

# Society for American Archaeology 15(5)



November 1997

**"Panoramic Visual Reality is an excellent way for the general public to interact with archaeological sites and subject . . . "**



*Click on the image to go to the article*

## TABLE OF CONTENTS

- [Editor's Corner](#)
- [A Word From Our New Associate Editor](#)
- [Letter to the Editor](#)
- [Send Us Your Posters!](#)
- [In Brief...](#)
- [Archaeopolitics](#)
- [It's New...SAA's Online Membership Directory!](#)
- [Campus Representatives Needed](#)

- [Publicly Relating: Notes From the Public Relation's Committee](#)
- [Field Tripping in Seattle](#)
- [COSWA Corner](#)
- [Joe Ben Wheat, 1916-1997](#)
- [Jesse D. Jennings, 1909-1997](#)
- [Interface--Panoramic Virtual Reality and Archaeology](#)
- [Insights--Issues Concerning Consulting Archaeologists in the United States](#)
- [Student Affairs--At the Front of the Class: Developing Your Teaching Skills](#)
- [Working Together--Origins of the White Mountain Apache Heritage Program](#)
- [News and Notes](#)
- [Positions Open](#)
- [Calendar](#)

---

The *SAA Bulletin* (ISSN 0741-5672) is published five times a year (January, March, June, September, and November) and is edited by [Mark Aldenderfer](#), with editorial assistance from Karen Doehner and Dirk Brandts. Please send all materials to the the editor as follows: December 1 (January), February 1 (March), April 1 (May), August 1 (September), and October 1 (November); sent to *SAA Bulletin*, Dept. of Anthropology, UC-Santa Barbara, Santa Barbara, CA 93106-3210. For further information, please call (805) 893-8604, (805) 893-8152, fax(805)893-8707, or email [saanews@sscf.ucsb.edu](mailto:saanews@sscf.ucsb.edu). Contributors are strongly encouraged to submit manuscripts via email or by disk using any word processing software. Advertising and placement ads should be sent to SAA headquarters, 900 Second St. NE #12, Washington, D.C. 20002, (202) 789-8200. Associate Editor for the Insights column is [Kevin Pape](#), (513) 287-7700, and for the Working Together column, Kurt Dongoske, (520) 734-2441. Inquiries about these columns and submissions should be addressed directly to them. The *SAA Bulletin* is provided free to members and institutional subscribers to *American Antiquity* and *Latin American Antiquity* worldwide. *SAA Bulletin* can be found in [gopher at alishaw.ucsb.edu](#), and on WWW at <http://www.sscf.ucsb.edu/SAABulletin/>. Items published reflect the views of the authors and publication does not imply SAA endorsement.

---

## Editor's Corner

By now, most of us have been thoroughly inundated by Internet news and views. While at times I have been tempted to unplug myself from the hype, I know that this would be futile since I have come to depend on various electronic services almost as much as I rely on my computer itself. Archaeology has witnessed, like most other scholarly fields, the continuous appearance of new web sites, listservers, online journals and databases, and other digital resources. It is increasingly difficult to keep pace with these developments and to determine what is worth viewing and what is safe, maybe even desirable, to ignore. I'm pleased to announce that I have appointed a new associate editor--John W. Hoopes--to help the SAA membership deal with this digital flood. John, who teaches at the University of Kansas and works in Latin America, will begin his new column, tentatively entitled "Networks," in the January 1998 issue. Among other topics, he will review digital resources on archaeology and related fields and will provide an expert opinion on their strengths and weaknesses. You can contact John via email at [hoopes@ukans.edu](mailto:hoopes@ukans.edu). I look forward to this new feature, and I hope you will find it of value.



---

---

## A Word From Our New Associate Editor

*John W. Hoopes*

I first became interested in the use of computer networks while in graduate school at Harvard in the early 1980s. A project in Costa Rica on which I worked with Payson Sheets (University of Colorado) was one of the first to take a portable computer into the field--a suitcase-sized Compaq with a screen the size of my hand. While working on my dissertation, I participated on local "bulletin board services." Through my involvement with FidoNet (an early network of personal computers), I began to realize the potential of the medium for professional communication. I've been part of the online cybercommunity for over a decade now, using laptops and desktops to stay connected with my department and colleagues during several years' research in Central America. I'm a regular participant on ARCH-L and AZTLAN, two listserver discussion groups for archaeology. I'm also webmaster for a growing suite of web sites that make course materials, scholarly articles, bibliographies, and other useful information available to the world.

The purpose of the new column will be to keep readers abreast of new and existing Internet resources for archaeology. The first column will focus on how our colleagues in Latin America are using "La Red," with descriptions of discussion groups and web sites. Future articles will discuss the growing role of listservers for sustaining scholarly dialogue, the potential of the Internet for archaeological publishing, the use of the Internet for teaching, thematic reviews of web sites and online resources, and evaluations of archaeological resources on CD-ROMs. Individuals with suggestions or contributions for the column are encouraged to contact me at the Department of Anthropology, University of Kansas, Lawrence, KS 66045, (785) 864-4103, fax (785) 864-5224, email [hoopes@ukans.edu](mailto:hoopes@ukans.edu), web <http://www.ukans.edu/~hoopes/>.

---

---

## Letters to the Editor



I am curious why the *American Journal of Archaeology* was not included in the data base used by the authors of "The Gender Effect on Editorial Boards and in Academia" [[SAA Bulletin 15\(4\):6-9](#)] given that it has a circulation comparable to other Anglophone archaeological journals. The authors admit that they do not include a "complete inventory" of "Anglophone journals that primarily serve the archaeological profession," but that their choices reflect "sources available in our library." Leaving aside the matter of whether the journals in the Arizona State University library are themselves representative of the field of archaeology as a whole, I seriously doubt that the *American Journal of Archaeology* is not in their collection. I fear that its omission, once again, may reflect a continuing bias against Old World archaeology within the SAA.

Jack L. Davis  
Department of Classics  
University of Cincinnati

---

## Send Us Your Posters!

SAA's Public Education Committee and the Council of Affiliated Societies invite you and your state or city to participate in "Celebrate Archaeology 1997-1998" at the 63rd Annual Meeting in Seattle. If you know of a terrific archaeology poster published to commemorate an Archaeology Day, Week, or Month between April 1997 and March 1998, please send it in. The deadline is March 3, 1998.

All posters will be displayed at the meeting, and awards will go to the top three "best" posters, as determined by a vote of participants at the meeting. See the 1997 winners on the web at <http://www.nps.gov.aad.statearc.htm>.

Send two (2) unmounted and unfolded posters from your state to Dan Haas, Archeologist, National Park Service, Archeology and Ethnography Program (2275), 1849 C Street, N.W., Washington, DC 20240.

If your poster will not be ready by the March 3 deadline, call Dan to see if some other arrangement can be made. Be sure to include a contact name, address, and phone number with your poster so that we can mail your award if you win and are not able to attend!

The contest is sponsored by the Archaeology Week and Network subcommittees of the Public Education Committee and the Council of Affiliated Societies. If you need additional information, feel free to contact Dan at (202) 343-1058, email [dan\\_haas@nps.gov](mailto:dan_haas@nps.gov); Philip Carr at (601) 944-9372, email [pcarr@mdot.state.ms.us](mailto:pcarr@mdot.state.ms.us); or Jane McGahan at (413) 659-3761, email [mcgahja@nu.com](mailto:mcgahja@nu.com).





## In Brief...



*Tobi Brimsek*

SAA's 1998 Annual Meeting in Seattle, Washington, will possibly be the biggest ever, with the number of submissions far exceeding that of our 1996 record-breaking New Orleans meeting. By this time, you should have received a "sneak preview" brochure providing you with housing information for the meeting, the required housing form, and discount travel information. Housing and travel information, along with the housing form, has been included in this issue of the *SAA Bulletin*. The deadline for submitting housing forms to the Housing Bureau is February 25, 1998.

**Tours, Tours, Tours**--We have some fabulous tours planned for the Seattle meeting (please see the article in this issue from the Local Advisory Committee cochair, Julie Stein). Just a reminder--when you get your preliminary programs, please sign up for the tours as soon as possible. If we do not have the minimum number signed up through preregistration, we cannot offer the tours! Don't miss out on these wonderful opportunities!

**New SAAGear**--The SAA umbrella premiers in Seattle. Don't leave Seattle without one! The umbrella and a few other surprises will be displayed at the SAA booth in the exhibit hall. Looking for SAAGear now? Check out SAAweb to see what is available or call the membership department at (202) 789-8200 for a product list and order form.

**December 26, 1997**--This is our target mailing date for the Seattle preliminary program. Watch your mail box during the first few weeks in January for this power-packed program. The meeting dates are a bit earlier than usual--March 25-29, 1998. Mark your calendars!

**Getting Connected**--In the September *SAA Bulletin*, we formally introduced SAA's "Get Connected" campaign. The purpose of this campaign is to encourage our members to report their email addresses to increase our capability to communicate with members via email. While we started the campaign with about 43 percent of our members' email addresses, we have already added another 850 addresses to bring our connectivity up to 56 percent of the membership! Please keep that email address information coming to [membership@saa.org](mailto:membership@saa.org).

**For SAA Members: Online Directory Now Available**--A member directory is now available in a members-only section of the SAAweb. For complete instructions on how to access and use the online directory, see the article in this issue. This version of the directory will bring you regularly updated information. Please visit the web and try it out! We would like to have your feedback on the new directory, so please email the executive director ([tobi\\_brimsek@saa.org](mailto:tobi_brimsek@saa.org)) with your comments.

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

# Archaeopolitics

## Information Required *Donald Forsyth Craib*

SAA, along with several other organizations, is seeking examples of projects involving expenditures of federal or state taxpayers' money that could harm or have damaged archaeological and/or cultural resources.

The information will be used in a report to be published by the Taxpayers for Common Sense, a nonprofit organization dedicated to cutting wasteful government spending, subsidies, and tax breaks through research and public education. By linking together many cases in which government spending has harmed cultural resources, the report seeks to increase media attention dramatically on wasteful spending and to raise policy makers' awareness of the destruction of our nation's rich and diverse archaeological heritage.

Examples of federal or state wasteful spending must meet the following criteria:

1. Activity requires investment of federal or state government money.
2. Investment can include spending, subsidies, or tax breaks.
3. Project can still be stoppable (i.e., it is not too late to halt a project).
4. Activity imminently threatens *known* archaeological or cultural resources.
5. Project faces significant and organized local opposition.

If you are aware of any ongoing projects or activities that meet the above criteria, please contact me at SAA headquarters at (202) 789-8200 or [donald\\_craib@saa.org](mailto:donald_craib@saa.org).

## Congressional Visits *Katherine Sanford*

Legislators have trouble supporting programs that they do not understand, and the SAA, for some time, has encouraged its members to educate public policy makers about the importance of archaeology. On moving to Washington, D.C., a few months ago, I decided to bolster my congressional members' knowledge about archaeology in Tennessee, my home state. The timing was perfect because the Second Annual Tennessee Archaeology Awareness Week was set to begin, and I had related materials available for distribution, including a wonderful educational poster.

I contacted Donald Craib, SAA's government affairs person, for help and information on whom to call and what approach to take. He quickly provided me with background information on my specific congressional members and their staffs, including key legislative assistants. Legislative assistants compile research and advise congressional members on a multitude of issues, including cultural resources and education.

I called and met with the legislative assistants who focus on environmental and cultural resources. Their background knowledge in archaeology varied--one had actually studied anthropology--but they all welcomed the input on a constituent's subject of concern. These meetings fueled their interest in and knowledge of archaeology and the federal government's impact on historic preservation. If nothing else, they received new posters to hang on their walls and an update of recent Tennessee archaeology.

I would urge all archaeologists coming to Washington, D.C., to set up an appointment with their congressional delegations. These meetings can, of course, readily take place in the home state as well. It is a painless task (they don't even expect constituents to dress up) with immeasurable impact.

If you are coming to Washington, D.C., and would like to meet with your members, contact Donald Craib at



*Donald Forsyth Craib is manager, government affairs, and counsel of SAA.*

SAA headquarters. He can arrange meetings for you and provide the necessary background information.

*Katherine Sanford is a graduate student in anthropology at George Washington University.*

[To Top of Page](#)

---

LAST PAGE

TABLE OF CONTENTS

NEXT PAGE

---

---

## It's New . . . SAA's Online Membership Directory!

SAA is proud to announce the premiere of its new online membership directory on the "Members Only" section of SAAweb, the society's web site (<http://www.saa.org>). The directory will be updated twice a month to include those individuals who join the society throughout the year, as well as to accommodate the numerous address changes received by SAA each month.

### How Do I Access the Directory?

The directory is located in the Membership Section of SAAweb. To directly access the directory, point your browser to <http://www.saa.org/Membership> and then click on the "Membership Directory" link. You will be prompted to enter your User ID, which is your member number (all eight digits, including the hyphen) and then your password, which is your last name (passwords are case-sensitive). Your member number is found on your membership card, which is located in the bottom right corner of the renewal notice mailed to you in October. If you are unable to locate your member number, call the SAA Membership Department at (202) 789-8200 or send an email to [membership@saa.org](mailto:membership@saa.org).



Once you have correctly entered your User ID and your password, you will be given access to the directory. You may choose between the directory's two main functions--searching the membership database or notifying SAA of an address update.

### Searching the Membership Database

The online membership directory provides you with the ability to search for a friend, colleague, or contact in one of five ways: by full name, last name, organization, postal/zip code, or country. Once you have located a particular record, you will have the capability of sending that individual an email from the directory, if SAA has his/her email address listed in the database.

### Changing Your Address

The directory also allows you to notify SAA of any changes that need to be made to your record while you are online.

Please remember that the directory is accessible only by current SAA members. If you have difficulty accessing the directory or have questions regarding your listing, call the Membership Department at (202) 789-8200 or email [membership@saa.org](mailto:membership@saa.org).

We hope you will enjoy the latest feature on SAAweb!

[To Top of Page](#)

---

## Campus Representatives Needed

The position of SAA Student Affairs Committee campus representative was created to facilitate the dissemination of information from the Student Affairs Committee to the student body at the representative's home institution. Additionally, the campus representative communicates the issues and concerns of the student body at his/her home institution to the Student Affairs Committee. Most activity on the part of a representative involves the dispersal of information and requests for information and action. The goal of the Student Affairs Committee is to recruit a campus representative from every university where there are student archaeologists in residence at the graduate and/or undergraduate level.

### Prerequisites

- Membership in the Society for American Archaeology.
- Willingness to undertake the position for at least one year and willingness to help the committee find a successor.
- Graduate or undergraduate status at an institution where there are student archaeologists in residence.
- Attendance at the annual meeting of the Student Affairs Committee during the campus representative's term.
- Access via electronic mail (preferable) to reduce communication costs.
- Familiarity with home state's institutions and local archaeological community.
- Availability of institutional support (i.e., postage, phone, copier and fax access) or willingness to assume some expense due to limited availability of funds.

### Responsibilities

- Electronic or other dissemination of information from the Student Affairs Committee to the student body at the campus representative's home institution.
- Communicate issues and concerns of the home institution student body to the Student Affairs Committee.
- Respond to requests for information and action from the Student Affairs Committee.
- By virtue of the above and other appropriate means, make the student body at the home institution aware of the campus representative position and its function.
- Represent the Student Affairs Committee at meetings and conferences.
- Establish contact with other SAA committee members or liaisons in home state to facilitate communication (particularly Government Affairs Network members).
- Be familiar with SAA guidelines, missions, projects, and activities.
- Assist in recruiting successors and/or students from nonrepresented institutions.

If you are interested in becoming a campus representative, please contact Caryn M. Berg, Chair, SAA Student Affairs Committee, University of Colorado, Campus Box 233, Boulder, CO 80309, email [bergcm@ucsub.colorado.edu](mailto:bergcm@ucsub.colorado.edu).

