



# Society for California Archaeology Newsletter

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## Substrate

*Newsletter 16(3):15 (June 1982):*

Dear Editor

*"public history is awakening as a discipline, and it's obvious that archaeologists have no exclusive rights to the "fabric of history." More and more of us are doing historic archaeology. We share this interest with historians, folklife scholars, economic geographers, and others reared in the social sciences. It seems obvious there's fertile ground between the bounds of traditional disciplines."*

- John Foster

## PCR DNA Research and California Archaeology

*Jason Wiersema and Robin Cordero*

Since its advent in 1983, polymerase chain reaction (PCR) technology has influenced the scientific community more than could possibly have been imagined. From its daily use in medical diagnosis and the creation of new medications, to mapping the human genome and linking behaviors to genes, PCR technology has had an impact on the life sciences at all levels. As a consequence of its effectiveness as a means to genetically identify individuals, PCR has had an equally profound effect on the judicio-legal system. From issues of paternity to the identification of previously unidentifiable victims or perpetrators of rape or murder, PCR provides an unambiguous means of identification. PCR technology has even led to new avenues of research within anthropology, particularly archaeology. As we discovered in our research and in an interview with preeminent researcher Dr. David Glenn Smith of the Department of Anthropology, University of California Davis (Figure 1), California and Great Basin archaeology has seen significant use of PCR analysis in prehistoric research.



*Figure 1: Dr. David Glenn Smith at work in the UC Davis PCR Lab.*

### What is PCR?

It is well known that double helix-shaped polymers of deoxyribonucleic acid (DNA) act as the proverbial genetic blueprint in all living organisms. The study of subtle variation in this theoretical blueprint allows for the classification of organisms to the species, population, and individual level. Prior to the advent of PCR technology, genetic research required the destruction of large amounts of cellular tissue. In the study of skeletal remains, this involved the destruction of a large portion of the bone itself. Most archaeological samples were unsuitable for analysis because poor preservation of organic material reduced the likelihood that enough and sufficiently complete DNA was available for extraction.

Whereas previous methods required large amounts of complete strands of DNA, PCR is effective with a single, reasonably complete strand of DNA. Specifically, PCR technology uses a single strand of DNA to create, by a process known as amplification, sufficient numbers of the same strand of DNA to facilitate analysis (Figure 2). The PCR process essentially involves two procedures, the first of which is called amplification. Amplification is the process by which a small sample of DNA is reproduced many times in order to create a large

*(continued page 16)*



A quarterly newsletter of articles and information essential to California archaeology. Contributions are welcome. Lead articles should be 1,500-2,000 words. Longer articles may appear in installments. Send submissions as hard copy or on diskette to: SCA Newsletter, Department of Anthropology, CSU Chico, Chico CA 95929-0400 or as e-mail or attachments to:

<gwhite@faculty.csuchico.edu>

The SCA Executive Board encourages publication of a wide range of opinions on issues pertinent to California archaeology. Opinions, commentary, and editorials appearing in the Newsletter represent the views of the authors, and not necessarily those of the Board or Editor. Lead article authors should be aware that their articles may appear on the SCA web site, unless they request otherwise.

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#### Newsletter Deadlines

*For Issue* ..... *Deadline*  
March ..... February 1  
June ..... May 1  
September ..... August 1  
December ..... November 1

#### Calendar Submissions

Donna Day, Tahoe National Forest, P.O. Box 6003,  
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#### Advertising Rates

1/2 column or less ..... \$40  
1/4 to 1/2 page ..... \$70  
1/2 to full page ..... \$125

Ads that run three or more consecutive issues receive a 15% discount.

# Society for California Archaeology Newsletter

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## From the President

The recent Fall SCA Data-Sharing Meetings featured many excellent presentations. The presenters should be commended for taking time to make the results of their investigations available to their colleagues. The respective Vice Presidents, Mark Basgall and Steve Horne, did a great job organizing the Data-Sharing events and received outstanding help from staff of the Santa Barbara Natural History Museum (Southern meeting) and staff and students of CSU Sacramento (Northern meeting).

It was disappointing that the Vice-Presidents had to forcefully recruit Society members in order to adequately round-out the Data-Sharing programs. The dissemination of information through participation in SCA-sponsored meetings represents a relatively "painless" professional obligation. SCA members have another opportunity to share the fruits of their labors with the profession at large during the 1999 Annual Meeting to be held in Sacramento. Send your proposals for papers, workshops, or posters to Kathleen Hull, the 1999 Annual Meeting Program Chair, soon.

I was quite pleased that Dr. Ian Hodder, Professor at Cambridge University, has agreed to be the Keynote Speaker at our Awards Dinner during the upcoming Annual Meeting. Dr. Hodder is well known internationally for his prolific writings, and presently serves as Director of the Catalhoyuk Research Project (an extraordinary Neolithic site in Turkey). The local arrangements committee from Far Western is working very hard to produce an efficient and enjoyable conference in Sacramento.

The subjects of Historical Resources Information Centers and the State Office of Historic Preservation were discussed at great length during the October Executive Board Meeting. These institutions are critically important to the practice of Archaeology in California. It is, therefore,

incumbent upon the SCA Executive Board and Society members to take an active interest in the administration and the actions of both institutions. SOHP has initiated actions aimed at paring down the site record backlog at the Sacramento State Information Center. The SCA Executive Board is closely monitoring the proposal of the Yurok to operate the Information Center for Del Norte and Humboldt Counties. Many questions and concerns with the Yurok proposal which have come from IC user groups and Native American groups remain unresolved. The chronic underfunding of the Information Centers statewide continues to be another problematic issue that the SCA Executive Board and SCA membership must lobby to solve.

Archaeology may be on its way to becoming the "poor stepchild" within the State Office of Historic Preservation, as evidenced by the shortage of archaeologists in the office and the absence of archaeologists in management positions therein. The SCA Executive Board will be lobbying the State Administration to effect changes in the Office of Historic Preservation so Archaeology is well represented in its policies and actions. Those policies and actions of the Office of Historic Preservation in need of better representation by archaeological expertise include project review for Federal work, CEQA work, assistance to local governments, and others. I would certainly welcome comments from members regarding the policies of the Office of Historic Preservation.

I again strongly encourage SCA members to get involved in the public outreach and education initiatives sponsored by the Society. Education Committee Co-Chairs Mary Gorden and Anne Stoll are managing Project Archaeology for the SCA, an ambitious program seeking to bring curriculum on California Archaeology and Ethnology to schoolchildren throughout California. Mary and Anne still need assistance in writing various sections of this program. Contact

them if you can help, or, finish that section you may have already promised to complete! Project Archaeology is a very big project for the SCA and deserves the support of all members. Members will learn more about the work of the SCA Education Committee at the 1999 Annual Meeting. All members of the SCA should feel free to contact members of the Executive Board to voice their concerns about Archaeology in California or the policies of the Society. Also, please consider getting involved in the work of the SCA.

— Michael Sampson

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## SCA Business and Activities

### Committee Reports

## Education Committee Update

Mary A. Gorden

At the SCA Conference in Sacramento next April, the Education Committee will be showcasing the Exchange Game. Teachers Mike Boulland from San Jose and Kathy Foster from Sacramento along with their students, will demonstrate the game and invite audience participation. The committee's objective is to involve archaeologists in education activities designed for students.

The idea for an Exchange Game came out of a meeting of teachers and archaeologists from Central California in 1996. The purpose of the game is to teach children about exchange patterns in prehistoric California. Joyce Johns, a San Jose teacher, volunteered to develop the game. Joyce with the assistance of Jim Hill developed the rules and the materials needed to play the game. Tim Sullivan, an advanced art student, drew the pictures for the trading cards.

