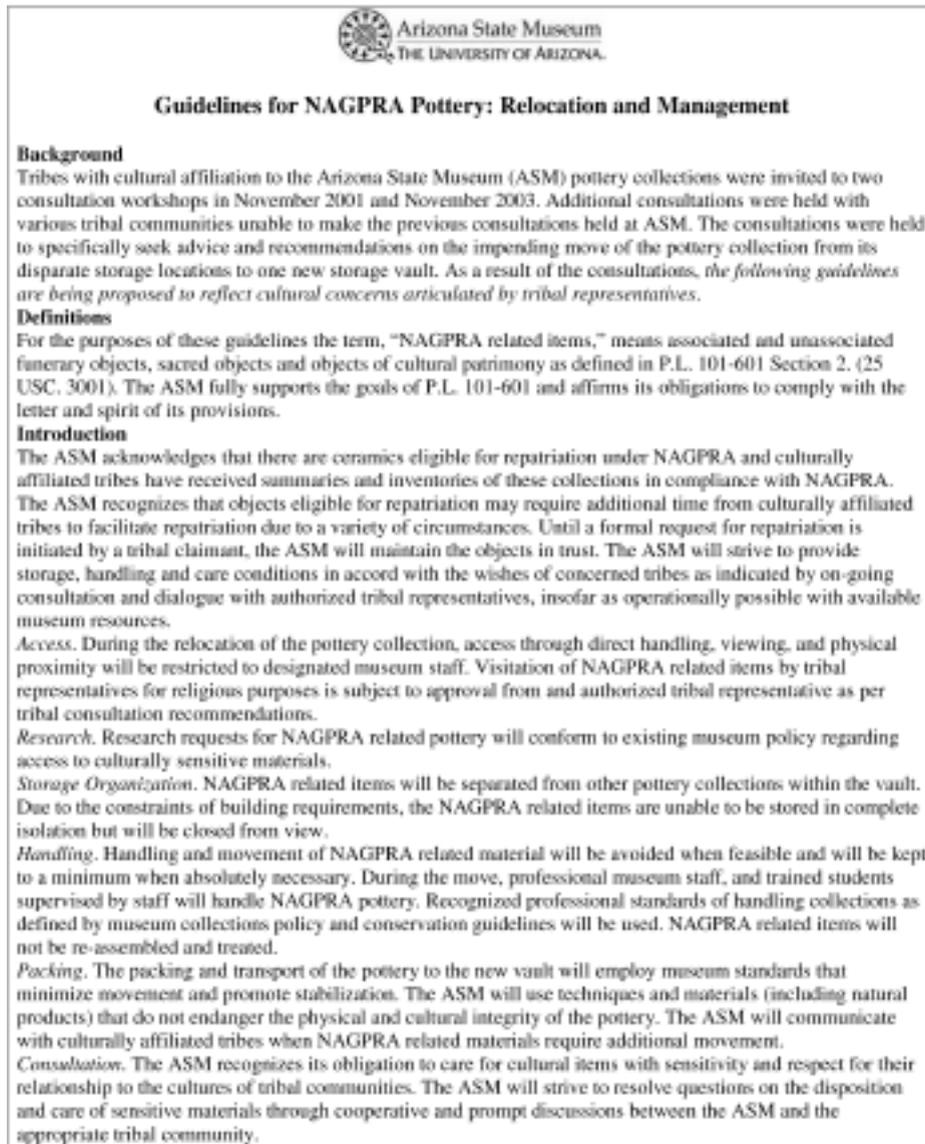


Figure 2: Guidelines for NAGPRA Pottery: Relocation and Management.

wide range of materials that were known and employed in the past, and the evolution of the historic repairs reflects changes in the practices in the museum and archaeological community over time. The success and failure of these adhesives is indicative of their particular strengths and weaknesses, and provides conservators with an opportunity to quantitatively evaluate the success of past treatments.