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---

## Publicly Relating:

### Notes from the Public Relations Committee

*Carlos M. Ratter*

- **Your paper has finally been accepted by Science, and reporters are already calling, even though the issue won't be out for two weeks.**
- **Your archaeological project has just uncovered the largest find in your part of the world, and the press is already snooping around.**
- **A site in your area was just badly vandalized, and reporters are calling and knocking on your door for comments and suggestions.**

When you are faced with one of these situations, you do not have to face the onslaught of publicity by yourself. If you are part of a college, university, federal agency, or museum, chances are that there is a public information officer (PIO) who is ready and willing to help you handle the situation. Dealing with the press and explaining and interpreting research are that person's job. PIOs routinely work with researchers and produce news releases on research and events for the local and national press. Knowing who they are and having them know you can be valuable when a problematic situation arises.

Most experienced PIOs should be able to help with logistical problems. Even if you are an old hand at answering questions about your most recent paper or excavation, there are things that PIOs can do for you. They can screen telephone calls so that reporters receive a copy of your paper, and calls are prioritized before you deal with them, saving you time and effort. They can make arrangements for parking passes, television uplinks, courier service, and a myriad of things that reporters and producers expect and that you may not think about. At an archaeological site, a well-briefed PIO can herd reporters where you want them to go. Most PIOs know the local press very well, and they can suggest the best approach if you are concerned about accuracy or have information that you absolutely want to get into the story. PIOs also know which reporters can and cannot be trusted; every profession has its bad apples and being forewarned is being forearmed.

If you are lucky enough to have a science writer on the public information staff, make it a point to meet him or her. Science writers are used to working from scientific papers and will not be put off by statistics or technical information. Their job is to translate information from science to English, and they know what the public can understand and how to approach a topic. They also likely know most of the science journalists in the United States--it is a rather small field. A science writer can assist you with the production of an accurate news release for the local press, who tend to have difficulty with scientific information. If the information in a release is accurate and easy to understand, you will have fewer questions to answer, and you will be confident about the information provided. If you have a press release for "the largest archaeological find in your part of the world," the news release can provide the cultural and scientific rationale behind the excavation and perhaps avoid stories that only focus on beautiful artifacts or monumental buildings without any context for your work.

So, if that *Science* paper will be published in two weeks, you can avoid a lot of wasted time by speaking with the public information office's science writer, providing a copy of your paper, and making time for a short interview. In fact, it is better if you do this when the paper is accepted, because the science writer can then plug into an

entire network of prepublication publicity that is organized by science journals (e.g., *Nature* and *Science* send information to science reporters before the publication date).

PIOs can also help with news releases on vandalized or pothunted sites. PIOs can often pre-arrange a visit to a site with the assurance that the location will not be published. They can help create a sympathetic ear for saving irreplaceable resources and work with reporters to produce a story that not only reports the destruction but also explains, for example, why modern graffiti on a pictograph wall is worse than the same graffiti on a bus station wall.

Remember, no matter what the story, you probably will be famous only for Andy Warhol's equivalent of 15 minutes. Even the most phenomenal story dies a natural death within a week, with requests for follow-up stories trickling in over the next few weeks. During the brief feeding frenzy of news gathering, PIOs can be helpful sources. They have all been through this before and know what to expect. They can help you avoid some of the pitfalls and perhaps let you enjoy your brief time in the limelight.

*Andrea Elyse Messer is a science and research information officer at Pennsylvania State University.*

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---

## Field Tripping in Seattle

*Julie Stein*



### **DON'T GO TO THE TOP OF THE SPACE NEEDLE!**

. . . Okay, you can if you want to, but you won't be seeing the real Seattle. For a taste of Seattle livability, may I suggest a few destinations. Of course, you will want to sneak away from the meetings for an hour and watch the fishmongers at Pike Place Market hurl 20- lb. King salmon around like hacky-sacks. Keep out of their way! And of course, you will want to walk the waterfront, savor freshly shucked Quilcene oysters at Elliott's, or maybe hop on the Winslow Ferry for a 20- minute moonlit excursion to Bainbridge Island. All the tourists do, and rightfully so. But to experience why Seattle has become such a hot destination for tourists, high- tech billionaires, and football free agents, you should wander a bit among Seattle's one- of- a- kind neighborhoods.

Want nightlife? Clubs and music? Belltown's the home of the "Seattle sound." Try the Crocodile Cafe on Second Avenue. Taverns and boisterous Old- Time Seattle? Visit Pioneer Square and the J and M Saloon. Crave urbanity and the city- that- never- sleeps feeling? Broadway on Capitol Hill is for you.

Dreaming about lutefisk (dried codfish) and Scandinavian design? Try historic Ballard and its glorious sunsets at the exquisite gardens associated with the Chittenden Locks. Feel like a dose of the 1960s? Venture north to bohemian Fremont, an oddball locale whose motto is "Welcome to Fremont--the Center of the Universe. Set Your Clock Back Five Minutes." There you can genuflect at the feet of the "Troll under the Bridge," a giant VW-eating monster (originally with California plates), dress up the wacky crowd in "Waiting for the Interurban" (a favorite sculpture), and close down the place at the infamous Red Hook Brewery.

By now you may be pondering, "How can I see Seattle and still soak up all those engrossing symposia I came to hear?" You're in luck...SAA has planned a half- dozen Seattle excursions that take you around town to savor much of what the city has to offer without leaving your friends wondering "Where's [your name], I thought she was coming to the meetings?" Here's how you can see Seattle and still maintain your scholarly reputation.

Have a morning to yourself? Try the three- hour Seattle City Highlights tour. Along the way, you will see historic Pioneer Square, home of the renowned Elliott Bay Bookstore and Seattle's favorite art galleries and raucous taverns, and the city's International District, center of diverse Asian communities and wonderful shops and restaurants. This outing will carry you across one of Seattle's unique floating bridges, whisk you through the beautiful University of Washington campus, and invite you to stroll the grounds of the Chittenden Locks with its exquisite gardens and fascinating salmon ladders. The tour returns to midtown for a taste of Pike Place Market, the cultural and spiritual heart of Seattle.

Prefer stretching your legs to sitting on a cushy motorcoach seat? Take a bracing walk about Seattle's scenic hills on the Walking Tour of Downtown Seattle. See where public transportation meets art gallery in Seattle's Metro Bus Tunnel. View the city's vast collection of lively public art and learn about Seattle's colorful (somewhat bawdy) history. If you are the type who likes to know what's beneath your feet (and what archaeologist is not?), you might also try the Seattle Underground Tour, an unusual visit to "Ghost Town" Seattle, the unrestored city that lies beneath the present- day streets. If only they would let us do some surveying of these abandoned basements and streets!

Some say that the best way to see Seattle is from its enveloping waterways. For an afternoon on the water, SAA is offering a Seattle Harbor Cruise on Elliott Bay. You will pass through the locks, cruise Lake Washington, and perhaps catch a glimpse of Bill Gates's palace. There is no better way to experience the city.

Another trip for the weary conventioner is a visit to the Burke Museum of Natural History and Culture on the University of Washington campus. A city bus from the Convention Center and your SAA convention badge will get you free admission to the exhibits. Among the displays are East Wenatchee Clovis Cache artifacts, including large fluted points. Your SAA badge also gets you a 10 percent discount at the Burke gift shop, which specializes in the art and crafts of contemporary Native American artists.

Finally, after a hard day of meeting and thinking, SAA invites you to relax for an evening touring the West Coast's heartland of microbrewing on the Microbrewery Tour and Pub Crawl. For those whose tastes run toward the suds, you will visit some of the finest alehouses and sip Red Hook ESB, Ballard Bitter, and Black Hook Porter. This event is Friday night only, so be sure to sign up.

So, go to the Space Needle if you must (if the weather is clear you can see mountains on all sides!), but be sure to see more of Seattle than just the Convention Center. SAA provides the means for you to meet your friends and colleagues, exchange ideas, learn the latest developments in archaeology, and see all the sights. Downtown is alive all night long, and the streets are safe. And remember that Seattle is more than just a space needle.

*Julie Stein is cochair of the Local Advisory Committee for the 63rd Annual Meeting.*

[To Top of Page](#)

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---



## COSWA Corner

*Katherine A. Spielmann*



**Women as Professionals Roundtable Luncheon.** Sixty-seven participants and 12 table hosts came together to discuss career issues over lunch at the SAA annual meeting in Nashville. Topics included career tracks in cultural resource management, government, and academic jobs, as well as issues surrounding grants, fieldwork, and publication. The event was organized by COSWA member Hilary Chester. SAA provided room space and handled reservations as part of the annual meeting.

COSWA members Barbara Roth and Hilary Chester will organize another series of roundtables at the 1998 SAA meeting. Suggestions for topics of interest to junior women in the profession are welcome.

One suggestion that we have acted on is to reduce the cost of the event. At the Seattle meeting, the roundtables will feature a continental breakfast instead of lunch.

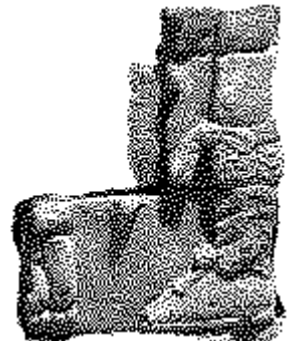
**Interest Group.** COSWA is in the process of organizing a Women and Archaeology Interest Group, which will function as a formal network of SAA members who are interested in a broad range of issues of concern to women archaeologists. The initial objectives of the Women and Archaeology Interest Group are to (1) improve contacts among women archaeologists and (2) provide a forum for the discussion of and action on issues of interest to COSWA, women in archaeology, and archaeologists interested in gender issues. Further information will be available in this column once the procedure for forming an SAA interest group has been completed this fall.

**COSWA Call for Members.** COSWA members are appointed for three-year terms beginning in the spring at the SAA annual meeting. COSWA meets annually at the meeting, with a less formal meeting in the fall at the AAA meetings. During the year, committee members are active on subcommittees that focus on the collection and dissemination of information on the status of women in various aspects of the archaeological profession. Current subcommittees include Applied Archaeology, which is collecting data on the relative statuses of women and men in contract and government archaeology positions; Academic Hiring, which is collecting information on the relative success of men and women in acquiring jobs in North American academic institutions; the SAA Census, which is analyzing the SAA census database with regard to gender issues; and the Roundtable organizers, who recruit table cohosts and assist with preparations for the roundtable discussions at the SAA annual meeting.

There are 10 committee members including one student member; three members (including the student member) are rotating off the committee this coming spring (1998). If you are interested in becoming a COSWA member, please write to Katherine Spielmann, Department of Anthropology, Box 872402, Arizona State University, Tempe, Arizona 85287-2402, email [kate.spielmann@asu.edu](mailto:kate.spielmann@asu.edu). In your letter or message, please discuss the interests that you have in COSWA.

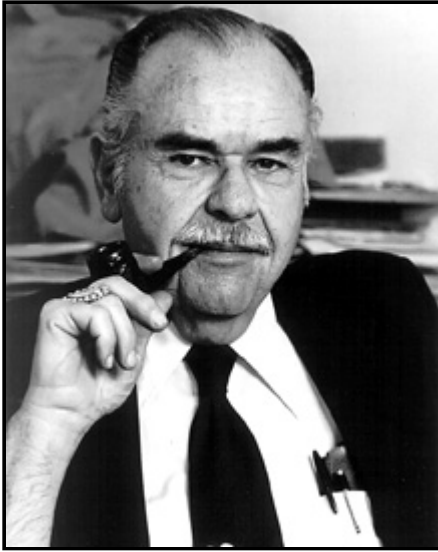
**Current COSWA Members:** Hilary Chester (student member, SMU), Elizabeth Chilton (Harvard), Cathy Costin (Northridge), Margie Green (ACS), Johna Hutira (Northland), Barbara Roth (Oregon State), Kate Spielmann (chair, Arizona State), Johnna Thackston (Air Force), Pam Willoughby (Alberta), and Rita Wright (NYU).

*Katherine A. Spielmann is at Arizona State University and chairs the SAA Committee on the Status of Women in Archaeology.*



## Joe Ben Wheat

### 1916-1997



Joe Ben Wheat, 81, curator emeritus of the University of Colorado, died June 12, 1997, after a short illness. Wheat contributed significantly to Mogollon and Anasazi, Plains Paleo-indian, and African Paleolithic archaeology, as well as Southwest Native American weaving. He will be missed for his scholarship, generosity, kindness, and gentle wit by many friends and the generations of students he enjoyed teaching.

Born in Van Horn, Tex., Wheat was interested in archaeology and Indian artifacts from childhood. By his early teens, he was the local authority who guided pioneer archaeologists such as E. B. Sayles and Frank Setzler to important sites in the area. Wheat studied at Sul Ross Teachers College and Texas Tech University, where he met William Curry Holden, who suggested that he transfer to the University of California, Berkeley. There, Wheat studied under A. L. Kroeber, receiving his B.A. in 1937. He earned both his M.A. (1949) and Ph.D. (1953) at the University of Arizona where he studied with Emil Haury and Edward Spicer. Following four years in the

U.S. Army Air Force (1941-1945) and graduate school, Wheat became the first curator of anthropology and assistant professor of natural history at the University of Colorado Museum. He worked at the museum until his official retirement in 1986, after which he continued to do archaeological work in southern Colorado.

Wheat's archaeology included work on the Smithsonian Institution's River Basin Surveys in 1947 and the University of Arizona's Field School at Point of Pines (1947-1948). His doctoral dissertation on ancient Mogollon culture was published in two parts as a memoir of the American Anthropological Association and a memoir of the Society for American Archaeology and as a monograph by the University of Arizona. His Paleoindian research at the Olsen-Chubbock site (published as a memoir of the Society for American Archaeology) and the Jurgens site (a Plains Anthropologist memoir) are landmarks of scientific excellence. In 1954 Wheat began summer field school excavations at Yellow Jacket, a site in southwestern Colorado. The work provided an Anasazi parallel to his Mogollon research and trained generations of archaeology students. In the 1960s Wheat excavated sites in the Sudan and Tunisia as part of a University of Colorado expedition. Since 1972 Wheat had devoted research time to textiles from the American Southwest. This work resulted in exhibitions throughout the United States and accompanying publications.

Wheat served as secretary (1960-1964) and was elected president (1966-1967) of SAA and honored with the SAA 50th Anniversary Award. He received the Colorado State Archaeologist's Award (1979), the Robert L. Stearns Award (1982), the Clarence T. Hurst Award (1990), and the Byron S. Cummings Award (1991).

Wheat was married to Frances Irene (Pat) Moore from 1947 until her death in 1987. In 1992 he married Barbara Kile Zernickow whom he had first met in the 1940s and with whom he shared many interests. Wheat's biography and bibliography were compiled by Ann Hedlund and published in *Why Museums Collect, Papers in Honor of Joe Ben Wheat* (Archaeological Society of New Mexico, Vol. 19, 1993).

*Linda Cordell is at the University Museum and Frank W. Eddy is in the Department of Anthropology of the University of Colorado-Boulder.*

## Jesse D. Jennings

### 1909-1997



One of American archaeology's giants, Jesse D. Jennings, died at his home in Siletz, Ore., on August 13, 1997. Born in Oklahoma City on July 7, 1909, he was 88 years old. Jane Chase Jennings, his partner since their 1935 marriage in Washington, D.C., was at his side. Jennings leaves a family including Jane, their two sons, David and Herbert, and three grandchildren.

Jennings's professional career, spanning more than 60 years, was one of extraordinary and sustained accomplishment. He pursued archaeology in many places, starting in the Midwest and Southeast soon after his 1929 arrival as a graduate student at the University of Chicago. In 1938 he and Jane dug with A. V. Kidder at Kaminaljuyu, Guatemala, that work leading to his Chicago Ph.D. dissertation (1943), which he completed during World War II service as a naval officer in the North Atlantic. An early career with the National Park Service, before and after the war, took Jennings from the Southeast to the Southwest, and on to the Plains. In 1948 he left the NPS for the University of Utah, where he served for nearly 40 years until his

retirement in 1986. During this period he was continuously engaged with research projects and the training of students in the Great Basin, the Glen Canyon of the Colorado River, throughout Utah, and in American Samoa. From 1980 to 1994, Jennings conducted special graduate seminars as an adjunct professor at the University of Oregon.