The game consists of eight sets of cards that represent eight tribelets that are fairly evenly distributed across the length of the state: Achumawi, Yurok, Pomo, Coast Miwok, Ohlone, Yokuts, Chumash, and Gabrielino. Each set of cards contains eight common trade items and one exotic trade item. A picture of the trade item is on one side and an outline drawing of the state of California and the highlighted territory is on the other side. In addition, an Activity Kit consists of either pictures or samples of each trade item.

The game is simple enough for students to easily play. The Activity Kit adds to the value of the cards because the students are able to see

and feel the value of the items. For example, the student can feel the rabbit skin, rub talc on their hands, and hold the crystal to the light. Mike Boulland's fourth grade class at Baldwin Elementary school in San Jose played the game with interesting results. Each student seemed to prefer different exotic items and that fact made the trading exciting for them and increased their involvement. Kathy Foster who teaches middle school in Sacramento will be using the game in her classes.

We encourage you to stop by, play the game, and interact with the kids. Our intention is to market the game. We need your input, as well as your financial support.

**Attention Teachers:** The Education Committee will award one teacher a certificate worth \$60.00 at the SCA annual meeting in Sacramento. The certificate entitles the teacher to one (1) academic credit at California State University Sacramento and the registration fee for the Project Archaeology Workshop given by Faith L. Duncan, Ph. D. at the 1998 Sacramento Conference. To qualify the applicant must submit a short autobiography and explain how his or her attendance at the workshop will benefit their teaching. Send to: Mary Gorden, P.O. Box 44066, Lemoncove, CA 93244 or e-mail: magorden@msn.com

## Election Committee Taking Nominations

*Russell L. Kaldenberg, Elections Co-Chair, Past President*

The Elections Committee is in the process of taking nominations for the Millennium term for our officers. The Committee consists of Dr. Mike Moratto, Russell Kaldenberg, Beth Padon, C. Kristina Roper and Shelly Davis-King. We presently have at least one person interested in running for each office. Serving as an officer is an extremely important and highly

esteemed duty for our members. So, if any of you know of any member in good standing that you would like to nominate to serve as an officer for the next term, please call me at (916) 978-4635.

## Research \$\$\$\$\$ Available to Students from the James A. Bennyhoff Memorial Fund

Undergraduate and graduate student SCA members are invited to apply for up to \$1,000, free obsidian hydration readings, and free obsidian source readings through the 1999 James A. Bennyhoff Memorial Fund Award. The award supports original research on California and Great Basin prehistory consistent with the scholarly interests of Dr. Bennyhoff. Special consideration will be given to the following types of research:

- Studies which focus on the development, significant refinement, and/or modification of time-sensitive artifact typologies.
- Studies which relate primary data to enhancement or revision of existing cultural-historical taxonomic frameworks.

The award funds may be used for any purpose directly related to a study or its publication: e.g., travel for purposes of studying collections, photography, illustrations, graphics, radiocarbon or other analyses. The study must be designed to culminate in a formal research product, such as a senior or master's thesis, dissertation, or formal refereed publication.

Up to **100 free obsidian hydration readings** are available as part of the award, courtesy of the obsidian hydration laboratory, Sonoma State University. Also, up to **50 free obsidian source readings** are available courtesy of Geochemical

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Research Laboratory. Applicants may request some or all of these supplemental analyses, in addition to up to \$1,000 cash.

College professors, please encourage a deserving student to send a letter of application for the 1999 Bennyhoff Memorial Fund Award to the SCA no later than **February 1, 1998**. The letter should include a concise statement of the research problem to be addressed, a simple budget request, and a general timeline for completion of the overall study. The application should be accompanied by a copy of the student's resume, and a letter of recommendation from the student's

major professor or other knowledgeable project sponsor, and mailed to:

Chair, Bennyhoff Memorial Fund  
Award Committee  
2222 Alto Court  
Davis, California 95616

Any questions about the award should be directed in writing to the above address. If a Memorial Fund Award is granted in 1999, the recipient will be announced during the banquet awards ceremony at the 1999 Annual Meeting of the SCA in Sacramento.

Janet Eidsness, and Reba Fuller, RF-Sierra Me-wuk Cultural Resources Specialist. As the title indicates, it will explore professional collaboration between Native Americans and archaeologists and directions it may take in the future. Reba Fuller was a major speaker and panel member in the first symposium sponsored by the Native American Programs Committee at the Annual Meeting in Asilomar in 1993.

Below is the abstract describing the all-day forum:

As we stand at the brink of a new century, California Indian communities and archaeological communities may reflect on the common ground we've walked together and the distance yet remaining. This forum brings together a group of dedicated people who may debate, expound, agree, argue, and hopefully, encourage and conspire on setting priorities and building teams for the perpetuation of California Indian heritage into the 21<sup>st</sup> Century. Topics for discussion range from Consultation; Burial Protection, Prosecution and Settlement Issues; Native American Monitors and Most Likely Descendants; Tribal Museums and Interpretive Programs; Environmental Justice; Indian Gaming/Economic Self-Sufficiency; working collaboratively with archaeologists and ethnographers to fairly identify, evaluate, and manage Heritage Resources pursuant to Federal and State Historic Preservation Laws and Processes; Training desires and opportunities; and more. *Audience participation will be encouraged.* With good humor and camaraderie, the emphasis will be placed on problem-solving rather than complaining; looking back at past failures and successes with an eye to planning our course in the future; and how to empower Indian people to be most effective in sustaining their heritage values for the benefit of all future generations of Californians.

## SCA Proceedings News and Reminders

*Judyth Reed*

The 1998 SCA *Proceedings* will be available to SCA members at the Annual Meeting in April, 1999, in Sacramento.

Please note that papers presented at the annual meetings are due to the *Proceedings* editor July 1 following the meeting at which the paper was presented. For further information contact the *Proceedings* editor Judyth Reed, at (760) 371-1320.

## Native American Programs Committee Report

*Philip de Barros, Chair*

### Major Native American-Archaeologist Forum Planned for 1999 Annual Meeting

In 1999, we are planning a major symposium/forum at the SCA Annual Meeting in Sacramento entitled, "California's Indian Heritage into the 21st Century: Walking the Road to Collaboration." The forum will take place all-day Saturday, and is being organized by committee member,



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Note that I have highlighted the phrase, "audience participation will be encouraged." Such participation by archaeologists is important if this is to be a successful dialog. You are all urged to attend. It should be an exciting and rewarding session.

Panel members will tentatively include the following persons, most of whom have been contacted and have agreed to participate:

Jennifer Bates, California Indian Basketweavers Association

Floyd Buckskin, Cultural Representative for Pit River Tribe, Chairman for Preservation of Mount Shasta and Medicine Lake

Dwight Deutschke, California Office of Historic Preservation

Donna Haro, Salinan Nation Cultural Heritage Preservation Association

Russ Kaldenberg, BLM, California State Archaeologists/California Indian Coordinator

Tom King, National Preservation Institute

Ann King Smith, National Preservation Institute

Mike Moratto, Applied Earthworks

Joe Myers, National Indian Justice Center

Larry Myers, Executive Secretary, California Native American Heritage Commission

Pat Parker, National Park Service

Lori Planas, Kings River National Forest

Steve Quesenberry, California Indian Legal Services

Joni Rosales, Cultural Resources Manager, Beale Air Force Base

Rudy Rosales, Cultural Resources Coordinator, Esselen Nation

Sonja Tamez US Forest Service

Dotty Theodoratus

Please contact Janet Eidsness (408/684-1772 x14) if you have any questions or would like to help in the preparation for this important event. In any case, please do come to the Forum in Sacramento on Saturday, April 24<sup>th</sup>, at the Red Lion Inn.

### Other News

Current plans also include revising the Mini Sourcebook we prepared for Native Americans who attended the Cultural Resources workshop at the 1998 SCA Annual Meeting in San Diego. The revisions will minimally include the addition of material on some of the recent changes to CEQA and information on the California Historic Register. We are also in discussions with the Santa Ynez Indian Reservation regarding a possible cultural resources workshop for early next year.