Approximately 75 percent of the collection is composed of archaeological vessels. Approximately half of these have been repaired in some way. The rate of repair is much lower in the ethnographic collection. Of approximately 5,000 ethnographic vessels, only about 20 percent have any type of

repair. It is useful for conservators to understand the successes and failures of past treatments. By evaluating the condition of these repairs, conservators can make more informed decisions about future treatment strategies and collection management decisions. The history of adhesive use in the collection includes natural materials used by Native Americans such as pine rosin and contemporary acrylic resins such as Acryloid B-72. These adhesives were identified using a variety of techniques, primarily chemical spot testing and FTIR. For much of the twentieth century, when the collection was being acquired, the adhesives of choice were based on cellulose nitrate adhesives. In fact, the data indicate that 87 percent of the repairs in the museum's



Figure 3. Non-NAGPRA-eligible pottery visible in the storage vault.

collection were performed with a cellulose nitrate-based adhesive. A variety of other materials occur in relatively small quantities, so that the value of evaluating their success or failure is limited. The remainder of the adhesives including pine rosin, polyvinyl acetate, hide glue, epoxy, and other materials occur in amounts at or below three percent. When the exact date of treatment was unknown, the use of adhesives was documented by assigning a repair date to the object that equated with the date of acquisition. More recent repairs were accurately identified and dated by referring to treatment records. Data obtained from this survey provides an excellent illustration of the overwhelming use of cellulose nitrate on ASM collections from approximately 1930 to 1980, with peak usage between the late 40s and early 60s during the museum's most active period of collecting from UA archaeological field schools. This large collection of cellulose nitrate adhesive repairs clearly shows a greater than average failure rate. Although cellulose nitrate is found on 87 percent of the total repairs in the collection, it is responsible for 97 percent of failed repairs. This is a highly significant amount and shows a clear weakness in the cellulose nitrate repairs in this collection.

Conclusion

The ASM Pottery Project has been a multifaceted, long-term endeavor. The consultations with tribal representatives have informed museum conservation and curation practices, and the condition survey has informed museum conservators of the preservation needs of the collection. The conservation condition survey has been completed and most of the pottery has been moved into the new climate-controlled storage facility. Based on information received from tribal consultants during the Pottery Project consultations, ASM conservators are not removing failing adhesives or making new repairs on NAGPRA-eligible vessels. Rather, it was agreed that these vessels with failing joins were to be placed into muslin cloth bags for storage in archival cardboard boxes and handling would be minimized. The ASM NAGPRA-eligible pottery has since been housed separately in a remote section of the Museum's new pottery storage vault with highly restricted access. The conservation treatment of non-NAGPRA-eligible pottery in the collection is an ongoing project of the ASM conservation laboratory. The conservation survey database provides a priority rating for the non-NAGPRA vessels that are in need of treatment and it identifies the type of stabilization treatment needed. Conservation treatments conform to the spirit of the guidelines developed through the consultations. Non-NAGPRA-eligible pottery continues to be moved into the storage vault and is visible to museum visitors through large glass windows and doors (Figure 3). This visibility of the non-NAGPRA collections provides a greater degree of public access than was available in the past. A small adjacent gallery dedicated to the ASM Pottery Project provides an interpretive venue for the public to learn about the history of pottery making in the American Southwest, the history of southwestern archaeology and ethnographic studies, Native American ceramic technology, and the various ceramic conservation problems that are being addressed by ASM conservators. The ASM Pottery Project tribal consultations have provided the opportunity for Museum conservators and collections managers to meet and discuss issues of collections care together with tribal representatives. These opportunities have led to further collaborations and solutions for other collections concerns at the ASM.

Acknowledgments. Special thanks and recognition goes to the U.S. Department of the Interior NAGPRA Grant Program for funding the Arizona State Museum Pottery Project Tribal Consultations and to all of the tribal representatives who participated in this multi-year consultation project.