Jennings's earliest professional publication was a 1934 paper, "The Importance of Scientific Method in Excavation" (*Bulletin of the Archaeological Society of North Carolina*, Vol. 1, No. 1). His summing autobiography, *Accidental Archaeologist* (University of Utah Press), came out in 1994. From the six decades between these are dozens of works reflecting all the diverse involvements of an energetic archaeological career: reports, reviews, comments, articles, chapters, monographs, books, and edited volumes.

Jennings's classical work was his monograph, *Danger Cave* (SAA Memoir No. 14, 1957). This pathbreaking study of an unusually rich and long-occupied site set a new standard for its attention to depositional and biotic as well as artifactual data. Relating the archaeological evidence from Danger Cave to an ethnographic model, Jennings framed a compelling view of a Great Basin Desert Culture that will forever underpin research on desert west prehistory. His *Glen Canyon: A Summary* (Anthropological Papers No. 81, University of Utah, 1966) pulled together years of rescue archaeology in the canyon lands of southeastern Utah to give an account of Anasazi agricultural life along its northern frontier.

In addition to primarily technical studies, Jennings early entered into the writing and editing of broadly synthetic works. In *Prehistoric Man in the New World* (Chicago, 1964), edited with Edward Norbeck, and his *Prehistory of North America* (McGraw-Hill, 1968), Jennings gave students and teachers the first textbook syntheses of the continent's archaeology. Each of these books continued to grow and change shape through three editions, informing and influencing both younger and older students of American archaeology over three decades.

Jennings's valuable service to the profession is reflected in an exceptional list of major honors that came throughout his career. He was chosen editor of *American Antiquity* 1950-1954, elected to the Executive Board of the American Anthropological Association 1953-1956, selected as Viking Medalist in Archaeology 1958, elected

president of SAA 1959-1960, and elected vice-president and Section H chairman of the American Association for the Advancement of Science in 1961 and 1971. His university named him a distinguished professor in 1974 and honored him with a doctor of science degree in 1980. He was elected to the National Academy of Sciences in 1977. In 1982 he received one Distinguished Service Award from SAA and another from the Society for Conservation Archaeology. He was a featured plenary session speaker at the 50th Anniversary Celebration of SAA in 1985. In 1990 the Great Basin Anthropological Conference (which he had founded in 1958) established the Jesse D. Jennings Prize for Excellence in his honor, and in 1995 he was awarded the A. V. Kidder Medal for Achievement in American Archaeology.

*C. Melvin Aikens is in the Department of Anthropology at the University of Oregon.*

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---

## Interface--



# Panoramic Virtual Reality and Archaeology

*John W. Rick and Dakin Hart*

## Archaeology and Technology

---

### Table of Contents:

[Introduction](#)

[What is Panoramic Virtual Reality?](#)

[The Making of PVR](#)

[Shooting PVR Outward Panoramas](#)

[Producing the Outward Panoramas](#)

[Object Movies](#)

[Photography for Object Movies](#)

[Linking Panoramas, Stills, and Movies](#)

[Assembling Multimedia Presentations](#)

[Some Applications of PVR](#)

---

As archaeologists, we often deal with an intrinsically visual subject matter in the form of landscapes, sites, and artifacts, but until recently we have been very limited in our ability to convey to others the reality of these subjects. Only in the context of slide presentations, motion pictures, or well-illustrated and expensive books have we come close to giving a palpable sense of the stuff we work on. While it is true that our physical data can hardly speak for themselves, it is also the case that a clear visual understanding of these places and objects often should precede the more intellectual pursuits of interpretation or hypothesis testing. We need to know our material well, and we need to pass this knowledge to others, be they our students, colleagues, or a broader public.

Electronic media are becoming available to serve these purposes, including digital video and photography as well as less photo-realistic technologies such as GIS (geographic information systems), CAD (computer-aided design) and associated three-dimensional modeling and rendering. With the increase in our ability to deliver visual messages comes a new challenge of how to organize the content. For example, a CD-ROM full of color stills or video clips is less accessible than either a color picture book or an analog video. One interesting option is to organize the media in such a way that they simulate reality, so that the end user can deal with the information as if it were a version of the real world--exploring, sensing, and coming to the same understandings we do during fieldwork or analysis.

We would like to discuss one particular form of such virtual reality based on panoramic photographs. Aside from our own familiarity with this technique, we want to call it to our colleagues' attention because

it is one of the easiest forms of virtual reality to produce in terms of equipment and expertise, one of the easiest to deliver, and yet a quite effective means of conveying reality.

## What is Panoramic Virtual Reality?

In essence, panoramic virtual reality (PVR) consists of a series of sequential photographs, shot either outward from a central point or inward toward a central object, which are presented so that the view of the surrounding world or the object can be controlled. These two perspectives are currently implemented through quite different techniques. Outward panoramic photographs are joined together (referred to as "stitching") to form a single continuous image, usually in the form of a cylinder or sphere. The object-oriented PVR operates more like a motion picture in that images of the object are displayed in their sequential or adjacent order, allowing the viewer to rotate the object in any direction like a ball.

These representational strategies give the sense of navigating through a scene or manipulating an object and thus have often been called "three-dimensional" (3-D). In truth, they are not truly 3-D, because the viewer is restricted to a single point from which the image is manipulated. Because a single landscape or object panorama is a very limited segment of reality, multiple panoramas are often linked together to form a semicontinuous spatial experience. The viewer can jump from one panorama, or "node," to the next, giving either the effect of traveling through space or of examining objects. In addition, still photographs or video clips can be linked to panoramas and displayed by clicking on specific points (usually called "hot spots"), allowing greater detail of subjects.

## The Making of PVR

This form of virtual reality (VR) can be created using digital or conventional photography. For outward panoramas, a camera is mounted on a swiveling tripod head and shots taken at regular intervals, producing overlapping images that can be joined ([Figure 1](#)). Complicating matters somewhat, the camera must revolve specifically around its nodal point, the spot where light crosses in the lens. This keeps all objects in the panorama in alignment, avoiding problems of parallax, which would later confound the joining of the photographs. The camera must also rotate around a fixed axis--usually a horizontal plane, but not necessarily so. Any deviation from this plane of rotation will cause problems with stitching. A very wide wide-angle lens is usually important for outward panoramas, allowing broad, sightlike vision that encompasses nearby tall objects. A very wide wide-angle lens also reduces the number of photographs required to produce a single panorama.

How wide is very wide? We have found that for 35-mm photography, a lens in the 15-18 mm range is best; the lens can be fish-eye or nondistorting rectilinear. The rectilinear lens is superior in producing images more generally useful beyond the PVR arena. Lenses of this sort are available from Tamron and Tokina as well as camera manufacturers, although the latter can be quite expensive. A good if not excellent new 17-mm lens ranges around \$250-350. This significant expense may be somewhat compensated by the broad utility of the lens in other circumstances; we cannot imagine doing archaeological photography without one. Perhaps the greatest disadvantage of such a wide-angle lens is that it will pick up sun flare somewhere in the panorama, except at about midday. Lens hoods may help with this problem, but tend to crop the shot with an irregular edge, defeating some of the purpose of the wide-angle lens. In practice, we have found that lens flare can be fairly easily edited out of the stitched image, and it actually is desirable in many cases since it gives a sense of the sun's direction.

To further increase the angle of vision of the outward pan-oramas, shots are usually taken with the camera in vertical or portrait position. To facilitate this, and to allow the camera to be positioned at the lens's nodal point, a number of useful, if expensive (\$200-600), specialized PVR tripod heads are available from companies such as Kaidan (<http://www.kaidan.com/>) or Peace River Studios (<http://www.peaceriverstudios.com/>). These allow the camera to be positioned and leveled independent of the tripod ([Figure 2](#)). In addition, most have click-stops that will position the camera in 8, 12, 16, 24, or other intervals for each full rotation. A 17-mm lens will take a full 360[[ordmasculine]] panorama in 12

shots in portrait position, with about 60 percent overlap between images. While it would be possible to take an eight-shot panorama, it may be more difficult to stitch, and should one shot fail or be missing, the panorama will be incomplete. Panoramas shot with "normal" wide-angle lenses of 28 mm will require 18 to 24 shots to complete. For taking large numbers of outward panoramas, such a full-featured tripod head is indispensable, increasing the speed and accuracy of the shoot.

Ambitious PVR projects will require a considerable amount of film, which makes digital photography an attractive option. Less expensive digital cameras (generally \$600-1,000, still triple the cost of a film camera) suffer from relatively low resolution, small storage capacity, poor lens options, and limited control over exposure and other settings. Professional-level digital cameras are extremely expensive (generally in the \$5,000-30,000 range), fall short of the resolution that film achieves, are often bulky, and require costly mass storage media or frequent uploading of images to a computer. While digital photography will soon be an excellent choice for PVR projects, the technology for it is not quite ready for reliable, economical, and practical field projects. Image resolution is perhaps the least of the problems, as quite acceptable stitched PVR images are frequently around 2,600 x 700 pixels, and many low-end digital cameras will produce resolutions of around 700 pixels on their longer dimension, which in portrait mode is the image's height. New PVR display technologies, however, will soon be increasing the usable image size, rendering low-resolution panoramas obsolete.

Conventional film, with its very high resolution, can be taken with a variety of cameras and does not require professional equipment. In fact, the use of automatic exposure and auto-focus is not advisable. A fixed focus and exposure is best, leaving scale, color, and density identical in the overlapped areas of sequential images. A motor drive or a self-winding camera is worthwhile, both to speed shooting of the multiple frames and to reduce forces exerted on the mount that might change camera position. A cable release is helpful, and a two-way flash shoe bubble level keeps the camera rotating on a horizontal plane. A strong tripod--better than the generic camera/video models--will pay off, because some designs of tripod heads will exert a strong bias on the tripod as the camera rotates, and off-plane tilting of the camera will have negative consequences.

## Shooting PVR Outward Panoramas

The process of taking the pictures is relatively simple in most circumstances. The tripod is leveled, the PVR head attached, and the camera mounted. Using levels on the tripod, head, or camera flash shoe (depending on the equipment used), the camera is leveled. For locations in which multiple panoramas will be linked, it is a good idea to start the sequence of shots from a common compass direction--this will make orienting the panoramas and movement between them easier. The shots are then taken, rotating the camera a set number of degrees (30° for a 12-shot panorama), usually in a clockwise rotation ([Figure 3](#)). If there is any chance of changing light conditions, human interference, or movement within the panorama, the shots should be taken as quickly as possible. Since most panorama files are editable, a considerable amount of image manipulation will be possible later. Tourists, dogs, power lines, trash, or signs can be eliminated (or added!) using the sophisticated tools in a good photo-editing program such as Adobe Photoshop or Corel Photo-Paint. In multinode site shoots, we have always tried to match lighting conditions between panoramas, so the user is not jarred by a shift, such as from an overcast to a clear day. We originally strive for cloudless days, so that the sky is constant. Our experience, however, is that clouds are visually rich, and the change in cloud formation or position between panoramic nodes is not noticeable for most users.

In practice, we have generally shot three 12-shot panoramas per 36-exposure roll of film, with a leading and trailing storyboard image. It is desirable that the same film be used throughout a given lighting situation, but a shift into shady or interior situations can be coupled with a change to a different film; color shifts are expectable and even desirable for these transitions. We strongly prefer to shoot slides because of their utility in other situations and their ease of sorting and ordering prior to digitizing, but color negatives can also be digitized. Labeling film and keeping a field register of the shooting process will pay off later. Film from large-scale projects can get mixed up easily, and in many panoramas there

may be problems that need to be recorded: skipped or duplicated frames, lighting changes, or other factors affecting the final image.

Having two functioning cameras while shooting panoramas allows simultaneous shooting of stills for inclusion as details within a panorama. They are ideally taken under the same lighting conditions, without interrupting the orderly progression of the panoramic sequences. Overall, a crew of up to three people can be effectively employed, although care must be taken to avoid shooting the crew--they have to become accustomed to walking clockwise ahead of the PVR camera's rotation!

We have little experience with digital cameras and will not try to give a hands-on account of the digital shoot. It should be clear, however, that the primary difference is the storage media. With digital images, the photographic outcome is immediately apparent, so corrective measures can be taken in the field. The loss of digital files, however, is perhaps greater than the likelihood of damaging or losing film; backup of the shoot is therefore a requirement. All this suggests that immediate access to computers is necessary. Some sort of large-scale storage will be required, such as writeable CD-ROMs or backup tapes. To illustrate this issue, a productive day of shooting can produce about 25 panoramas of 12 images each, for a total of about 300 images. Using a fairly high-quality size of 1,000 x 1,750 pixels, each uncompressed image will require about five mb of storage space, for a total day's storage requirement of 1,500 mb. This would fill a high-capacity backup tape or about 2.5 CDs; there are both monetary issues and time costs in storing this much information. Image compression could be used or a lower resolution could be saved, but both will compromise the long-range potential of the images. Assuredly these problems will be overcome in the future, but some of the current difficulties facing an intensive production schedule should be evident.

## **Producing the Outward Panoramas**

If you have captured your images digitally, you will be ready to form your panoramas--a savings in time and cost. If you have used film, the images first need to be digitized, for which there are a number of options. More expensive but ideal is to have your film transferred to Photo-CD, a standard in which five different image sizes are written to commercially produced CD-ROMs, each accommodating about 100 original photographs. This produces a series of high-quality, consistent images on a stable medium. The alternative is to scan images yourself using a slide scanner (these range in cost from about \$700 to \$1,500 or more) at an image resolution tuned to your expected panorama size. Such scanned images can be passed directly to the stitching programs, while Photo-CD images must be transformed to an acceptable format and rotated to portrait orientation. If you are scanning, you will need to decide whether you will retain images after stitching, requiring major storage media, or whether you will discard them.

The stitching process is carried out by specialized programs that meld the overlapped areas of the images, bending and blending them into a seamless image when all goes well. The usual stitch is of a cylindrical image from 360 degrees of photographs, but panoramas can also be made from a full sphere of images, which adds shots taken up and down, or of partial panoramas when a full 360 degrees coverage is not available or desired. The original software created for stitching images is Apple's Quicktime Virtual Reality (<http://quicktimevr.apple.com/>), or QTVR, a name that is sometimes applied to the whole genre. This program is now in its second major version (2.0) and offers many features, but until recently it has been restricted to the Mac environment and requires the creation of scripts written in rather opaque code. The program is expensive (\$395) and employs a keyboard "dongle" as a hardware lock, which can be clumsy if you are using various machines for development. It produces a Quicktime product that can be played back or navigated by any computer running recent Quicktime software. This format is also supported by recent versions of Netscape.

As might be anticipated, a number of competitors have entered the market, with increased user friendliness. These include:



- Nodester, by Panimation (\$169), an automated, easier-to-use panorama stitcher that produces panoramas in the QTVR format (<http://www.panimation.com/>).
- PhotoVista, by LivePicture (\$99), a powerful and user friendly stitcher with its own panorama format but capable of producing QTVR as well (<http://www.livepicture.com/>).
- Spin Panorama by PictureWorks (\$99), which produces outward panoramas. A companion program, Spin Photo Object, produces object movies (<http://www.pictureworks.com/>).

Details on these programs can be found in a recent review of PVR software that appeared in the November 1997 issue of *Macworld* (accessible at [http://www.macworld.com/pages/november.97/Reviews\\_3993.html](http://www.macworld.com/pages/november.97/Reviews_3993.html)). The new programs are menu or button-driven, making it easy to bring together the image files, rotate them if necessary, stitch the photographs, and store the resulting image, frequently as a highly compressed JPEG file. Typical medium-resolution photos occupy about 1.5 mb apiece, but all 12 can be stitched together in a JPEG panorama of only about 200-400 kb. Viewing the panorama may require a short instruction file that is automatically created by some programs and manually assembled in others. This establishes key parameters for the panorama, such as the file name of the panoramic image, its field of view, and many optional controls for setting the initial view. The file also controls the action of the panorama, its relationship to other panoramas, and any content such as stills or movies included in the panorama.