## Update on 1999 Annual Meeting

*Kathleen L. Hull, Program Chair*

Next year's Annual Meetings will be held at the Red Lion's Sacramento Inn, 1401 Arden Way, near the Cal Expo state fairgrounds, on April 23-25 (Friday through Sunday). Room rates will be \$75 (+ tax) for 1-2 people, and \$10 for each additional person in a room. If you want to be well ahead of the crowd, you can contact the Red Lion's Sacramento Inn at 1-800-547-

8010. Be sure to tell them when you register that you're with the SCA.

### Program

Although the Annual Meetings are still many months away, the program is beginning to take shape and promises to be diverse and stimulating. The Plenary Session that will open the meetings on Friday is tentatively titled "Treasure or 'Tyranny': The Use of Ethnography in California Archaeology." This session will bring together a distinguished panel of scholars from California and the West to speak on the issue of how ethnographic and ethnohistoric information has been and might be used in archaeological practice within the state. Speakers will discuss the nature of the ethnographic record, the limitations and potentials of such data, and the appropriate use of ethnography in explanatory model-building. The panel will include John Johnson of the Santa Barbara Museum of Natural History; Craig Bates, Curator of Ethnography at the Yosemite Collections; Sandra Holliman; Mark Raab of California State University, Northridge; and Robert Kelly of the University of Wyoming.

Following the Plenary Session, there will be a variety of symposia, workshops, and forums from which to choose, while multiple general sessions of contributed papers are also anticipated. Scheduled symposia include sessions on Sierra Nevada Prehistory, California Funerary Archaeology in Southern California, Underwater Archaeology at Fort Ross, Department of Defense Cultural Resources Management, Cultural Landscape Approaches in Archaeology, and Archaeology in the State Parks. The Native American Programs Committee has also helped to put together an impressive forum, tentatively scheduled for all day Saturday, entitled "California's Indian Heritage into the 21<sup>st</sup> Century: Walking the Road to Collaboration." Likewise, there will be a multiple-

## SCA Business and Activities

day, hands-on session on Interactive Archaeology Learning, in which we will have an opportunity to "road-test" various educational materials and learn more about teaching resources available. Finally, those members concerned with obsidian studies will find several sessions of particular interest. These include a two-day forum on the effects of fire/heat on obsidian, cosponsored by the International Association for Obsidian Studies, and a roundtable discussion on Inyo-Mono obsidian hydration chronology.

Of course, we still need your contribution to the Annual Meetings! Abstracts for contributed papers or posters are due by December 31, 1998. In response to participant feedback on past meetings, the submission forms have a space for preferred presentation length of either 15 or 20 minutes, and alternate lengths will be accommodated to the extent feasible. Forms for submittal of paper, session, and poster abstracts were included in the September issue of the Newsletter and are also available on the SCA Website. As always, please remember that scheduling conflicts necessitate limiting all participants to just two papers and/or discussion presentations, so anticipate and plan your participation carefully. Deadlines for submissions will also be strictly adhered to, so please submit your abstracts soon, either on the forms provided or via the SCA web or e-mail. The website will also have updated information on the preliminary program as it develops.

For more information, contact Kathleen L. Hull, Program Chair Dames & Moore 60 Declaration Drive, Suite B Chico, California 95973 (510)465-4962 e-mail: hull@qal.berkeley.edu

### **Reception and Silent Auction**

Your SCA Local Arrangements Chairs have been busily planning festivities for the Meetings. Of special note are the emerging plans for an

"SCA Night at the Harness Races" to occur in conjunction with the Friday night Reception and Silent Auction. The venue will be the Clubhouse at Cal Expo, located just south of the hotel. Along with the usual banter, merriment, and hard-ball bidding associated with this annual event, you also will have the opportunity to view the ponies, scan the tout sheets, and wager a few dollars on your favorite harness teams. To keep costs down and spirits high, we are on the lookout for five or six "keg sponsors" for this event; please call Kelly McGuire or Bill Hildebrandt for details.

Breaking with tradition, the Silent Auction at the 1999 Annual Meetings is focused on a special interest this year—Public Education. This is a one-shot, onetime fund-raising event to support educational efforts endorsed by us, the SCA members. No coming back at you for more; no in-your-face telemarketers; no same-old huckstering year after year. In years past, monies raised were pooled in the general fund, then allocated by the board. This year, monies are earmarked in advance to fund public education efforts: Archaeology Week, Native American programs, and the Exchange Game. This latter item is an education kit created to teach California Ethnology and Archaeology to children. The SCA Education Committee plans to distribute the kits to school districts around the State; the success of the Silent Auction will partly determine the number of kits that will be available. The Exchange Game will be demonstrated during the 1999 Annual Meetings as part of an Education Committee Workshop.

Here is how the Silent Auction works. Objects d'art, gift baskets, one-of-a-kind services, and weekend getaways are donated by members, artisans, corporations, and businesses for this event. While attending the meeting, browse the silent auction room, and find your heart's desire. Log your bid for the item or service at the bottom of the bid-sheet with each item or service on display. It's easy.



### SCA Committees 1997-98

#### Archaeology Week Representative

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 ..... e-mail: nfox@nhm.org

#### Annual Meeting, 1999

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 ..... Kelly McGuire (530) 756-3941

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 ..... Larry Weigel (916) 653-1655

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#### Easements

..... Trudy Vaughn (530) 224-0515

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 ..... Anne Duffield-Stoll (909) 621-7521

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..... C.Kristina Roper (209) 224-0201  
 ..... Steve Dondero (916) 653-8117

## SCA Business and Activities

The Silent Auction volunteers are now soliciting donations. We are making particular efforts to upgrade the overall quality of goods and services from years past. (So please, no old student textbooks—unless they have real value.) Donations are tax-deductible; receipts will be provided. Feel free to contact any of the following volunteers with your donation: Amy Gilreath (530-756-3941, amyj@farwestern.com, Far Western); Carmen Kuffner (530-753-7401, mcwalkuf@aol.com, Davis); John Foster (916-653-4529, parkarky@cwo.com, California Department of Parks and Recreation), or Steve Cooper (760-927-1511, steve\_cooper@imdgw.chinalake.navy.mil, Ridgecrest, China Lake NAWS). Additional volunteers are most welcome.

### Pre-Registration

We'll be sending out the preregistration packets sometime in January; watch for yours in the mail, and be sure to return them no later than March 15. By January, you'll also be able to access the meeting and hotel registration forms on the SCA webpage. Please direct your questions on registration to Sharon Waechter or Laura Leach-Palm (530) 756-3941 or FWARG@farwestern.com (Attention: SCA Registration Committee).

For more information, contact:

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Local Arrangements Chairs,  
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### *Secretary's Report*

## Minutes of the October 1998 Society for California Archaeology Executive Board 11/2/98

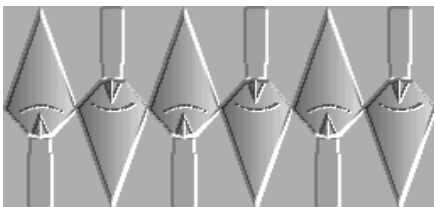
The SCA Executive Board Meeting was held at Sacramento State University on Friday, October 23, 1998. Present at the meeting were Mike Sampson (President), Lynn Gamble (Immediate Past President), Tom Origer (President-Elect), Kathy Dowdall (Treasurer), Mark Basgall (Northern Vice President), Kristina Roper (Business Office Manager), and Rebecca Apple (Secretary).