THOMAS F. KEHOE

1926–2008

Thomas F. Kehoe, 81, died September 11, 2008, in Milwaukee. A member of the Society for American Archaeology for more than fifty years, he carried out fieldwork in the Northwestern Plains and Europe, focusing on bison drives and zooarchaeology. Educated at Beloit College, University of Washington, and Harvard University, Tom was curator at the Museum of the Plains Indian (Browning MT) 1952–1959, Saskatchewan Museum of Natural History 1959–1965, Nebraska Historical Society Museum (Director) 1965–1967, and Milwaukee Public Museum 1968–1990. During the 1970s and 1980s, Tom worked to build the Committee of Museums of Ethnography within the International Council of Museums, and the Council for Museum Anthropology within the American Anthropological Association. He was elected to the AAA's General Anthropology Division Executive Board (1987–1989), and in 2004 was honored by the Plains Anthropological Society with its Distinguished Service Award.



On a River Basin Surveys field crew, Tom met Theodore E. White, who was analyzing excavated bones for data on butchering techniques (published in *American Antiquity* between 1952 and 1956). Convinced by this pioneer zooarchaeologist, Tom made faunal osteological data integral to his own project analyses and contributed to developing zooarchaeology as a subdiscipline. Tom's first professional appointment, 1952, was to survey archaeological resources of Montana's Blackfeet Reservation, particularly bison drive sites. For his M.A. thesis, Tom researched the function of tipi rings, using historic and ethnographic data as well as archaeology to demonstrate that rings of stones do predominantly indicate hide tipi sites. In 1957–1958, he excavated the Boarding School Bison Drive, 24GL302, on the Reservation. This site and the Old Women's Jump in Alberta, excavated by Richard Forbis at the same time, provided the first deep stratigraphic sequences for the Northwestern Plains. In 1959, Tom was appointed Saskatchewan's first Provincial Archaeologist and Curator in the Saskatchewan Museum. Encouraged by its socialist CCF government, he surveyed, tested, and mapped sites throughout the province, organized the Saskatchewan Archaeological Society, and conducted major excavations at the Gull Lake and Walter Felt bison drives. CCF defeat in 1964 led to sharply curtailed heritage programs and Kehoe's return to the United States.

In 1969, Tom and his archaeologist wife Alice worked as volunteers on Jean Combier's excavations at Solutré in France, assessing the hypothesis that Solutreans had driven horses over the cliff. Close examination confirmed the probability. With a Fulbright award to the Institut für Urgeschichte, Universität Tübingen, 1978–1979, Tom expanded his field research on animal drives to Paleolithic cave art, arguing that

scenes in Lascaux and Altamira, for example, depict herds driven to corrals (e.g., Kehoe 1986). Another project took him into archaeoastronomy after realizing that John Eddy's diagram of the Big Horn Medicine Wheel matched Saskatchewan's Moose Mountain site. Eddy joined the Kehoes there in 1975, and the Kehoes excavated it in 1976, substantiating its astronomical alignments and dating it to late first millennium B.C.E. During the 1970s, the Kehoes also worked under the Canadian

National Museum's Urgent Ethnography Programme documenting Saskatchewan First Nations cultures. Tom was a member of the Wisconsin Archeological Survey and assisted avocational researchers on several projects, notably the Hilger Springs Mound.

In the mid-1980s, Tom developed diabetes and then heart problems, diminishing his zeal for fieldwork. He divorced Alice and married Mary Anne Siderits, a psychologist. Both survive him, as do his three sons.

Select Publications

- 1960 Stone Tipi Rings in North-Central Montana and the Adjacent Portion of Alberta, Canada: Their Historical, Ethnological, and Archeological Aspects. Anthropological Paper 62, Bureau of American Ethnology *Bulletin* 173, Washington DC.
- 1967 The Boarding School Bison Drive Site. *Plains Anthropologist* Memoir 4.
- 1973 *The Gull Lake Site*. Milwaukee Public Museum, Milwaukee.
- 1979 *Solstice-Aligned Boulder Configurations in Saskatchewan*. Canadian Ethnology Service Paper No. 48, Mercury Series, National Museum of Man, Ottawa. (Co-authored with Alice B. Kehoe.)
- 1986 Corraling Life. In *Communal Land Mammal Butchering and Hunting*, edited by L. B. Davis, N. Noe-Nygaard, and B. O. K. Reeves, pp. 1–17. Allen and Unwin, for World Archaeological Congress, Southampton, England.