We use PhotoVista by Live Picture on a Windows platform; here is how the stitching process proceeds in this program:

1. The images are selected from a directory and appear in a list window; their order can be reversed here, in case they were shot in counterclockwise rotation.
2. The lens type is selected; in my case, 17 mm.
3. The images are displayed, side-by-side, in a viewer. If any or all were upside down or mirrored, this can be remedied with button controls ([Figure 4a](#)).
4. A rapid preliminary stitch can be made that displays the positions in which the images will be overlapped for a final stitch. At this point, the images can be dragged to new positions if the stitching has not found their proper joining points ([Figure 4b](#)).
5. A final stitch is performed that joins the images sequentially and displays a full-scale image. This can be examined for flaws, and one can return to the image position window for further modification and the stitch performed again.
6. When a satisfactory panorama has been created, it can be written to disk, usually as a JPEG graphics file, along with the small control file that makes it a navigable panorama using Live Picture's Real VR program ([Figure 4c](#)).

Using a Pentium II computer, we have been able to produce two to five panoramas per hour, depending on the complexity of the exposures and on whether we scan them or use Photo-CD images. The actual stitch time will vary according to the size of the images, the processor speed, and other computer features, but on most reasonably fast machines it is not particularly lengthy--a couple of minutes at most. Panoramas with unusual lighting conditions and featureless segments are more likely to stitch improperly, but image repositioning is not difficult. Creative stitches are possible; duplicate mountains, mounds, or staircases can be made, or such features can be eliminated entirely by manually positioning the images. The JPEG image can easily be modified in a photo-editing program, such as to clean up horizons. To get an evenly colored panorama under difficult lighting conditions, such as in the underground galleries of Chavin de Huantar that are illuminated by sporadic incandescent bulbs, it may be necessary to reduce the stitched image to black-and-white and later reintroduce color with a photo-editing program.

## Object Movies

Object movies are sequences of photographs manipulated to create the illusion of motion. They are, therefore, fundamentally similar to the moving pictures we are familiar with on big and little screens. The primary difference and major appeal of this fairly simple technology is that the software used to view object movies provides the user with manual control of the moving picture.

A word about the process of creating the movie from stills is necessary. The basic goal is to create a single file containing a sequence of linked images. Any software that can import images and then export a Quicktime, MPEG, or AVI file will do this (this includes Adobe Premiere, Apple's Movie Player, and other free and shareware programs). The panorama viewers are able to decode these movie files and control them frame by frame. Movement is enabled by creating a matrix of pictures following a simple formula--*every* row must have as many frames as the *longest* row. If there are 10 shots of a pot around its middle, then 10 frames of the pot from the top are also necessary, even if only one shot would have covered it (these can, of course, be copies of one image). This makes more sense if you think of the movie as a Mercator map ([Figure 5](#)); from any point in the center, one can move up and hit the North Pole. The viewer program has a similar map that records the number of rows and frames in the movie and the relationships between frames. By clicking and dragging within a viewer program, the user can scroll frame by frame in any direction for which there are stills, typically in a looping, endless sequence. Like the flip drawings in our elementary school textbook margins, this frame-by-frame scrolling creates the illusion of movement.

## Photography for Object Movies

There are three important guidelines for shooting images for object movies: consistent lighting, consistent rotation, and consistent distance from the center of the object. If the lighting changes or if the background or object shifts color and/or brightness from frame to frame, the illusion of an image rotating in space disappears. The same is true for consistent rotation; irregular shifts from frame to frame--a 15[[ordmasculine]] rotation between frames 1 and 2 compared with a 30[[ordmasculine]] shift between 2 and 3--causes the eye to have trouble turning stills into a seamless rotating object. Similarly, differences in scale from frame to frame caused by variations in distance from the object create an effect more like pulsing than spinning.

Practically, these guidelines lead to fairly simple standards for shooting. If at all possible, abide by the following:

- Move the object, not the camera (a lazy Susan or object rig marked in degrees works best).
- Try to stay within a few degrees of error from rotation to rotation (more pictures more finely spaced make for a smoother movie, but also a larger file).
- Use floodlights or daylight instead of strobes (most strobes--even good ones--do not maintain a constant temperature from shot to shot and thus create inconsistent coloring).

While all of the problems mentioned can be mitigated by image editing in a program like Photoshop, they are significantly easier to anticipate in acquisition than fix in production.

Another issue to consider in the production of object movies is the possibility of blue-screening or masking. This is equivalent to the technology used to superimpose a TV weatherman on a map of the United States. The pure blue screen, because of its uniformity, is easy to replace with another scene as long as the color does not also appear on the weatherman. The same is true for object movies. If you use a background very different in color from the object, it is possible later to mask the object and replace the background. The result is an object that will float and spin in the middle of whatever scene you place it in. You could, for example, create a hot spot in a panorama of an excavation that would place a spinnable pot

in the location where it was found. There are several examples at the Fine Arts Museums of San Francisco's web site (<http://www.thinker.org>) that show object movies within exhibit hall scenes.

## **Linking Panoramas, Stills, and Movies**

The process of inserting stills and movies directly into panoramas and connecting these panoramas together into a single VR presentation involves line-by-line coding that uses the virtual reality modeling language (VRML). This is a somewhat arcane but fairly simple operation if you use existing, functional examples as models for your own work. As with the hypertext markup language (HTML) used in web pages, the beauty of VRML and most web-deliverable content is that borrowing is not only standard operating procedure, but the very foundation of progress. In the future, the standard for creating PVR files, most of which will resemble VRML, will be simple graphical interfaces that will function much like the programs currently on the market for easily creating HTML. They will allow drag-and-drop linking and will create files capable of controlling panoramas, stills, movies, and other media.

## **Assembling Multimedia Presentations**

Once you have enough PVR content and want to create a coherent presentation, you may decide to create your own multimedia product. There are more ways to go about this than there are programmers in Silicon Valley, but we can outline some of the important issues to consider.

First, it is important to make some decisions about platform. A Wintel-only application to be delivered via CD-ROM, for example, can be developed very differently from a web site. Once you know something about who will use the application and with what equipment, you can decide what programming and language environment to work in. Visual Basic is an environment capable of developing applications for several platforms, as are Java (Sun's language for which various companies have developed tools), Macromedia Director (a tool that has its own scripting language), Apple Media Tool (a cross-platform, programming-free solution), and mFactory's mTropolis (which combines the strengths of Director and Apple Media Tool). Using each of these environments involves a steep learning curve. A language like Java is more difficult to learn and use but allows you to do almost anything. Object-oriented programs like Director, Apple Media Tool, and mTropolis are easier to use and offer faster production times, but may not have the functionality you need.

HTML is another possible development environment. A web page can present almost any kind of content that was originally developed elsewhere and is hard to beat for simplicity and functionality. A web site also can be written to CD or other media and run locally. Most important, it can be developed and deployed competently by someone at any skill level. This makes it an ideal platform for low-budget, time-sensitive projects whose personnel lack programming expertise.

## **Some Applications of PVR**

Because of its sensory appeal, PVR is an excellent way for the general public to visualize archaeological sites and objects. The technology can be incorporated into museum exhibits, displayed either on standard computer monitors or projected onto large screens. In a recent exhibit of Peruvian archaeological material in San Francisco's De Young Museum, we were able to complement the actual objects with PVR experiences of many of the more important sites. This has evolved into a stand-alone program on CD-ROM, with more than 100 panoramas supplemented by object movies and stills (contact [johnrick@leland.stanford.edu](mailto:johnrick@leland.stanford.edu) or [dakin@kasson.com](mailto:dakin@kasson.com) for information on the CD-ROM). This form of media is ideal, since CD drives are standard on most computers sold today. Many 100s of panoramas, stills, and associated text can easily fit within the 650-mb capacity of these disks, which are inexpensive to produce, durable, and lightweight for mailing. The Internet is another good way to provide access to panoramic programs, and many sites have begun to use PVR to give the visitor a more compelling experience. Apple's QTVR web site lists many of these Internet locations, and more are showing up daily.

We are convinced, however, that more professional use can also be made of PVR. Research at an archaeological site can be described in great detail for the benefit of colleagues, with text accompanied by many 100s of still images, maps, graphs, and so forth. The spatial logic of PVR is unlike more formal means of archaeological reporting, but we believe that it is a very effective means for encouraging familiarity with a place while also presenting archaeological arguments and interpretations.

As a last word of advice, the Internet is a great source of information on this rapidly changing technology. Both the Kaidan (<http://www.kaidan.com/>) and Apple Computer QTVR (<http://quicktimevr.apple.com/>) web sites are good starting places for an exploration of the topic.

*John W. Rick is in the Department of Anthropology of Stanford University; Dakin Hart is assistant to the director of the Fine Arts Museums of San Francisco.*

---

**LAST PAGE**

**TABLE OF CONTENTS**

**NEXT PAGE**

---

---

## INSIGHTS



## THE MANY FACES OF CRM

# Issues Concerning Consulting Archaeologists

*Edited by Robert G. Elston*

---

### Table of Contents

- [Introduction](#)
- [Relationships between CRM and Academia](#)
- [Preparation and Capabilities of Graduates](#)
- [Certification](#)
- [Procurement Practices, Unfair Competition, and the Costs of Doing Archaeology](#)
- [Research and Sampling in Archaeological Consulting](#)
- [Publication of Results](#)
- [Section 106 Review Process](#)
- [Relationships with Native Americans](#)
- [SAA and ACRA](#)
- [SAA's Potential Involvement in Member Insurance Programs](#)
- [Conclusions](#)

---

In fall 1994 the SAA Executive Board established the Task Force on Consulting Archaeology (TFCA) "to develop recommendations on how consulting archaeologists can be fully engaged in and served by the SAA." Formation of the task force recognized that (1) 60 to 70 percent of the membership of SAA, the Society of Professional Archeologists (SOPA), and the Society for Historical Archaeology (SHA) are engaged in cultural resource management (CRM); (2) most archaeology in North America is related to CRM; and (3) CRM is the largest job market for emerging postgraduate students. Fourteen archaeologists from CRM firms in various parts

of the country, along with ex-officio members of the SAA Executive Board (William D. Lipe and Ralph Johnson), were appointed to the task force; Michael J. Moratto chaired the group.

The first meeting was held in Washington, D.C., on January 7, 1995, to identify topics for study and discussion. After soliciting input from SOPA, SHA, and the membership of SAA (through the *SAA Bulletin*), we met in Minneapolis on May 5, 1995, to refine the list of topics to be addressed, identify important issues, and develop recommendations. Chairman Moratto compiled the drafts, and Joel Klein edited and produced the report for submission to the Executive Committee in February 1997 (M. Moratto and J. Klein, 1997, *Front Line Archaeology: A Report on Issues of Concern to Consulting Archaeologists in the United States*. Report of the Task Force on Consulting Archaeology to SAA Executive Board. Washington, D.C.). Its work completed, TFCA was dissolved, and the standing Committee on Consulting Archaeology (CCA) was created, charged to "assist the Board in determining how the needs of consulting archaeologists could be better met by SAA."

The table of contents of the 28-page task force report closely follows the original list of topics agreed on in our first meeting:

- Relationships between CRM and academia
- Preparation and capabilities of archaeological graduates
- Certification
- Procurement practices and unfair competition
- Costs of doing archaeology
- Research and sampling in archaeological consulting
- Publication of results
- Archaeological research in planning and development contexts
- Section 106 review process (including peer reviews and agency oversight)
- Relationships with Native Americans
- SAA and the American Cultural Resources Association (ACRA)
- SAA's potential involvement in member insurance programs

Some of these topics, such as those involving insurance and relations between SAA and ACRA, address issues particular to consulting archaeology, but many concern a much broader archaeological constituency. Several topics are closely related. For example, relationships between consulting and academic archaeology influence curricula and training. The topics of certification, procurement, costs, Section 106 review, and need for innovations in research all address the problem of increasing the quality and scientific relevance of consulting archaeology. Many of the issues we raised in TFCA are parallel to issues identified by the Task Force on Renewing Our National Archaeology Program (B. Lipe, 1997, *Report of the Second Conference on "Renewing Our National Archaeological Program."* Report to SAA Executive Board. Washington, D.C.), which is soon to be designated the standing Committee on Renewing Our National Archaeology Program.

The major issues and recommendations of the TFCA report are summarized in the following sections. Admittedly, our report focuses more on issue identification than on concrete suggestions for action. Consequently, we solicit comments and suggestions from the SAA membership.

[\*To Top of Page\*](#)

## Relationships between CRM and Academia

TFCA members were well aware and deeply appreciative of the contributions to CRM by scholars holding academic positions. Unfortunately, however, there are in academia those who ignore or openly denigrate consulting archaeology and its products. This is offensive to nonacademics, divisive and destructive to archaeology as a field, and disheartening to archaeological graduates, most of whom will have careers in CRM. Academic archaeologists ignorant of historic preservation law, regulations and guidelines, ethics, and business aspects of CRM cannot provide guidance to students in these areas. Recognizing that many academic archaeologists are active outside the ivory tower, we wish that more of them were involved in establishing and maintaining regulations and performance standards, preserving local historic properties, and interacting with the public and agencies. We are also concerned with the use of field schools for labor on CRM projects when this results in a poor educational experience for students and less than professional performance in fieldwork.

TFCA urged SAA to make strenuous efforts to break down barriers between academia and CRM. We note that while there is little that SAA can do directly to curb individual prejudice against consulting archaeology and archaeologists, the board has taken steps to recognize the importance of consulting archaeologists in American archaeology and to better integrate them into the SAA community. It is SAA policy to increase the number of consulting archaeologists in the membership and to find ways to increase their presence in elective offices and on committees. Anyone wishing to comment on some aspect of CRM now has a forum in the Insights column of the *SAA Bulletin*. CRM reports are also reviewed in *American Antiquity*. We urge teaching archaeologists to acquire or refresh their background in professional ethics, business practice, and historic preservation law, and to incorporate these topics in their curricula. For their part, consulting archaeologists can help bridge the academic-CRM gap by offering to organize colloquia on these topics in local academic departments or in the departments from which they graduated. Academic archaeologists can contribute to effective resource planning by assisting with the task of defining and prioritizing research questions and promoting the organization of regional databases, syntheses, and frameworks for archaeological research.

[To Top of Page](#)

## Preparation and Capabilities of Graduates

Several aspects of this topic overlap with the previous one. While it has only been during the last 20 to 25 years that consulting has come to prominence in the discipline, archaeologists outside academia now constitute a majority in American archaeology. Unfortunately, many academic programs have not recognized the need for corresponding changes in curricula, or the changes are prevented by institutional inertia. Some programs apparently discriminate in admissions policy against individuals currently employed as consulting archaeologists and/or who state that they intend to pursue a career in consulting archaeology.

The result is that TFCA members, all of whom are employers and supervisors, were unanimous that significant numbers of archaeological graduates at all levels lack skills in writing, archaeological technique, and knowledge of CRM ethics, law, and regulations [for a list of common deficiencies, see R. Elston, 1992, *Archaeological Research in the Context of CRM: Pushing Back in the 1990s*. *Journal of California and Great Basin Anthropology* 14(1): 37-48]. It is currently possible for students to obtain advanced degrees with very little field experience or practical background.