After the approval of the Minutes, the first order of business was an Education Committee report by Mary Gorden. The Committee is continuing to move forward with development of the Exchange Game. In conjunction with the presentation there was a discussion of cost, accuracy of elements, permit requirements for the collection of some materials, the use of replicas, potential sources of assistance, and tentative time schedule. There is an expectation of the need for seed money in about six months. Origer suggested that the Native American Heritage Commission be contacted for their input. The Committee has requested space at the 1999 Annual Meeting to display (and play) the game. Gorden also provided a report on the Bureau of Land Management's (BLM) California Heritage Project. Three of the geographical areas for the Student Handbook have been completed, however, several others (e.g., the Bay Area, part of San Diego County, the Mojave etc.) still need to be written. The BLM has designed covers for the project and is providing additional funding to help pay for the costs of the graphics, covers, and printing. Gorden said she anticipates finishing

the Handbook by the end of next year. Dowdall said she would open a new bank account for the Education Committee funds.

After a brief discussion of operation of the Business Office, William Seidel of the Office of Historic Preservation (OHP) reported on the future of the North Central Information Center (NCIC), the status of the Yurok Information Center proposal, and the implementation of GIS within the Information Centers. Terri and Chris Casteneda will be taking over as Co-Coordiators of the NCIC. The Yurok are moving ahead with their proposal to operate an Information Center. The next Information Center Advisory Committee meeting scheduled on November 2, will be addressing the Yurok IC proposal topic. GIS mapping of site information is progressing in several areas, including the Mojave, the immediate coastal area from Mendocino south to San Diego, and the Bay area, as well as Stanislaus County and western Tuolumne County. Financial support is coming primarily from Legacy Grant funds and agencies with a vested interest in the data. Doug Mende at University of Redlands is managing the digitizing. Seidel explained that the GIS was the first element of a three-part process involving: 1) getting the mapped locations into GIS; 2) attaching an attribute database; and 3) imaging the site records.

The next presentation was by Gary Reinoehl from OHP. He discussed the trend toward a decrease in archaeologists in the OHP; only two work there now. He pointed out that the newly formed Local Government Assistance Section had no archaeologists. Reinoehl reminded the Board that the State Plan will be revised every three years and that the SCA will want to support things we would like to see included in the Plan. Reinoehl also participated in a discussion pertaining to Mitigation Banking. Topics included in the discussion were the inappropriateness





## Reports and Announcements

of a natural system model and the high cost of preserving sites in coastal and urban areas. Board members hope to organize a Mitigation Banking Workshop at the 1999 Annual Meeting.

Jerry Johnson, a professor at Sacramento State, provided the Board with a summary of the changes at the North Central Information Center. He stated that poor quality of many of the site records and the chronic underfunding are serious problems facing all Information Centers. He has resigned as Coordinator of NCIC, but plans to remain active in archaeology.

Greg and Rose White gave a report on the *Newsletter*. White plans to continue with the new format, seek out substantive lead articles, and encourage member participation. He wants a more topical magazine-type format. There have been problems with some of the addresses with regard to the bulk postage. Origer moved that these mailings be sent out first class this time. Gamble seconded the motion, and it passed unanimously. White also indicated he does not plan to send out the preliminary Annual Meeting program in the *Newsletter*. The program would be sent as a separate mailing or posted on the SCA Web Page.

Basgall gave a report on the 1999 Annual Meeting planning effort. The 1999 Meeting will be held at the Red Lion Inn in Sacramento. The Local Arrangements Chairs are moving forward with plans for the reception and meeting rooms. The Program Chair has approached speakers for the Plenary Session.

Roper reported that John Pryor, Roger LaJeunesse, and herself have agreed to handle local arrangement for the 2001 Annual Meeting if held in Modesto. They plan to draw in students from Modesto Junior College, Fresno, and Stanislaus. Sampson stated that the dates need to be reserved for late March as soon as possible in order to avoid scheduling conflicts. Tom Origer will begin

negotiations with a hotel and conference center in Modesto.

Various committee reports followed. Basgall reported for the Avocational Committee. His report addressed the recommendation that Avocational Societies (AS) get together and obtain insurance, how better to help AS with announcements of activities, and possible mechanisms for affiliation with SCA.

Sampson relayed that there was no formal report from the Archaeology Week Committee, but there was a brief discussion of Nancy Fox's previous suggestion that the date be moved. No date change is proposed for this upcoming year. The next California Archaeology Week will be May 9-15, 1999. The deadline for



submitting ideas for the Archaeology Week Poster is November 15. Concepts will be to the Board by January. A discussion of Archaeology Week donations followed. Dowdall reported that OHP had provided \$2,500 as pledged.

Sampson reported for the Legislation Committee. Lynn Dunbar will stay on the Committee, but a new Chairperson is needed. Sampson said he would deal with this.

Sampson passed along an inquiry from Tom Wheeler, Membership Chair. Wheeler wanted to know if the Board would consider some new art work for the membership poster? Consensus was that the Board was not

opposed, but would defer this until a later date.

Sampson reported for Phil de Barros, Chair for Native American Programs. The Committee hopes to hold a workshop at Santa Ynez Reservation. Committee members have indicated that they plan to hold another all-day Saturday session at the 1999 Annual Meeting.

Possible members for the Nominations Committee were discussed. Russ Kaldenberg is now serving as the Committee Chair.

Sandy Elder has retired from OHP. So there is a vacancy for OHP Liaison to the SCA.

Sampson provided a report on behalf of Proceedings Editor, Judyth Reed. Reed has received 30 papers from the most recent Annual Meeting. She is also willing to accept items from previous meetings as long as their data are not outdated.

Sampson asked for suggestions/nominations for the 1999 SCA Awards. A discussion of possible recipients followed. Sampson reminded the Board the Tom King Award requires nominations; Sampson will request that an announcement be put in the next *Newsletter*.

The next agenda item addressed SCA affiliation with the Planning & Conservation League (PCL). After a discussion, the Board agreed that a formal letter of resignation from PCL should be prepared. Sampson will write a letter withdrawing SCA from the PCL Board of Directors. The letter will explain the Board's concerns about lack of representation for archaeological issues and financial reasons for the decision.

There was a discussion of where and when to hold the next Executive Board Meeting. After comparing timing conflicts and travel constraints, December 17 and 18, 1998 were tentatively agreed upon as dates. The location of the meeting was not determined.

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## Reports and Announcements

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Several items were discussed under New Business. Origer said Gary Pahl had contacted him regarding a letter of support for a repository at San Francisco State. Board consensus was that there was a need for additional repositories. Origer will draft a letter of support and send it to Sampson for signature. John Johnson had contacted SCA regarding the expansion of the San Buenaventura Mission parish school onto a Mission period site. Sampson has written to the Monsignor and he has responded that they are planning to fill the area. Sampson will continue follow the situation. Roper announced that the new SCA Directory will be coming out in a couple of weeks and requested any changes be provided to her soon. Sampson said he is planning to seek donations for Archaeology Week from large California Corporations, particularly those with a reputation for community involvement.

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### Meetings

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## 1999 California Indian Conference Preliminary Announcement

*Dr. Lee Davis Director, California Studies Program, Anthropology Department, San Francisco State University*

The next California Indian Conference will be held on October 15-16, 1999 (next year) at Cuesta College in San Luis Obispo, CA. Information about the conference, including the Call for Papers, will appear in upcoming issues of News from Native California. The CIC conference coordinator is William Fairbanks. Good luck Bill! For more information, contact: William Fairbanks, Social Sciences Division, Anthropology Department, Cuesta College, San Luis Obispo, CA 93403-8106; Phone: (805) 546-3163; Fac-

simile: (805) 546-3904; College Web Site: <http://www.cuesta.cc.ca.us/>

## Call for a California Anthropology Student Gathering

Attention California Anthropology Students (both undergraduate and graduate), CSU, Chico Anthropological Society is calling for a meeting of Anthropology Students. This is a meeting to encourage participation in the Professional Associations in California such as the SCA, Southwestern Anthropological Association, and many more. This will also create a forum for students to network with other students from different universities. The tentative date for the meeting is March 19<sup>th</sup> through the 21<sup>st</sup>, 1999. We are dedicated to keeping the cost to a minimum so that everyone will be able to participate. We have a lot of ideas on how to make this a fun and interesting weekend, but we would love more input. So, if you would like to help out with the planning and/or participate, please contact Maggie at (530) 891-1573 or e-mail [mags@ecst.csuchico.edu](mailto:mags@ecst.csuchico.edu) or Marlo at [meakes@ecst.csuchico.edu](mailto:meakes@ecst.csuchico.edu).