—Alice Kehoe



POSITIONS OPEN

POSITION: VISITING ASSISTANT PROFESSOR IN ENVIRONMENTAL ARCHAEOLOGY
LOCATION: SMU, DALLAS, TX

The Department of Anthropology at Southern Methodist University seeks applications for the position of Visiting Assistant Professor in Environmental Archaeology for the 2009–2010 academic year. Preference will be given to scholars with teaching experience and with methodological skills in zooarchaeology, archaeobotany, and/or isotope analysis. Geographic region is open. Ph.D. required. Responsibilities include teaching at the undergraduate and graduate level and can include courses in areas of specialization. Applicants should send a letter of interest, curriculum vita, evidence of teaching effectiveness, and contact information for three references (please do not have reference letters sent until requested). Electronic submissions are welcome (pdf format preferred). Deadline for completed applications is Friday, April 10, 2009. Candidates of interest will be interviewed at the 2009 SAA meetings in Atlanta. Accommodations will be made for candidates not attending the SAA meetings. Please send applications to: David J. Meltzer, Department of Anthropology, Southern Methodist University, Dallas, TX 75275-0336; or email to dmeltzer@smu.edu. SMU does not discriminate on the basis of race, color, religion, national origin, sex, age, disability or veteran status. SMU is also committed to nondiscrimination on the basis of sexual orientation. Hiring is contingent upon the satisfactory completion of a background check.

POSITION: ARCHAEOLOGIST
LOCATION: SAN FRANCISCO, CA

Experience the history, beauty, and excitement of the Presidio of San Francisco. The Presidio Trust is hiring a full time **Archaeologist** with a graduate degree in anthropology with five years' experience in North American historical archaeology and/or prehistoric archaeology of California and the Bay Area. Significant archaeological areas managed by the Presidio Trust include those from the Spanish Colonial period, such as *El Presidio*, the Mexican period *El Polin* settlement, the American Civil War Period Funston Officers' Quarters, and the prehistoric shellmound SFR-6. Inventory and evaluation of these and 50+ archaeological areas of the National Historic Landmark District are in various stages of completion. El Presidio is of international significance and the focus of many program activities detailed in the draft El Presidio Archaeological Management Strategy: *Levantar*. Visit www.presidio.gov/jobs for complete description and requirements. Presidio Trust is an equal opportunity employer. Call (415) 561-5300 to request an application package, OR download and mail to Human Resources, Presidio Trust, P.O. Box 29052, San Francisco, CA 94129-0052.



CALENDAR

APRIL 3–5

The Society for Pennsylvania Archaeology, Inc. will hold its 80th Annual Meeting at the State Museum of Pennsylvania in Harrisburg, PA. For more information, please visit <http://www.PennsylvaniaArchaeology.com>.

APRIL 22–26

The 74th Annual Meeting of the Society for American Archaeology will be held in Atlanta, Georgia. For more information, please visit SAAweb at <http://www.saa.org/meetings>.

MAY 18–22

National Park Service's 2009 Archaeological Prospection Workshop will be held in Natchitoches, Louisiana. For further information, please contact Steven L. DeVore, Archeologist, National Park Service, (402) 437-5392 ext. 141; fax: (402) 437-5098; steve_de_vore@nps.gov.

DECEMBER 2–6

The 108th Annual Meeting of the American Anthropological Association will be held in Philadelphia, Pennsylvania. This year's theme is "The End/s of Anthropology." Proposals for presentations are due by April 1st. For more information, please visit <http://www.aaanet.org/meetings/index.cfm>.