The task force strongly urges all graduate programs in archaeology to include training in the following areas:

- Communication skills, both verbal and writing
- Historic preservation law and regulation and applicable environmental laws
- Proposal preparation, including research design, time estimates, and budget

- Basic methods and techniques for survey, mapping, sampling, testing, and excavation
- Basic methods and techniques for processing, cataloging, and recordkeeping
- Quantitative methods and analysis
- Basic computer techniques in word processing, spreadsheets, database management
- Basic methods in photography, drafting, and graphics
- Report preparation, editing, and production
- Archival research (federal agency and state site files and county offices)
- Use of source materials such as land survey maps and soil surveys

TFCA suggests that internships with academic credit developed in collaboration with the private sector and government agencies could provide valuable work-study opportunities for undergraduate and graduate students alike. Recruitment of new faculty with strong CRM backgrounds could greatly facilitate proper training at all levels; adjunct faculty appointments and cooperative teaching agreements with local consulting archaeologists would also strengthen CRM teaching in academic programs. Consulting firms can help by offering internships and participating in colloquia on the curricula of local academic departments.

The CCA will ask the Committee on Renewing Our National Archaeology Program, SOPA, and university representatives to join in development of a recommended curriculum checklist for CRM programs.

[\*To Top of Page\*](#)

## **Certification**

Certification of professionally trained and qualified archaeologists is crucial to the health of American archaeology. Without certification there is the risk that unqualified individuals will conduct CRM research, or that archaeologists guilty of unethical behavior will continue to operate without sanction. Certification is a vital component in improving the performance of CRM research and should be mandatory for the professional business and practice of archaeology, as well as for the conduct of archaeological field schools. TFCA's concern with certification is shared by the Task Force on Renewing Our National Archaeology Program.

Archaeological certification is currently in a state of flux. SOPA has voted to eliminate the various specialty categories of accreditation, and an effort is underway to establish a Register of Professional Archaeologists (ROPA). However, TFCA finds much merit in certifying archaeological specializations and keeping these separate from standards of ethics and performance. The TFCA position is closer to the first National Park Service draft of proposed "Professional Qualification Standards" in that the draft includes categories of expertise. The Task Force on Renewing Our National Archaeology Program calls for registration of consulting firms in SOPA or in the proposed ROPA, but TFCA recommends limiting certification to individuals.

TFCA observed that certification is ineffective without grievance procedures and sanctions. For example, SOPA grievance procedures are rarely and weakly enforced, partly because of cost. There is considerable resistance to universal certification; achieving and maintaining it can be costly and time consuming. The difficulty of making universal certification a reality should not be underestimated. Imposing it at the state level (equivalent to licenses required for practicing attorneys, engineers, and physicians) would require lobbying in all 50 state legislatures.

TFCA recommends that SAA, through the CCA and the Committee on Renewing Our National Archaeology Program, cooperate to make certain that certification standards are adopted, are uniform, and reflect essential academic preparation, relevant applied experience, specializations, substantive research, and timely completion



of reports. Particular attention should be devoted to reconciling the requirements of SOPA certification with the proposed Professional Qualification Standards now under review by the National Park Service, which include categories of expertise. TFCA notes that lack of professional categories may impact any grievance process and make it more difficult to establish whether an individual is or is not qualified to render CRM opinions. Specific recommendations by TFCA include seeking support among state historic preservation officers (SHPOs), public agencies, and professional organizations for:

- Reviewing compliance procedures by certified archaeologists
- Restricting compliance research to certified archaeologists
- Certifying state and federal archaeologists
- Certifying theoretical and technical specialties
- Certifying at different levels of training and experience
- Encouraging members of professional societies to obtain certification

The Task Force on Renewing Our National Archaeology Program recommends a slightly different, but parallel, approach involving:

- Promoting registration of individuals, field schools, and firms through SOPA or the proposed ROPA
- Developing programs for certificates in specialized areas at B.A., M.A., or Ph.D. levels
- Encouraging voluntary adoption of SOPA or ROPA standards by agencies and institutions

[\*To Top of Page\*](#)

## **Procurement Practices, Unfair Competition, and the Costs of Doing Archaeology**

SAA consulting archaeologists are concerned that the present system of solicitation, procurement, and review of archaeological services frequently does not result in the best archaeology for the money. Unless changes are made in this process, pressures generated by shrinking archaeological budgets are likely to make the situation worse. Consulting archaeologists often complain about federal procurement and contracting procedures, citing problems ranging from unfair solicitations to incompetent contract administration and the blind acceptance of low bids. SAA's potential role in addressing these problems may be limited overall, but could be helpful in specific circumstances.

Some of the more common procurement problems include inadequate funding for the required work, unreasonable technical specifications compared to the project's work scope, use of inappropriate contractor-selection criteria, use of low-bid procurement for technically complex archaeological jobs, use of firm fixed-price contracts where significant technical variables are undefined, acceptance of absurdly low bids and then the issuance of change orders for more funds, agency noncompliance with historic preservation law, and nonresponsiveness to legitimate requests for debriefing. Finally, consulting archaeologists object to unfair competition by public and other nonprofit institutions.

In times of tight budgets, agencies may be more often tempted to stretch dollars to obtain the maximum amount of archaeology for each dollar spent. At the same time, agencies regulating archaeological investigations funded by the private sector often demand a higher level of archaeological output. In combination with minimal archaeological budgets, these approaches dissipate effort, returning a very thin kind of archaeology in which a great many topics are considered, but little is learned about any of them.

Unethical low bidding occurs when the intention is to maximize profit through substandard performance, allowing the resource to suffer as a consequence, or by making a bid too low to complete the scope of work with the intention of asking for more money later. Low bids made by consultants incompetent to make bids or carry out contracted work are just as unethical and pernicious. For those clients and regulators who are truly interested in conserving archaeological resources, a focus on low bids rather than high performance is a poor strategy in the long run because it will allow the bad to drive out the good.

Although these issues may be beyond the direct control of SAA, TFCA recommends that SAA, through the CCA and the Committee on Renewing Our National Archaeology Program and with the help of the American Cultural Resources Association and SOPA, pursue the following:

- Develop and offer training and guidance for those who prepare Request for Proposals (RFPs), work scopes, and review proposals
- Call attention to deficiencies in procurement and contracting procedures, open channels of communication between archaeologists and federal procurement officers, and recommend specific means to improve the quality of procurement
- Solicit articles about the importance of good RFPs, good research designs, and the ethics of cost/pricing issues
- Support broader agency and peer review of research designs and reports

[\*To Top of Page\*](#)

## **Research and Sampling in Archaeological Consulting**

One of the realities of consulting archaeology is the imposed research universe. Because survey is usually confined to a development project or an artificially bounded resource management area, sampling must be designed to accommodate these restrictions and still return data relevant to scientific problems. Although each area is unique with regard to its archaeological content and distribution of cultural resources, frequently these can be estimated from previous studies in the same region. In combination with a set of well-thought-out research questions, such estimates should suggest the appropriate type and level of sampling needed. All too often, however, consulting archaeologists are hobbled by regulations specifying particular survey methods and intervals, with insufficient consideration given by resource managers as to whether significant issues are adequately served by the most time- and cost-efficient means possible.

On the other hand, managers may receive little guidance from the professional community concerning how to decide which issues are most important for each region, what methods are best for investigating those issues, or how to determine when specific issues have been sufficiently investigated. The unfortunate results may be that time, money, and effort are wasted on over-sampling and obsolescent research issues, important issues may be investigated by inappropriate data recovery strategies, and opportunities for more efficient sampling and the investigation of new issues in new ways may be overlooked.

TFCA suggests that SAA, through the CCA and the Committee on Renewing Our National Archaeology Program, can improve this situation and increase the efficiency of consulting archaeology in the following ways:

- Promote the organization of regional databases, syntheses, and frameworks for research and resource planning with sharply defined and prioritized research questions
- Promote the establishment of regional online databases for literature, current research, techniques, and so on

- Help coordinate the organization of regional task forces charged with developing planning frameworks to guide research, foster data comparability, and integrate data with regional online databases
- Encourage sophisticated sampling methods to enhance productivity in a cost-effective and scientifically responsible way
- Promote the use of technology and testing strategies that will provide "previews" of site potential at the earliest possible stage of research
- With the National Conference of SHPOs and/or federal agency archaeologists, form a standards committee on CRM that places research as one of its main priorities
- Sponsor the development of a detailed set of guidelines for survey and excavation sampling in CRM

[To Top of Page](#)

## **Publication of Results**

An important issue is that potential users of CRM reports are often not aware of their existence and availability. State historic preservation offices, federal and state agencies, and private institutions serve as regional repositories for reports, but there is inconsistency in how data and reports are archived. Consequently, CRM reports are effectively unavailable and are referred to as "gray literature." The perception that the gray literature is not good research needs to be dispelled, and this large body of data made more readily available to and utilized by archaeologists in both CRM and academia.

Several task force recommendations regarding publication of CRM results are presently in force. *American Antiquity* accepts CRM reports for review and listing in the Book Notes section. Current Research has been reinstated as a page at the SAA web site (<http://www.saa.org/Publications/CurrentResearch/index.html>). The CCA will look into the possibility of adding sections to the Current Research page that list current CRM reports, the repositories that hold them, and the means to acquire them.

The task force called for looking into supporting a special publication similar to the old journal *Contract Abstracts and CRM Archaeology*, but, as the SAA board pointed out, we need to understand the reasons why that publication folded before we start another.

The Task Force on Renewing our National Archaeology Program recommends establishing electronic access to collections data, publishing site reports electronically, developing a standard report data page for submission to the National Archaeological Data Base, and developing a guidance document regarding the submission of primary data reports in electronic form.

[To Top of Page](#)

## **Section 106 Review Process**

The lack of objective reviews focused on the relevance and quality of archaeological research diminishes the returns of compliance research, encourages shoddy work, and conveys to clients the notion that archaeological studies are not important. Improvement of Section 106 review is critical for improvement of research because this review is all that controls the quality of CRM research and reporting. However, the lack of peer review, the obscurity of the gray literature, and the unwillingness of some SHPOs to comment critically on deficient work may encourage the production of low-quality research and reporting. While many Section 106 reviews are fully competent and thoughtful, in some cases agencies lack personnel with the education and experience necessary to perform good reviews. In other cases, SHPOs may insist on excessive archaeological work, thereby

compromising their roles as stewards of cultural resources and advocates of reasonable public policy. One problem is that review usually comes at the end of the compliance process when the opportunity is lost to encourage good archaeology from the onset of the project.

To address these problems, the task force recommends that SAA, through CCA:

- Convey to federal agencies the importance of technically qualified archaeological review personnel and provide background on the minimal education and experience qualifications for such staff
- Encourage individual SHPOs and the National Conference of SHPOs to hire (and appropriately compensate) suitably experienced personnel and offer to carry such lobbying to state legislatures when needed
- Encourage the use of external peer reviewers by SHPOs
- Encourage SHPO review of technical proposals before the work begins
- Encourage the National Park Service to include "user evaluations" in reviews of state historic preservation programs solicited from federal agencies, CRM contractors, and the public regarding historic preservation program performance and recommendations for improvement

[\*To Top of Page\*](#)

## **Relationships with Native Americans**

Historic preservation legislation has attempted to involve Native American tribes in archaeology through the Section 106 process at the consultation level, although the definition of consultation is sometimes interpreted differently by archaeologists and the tribes. If they have differing expectations regarding consultation for a specific project, conflict may occur, creating hostility between archaeologists and tribes. In a worst case scenario, this may result in legal action against the project proponent.

The addition of Traditional Cultural Properties to the list of cultural resources eligible for listing in the National Register of Historic Places and the passage of the Native American Graves Protection and Repatriation Act (NAGPRA) have forced rapid creation of tribal cultural resources policies. These policies are not always consistent with the Section 106 compliance responsibilities required of archaeologists. This comes at a time when many Native Americans want more than token involvement in archaeology and question not only the terms of their legislated participation, but some of the basic precepts of archaeology.

Native American tribes are stakeholders in archaeology, although each tribe may have a different idea regarding the nature of the stakes. The ignorance of some consulting archaeologists and the unwillingness of others to honor consultation requirements on tribal terms, especially related to burials and human remains, creates distrust that impacts subsequent archaeological consultations. Native American people are questioning the relevance of archaeology to their lives and the survival of their communities. If archaeologists cannot provide answers to the tribes regarding the value of preserving and studying their cultures, the profession will lose an important ally. This could ultimately eliminate a body of archaeological research.

SAA could help ease tensions between the consulting archaeology community and tribal groups by promoting alliances and communication between consulting archaeologists and Native Americans, training tribal personnel regarding cultural resources processes, and educating consulting archaeologists about the cultural values, political factors, and/or other interests that tribes consider when making cultural resource decisions. Any attempts by SAA to create better relationships between consulting archaeologists and tribes should involve direct participation of tribal people, preferably by tribal members with experience in CRM or by the tribes' cultural representatives.

The task force recommends that SAA, through CCA:

- Solicit consulting archaeologists and tribes for methods of consultation that have been successful and satisfying to both groups and that comply with Section 106 consultation requirements
- Develop a training forum in current CRM for tribal cultural resources personnel to address tribal concerns and potential CRM issues from tribal perspectives
- Encourage dialogue between consulting archaeologists and tribal people through symposia, roundtables, forums, and panels at SAA meetings
- Provide scholarships, registration waivers, and funding information for tribal participants at SAA meetings and/or training forums
- Offer a forum for Native Americans to educate archaeologists regarding factors important in reaching cultural resources decisions

[To Top of Page](#)

## **SAA and ACRA**

The task force believes that it is in the best interest of SAA to develop a mutual relationship with the American Cultural Resources Association (ACRA). SAA and ACRA are on parallel but separate paths to represent the interests of their constituents: SAA is dedicated to the archaeological research interests of its members and to the interpretation and protection of archaeological resources; ACRA's mission is to promote the professional, ethical, and business practices of the cultural resources industry for the benefit of the resources, the public, and the members of ACRA. In developing this mutual relationship, we may find that other opportunities for professional development and understanding will grow out of the diversity of each organization's interests.

There are several areas where collaboration between SAA and ACRA would be beneficial to consulting archaeologists. Clearly, the pragmatic training of archaeologists is a high priority to both SAA and ACRA. Collaboration between the two groups to develop an outline of a curriculum for teaching CRM in departments of anthropology would draw on the strengths of the organizations to help train archaeologists as consultants. Training SHPO and federal agency staff to better understand the business of procuring professional consulting services is another area where the collaboration between SAA and ACRA would lead to mutually beneficial goals. Jointly sponsored workshops designed to address these problems could be held during the annual meetings of SAA; this suggestion is supported by the SAA board (L. Sebastian, 1997, SAA Board Response to *Front Line Archaeology*, Report of the Task Force on Consulting Archaeology).

[To Top of Page](#)

## **SAA's Potential Involvement in Member Insurance Programs**

The task force was concerned about the quality and extent of various categories of insurance coverage that consulting archaeologists and firms require to perform their work. Types of insurance discussed in the task force report included worker's compensation, unemployment insurance, health and life insurance, automobile insurance, general liability, and professional liability. In its response to the task force report, the SAA Executive Board observed that very few take advantage of the comprehensive life and health insurance available to members, and worker's compensation and unemployment insurance are not within its purview. I believe the board feels that insurance coverage specific to consultants would be better pursued through ACRA.

## **Conclusions**

No doubt we have failed to recognize or address other important issues. If so, we hope these will be brought to the attention of the Committee on Consulting Archaeology. Any suggestions for action will be gratefully received.

*Robert G. Elston, who is the chair of the Committee on Consulting Archaeology, is with Intermountain Research in Silver City, Nevada.*

[\*To Top of Page\*](#)

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---

## Student Affairs

### At the Front of the Class: Developing Your Teaching Skills

*Douglas J. Pippin*

Learning how to teach is only one of many skills a graduate student learns before entering the professional world. Teaching is a skill that will benefit you even if you are not seeking a position at a college or university, because a number of situations outside the classroom call for the ability to instruct others clearly and effectively. Enhancing one's teaching abilities will only help you in the long run.