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### Action

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## Major Desert Cahuilla Site in the Balance

*Jay von Werlhof*

The Archaeological Conservancy is considering purchasing a major Desert Cahuilla site consisting of a large village, trails, workshops, geoglyph, cleared and stone-lined circles, spirit breaks, prayer circles, BRM, sherds, midden, artifacts, etc., along the high shoreline of Lake Cahuilla (700 A.D. - 1650 A.D.). The site, located in T9S/R9E, Sec. 3, was the habitation area for the people who

built and managed a large collection of fish traps (+140) located in Sec. 2. The traps are the last remaining intact group of these features in NW Imperial County, where all other large collections have been destroyed. Sec. 2 is under control of BLM and Caltrans who would be glad to exchange the area containing the traps for comparable lands elsewhere. Sec. 3 is in private hands, and can be acquired for \$180,000. We need to keep the two Sections in a single packet. If the Archaeological Conservancy can purchase Sec. 3, Sec. 2 could be enjoined and turned over to Anza Borrego State Park for administration. Trails, kiosks, and an information center could be put up in Sec. 2 which is adjacent to Highway 86, and be a major education archaeological facility. Sen. Dave Kelley and Assemblyman Jim Battin included the Sec. 3 purchase in this year's State budget, but the Governor blue-lined it out, as he did with all other park land acquisitions.

The Salton Sea is now being geared up for total reclamation which means that speculators will be grabbing up all contiguous and propinquitous lands to turn the sea into the world's next pricey riviera; this has already started in the Bombay Beach area on the NE shore. Lots that had been \$3,500 are already \$10,000, and when the cleanup starts they will go to \$30,000/\$50,000 and up. So, time is of essence. Letters from SCA board and membership should be sent to me for forwarding to Lynn Dunbar of the Archaeological Conservancy in Sacramento.

Jay von Werlhof  
Archaeologist/Director  
Imperial Valley College Museum  
P.O. Box 430  
Ocotillo, CA 92259

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*Send your SCA Newsletter submissions as e-mail or attachments to:*  
[gwhite@faculty.csuchico.edu](mailto:gwhite@faculty.csuchico.edu)

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## Opinion and Comment

The archaeological site, known as ORA-04, which sat atop a bluff overlooking Newport Bay, no longer exists. This sad fact is the result of “contract science,” an all too common contractual agreement between land developers and archaeologists to comply with legislative guidelines by “scientifically” investigating a prehistoric or historic site out of existence.

Harbor Cove (ORA-64), San Joaquin Hills (Newport Coast Archaeological Project), Hellman Ranch, Bolsa Chica and countless other tracts cradling our region’s prehistory are either under relentless attack or already have succumbed to the development industry and their facilitators, the “contract scientists.”

Contract science, born in the environmental movement of the 1960s and ‘70s, was created as an offshoot of state and federal legislation established to protect the environment from increasing depredations by building and industry. This body of legislation was designed to “ameliorate adverse impacts” to natural, cultural and historical resources.

These efforts were supposed to ensure protection of important resources for ours and future generations. Avoidance, accommodation, conservation and preservation characterize the vocabulary and philosophy of these legislative mandates. However, in Orange County, and Southern California generally, where private property abounds and property rights hold sway, environmental issues and implementation of environmental law have in recent years deviated from this path. The best example being that of “contract archaeology.”

Enter the world of Orwellian “newspeak.” Mitigation, the lingua franca of contract science, is the lifeblood of contract archaeologists and developers alike. Successfully negotiating the mitigation maze means happy hunting for the landowner/developer and full larders for the contract archaeologist.

But what of the resource, the archaeological site? What does “mitigation” mean for it? Extraction. Elimination. Extinction. This is the unfortunate fate for most archaeological sites for which mitigation measures are applied. Preservation of the resource it seems is no longer an important part of the “cultural resource management” process where private land is concerned. Discussion of avoidance of archaeological sites and accommodation of the resource in project development plans has been replaced by the monolithic mindset of mitigation.

The view that scientific investigation is an acceptable alternative to the protection and preservation of sites is implicit in the day-to-day operations of most contract archaeologists and is reflected in their recommendations to clients. These practitioners appear to have lost site of one of the overarching themes in modern archaeology: conservation of the resource. Good conservation requires preservation of sites, as well as thorough study. One without

the other does little to enhance our knowledge and understanding of the past

Where history is often revisionist one needs occasionally to revisit the sites to assess what information or meaning it holds for the current generation. It’s much easier for those who “control the present” to “control the past” if the past no longer exists. Archeologists are in a position to contribute significantly to the maintenance of a free and democratic society by amply assuring that there is a past to be studied. Collections of artifacts and records of their extraction are only a part of that past, a part that cannot supplant the actual physical record existing in the ground. This bank of prehistory is being depleted and replaced by mutable, and often unverifiable, historical narratives.

During the last three decades, archeology by contract has increased as a portion of prehistory. The result has been the creation of an unholy trinity consisting of industry, archeologist, and the past. I would argue the loser in this uneasy triumvirate is the latter. Archeologists are too willing to capitulate to the client and regularly form cozy consulting relationships with developers. In the arena of environmental preservation these practices cannot be tolerated. They invariably compromise the archeological resources in question. Careful scrutiny is required on the part of a concerned archeological community and the public if things are to improve. Nominally regulating bodies such as the Society for Professional Archaeologists (SOPA) have proven ineffective in this regard leaving the process open to rampant ethical abuse. As purveyors of Harrington’s “mobile truth,” contract archaeologists are susceptible to the same philosophical and ethical pitfalls which characterize medical consultants to the tobacco industry. “Sole source,” or “in house,” archaeological consulting can be addictive. If archaeologists continue to uncritically show up en masse at the trough of contracts let for mitigation of threatened sites the day is not too far off when archaeological resources in the southland will truly be a thing of the past.

If the early promises of the environmental movement are ever to have meaning for the few remaining archeological sites of the Southern California coast two things must happen. First cultural resources must cease to be viewed as impediments to progress. Such an outlook only entrenches the quid pro quo between developers and contract archeologists. Under these conditions mitigation studies seem to be mere autopsies conducted on sites pronounced dead by the real estate industry. Second archeologists need to be cultural preservationists, first and foremost, not handmaidens to the destruction of our shared cultural heritage. We must stand actively for site preservation. Preservation, not simply mitigation must be the goal of any true “cultural resource management.” - Nick Spain

*Nick Spain is an archaeology instructor at Santa Ana College. Portions of this article are modified from an op-ed piece that appeared in the Los Angeles Times, 23 November, 1997.*

## New Publications



### Prehistoric Archaeology

A. Craig Hauer

This series offers an annotated bibliography of recent published literature pertinent to current debates and methods in Californian archaeology. Prehistoric and historic archaeology will appear in alternate issues. Regional literature and periodicals listing "California" in the title are not included. If you have any news or ideas about how this section can better fit the needs of its audience feel free to e-mail the author (chauer@ecst.csuchico.edu). Please limit contributions to those that can be easily accessed by all members of the SCA and have been published within the last five years.