NEWS & NOTES

The Archaeology Division of the American Anthropological Association annually sponsors a symposium at the SAA meeting. This year's sponsored session will be "Actors' and Artifacts' Agencies: The Dynamics of Creating Living Objects" organized by Christine VanPool, Christopher Carr, and Elizabeth Newsome, on Friday afternoon, April 24. The symposium was chosen because it exemplifies holistic archaeological archaeology; participants will include scholars in archaeology, cultural anthropology, art history, and linguistics. Drawing on concepts of the social and cultural life of objects, recent materiality studies have reconceptualized artifacts as possessing life-essences that influence humans. These papers will discuss several key issues, including the dynamic role of artifacts in the transactional interchange between the object and its maker or user. The deadline for proposals for AD sponsorship for the 2010 SAA annual meeting will be at the end of August 2009 (in time for submission to the SAA before the program deadline). For more information, check the AD web page at <http://www.aaanet.org/sections/ad/index.html>, or contact President-elect Ben Nelson at bnelson@asu.edu.

National Register Listings. The following archeological properties were listed in the National Register of Historic Places during the fourth quarter of 2008. For a full list of National Register listings every week, check "Weekly List" at <http://www.nps.gov/nr/>.

- Alaska, Southeast Fairbanks Borough-Census Area. *Swan Point Archaeological Site*. Listed 9/26/08.
- Guam, Guam County. *Aga Tongan Archaeological Site*. Listed 9/26/08.

- New York, Greene County. *Croswell—Parsons Paper Mill Ruin*. Listed 11/09/08.
- New York, Warren County. *FORWARD (Shipwreck)*. Listed 11/21/08.
- Puerto Rico, Juan Diaz Municipality. *Cueva Lucero (Prehistoric Rock Art of Puerto Rico MPS)*. Listed 9/26/08.
- Virginia, Prince William County. *Camp French (Campaigns for the Control of Navigation on the Lower Potomac River, 1861-1862, Virginia, Maryland, and DC MPS)*. Listed 11/12/08.
- Virginia, Prince William County. *Rising Hill Camp (Campaigns for the Control of Navigation on the Lower Potomac River, 1861-1862, Virginia, Maryland, and DC MPS)*. Listed 11/12/08.
- Virginia, Stafford County. *Tennessee Camp (Campaigns for the Control of Navigation on the Lower Potomac River, 1861-1862, Virginia, Maryland, and DC MPS)*. Listed 11/12/08.
- Washington, Island County. *Site 45-IS-2*. Listed 12/11/08.
- Wisconsin, Ashland County. *MOONLIGHT (Shipwreck) (Great Lakes Shipwreck Sites of Wisconsin MPS)*. Listed 10/01/08.
- Wisconsin, Richland County. *Shadewald II Mound Group (Late Woodland Stage in Archeological Region 8 MPS)*. Listed 10/02/08.

In addition, the following archeological property was designated a National Historic Landmark by the Secretary of the Interior:

- Massachusetts, Plymouth County. *Alden, John and Priscilla, Family Sites*. Designated 10/06/08.

IN BRIEF, from page 3

john_neikirk@saa.org – manager, Publications
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keisan_griffith-roberts@saa.org – coordinator, Financial and Administrative Services
meghan_tyler@saa.org – coordinator, Membership and Marketing

Please let staff know if there is any way in which we may be of assistance. It is staff policy that all emails be responded to within 24 hours (weekends and holidays excluded). Should you contact us and not hear on a timely basis, please feel free to touch base directly with the executive director. Also, in addition to email, you may reach SAA by phone office at 1-202-789-8200 (SAA does not have a voice mail system—so a real person will be cheerfully greeting you at the other end of the line between 8:30 am and 6 pm EST.) or by fax 1-202-789-0284. Should you have any questions at all, contact us!