#### Getting Teaching Practice

A teaching assistantship is probably the most common way in which graduate students get practical teaching experience. Funding for these, as most of us realize, is limited, and the competition is tough. Before applying to a particular school, make sure that you are aware of its individual policies on funding students through assistantships. Teaching assistantships operate in different ways. First, the amount of teaching that you do as an assistant varies widely. You may be assigned to a discussion section in which you have some latitude to decide what to teach. Or, you may only act as a grader and not get any experience in front of a class. You also may find that some schools, as a rule, do not grant teaching assistantships to first-year students. You should find out how you will be evaluated for funding after your first year and how decisions are made to renew your assistantship once you receive one. Of course, it is rare to have a choice of assignments from which to pick, but do not hesitate to express your interest in getting classroom experience.

Not receiving an assistantship does not mean that you will not be able to get any classroom experience. You could volunteer your time in exchange for the opportunity to teach. The actual teaching you do in a volunteer situation varies with each supervising professor, so make sure you know what is expected of you and what you will get out of the experience before you commit your time. Opportunities exist outside the college setting as well. Many historical sites, parks, and museums have public education programs. You may be able to teach a short course or seminar to the general public. Just getting the word out that you are interested may be enough to open some of these alternative doors.

#### Honing Your Teaching Skills

One effective way to develop good teaching skills is to have good role models. If you know professors or individuals who are effective instructors, talk to them about their approach and teaching methods. Whether in a classroom or field setting, the best teachers have usually spent a great deal of time thinking about and preparing for instruction.

Feedback is also important in becoming a better teacher. You may be in a program where student assistants are regularly evaluated and critiqued. Your class may be observed, you might be videotaped, or you could receive a written evaluation. Take advantage of these opportunities. If you are not formally evaluated or assessed through class observation, discuss this with your supervisor and let him or her know that you are interested in feedback about your teaching performance. You might have to create your own evaluation form (completed anonymously, of course!) for your students. Be sure to study the responses to your inquiries. Over time, you will be able to fine-tune your presentation style through the comments you receive.

Be sure to keep a careful record of your plans and notes for the classes/programs you teach. You will notice an improvement in your skill overall if you have this material to call on later. There are many other sources that are also available for instructional support. Many departments keep course syllabi on hand for reference. The Internet is another way in which professors distribute course information that you may find helpful in generating teaching ideas.

## **A Teaching Portfolio**

The responsibilities of teaching assistants vary from school to school (and within different departments at any one school). It is important, therefore, to have a way to illustrate what involvement you have had in the preparation, teaching, and grading of a course. A teaching portfolio is one way to present your work. The preparation of a portfolio is an ongoing process, beginning the first time you assist or teach a course or program. In fact, the process of assembling your teaching materials and noting changes in your approaches to teaching is a major benefit of preparing a portfolio (L. M. Lambert, 1996, Building a Professional Portfolio. In *University Teaching: A Guide for Graduate Students*, edited by L. M. Lambert, S. L. Tice, and P. H. Featherstone, pp. 147-155. Syracuse University Press, Syracuse, New York).

The contents of a portfolio will vary with your experiences. In general, it should contain elements that will demonstrate your teaching experience. A basic teaching portfolio might include a cover letter, your curriculum vitae, a statement on your teaching experience, course/project information, student evaluations, a supervisor's report, and letters of recommendation. The course information could contain items such as a course syllabus or project description, tests, quizzes, handouts, and special projects. You may choose to include examples of course materials that were collaborative efforts, either with a professor or with other graduate students. Be sure to identify them as such and indicate the extent of your involvement.

A portfolio can be an advantage when it comes time to apply for a job or promotion. Not all employers, however, are familiar with reviewing teaching portfolios. While some employers may not be interested in specific details of your teaching, a few will want to see everything that you have prepared in your teaching career. You can tailor the materials to fit the specifications of a particular job opening and limit items to those of interest to your prospective employer.

## **Moving on**

You may have the opportunity, while still a student, to advance from an assistant (paid or otherwise) to an academic instructor. This can be both a very anxious and very exciting situation. When the opportunity arrives to spread your wings, the extra steps you have taken to record your teaching plans and methods will be your biggest asset in preparing classes of your own.

Having some preparation for teaching is only part of a graduate student's education. It is often difficult to balance research, studies, teaching, and your family and social life. However, if you take steps to monitor and track your progress as a teacher, you will be able to make improvements that will ultimately turn you into an effective educator.

*Douglas J. Pippin is a member of the Student Affairs Committee, an instructor at the State University of New York at Oswego, and a doctoral student at Syracuse University.*

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---



---

## Working Together



# Origins of the White Mountain Apache Heritage Program

*John R. Welch*

---

## Contents

- [Introduction](#)
- [History of White Mountain Apache Involvement in Heritage Management](#)
- [Heritage Program Establishment](#)

---

Perhaps because most of us spend a lot of time looking for patterns in the past, few archaeologists are prepared for the emphatically contemporary and rapidly evolving settings in which Native Americans are asserting interests in their heritage. Encouraged by favorable shifts in laws and public opinion, many tribes are establishing offices dedicated to regaining control over and resuming responsibility for information, places, and objects pertaining to their culture and history. As a process with profound implications for archaeology's future, and as a means for discovering alternative views of the past and the value of the archaeological record, tribal program development merits close attention.

What follows is the first installment in a two-part case study of how the White Mountain Apache Tribe of the eastern Arizona uplands is establishing an ambitious program to tackle the unwieldy, emotionally and politically charged issues involving archaeology, repatriation, museum development, historic preservation, and cultural perpetuation. My goals are to outline program development through 1997 and to introduce some of the policy and ethical issues being confronted. The scope of White Mountain Apache interests and concerns regarding their history, culture, and geography is encompassed by the term "heritage resources," defined as cultural, historical, archaeological, and paleontological sites and objects, as well as the intangible cultural and oral traditions that derive from these resources and endow them with significance.

Like many or even most Native Americans, the Apache experience a connectedness to heritage resources that is typically foreign to researchers and agency staff--individuals generally trained to be analytical and dispassionate. White Mountain Apache appreciate and seek to maintain ties between tangible (places and objects) and intangible (e.g., beliefs, traditions, values) aspects of culture and history, while researchers and governmental officials find value in divisions (e.g., archaeology vs. ethnography, archaeological vs. historical vs. cultural sites, history vs. prehistory). Apaches' culturally derived respect for heritage resources and preference for in situ preservation through complete avoidance often contrast with approaches taken by researchers who focus on informational values and government agencies where legal and policy frameworks drive most decisions and cultural resources vie with many others for management priority. A final contrast often proves especially problematic: unlike most non-Indians, White Mountain Apache have enduring affective links to expansive landscapes and difficult-to-pinpoint localities important to their past, regardless of current ownership.

These divergent perspectives on the past also create opportunities for collaboration in resource protection, historic preservation, land management, and museum decisions and policies affecting Native American heritage resources. Part One of the case study examines the history of White Mountain Apache involvement in heritage resource issues and lays out the tribe's strategy for integrating these issues with economic and community development initiatives. Part Two, scheduled for the next *SAA Bulletin*, reviews current heritage program operations and discusses my sometimes conflicting responsibilities to tribal leaders, the broader Fort Apache Indian Reservation community, federal agencies, professional ethics and colleagues, and the heritage resources that the White Mountain Apache have asked me to help them protect and conserve. The reservation has been my backyard since 1984 and my home since 1992, and I am deeply honored that the tribe and its members have shared their lands and thoughts with me.

[Return to top of page](#)

## **History of White Mountain Apache Involvement in Heritage Management**

With a rapidly growing population of about 12,000 members, the White Mountain Apache Tribe occupies the 6,734-km<sup>2</sup> (1.7 million acres) Fort Apache Indian Reservation. Ranging in elevation from less than 2,500 ft. to more than 11,400 ft., the reservation encompasses a dazzling array of land forms, biota, and heritage resources. More than 2,000 heritage sites--many of which derive from ancestral Pueblo occupation--have been documented. The reservation likely contains some 8,000 more undocumented historical, archaeological, and paleontological sites. If place naming is used as an index of cultural significance (for the White Mountain Apache, it is) then the number of localities requiring respectful consideration is virtually infinite (Figure 1).



*Figure 1: The collapsed remains of a gowa ("wickiup"), a White Mountain Apache heritage site (21036 [FAIR]).*

Long a destination for hunting and fishing enthusiasts as well as looters, the Fort Apache Reservation is today becoming a Mecca for gentler adventurers drawn by Apache culture, wildlife, remote canyons, and little-visited pueblos and cliff dwellings. These shifting interests on the part of Phoenix and Tucson refugees, together with volatile livestock and forest product markets, have spurred the tribe's interests in expanding tourism on the reservation. In 1993 the tribe opened a modestly successful casino and launched an effort to incorporate its vast heritage resources into innovative community and economic development initiatives. These initiatives are breathing new life into Apache interests in their heritage resources.

Partnerships between heritage resource management and economic and community development efforts are crucial because resources are scarce and Apaches often view the past with ambivalence. On the one hand, all ancient places, objects, and intangibles are said to deserve respect and, if possible, avoidance. On the other hand, the past is often treated as a closed subject, and those interested in the dead and their possessions are sometimes viewed with suspicion or even scorn. In *Apaches and Longhorns*, Will Barnes recounts the threatening 1883 appearance of Apache men at Fort Apache to demand the return of heritage objects looted from a nearby cave by

unthinking cavalrymen. A century later, while I was attending a ceremonial dance (a break from my work on the reservation with the University of Arizona field school at Grasshopper), an elderly tribal member approached me, held my attention with a fierce gaze, gritted his teeth, and hissed "bonedigger." The remark surely signaled his disapproval of excavations (although the Grasshopper project ceased removing burials after 1977), but also may have reflected a concern that my contact with the long-dead could corrupt the unfolding ritual.

White Mountain Apache involvement in heritage management was initially confined to tribal council endorsement of research excavations (e.g., Grasshopper, Canyon Creek Ruin, Kinishba, Forestdale) and tribal member employment as project fieldworkers. In 1969, however, the tribe acknowledged the need to record disappearing cultural and oral traditions by opening a Culture Center and appointing Edgar Perry as its director. Slightly later, in response to concerns voiced by the tribe and the state historic preservation officer (SHPO), Raymond Palmer, a tribal member working as a forester for the Bureau of Indian Affairs (BIA), laid the basis for BIA involvement in heritage management issues by assuming responsibility for protecting heritage sites from federal projects.

Palmer succeeded in identifying and gaining protection for endangered sacred areas as well as archaeological sites, but the scope and complexity of Palmer's non-forestry duties quickly became overtaxing. Responding once again to tribal needs and legal obligations, the BIA agency superintendent, Ben Nuvamsa, developed an agreement with the neighboring Apache-Sitgreaves National Forests. The agreement provided BIA access to Forest Archaeologist Bruce Donaldson. Through field trips and training sessions, Palmer and Donaldson enlisted land managers, field technicians, and archaeologists with regional interests to assist in the identification, interpretation, and protection of heritage sites. Among the ground-breaking approaches Palmer and Donaldson took in training tribal member "para-archaeologists" was to emphasize the Apache past. This subject was neglected in previous archaeological studies on the Fort Apache Reservation, which had focused on ancestral Pueblo occupation below the Mogollon Rim. From 1987 through 1992, I served as an occasional consultant for these training sessions, for field inventories done as part of the timber sale planning process, and for establishing a protocol for protecting heritage sites from project impacts and wildfire suppression activities (Figure 2).



*Figure 2: Archaeologists and tribal member "para-archaeologists," partners in protecting Apache heritage sites from forest fire-suppression activities (left to right: I. Lupe, M. Altaha, D. Gregory, P. Alsenay, O. Cassadore, L. Benally, D. Goseyun, the author).*

[Return to top of page](#)

## **Heritage Program Establishment**

Despite this early involvement in heritage management and this rare example of cooperation between the BIA agency and its client tribe, only recently have the White Mountain Apache begun to pursue participation in the academic, governmental, and resource management programs and activities affecting their heritage. The tribe's interests stem from a long-stifled desire to reassert control over aspects of their culture and history and from the partial recognition of these interests through the Native American Graves Protection and Repatriation Act (NAGPRA) and the 1992 National Historic Preservation Act (NHPA) amendments. The focus is on NAGPRA's restoration of cultural items (i.e., human remains, funerary objects, sacred objects, and objects of cultural

patrimony) to Native American control. The most relevant NHPA amendments recognize Native American cultural sites as potential historic properties and establish the basis for tribal assumption of SHPO functions on tribal lands. The new legal framework is assisting the tribe by defining specific actions to be taken to further their interests.

Led by a highly respected chairman, Ronnie Lupe, the White Mountain Apache Tribe positioned itself to exploit these new opportunities in heritage resource management through three crucial decisions: (1) to support a 1992 BIA plan to hire the first agency-level archaeologist, (2) to endorse a 1993 *Master Plan* to rehabilitate the rapidly deteriorating Fort Apache Historic District to serve as a center for heritage preservation and perpetuation, and (3) to create a cultural resources director position to manage repatriation and cultural revitalization programs. The first decision gave me the opportunity to address problems I had identified during my work as a consultant on the Fort Apache Reservation. As one of the first BIA archaeologists assigned to a specific field agency, my responsibilities centered on improving the Fort Apache Agency's Section 106 compliance, protecting archaeological sites from land modification activities and looters, and providing technical assistance to the White Mountain Apache Tribe in archaeology and historic preservation, as well as in museum and economic development.

The second decision, to integrate cultural education, historic preservation, and tourism initiatives in the development of a Fort Apache Historic Park, signaled the tribe's interest in balancing Euroamerican-authored accounts of local history and culture with perspectives derived from Apache oral traditions and historical experience. *Master Plan* compilation, supported by grants from the Arizona State Parks Heritage Fund and the Fort Apache BIA Agency, involved an advisory team whose members have remained closely involved in heritage issues. Raymond Kane, an irreplaceable source of Apache wisdom, is now the heritage program director. Stan Schuman, the Tucson architect who served as team leader, continues to provide technical assistance with the rehabilitation of standing structures. Tribal member Odette Fuller serves as the historic park coordinator. Joe Waters, the tribal planner and grants writer who initiated the *Master Plan* effort, continues to champion heritage program initiatives within the tribal administration.

The third decision engaged sensitive issues involving ancestral Pueblo burial assemblages removed from the reservation through archaeological research. The tribe retains exclusive ownership of all materials collected under Antiquities Act and Archaeological Resource Protection Act permits, but instead of either requesting the return of their property from the Arizona State Museum (the repository for most collections from the Fort Apache Reservation) or seeking expeditious repatriation of the human remains and funerary objects pursuant to NAGPRA, the tribe initiated a relationship with the Hopi Tribe and Zuni Pueblo. This intertribal consortium has leap-frogged potentially divisive questions concerning cultural affiliation and other legalities by focusing on assemblage disposition, especially on requirements for documentation, ceremonial treatment, avoidance of damage to undisturbed heritage site areas, and long-term security for repatriated cultural items. The White Mountain Apache Tribe's overriding interests in respectful interaction with other tribes and with the appropriate disposition of cultural items--interests widely shared with other tribes--have allowed for the thorough and still ongoing deliberation of potentially sticky issues involving cultural affiliation.

In part because of favorable impressions made by the well organized and fully authorized Zuni and Hopi advisory teams, Ramon Riley, the tribe's cultural resources director, established a cultural advisory group of elders and cultural specialists to oversee the protection, repatriation, and appropriate use of the tribe's heritage resources. The cultural advisory group meets at least monthly to clarify Apache cultural principles and their application to heritage management issues, plan repatriation efforts, review proposals for research or other use of White Mountain Apache heritage resources, and visit areas threatened by projects beyond reservation boundaries but within White Mountain Apache aboriginal territory. These meetings reaffirm the deep concerns of many White Mountain Apache with the protection of their heritage in general, especially with the perpetuation of their language and culture. The tribe can be counted on to continue its vigorous efforts to create and exploit opportunities for greater control over Apache heritage resources.

The second part of this article will appear in the next issue of the SAA Bulletin.