Anderson, M. Kat

1997 From Tillage to Table: the Indigenous Cultivation of Geophytes for Food in California. *Journal of Ethnobiology* 17(2):149-169.

Anderson examines the interrelationships between Californian Indians and the plants they used. In particular, tillage activities are examined for how they reproduce soil disturbance conditions necessary for further growth of preferred plants. Current plant distributions are compared against ethnographically-recorded distributions, and the hypothesis is offered that the diminished distributions are linked to the demise of Native lifeways and tillage practices.

Bettinger, Robert L., Ripan Malhi, and Helen McCarthy  
1997 Central Place Models of Acorn and Mussel Processing. *Journal of Archaeological Science* 24:887-899.

The authors use a central place foraging model to evaluate threshold return rates for infield processing versus home base processing. Experimental data collected from black oak acorns and mussels was compared with the archaeological and ethnographic records. Incongruities between experimental and archaeological data illustrate that factors other than energy and caloric values were taken into account in processing location decisions.

Hughes, Richard E.

1994 Mosaic Patterning in Prehistoric California—Great Basin Exchange. In *Prehistoric Exchange Systems in North America*, Edited by Timothy G. Baugh and Jonathon E. Ericson, Pp. 363-383. Plenum Press, New York.

Hughes critically examines the traditional, incremental model of trade/distribution/conveyance. Current research

on obsidian and shell bead trade in western Nevada-northeastern California indicates that prehistoric trade systems were more dynamic, and had significantly more temporal and regional variability than can be accounted for by the incremental model of exchange.

Koenig, Walter D., Ronald L. Mumme, William J. Carmen, and Mark T. Tanback

1994 Acorn Production by Oaks in Central Coastal California: Variations Within and Among Years. *Ecology* 75(1):99-109.

Variation in acorn production was observed in and between years for five oak species. Random variation and variation between species was observed. However, variance between years was similar to predicted levels. Masting cycles were observed at individual and species-specific levels, but not in populations. The data was consistent with wind pollination and predator satiation hypotheses.

Mason, Rodger D., Mark L. Peterson, and Joseph A. Tiffany  
1998 Weighting Vs. Counting: Measurement Reliability and the California School of Midden Analysis. *American Antiquity* 63(2):303-324.

This article gives a historical context to the California school of midden analysis. Developed at UC Berkeley, and originally used (near the turn of the century) as a dating technique, this method has recently been applied to forager studies. The authors contend that the California method cannot cope with diet estimates requiring knowledge of shell-to-meat weights. Minimum number calculations and other similar methods are argued to be more accurate.

Rondeau, Michael F.

1996 When Is Elko? In *Stone Tools: Theoretical Insights into Human Prehistory*, Edited by George H. Odell, Pp. 229-243. Plenum Press, New York.

The chapter examines the effects of curation on projectile point form. Demonstrating through case studies that the extent of rejuvenation is proportional to use life. Rondeau also suggests areas where curation is more likely based on resource availability.

Sutton, Mark Q.

1998 Cluster Analysis of Paleofecal Data Sets: A Test of Late Prehistoric Settlement and Subsistence Patterns in the Northern Coachella Valley, California. *American Antiquity* 63(1):1998.

Sutton attempts, through statistical cluster analysis, to evaluate two competing settlement/subsistence models for northern Coachella Valley, CA (i.e., seasonal occupations [Sutton 1993], and permanent lakeside villages [Wilke 1978]). Using dietary residues found in the fecal matter a number of sites in the region are examined for seasonality.

## New Methods and Technologies

### Professional Development Training: Ground Stone Tool Technologies

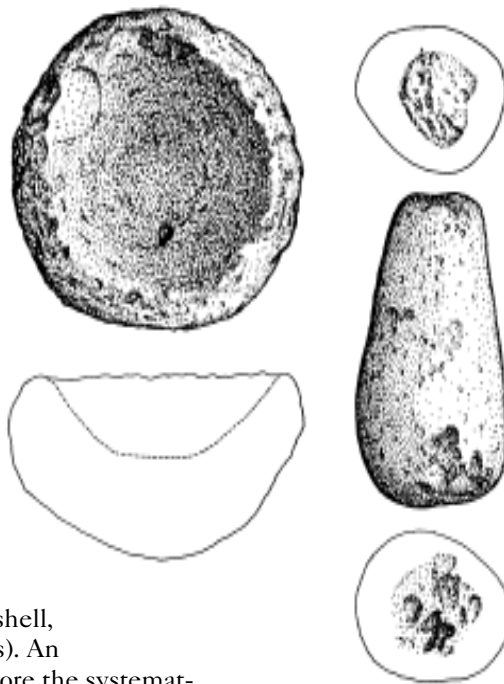
*John Fagan (President) and Terry Ozburn (Senior Archaeologist)  
Specialists in Lithic Technology  
Archaeological Investigations Northwest, Inc.*

Bureau of Land Management (BLM) archaeologist Russ Kaldenberg organized a three-day training session on ground stone tool technologies held at a BLM campground on the Merced River (May 5-7, 1998). BLM archaeologists from around the state were joined by archaeologists from the Mendocino National Forest (Chris Hill, Pat Likins, and Barbara White) and Yosemite National Park (Bruce Kahl and Sonny Montague), Native Americans (Kathy McCovey and Bill Tripp), a BLM biologist (Anne Knox), a University of California, Riverside graduate student (Susan Gleason), and Chuck Whatford of the California Office of Historic Preservation to share interest, experience, and expertise in ground stone tools. The training was facilitated by John Fagan and Terry Ozburn of Archaeological Investigations Northwest, Inc., Portland, Oregon.

Native Californian technologies examined included milling (mano/metate and mortar/pestle) and abrasion (for manufacture of wood, bone, antler, shell, soapstone, and slate tools and ornaments). An experimental approach was used to explore the systematics of toolstone selection, manufacturing techniques, tool use, and maintenance. Archaeological collections and ethnographic information were used to guide experiments.

During the first day of the session, milling equipment was manufactured by direct freehand percussion flaking with hard hammerstones to shape cobbles and boulders. Duane Christian (Bakersfield BLM) described some archaeological quarry sites that contain only the by-products of this preliminary reduction stage for metates. Experiments proceeded by pecking with unifacially and bifacially flaked "choppers" of quartzite and other hard, flakable rocks. Heavy battering on the bit area of these tools necessitated frequent resharpening and produced distinctive debitage. Archaeological examples of chert "cores" and thick bifaces with battered edges were favorably compared to these experimental tools by Kirk Halford (Bishop BLM), suggesting considerable formal variation. Very little grinding (often none) was needed to finish these ground stone tools.

Sandstone, pumice, and other abradant materials were used to shape bone awls, shell beads, soapstone pendants, and antler tools. Marlene Greenway (Arcata BLM) identified attributes of abraders, especially grain-size and friability, that had to be matched to various worked materials. The abraders developed wear patterns different from those commonly found on flintknapping abraders. A variety of other toolmaking tools was needed to crack whole bone, drill holes, and incise guide marks or decorations. Wet grinding with a sand slurry on a flat rock was used to make slate points after bipolar and direct freehand percussion of the tabular raw material to separate laminae, remove flaws, and initially shape blanks. James Barnes (Redding BLM) found wet grinding useful for shaping other materials including soapstone.



On the third day, milling equipment was used to grind bone, acorns, hazelnuts, corn, and a variety of seeds. Mike Mitchell (Palm Springs BLM) noted variable efficiency of toolstone depended on the type of material ground. Eric Ritter (Redding BLM) commented on the importance of size and shape of the metate or mortar for containing ground materials. Because the processing involved cracking hulls and removing skins from nuts, sorting chaff from grains, and resurfacing milling equipment, Judyth Reed (Ridgecrest BLM) identified the formation of work stations that included other stone tools, lithic by-products, and processing waste materials. Grinding amaranth seeds with hard igneous mano and metate equipment produced highly-developed polish with striations on both tools in under two and one-half hours.