Amerind Sponsors New Outstanding Public Poster Competition at the SAA Annual Meeting

The Amerind Foundation has sponsored anthropological research in the American Southwest and northern Mexico since 1937. The Amerind embarked on a new program at the 2008 SAA meetings in Vancouver—the creation of a traveling exhibit highlighting excellence in the public communication of research.

During the 2008 poster sessions—six posters featuring studies in the American Southwest and northern Mexico were chosen. The posters selected presented outstanding current research and communicated visually and effectively with the audience. The eight authors of the posters, with assistance from Amerind staff, reworked their posters into a traveling exhibit. Their goal was to explain their research for the average museum visitor. Opening at the Amerind in November, the traveling exhibit will tour four more museums in 2009, including the University of Colorado Museum of Natural History in Boulder, the Museum of Indian Arts and Culture and Laboratory of Anthropology in Santa Fe, the Arizona State University Museum of Anthropology in Tempe, and the Arizona State Museum in Tucson.

Call for Outstanding Public Poster Competitors 2009

Are you giving a poster in Atlanta? Would you like to compete for a spot in the 2009-2010 Amerind Traveling exhibit? At the 2009 SAA poster sessions, the Amerind is once again seeking posters from the American Southwest or northern Mexico. Interested scholars can download an application for the competition at our web site www.amerind.org. Applications must be submitted by April 3. A panel of judges will visit competitors' posters during the meetings in Atlanta, and the winners' work will be developed into an exhibition that will tour to Southwestern museums in 2010.

Call for Sponsors

The Amerind traveling poster competition is seeking sponsors for the 2009-2010 exhibition. Sponsors will be acknowledged by name in the traveling exhibit itself. Please contact the Amerind Foundation's Executive Director, Dr. John Ware, at jware@amerind.org if you or your business would be interested in becoming a sponsor of this program.

The 2008 Winners

Thanks to everyone who competed in the 2008 Outstanding Public Poster Competition! The authors of the six winning posters worked very hard to design a museum-friendly exhibition. The 2008 winners were Lauren Davis and Todd L. VanPool (University of Missouri—Columbia); Michelle Hegmon (Arizona State University); Melissa Kruse (Arizona State University); Anna A. Neuzil (EcoPlan Associates, Inc.); Matthew Pailles (University of Arizona); Neomie Tsosie and Kerry Thompson (Northern Arizona University and University of Arizona). Thanks to the winners for sharing their research with the public! We hope you can visit the exhibit when it comes to your region!

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**The Society for American Archaeology is Pleased to Announce
the SAA 7.5 Minute Film Fest**

SAA members are invited to create and submit short films (not to exceed 7.5 minutes in length) for the SAA film festival, to be held during the 75th annual meeting of the Society in St. Louis, Missouri, April 14-18, 2010.

Films submitted for consideration will be judged in advance of the 75th annual meeting by a blue ribbon panel of archaeological and cinematographic luminaries, and the top films selected in a variety of genre categories will be screened in Atlanta during a one-day film festival. All entries will be given serious consideration, and arbitrary taxonomic categories will not be imposed. Suitable awards will be presented in a range of categories.

General Genre categories include:

Humorous and educational
Pedagogical
Documentary
Historical
Spanish Language

Cross-cutting theme categories include:

Ceramics
Lithics
Microbotanical analysis
Pot hunting
Trade and sale of artifacts
Back dirt

For an example of an excellent short film, go to:
<http://www.youtube.com/watch?v=X4smMyPNcA0>

HAVE YOU CHECKED OUT EDITORIAL MANAGER®?

Editorial Manager® is the Society's online manuscript submission and tracking system for its two journals: *American Antiquity* and *Latin American Antiquity*. Editorial Manager is a Web-based manuscript submission and peer review system developed by Aries Systems Corporation for scholarly journals, reference works, and conference proceedings; more than 3,000 publications currently use workflow solutions from Aries Systems.

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For *American Antiquity*, the system can be accessed at <http://www.editorialmanager.com/aq>.

For *Latin American Antiquity*, the system can be accessed at <http://www.editorialmanager.com/laq>.

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