*John R. Welch completed his dissertation studies at the University of Arizona last year and serves as the historic preservation officer for the White Mountain Apache Tribe and archaeologist for the Fort Apache Agency, Bureau of Indian Affairs.*

[Return to top of page](#)

---

**LAST PAGE**

**TABLE OF CONTENTS**

**NEXT PAGE**

---



## NEWS AND NOTES

**Upatoi Town and mortuary site geophysical investigation is available on CD-ROM and the World Wide Web.** The research report *Site Mapping, Geophysical Investigation, and Geomorphic Reconnaissance at Site 9ME 395 Upatoi Town, Fort Benning, Georgia*, by Frederick L. Briuer, Janet E. Simms, and Lawson M. Smith, is available on CD-ROM free of charge as long as supplies last. The investigation provided extensive information about the nature and distribution of subsurface archaeological remains at the late 18th-century Creek Indian community and burial site called Upatoi located on the U.S. Army Installation at Fort Benning, Ga., including the precise location and stratigraphic context of buried features and probable burials. New and emerging technologies were employed, including laser range finding, global positioning systems, soil conductivity, magnetometry, ground penetrating radar, and geographic information systems. The investigation has broader application to other projects where information needs to be acquired rapidly and efficiently in a highly cost-effective and minimally destructive manner that shows appropriate sensitivity to Native American concerns for the respectful treatment of human remains. Requests for the CD-ROM should be sent to Frederick L. Briuer, Director, Center for Cultural Site Preservation Technology, U.S. Army Engineer Waterways Experiment Station, 3909 Halls Ferry Rd., Vicksburg, MS 39180, email [briuerf@ex1.wes.army.mil](mailto:briuerf@ex1.wes.army.mil). The report is also available in Portable Document File (PDF) format at <http://www.wes.army.mil/el/cspt/publications.html>.

**The first Patagonian Coast archaeological workshop**, organized by the Area de Arqueología y Antropología del Centro Nacional Patagonico, was held in Puerto Madryn (Argentinian Patagonia) June 13-16, 1997. The participants were archaeologists, bioanthropologists, and geoarchaeologists involved in research in different areas along the coast of Patagonia who organized the workshop in order to share information and explore different theoretical and methodological approaches. During the three-day workshop, participants described and discussed research on paleoenvironmental conditions, peopling, subsistence and mobility strategies, and technology. They also explored possible arrangements and funding opportunities both for future cooperative investigations and for the protection and conservation of archaeological patrimony. The next workshop will take place in Comodoro Rivadavia during May 1999.

**The first Gordon R. Willey Award of the American Anthropological Association's Archaeology Division will be awarded to Melinda Zeder** of the Smithsonian for her 1994 *American Anthropologist* paper "After the Revolution: Post-Neolithic Subsistence in Northern Mesopotamia." The Executive Committee of the AAA's Archaeology Division established the new award to recognize outstanding publications in archaeology in the AAA's journal. Papers of the previous three calendar years published in the journal (excluding distinguished lectures) are considered for the award at each spring meeting of the Executive Committee. The award is named after Professor Willey to recognize his tenure as AAA president (1961) and to encourage archaeologists to pursue his well-known maxim that "archaeology is anthropology or it is nothing." The award will be made at the

business meeting of the Archaeology Division at the 1997 AAA Annual Meetings. Professor Willey will make the presentation.

**The Division of Public Programs in the National Endowment for the Humanities** supports projects using computer technology (such as CD-ROM, web sites, BBS, chat rooms, MOOs, or DVD) that are grounded in humanities scholarship and present important ideas in exciting ways for public participation and lifelong learning. Planning grants of up to \$50,000 support the design and development of computer-related public programs in preparation for their implementation or production. Production grants support the production, dissemination, and active use of public humanities projects. Successful proposals are based on solid research, design, and planning in collaboration with scholars. In addition to the application requirements listed in the Division of Public Programs guidelines, proposed computer-related projects should provide supplemental information that outlines and justifies the format of the project, describes the nature and structure of the interactivity proposed, and identifies the advisors and personnel for programming and design. Applicants for production grants also need to submit an electronic sample of the proposed project demonstrating content, typical images, sounds, text, and modes of interactivity. The next deadline for Public Programs projects is January 12, 1998. For information, contact John Meredith in the Division of Public Programs at (202) 606-8218, email [jmeredith@neh.fed.us](mailto:jmeredith@neh.fed.us), or web <http://www.neh.fed.us>.

**Crow Canyon Archaeological Center in Cortez, Colo., has announced award of the third Robert H. Lister Fellowship** to John Kantner, a Ph.D. candidate at the University of California, Santa Barbara. Kantner's dissertation, tentatively titled *The Influence of Cooperative and Competitive Behavior on the Evolution of the Chaco Anasazi of the American Southwest*, examines community interaction in the southern portion of the Chacoan regional system. The research evaluates cooperation and competition in a number of communities using a geographic information system analysis to provide spatial and contextual information, a microstylistic analysis of pottery design to examine sociopolitical interaction, and a compositional analysis to identify pottery production areas and exchange relationships. Kantner will receive a \$5,000 stipend to support his work in 1997-1998, and he will present a colloquium on his work at Crow Canyon. The Lister Fellowship was established at Crow Canyon Archaeological Center to honor the life and work of the late Robert H. Lister, who had an outstanding career as a research archaeologist, university professor, research administrator, and public educator. The Lister Fellowship will be awarded again in 1999.

**"The Loss of Cultural Heritage--An International Perspective" is a collection of papers recently published in *Nonrenewable Resources*** (Vol. 6, No. 2, June 1997), the journal of the International Association for Mathematical Geology. The papers are aimed at an audience that knows little about historic preservation, archaeological looting, or trafficking in antiquities. The articles are also useful for archaeologists as educational tools, especially in the presentation of archaeological ethics. Authors and their topics include Karen Vitelli and Anne Pyburn, who address archaeology and development; Ricardo Elia, who links looting and the collection of antiquities; Stephen Lekson, who looks at museums and the antiquities market; Roderick McIntosh, Boubacar Hama Diaby, and Tereba Togola, who show the remarkable changes that can result when indigenous people are given an opportunity to protect their own past; Mark Michael, who reviews the success of the Archaeological Conservancy in protecting archaeological sites in the United States; and Frederick Lange and Mario Molina, who take a regional view of Central America's efforts to protect its cultural heritage. The volume was edited by Catherine Cameron, who also provides an introduction to the papers. It is available through Plenum Press for \$15. To order a copy of the issue, contact Diane Stolfi, Journals Department, Plenum Press, 233 Spring St., New York, NY 10013.

**The Curtiss T. and Mary G. Brennan Foundation announces a pilot program of grants to support Precolumbian archaeological field research in Andean South America.** Funds are available to a maximum of \$5,000 to support research designed to establish the significance of a proposed project and the feasibility of carrying it to completion or to fund an ancillary portion of an existing project important to the understanding of the project as a whole. Application must be made by the sponsoring institution through the principal investigator. Individuals are not eligible, and dissertation research does not qualify. Application may be made throughout the calendar year, with deadlines of April 15, 1998, and October 15, 1998. For guidelines and application materials,

contact the Curtiss T. & Mary G. Brennan Foundation, 535 Cordova Rd., Suite 426, Santa Fe, NM 87501, fax (505) 983-5120, email [BrenFdn@compuserve.com](mailto:BrenFdn@compuserve.com).

**The Natural Resources Conservation Service (NRCS) is seeking assistance in developing a video on Northwest cultural resources** including prehistory, history, and archaeology. This video will complete a trilogy of regional videos that round out the agency's training program for field staff; the Northeast version is finished and the Southeast unit is underway. NRCS needs a subject expert to develop the conceptual orientation and message of the video, outline a script, and prepare script text and suggest illustrations. If you are interested in this project, please send a letter outlining your qualifications and estimated costs to Kathleen Schamel, Ecological Sciences Division, NRCS, P.O. Box 2890, Washington, DC 20013-2890, (202) 720-03034, email [kathleen.schamel@usda.gov](mailto:kathleen.schamel@usda.gov).

**Visit the new American Institute for Conservation of His-toric and Artistic Works (AIC) web site at <http://palimpsest.stanford.edu/aic/>.** Everyone with an interest in the care of cultural property--from families interested in the care of heirlooms to conservators, museum professionals, and members of AIC--is encouraged to sign on, learn about AIC, and explore the world of conservation. For the general public and professionals in related fields, the site provides guidelines for caring for a wide variety of objects as well as information on how to select a conservator and use the free FAIC referral service. Conservation professionals and AIC members will find useful information on subjects such as specialty groups, AIC publications, membership applications, and the annual meeting. There are also features on special programs, outreach materials, and FAIC grants. The site is linked to other related organizations such as the National Institute for the Conservation of Cultural Property (NIC), the American Association of Museums (AAM), and the National Endowment for the Humanities (NEH).

**An international standard for identifying cultural objects has been developed by the Getty Information Institute.** Recognizing the need for more and better documentation to assist in the identification and recovery of cultural objects stolen or illegally exported, the Getty Information Institute initiated a collaborative project in 1993 to develop an international documentation standard for information needed to identify cultural objects. The standard has been developed in collaboration with police forces, customs agencies, museums, archaeologists, the art trade, and the insurance industry. The contents of the standard were identified by background research, interviews, and, most importantly, by major international questionnaire surveys. In total, more than 1,000 responses were received from organizations in 84 countries. The findings of these surveys demonstrated that there was close agreement on the information needed to describe objects for purposes of identification. The result is the Object ID Checklist--an international minimum standard for describing cultural objects. For a free copy of *Protecting Cultural Objects in the Global Information Society: The Making of Object ID*, please write to the Getty Information Institute, 1200 Getty Center Dr., Suite 300, Los Angeles, CA 90049-1680, fax (310) 440-7715.

**The Smithsonian Institution** announces the availability of two programs. **Smithsonian Fellowships** are awarded to support independent research in residence at the Smithsonian in association with the research staff and using the institution's resources. Postdoctoral fellowships are offered to scholars who have held the degree or equivalent for less than seven years. Senior fellowships are offered to scholars who have held the degree or equivalent for seven years or more. Both fellowships offer a stipend of \$27,000 per year plus allowances. Predoctoral fellowships are offered to doctoral candidates who have completed preliminary course work and examinations. The stipend is \$15,000 per year plus allowances. The terms for all three fellowships are three to 12 months, and stipends are prorated accordingly. Graduate student fellowships are offered to students formally enrolled in a graduate program of study who have completed at least one semester and not yet have been advanced to candidacy if in a Ph.D. program. The term is 10 weeks with a stipend of \$3,500. The deadline for Smithsonian Fellowship applications is January 15, 1998. The **Smithsonian Minority Internship Program** allows students to participate in research and museum-related activities for periods of 10 weeks during the summer, fall, and spring. U.S. minority undergraduate and beginning graduate students are invited to apply. The appointment carries a stipend of \$300 per week and may provide a travel allowance. The deadline for applications to this program is February 15, 1998. For information on either program, write to the Smithsonian Institution, Office of Fellowships and Grants, 955 L'Enfant Plaza, Suite 7000, MRC 902, Washington, DC



20560, email [siofg@ofg.si.edu](mailto:siofg@ofg.si.edu). For the Smithsonian Fellowships, indicate the particular area in which you propose to conduct research and give the dates of degrees received or expected.

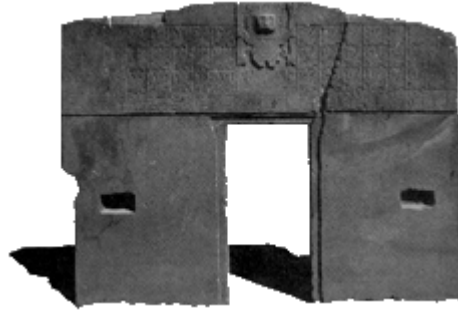
---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---



## POSITIONS OPEN

**University of Memphis, Department of Anthropology, invites applications for a tenure-track Assistant Professor position in anthropology** with a specialization in North American historic archaeology to begin August 1998. The University of Memphis applied MA anthropology program offers concentrations in public archaeology, urban anthropology, and medical anthropology. Requirements: PhD by June 1998; specialty in Eastern US historic archaeology--especially 19th and early 20th centuries; and demonstrated excellence in teaching and research. Courses would include introductory physical anthropology; undergraduate and graduate archaeology courses, including public archaeology (CRM-related topics); and methods (e.g., qualitative, computer applications, and GIS). Expected to involve students in Central Mississippi Valley/Mid-South field research and to sustain collaborative research with other faculty. The department is interested in candidates with experience in African-American research. Interviews will be conducted at the 1997 AAA meeting. It will be helpful to receive applications in advance. Initial screening will begin December 30, 1997, and may continue until position is filled. The University of Memphis is an equal opportunity/affirmative action educator and employer. Submit cover letter and statement of research experience and interests, full vita, and names of 3-4 references (including phone/fax/email) to David H. Dye, Chair, Anthropology Search Committee, Department of Anthropology, UM, Memphis, TN 38152-6671.

**Research Scientist (Grade II)/Senior Research Scientist (Grade III)/Western American Archaeology.** Successful candidates will have a Ph.D. in archaeology, anthropology, or closely related field and at least 5-10 years (Grade II), 11+ years (Grade III), direct, full-time professional experience, or an equivalent combination of education and experience; demonstrated completion of large and small research projects; several years of experience in Western American archaeology, including data collection and analysis, cultural resources management, and Native American co-management issues; demonstrated knowledge of applicable state and federal regulations. The incumbent will direct the overall cultural resources program for the Pacific Northwest National Laboratory (PNNL), managed by Battelle Memorial Institute for the U.S. Department of Energy (DOE), including cultural resources activities for DOE at the Hanford Site, and develop additional business opportunities. PNNL is a multi-program national laboratory located in southeastern Washington state. To apply, please reference ad #23-2060-054-PLB on your scannable CV; include the names of 3 references and a description of your research interests and plans. Submit your resume to Pacific NW National Laboratory, PO Box 999, M/S: K1-24, Richland, WA 99352 or e-mail to [employ@pnl.gov](mailto:employ@pnl.gov) (in ASCII, WP or Word). PNNL is an EEO/AA employer and supports diversity in the workplace. Minorities, women, Vietnam-era and disabled veterans, and disabled persons are strongly encouraged to apply.

**Archaeologist. Jones & Stokes Associates, a leading west coast environmental consulting and natural resources firm, has a full-time opening in its Sacramento headquarters for an ARCHAEOLOGIST.**

Responsibilities include: conduct historic archaeological inventories and evaluations; develop and implement historic archaeological mitigation programs; prepare environmental documents and technical reports; develop proposals and marketing material for historic archaeological projects. Requirements include: MA or Ph.D. in archaeology with a focus in historic archaeology; excellent writing skills; knowledge of Section 106 of the National Historic Preservation Act and the National Environmental Policy Act; knowledge of western United States history and historic archaeological resources; experience with integrating archaeological resource data with GIS. Application process: if you are interested in a challenging opportunity with a dynamic company that offers an outstanding benefits package, send a cover letter with resume, salary history, and three references to: Human Resources/97-031, Jones & Stokes Associates, 2600 V Street, Sacramento, CA 95818-1914. No telephone calls please. EOE/AA. M/F/D/V.

**Archaeologist specializing in complex societies. University of California, Santa Barbara, Department of Anthropology**, seeks an archaeologist for a tenure-track position at the assistant professor level, beginning July 1, 1998. Applicants must be specialists in the archaeological study of complex societies, particularly at the complex chiefdom or nascent state level. The candidate must have a strong, well-defined theoretical orientation and an active field research program. Geographic preference is to be given to the Pacific Rim, South/Southeast Asia, and Africa. A methodological specialty that does not overlap significantly with our existing faculty is also desirable. An ability to teach introductory archaeology is essential. Final filing date: November 30, 1997. Please send a vita, a letter describing current and future research directions, names of 3 references, and copies of your exemplary publications to Search Committee Chair, Department of Anthropology, UC Santa Barbara, CA 93106-3210. EO/AA Employer.