We discussed the analytical potential for interpreting archaeological sites based on this experimentation and residue analyses. It was suggested that combining technological approaches with laboratory identifications of plant phytoliths, starch grains, and animal blood residues would be a powerful strategy for answering important research questions. These data would have inferences for central research issues including subsistence, site function, settlement, and technology. Future workshops have the potential to advance these goals.

*For further information, please contact John Fagan or Terry Ozburn at Archaeological Investigations Northwest, Inc, 2632 SE 162<sup>nd</sup> Avenue, Portland, OR 97236, (503) 761-6620.*

## A Cautionary Note on the Use of GPS for Documenting Cultural Resources

Sharon A. Waechter and Tammara Ekness  
Far Western Anthropological Research Group, Inc.

In the last issue of the *Newsletter* (September 1998), Max Neri presented a helpful primer on the use of the Global Positioning System (GPS) and how it works. Like many companies and agencies, Far Western has been using GPS to document cultural resources for several years now, and we've run across a great many potential problems that could cause serious errors in your GPS data. We present here a follow-up to Max Neri's article, describing some of those problems and our efforts to solve them.

### Prefield Preparation

It's critical, of course, that the operator become familiar with his/her GPS device by reading the manual that comes with it. Too often there are people using the device who were trained by someone, who was trained by someone else, and so on... Important information can get lost with each generation of training (remember the "telephone game" you played as a child?). The instruction manual that comes with the GPS device is clearly written and easy to understand, and it provides a wealth of information on just what GPS is, how it works, and where errors can arise.

It is also very important to check the almanac or ephemeris file in your device and make sure it is set for the correct part of the state(s) where you'll be using it, and that the reading intervals are set to be compatible with the Base station you'll be using to correct your readings (see below under Post-field Processing). Some of the newer devices will reset the almanac automatically; others have to be set manually. It is also helpful to hit the field with a printout of predicted satellite availability for specific days; this will tell you the days and hours when there may not be enough satellites available (high PDOP, or Position Dilution of Precision) to collect the data you need—and when a high PDOP may cut you off in the middle of data collection.

### In the Field

You will need to decide what kinds of data you will collect, and what error factor is acceptable. Far Western has used the GPS device for everything from locating sites on the landscape (especially helpful in areas with no topographic relief and no landmarks) to making site sketch maps

and point-proveniencing artifacts for collection. We've found that even a small error factor can create big problems, especially where point-provenience information is necessary. In some cases, for example, "Unit N0/E5" showed up north of "Unit N5/E15" on the GPS-generated maps; if we hadn't been using grid coordinates for the units, we might not have caught the error.

There is wide disagreement over how many readings are necessary at each location. The manual that came with our devices (Trimble) recommends 120 readings, which can take quite a while; one GPS specialist we've worked with has recommended 100 readings, and another has told us that 30 are sufficient. Again, your manual probably is the best guide. There are several additional factors that can affect the accuracy of your data: satellite signals can be reflected off nearby large objects, even buildings or vehicles (in severe cases, this "multipath" phenomenon can cause errors of dozens of meters); the number of satellites available at any given time may be too low (the PDOP factor); the distance between the Base station and the rover receiver may be too great; the Signal-to-Noise ratio, or the strength of the satellite signal, may be too low. Your manual probably will list other factors to consider, and how to overcome them.

Be aware that your device may not work in narrow canyons, under heavy cloud cover, or under a canopy of trees. We do not recommend using a tree as your datum, as was mentioned in Neri's article, because you probably will have trouble getting an accurate reading there—if you can get one at all. Use a datum that is open to the sky whenever possible. When this isn't possible, it's a good idea to take a reading near the datum (under open sky) and then note the distance and compass bearing from the reading back to your datum. If you send your raw data to some other person to be corrected and printed out, be sure to include this information.

Be sure to keep an accurate, detailed log of all readings, including file # (it will change every hour), date, object being plotted, artifact number, unit number and size, and any other information that may prove useful later for figuring out discrepancies and errors. We've had several cases, for example, where our log listed a flaked stone

artifact, but it showed up on the GPS map as ground stone—even though we entered the code for flaked stone (or biface, or whatever) into the device.

Unless you have the equipment to print out your corrected GPS map in the field and make any necessary corrections or additions, you will need to make a good old-fashioned (and accurate) sketch map. Remember that GPS

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*Too often there are people using the device who were trained by someone, who was trained by someone else, and so on...*

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files, like any computer files, can be corrupted or lost; if this happens (and we know of cases where it has), your sketch map may be all you have to work with. We also find the sketch map critical for clearing up discrepancies between the (corrected) GPS maps and our own knowledge of a site (“Gee, I could have sworn that milling slab was on the other side of the creek.”), and for filling in features (vegetation, rock outcrops, etc.) that the GPS operator may not have included. As useful as the GPS system can be, it should not take the place of careful note-taking, mapping, and interpretation of the topographic maps.

### Post-field Processing

Be aware that the data you bring back to the lab will not, in and of itself, provide you with usable, report-quality maps; this requires special software and the expertise to use it. Even then, the maps won’t look as nice as ones that are drawn by hand—they definitely lack that human, artistic touch.

Your field GPS data also will have an error factor that must be corrected, preferably using the Base station closest to your project area (for best results, be sure that the number of readings per second set on your device works with that Base station). Identifying and using the Base station can be a struggle in itself. Some files can be accessed easily on the Internet; some require a file transfer program, others require a modem (bulletin board access). Also be aware that some base file providers keep files only for a given length of time (we’ve been told that the introduced error will be eliminated after the year 2000, and that correction will no longer be necessary). It is also possible, with the right equipment and knowhow, to set up your own Base station.

When correcting your GPS field data, be aware that you must select either NAD 27 or NAD 83; all USGS topo-

graphic quadrangles are based on NAD (North American Datum) 27, and so you must be set for that datum if you are going to transfer the UTM’s from your GPS device onto the topo quads. Most engineering firms and other GPS users generate project maps using NAD 83; these data will not transfer to a USGS map without conversion to NAD 27. Conversion information can be found at the bottom left corner of the 7.5’ quads. (Be sure to note on your site records that your UTM’s were derived from a GPS device, and that they have been corrected to NAD 27).

### Conclusions

To summarize, we recommend that all users of GPS devices do the following:

- get training directly from an expert or experienced user, and read the manual that comes with your device;
- make sure your almanac or ephemeris file is set for the region where you’ll be using it, and that your reading intervals (points per second) match the Base you will be using for corrections;
- always make a working sketch map for use in the field, for comparing against the GPS map, and for saving your butt if your GPS files crash; decide how many readings to take at each location by consulting your manual—the more readings you take, the higher your accuracy will be; be aware of times when you will not be able to collect good data: when too few satellites are available, the satellite signal strength is too low, etc. Many of these conditions can be determined by asking your device the right questions (see the manual);
- take readings under open sky, avoiding trees and other large features that can block your signal, and be aware of potential multipath problems;
- keep a careful written log of all readings;
- understand that your GPS data will need to be run through a correction program when you return to the lab, and that you may find errors with the maps even after they’ve been corrected;
- be sure to select NAD 27 when correcting your data, if you intend to plot your UTM’s on the USGS topo quads—many engineering firms and others you may work for use NAD 83, and their data/maps will not transfer accurately to the topo maps without conversion to NAD 27.

Finally, it is worth considering whether the GPS system is the always the best method for a particular task. Our personal experience has been that GPS is helpful in plotting site and datum locations, especially in the absence of topography and other defining features, but that it is somewhat less useful—that is, more prone to error—for close-scale mapping of sites.