**The Department of Anthropology at the University of Illinois, Urbana-Champaign, seeks an archaeologist specializing in the prehistoric peoples of North America.** Regional research focus and time period within North America are open. Topical and theoretical expertise should complement existing faculty strengths. This is a full time position at the rank of tenure-track Assistant Professor or tenured Associate Professor. The appointment begins August 21, 1998. Duties will include standard faculty responsibilities for research, teaching, and service. An active program of field research is desired. Additional qualifications include: Ph.D. in hand, publications, and demonstrated excellence in teaching. Our interests in teaching include courses in the areas of candidate's expertise, general archaeology, and a field school. Scholarly excellence is our primary criterion. Salary is open depending upon qualifications. To assure full consideration, applications should be received by February 6, 1998. Send vita, samples of publications, a concise statement of research and teaching interests, and the names, addresses (including e-mail) and telephone numbers of four referees to Janet Dixon Keller, Head, Department of Anthropology, 109 Davenport Hall, 607 South Mathews Avenue, University of Illinois, Urbana, IL 61801. (217) 333-3616. The UIUC is an AA-EOE. Position #5797.

**The Department of Anthropology of the Pennsylvania State University invites applications for a permanent, tenure-track position in South American archaeology.** Rank and salary will be commensurate with qualifications and experience. PhD required. Topical specializations are flexible, but a focus on complex societies and settlement research is preferred. The Department of Anthropology promotes the integration of archaeology with biological and cultural anthropology, and has a strong commitment to active field and laboratory research that is scientific, ecological, demographic, and quantitative. Applications received by December 15, 1997, will be assured consideration; however, all applications will be considered until the position is filled. Send letter of application, c.v., and the names of three references to: Chair, Search Committee, Department of Anthropology, Box A, 409 Carpenter Building, Penn State University, University Park, PA 16802-3404. AA/EOE.

**Wichita State University, Department of Anthropology, invites applications for full-time tenure-track Assistant Professor position** for Fall 1998. PhD by time of employment and demonstrated proficiency in teaching and research is required. Archaeological and/or sociocultural anthropologist preferred. Areal preferences include, but are not limited to, the SW United States, East Asia, and Mesoamerica. A significant asset for the applicant would be museum experience (or at least graduate training in museology). For information on our museum and department, visit our web site at <http://www.twsu.edu/~ldhmawww>. Minorities, women, and persons with physical challenges are particularly encouraged to apply. Send letter of interests, vita,

and names of 3 references to Robert Lawless, Professor and Chair, Department of Anthropology, WSU, Wichita, KS 67260-0052. Deadline is January 16, 1998, or until position is filled.

**North American Archaeologist. The Department of Anthropology at the University of Kansas announces a full-time, tenure-track position** in prehistoric North American archaeology at the assistant professor level. A PhD in anthropology, a substantive research record, demonstrated teaching experience, and field experience in North America are required. Responsibilities include teaching two courses per semester, developing an active research program, preferably in the Midcontinent, and service in the Department and University. Application materials consisting only of a letter outlining proposed contributions to our program, curriculum vitae, and names and addresses of three references should be sent to Search Committee Chair, University of Kansas, Department of Anthropology, 622 Fraser Hall, Lawrence, KS 66045-2110. The position is contingent on final budgetary approval. Applications are sought from all qualified persons; minorities and women are encouraged to apply. EO/AA employer. Deadline: December 30, 1997.

**Chief, Environmental Resources Branch, U.S. Army Corps of Engineers, Vicksburg, Mississippi.** \$63,169-\$82,120. Responsible for planning, coordinating, controlling, and reviewing the formulation and development of project plans covering the environmental resources of existing and proposed civil works projects. The work involves environmental water resource planning for a wide variety of flood control, navigation, and multiple-purpose projects. Position may be filled from the fields of Archaeology, General Biological Sciences, or Landscape Architecture. Contact Directorate of Human Resources Management, ATTN: CEMVD-HR-S/John Laughlin, PO Box 80, Vicksburg, Mississippi 39181-0080, or telephone (601) 634-5159, for application package. Closes 11/30/97. Equal opportunity employer.

**The Department of Anthropology and Ethnic Studies at the University of Nevada, Las Vegas, invites applications for a tenure-track Assistant Professor** (position number 000796). Preference for research emphasis in the arid American West (Great Basin, Mohave, Southwest) with particular attention to hunter/gatherer adaptations. Skills should include lithic expertise, quantitative methods, field methods, strong theoretical background, previous teaching, and funding success. Salary competitive. Deadline: Dec. 1, 1997. Send vita, letter, and names of four references to Dr. Alan Simmons, Dept. of Anthropology, UNLV, POB 455012, Las Vegas, NV 89154-5012. For more information on UNLV on the web, see <http://www.unlv.edu>. UNLV is an affirmative action/Equal Opportunity Employer. Minorities, Women, Veterans, and the Disabled are encouraged to apply. Position contingent upon funding.

**University of Florida Department of Anthropology invites applications for a tenure track position in Eastern North American prehistoric archeology** at the assistant or associate professor level, to begin Fall 1998 pending administrative approval. Applicants should have a strong background in archeological theory, field research methods, materials analysis, and quantitative analysis. We are particularly interested in scholars with specialties in GIS and remote sensing, but also welcome applicants with geoarcheology, ceramic analysis, or other analytical skills that will complement those of our current strengths. This position will involve working with a large number of graduate and undergraduate students in our program and the ability to teach a wide range of archeology courses. Ph.D. required. Active field research and a strong publication record are expected. Women, minority candidates and handicapped scholars are particularly encouraged to apply. Send a letter outlining your research interests and academic experience, curriculum vita and the names and addresses of three referees to Chair, Archeology Search Committee, Department of Anthropology, University of Florida, Gainesville, Florida 32611. Deadline for application: December 31st, 1997.

---

[LAST PAGE](#)

[TABLE OF CONTENTS](#)

[NEXT PAGE](#)

---

# CALENDAR



*November 15, 1997  
is 1,866,483 days since  
the Maya zero date*

November 13-16, 1997

**The 30th Annual Chacmool Conference** will be held on the theme "The Entangled Past: Integrating History and Archaeology." Suggested topics include colonialism and culture contact, oral history, museums and the presentation of history, photography as a historical resource, perceptions of time, multivocality in history, and critical analysis of historical sources. For information, contact Nancy Saxberg, Chair, 1997 Conference Committee, Department of Archaeology, University of Calgary, 2500 University Dr. NW, Calgary, Alberta T2N 1N4, Canada, (403) 220-5227, fax (403) 282-9567, email [13042@ucdasvml.admin.ucalgary.ca](mailto:13042@ucdasvml.admin.ucalgary.ca).

November 13-16, 1997

**The American Society for Ethnohistory** will hold its annual meeting at the National Museum of Anthropology, Mexico City. For more information, please contact William O. Autry, 1997 ASE Program Cochair, P.O. Box 917, Goshen, IN 46527-0917, (219) 535-7402, fax (219) 535-7660, email [billoa@goshen.edu](mailto:billoa@goshen.edu), or Jesús Monjarás, Director de Etnohistoria, INAH, Paseo de la Reforma y Calzada Gandhi, Colonia Polanco, CP 11560, Mexico City, Mexico.

November 17-19, 1997

**The 4th National Conference of the National Research Council's Committee on Women in Science and Engineering** will be held in Washington, D.C., on the theme "Maintaining Gender Diversity in the Federal Work Force during Periods of Downsizing." More information can be obtained at (202) 334-1841, fax (202) 334-2753, email [lskidmor@nas.edu](mailto:lskidmor@nas.edu), web <http://www2.nas.edu/cwse>.

November 19-23, 1997

**The American Anthropological Association 96th Annual Meeting** will be held in Washington, D.C. Archaeologists are encouraged to reassert their presence in the association. For information, please contact Elizabeth Brumfiel, Archaeology Division Program Chair, Department of Anthropology and Sociology, Albion College, Albion, MI 49224, (517) 629-0432, email [ebrumfiel@alpha.albion.edu](mailto:ebrumfiel@alpha.albion.edu). Consult the AAA web site at <http://www.ameranthassn.org> for additional information.

January 7-11, 1998

**The Society for Historical Archaeology Annual Meeting** will be held in Atlanta, Ga. To obtain additional information, please consult the web page at <http://www.mindspring.com/~garrowga/sha1998/index.html>.

February 27-March 1, 1998

**The Transition from Prehistory to History in the Southwest** conference will be held in Albuquerque, N.M. It will include perspectives from both historians and archaeologists focusing on current research, synthetic presentations, and theoretical perspectives from the southwestern United States and northern Mexico. Results will be published. For information, contact Deni Seymour, 2301 Yale Blvd. S.E., Suite B2, Albuquerque, NM

87106, (505) 246-2606, email [djslmas@aol.com](mailto:djslmas@aol.com), or Patrick H. Beckett, 317 N. Main, Las Cruces, NM 88001, (505) 524-8471.



*Ix Chebel Yax weaving*

February 28-March 1, 1998

**26th Annual Midwest Conference on Andean and Amazonian Archaeology, Anthropology, and Ethnohistory** will be held at the University of Illinois at Urbana-Champaign. For information, please contact Helaine Silverman, Department of Anthropology, University of Illinois, Urbana, IL 61801, email [helaine@uiuc.edu](mailto:helaine@uiuc.edu).

March 6-7, 1998

**21st Midwest Mesoamericanists Meeting** will be held at Michigan State University, East Lansing. If you have questions or wish to be added to our mailing list, please contact Helen P. Pollard, Department of Anthropology, Michigan State University, 354 Baker Hall, East Lansing, MI 48824, (517) 353-3135, fax (517) 432-5935, email [helen.pollard@ssc.msu.edu](mailto:helen.pollard@ssc.msu.edu).

March 13-14, 1998

**The Caddo Conference** will be held in Arkadelphia, Ark. Suggestions for program activities and events are welcomed. Program chair is Meeks Etchieson, U.S. Forest Service, P.O. Box 1270, Hot Springs, AR 71902, (501) 321-5252, fax (501) 321-5382. Arrangements chair is Ann M. Early, (870) 246-7311, fax (870) 230-5144.

March 21, 1998

**The Symposium on Ohio Valley Urban and Historic Archaeology** will meet at historic Riverside, the Farnsley-Moreman Landing, Louisville, Ky. For more information, contact Kit W. Wesler, Wickliffe Mounds Research Center, P.O. Box 155, Wickliffe, KY 42087, (502) 335-3681, email [Kit.Wesler@murraystate.edu](mailto:Kit.Wesler@murraystate.edu).

March 25-29, 1998

**The 63rd Annual Meeting of the Society for American Archaeology** will be held in Seattle at the Washington State Convention and Trade Center and the Sheraton. For information, please contact Jonathan Driver, Program Chair, Department of Archaeology, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada, (604) 291-4182, fax (604) 291-5666, email [driver@sfu.ca](mailto:driver@sfu.ca).

April 1-4, 1998

**The 67th Annual Meeting of the American Association of Physical Anthropologists** will be held at the Salt Lake Hilton, downtown Salt Lake City, Utah. For program information, please contact Clark Larsen, Research Laboratories of Anthropology, Alumni Bldg., CB# 3120, University of North Carolina, Chapel Hill, NC 27599-3120, (919) 962-3844, email [cslarsen@email.unc.edu](mailto:cslarsen@email.unc.edu). For information on local arrangements, please contact Dennis O'Rourke, Physical Anthropology Program, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230, (703) 306-1758, email [dorourke@nsf.gov](mailto:dorourke@nsf.gov).

April 8-11, 1998

**The 1998 Society for California Archaeology Annual Meeting** will be held at the Hyatt Islandia Hotel in San Diego, which can be contacted at (800) 233-1234. The program will have symposia and workshops on diverse subjects including archaeological education and public outreach, Native American issues, Late Holocene cultures on the California coast, industrial archaeology, zooarchaeology, and southern California desert

prehistory. For additional information, please contact Michael Sampson, California State Parks, 8885 Rio San Diego Dr., Suite 270, San Diego, CA 92108, (619) 220-5323, email [msampson@parks.ca.gov](mailto:msampson@parks.ca.gov).

April 17-18, 1998

**The SIU/CAI 15th Annual Visiting Scholar's Conference** will be held at Carbondale, Ill. The theme is "Perishable Material Culture in Archaeological Research." Deadline for abstracts is December 31, 1997. For more information, please visit <http://www.siu.edu/~cai>, or contact Penelope Drooker, Center for Archaeological Investigations, Faner 3479, Mail-code 4527, Southern Illinois University, Carbondale, IL 62901-4527, (618) 453-5032, fax (618) 453-3253, email [pdrooker@siu.edu](mailto:pdrooker@siu.edu).

May 1-3, 1998

**The 82nd Annual Meeting of the New York State Archaeological Association** will be held at Bonnie Castle Resort Hotel, Alexandria Bay, N.Y. The conference theme is on St. Lawrence River archaeology. Although the modern U.S.-Canadian border did not exist in prehistory, its presence has nonetheless had a significant impact on the way we interpret the culture history of the valley. It raises the question of whether the cultural complexes we use are really objective constructs or whether they are influenced more by the border and the limits that it places on research. For additional information, please contact Tim Abel, Program Chair, at P.O. Box 81, Philadelphia, NY 13673, (315) 642-0202, email [abeltj@northnet.org](mailto:abeltj@northnet.org).

September 5-7, 1998

**15th Biennial Meeting of the American Quaternary Association (AMQUA)** will be held in Puerto Vallarta, Mexico. For additional information, contact Socorro Lozano Garcia, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, Apartado Postal 70-296, 04510, Mexico City, Mexico, fax (+52 5) 550-6644.

October 4-10, 1998

**V Congreso de la Asociación Latino-americana de Antropología Biológica y VI Simposio de Antropología Física "Luis Montane"** will be hosted by the Sociedad Cubana de Antropología Biológica, the Museo Antropológico Montane, and the Catedra de Antropología from the Universidad de La Habana, Cuba. For additional information, please contact Antonio J. Martínez Fuentes, Secretario Asociación Latino-americana de Antropología Biológica, Museo Antropológico Montane, Facultad de Biología, Universidad de La Habana Calle 25 # 455, entre J e I, Vedado Ciudad Habana 10400, Cuba, (+53 7) 32-9000/79-3488, fax (+53 7) 32-1321/33-5774 email [montane@comuh.uh.cu](mailto:montane@comuh.uh.cu).

October 14-17, 1998

**The 56th Annual Meeting of the Plains Anthropological Conference** will be held at the Radisson Inn, Bismarck, N.D. For more information, contact Fern Swenson, State Historical Society of North Dakota, 612 E. Blvd. Ave., Bismarck, ND 58505, (701) 328-3675, email [ccmail.fswenson@ranch.state.nd.us](mailto:ccmail.fswenson@ranch.state.nd.us).

November 2-8, 1998

**The IV Jornadas de Arqueología de la Patagonia** will be held at Rio Gallegos. The deadline for abstracts is September 30, 1998. For additional information, please contact IV Jornadas de Arqueología de la Patagonia, INAPL, 3 de Febrero 1370 (1426), Buenos Aires, Argentina, (+54 1) 783-6554, fax (+54 2) 783-3371, email [rafa@bibapl.edu.ar](mailto:rafa@bibapl.edu.ar).

January 10-14, 1999

**The World Archaeology Congress 4** will take place in Cape Town, South Africa. The theme for this conference is "Global Archaeology at the Turn of the Millennium." For additional information, please contact Carolyn Ackermann, WAC4 Congress Secretariat, P.O. Box 44503, Claremont 7735, South Africa, (+27 21) 762-8600, fax (+27 21) 762-8606, email [wac4@globalconf.co.za](mailto:wac4@globalconf.co.za), web <http://www.globalconf.co.za/wac4>.

*[Return to top of page](#)*

---