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## PCR DNA Research and California Archaeology

(cont'd from Page 1)

enough sample of DNA for study. This process involves three steps, the first of which is to denature the original DNA strand. The denaturing process involves the exposure of the DNA to extreme heat in order to unwind and separate the double helix. This produces two single DNA strands that serve as templates for the replication process. The second step occurs when substances called primers are introduced after the strands are separated to act as starting blocks for the polymerases. Polymerases are naturally occurring enzymes which actually synthesize new strands of DNA. As they do in all reactions, polymerases in the PCR process act to bind complimentary portions of DNA onto the template strand. In other words, the amplification process involves splitting a single original DNA molecule, attaching a primer starting block to each of the single strands, and thereby allowing the polymerases to synthesize a new strand, the end product being two new double stranded DNA molecules (Figure 2).

The second of the two procedures involved in PCR research is termed "restriction enzyme analysis." Simply put, the restriction enzymes act as scissors to cut the new DNA at very specific locations called restriction sites. Each of these restriction sites or locations is specific to only one restriction enzyme, and thus signifies inherited variations between groups at the species, population, tribal, familial, or individual level. This ability to identify variation between groups makes PCR research extremely valuable in many fields not the least of which is archaeology.

PCR, as a relatively new technology, is not without its problems. Dr. Smith cites sample contamination as a significant problem, but describes it as one which is "avoidable if the correct precautions are taken." The UC Davis facility operates separate laboratories for the study of contemporary and archaeological DNA to prevent contamination between them, and employs a number of precautionary steps to avoid contamination by other means. Each of the researchers in the lab, for example, has been typed in order that their DNA will be recognized if it is found in association with the DNA being studied.

### PCR in California Archaeology

Among the fundamental goals of archaeology has always been to uncover the spatial and temporal patterning of past human cultures, and the nature of the relationships between various of those cultures. Archaeology has attempted to uncover lineages and descent patterns using linguistic patterning, ethnographic data, artifactual assemblage types and geography. PCR, because it uses the remains of the individuals themselves (skeletal remains), has, in combina-

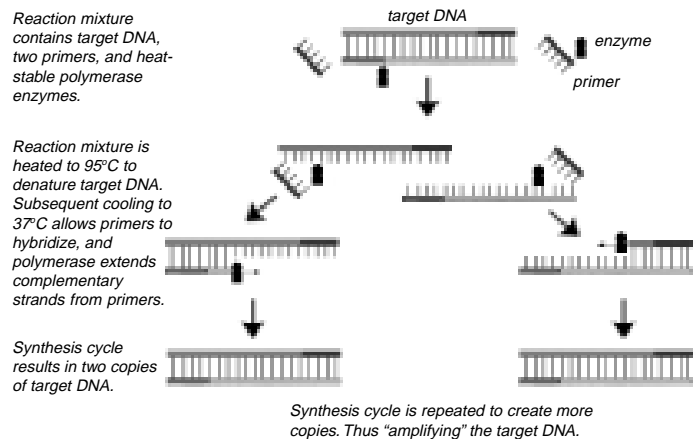


Figure 2: DNA Amplification Using Polymerase Chain Reaction. Adapted from: Madou <<http://www.chemistry.ohio-state.edu/~madou/chem694/class10/index.htm>>

tion with established techniques, allowed for a more definitive linkage between past peoples and cultures than could be obtained by previous methods alone. The implications to culture history and the analysis of past demographic patterns are staggering.

Most of the PCR research currently being completed in California archaeology uses a specific type of DNA known as mitochondrial DNA (mtDNA), found not in the nucleus of the cell, but rather within structures called mitochondria which reside in the body of the cell. Mitochondrial DNA differs from nuclear DNA in two major ways 1) it is inherited only along the maternal line, and 2) it mutates at a much faster rate than nuclear DNA. Because mtDNA mutates at a faster rate it can be used to identify more recent population divergences than can be uncovered using nuclear DNA.

Using PCR technology, researchers have uncovered particular genetic markers which are present in human populations. These markers, termed haplotypes, are signified by specific variations in the DNA sequence that arose as a result of mutations inherited from past generations. As discussed above, the mutations manifest themselves in the form of restriction sites. A specific haplotype is represented by a specific set or combination of restriction sites. Geneticists have isolated several distinct haplotypes in native North American populations. "Haplotypes are important," Smith said "because they are themselves largely tribally specific."

PCR results from native North Americans indicate four basic haplotype groupings, or "clusters." Cluster I is comprised of populations almost exclusively possessing the A haplogroup. Cluster II is represented by a high frequency of haplogroups A and B with an absence of haplogroup D. Cluster III is represented by all four haplogroups (A, B, C,



and D), with a general predominance of A. Cluster IV is represented by a high frequency of haplogroup B and a near exclusion of haplogroup A. The relative frequency in combination of these four varies regionally. For example, Cluster I characteristics predominate in the Arctic and Northwest Coast regions, but crosscut linguistic boundaries. Cluster II characteristics hold sway among groups in the American Southwest and upland Mexico, and also crosscut linguistic boundaries. Cluster III, however, included tribes from a variety of regions, but for the most part speakers of either Penutian or Almosan-Keresiouan languages. Cluster IV possessed both linguistic and regional integrity, predominating in the California/Southwest regions and including Hokan-speaking and Uto-Aztecan-speaking tribes (Lorenz and Smith 1996). The discovery of haplotype/linguistic covariation alone is very significant. However, the finding of potentially distinctive and differentiable genetics belonging to Penutian-speaking as opposed to Hokan-speaking peoples is especially important to California studies seeking to determine the processes of population migration that led to the state's complex ethnographic linguistic distributions.

Smith's opinion is that "the situation is very good for learning more about migration, but so far we've only dealt with a drop in the bucket." Interestingly he mentioned that "we always take our questions from archeological theories or linguistic theories because there is no intrinsic reason for suspecting migration without this type of theory and data...but when you look at the curious distribution of language groups in the U.S....and assume that language similarities occur because of common ancestry, then you must assume that a migration occurred somewhere." The implications have yet to be fully realized and incorporated into California prehistory.

### Future

As a result of its existing and potential contributions to systematics, infectious disease diagnosis, epidemiology, new drug discovery, ecology, paleontology, and archaeology, PCR has established itself within the present and future arsenal of each of these fields. PCR technology and the equipment it makes use of, continues to progress at an astounding rate, and although significant hurdles remain, PCR still has enormous undiscovered potential. Smith and his associates are, for instance, just beginning to look at variation in what is known as the second hypervariable region of the mitochondrial DNA molecule which is generally considered to be less variable than the first and may allow for more population specific mutations to be uncovered. They believe, in fact, that they may already have uncovered a mutation in the second hypervariable region which may more definitively classify sample DNA into haplogroup D. Smith also hopes to make use of nuclear DNA in addition to mitochondrial DNA because "we're going to hit a wall with mitochondrial DNA. We're going to run out of information...and the y chromosome will have to take up

the slack." The y-chromosome is the male sex chromosome which is represented, not in the mitochondrial DNA (maternally inherited) molecule, but in the nuclear DNA molecule. "Additionally, the technology for identifying single mutations or point mutations is really improving, and these—particularly the very rare ones—are very diagnostic of common ancestry" said Smith. All of this will allow researchers to more accurately trace the origins of archaeological populations and to uncover common ancestry. Smith recognizes the implications to Hokan and Penutian studies in California and the Great Basin, and he continues work in the southern Great Lakes region, Florida, the Ohio Valley, as well as south Texas. Smith also referred to the identification of pathogens or microorganisms in skeletal remains as a useful future means for uncovering patterns of descent and common ancestry, because "one way to track human evolution is to track the course of something that coevolved with humans, like a micro organism."

In other words, PCR technology, with its existing uses, and those which are as yet undiscovered, still has unlimited potential in answering new questions, and in more accurately answering existing ones.

*Jason Wiersema and Robin Cordero are graduate students in the Forensic Anthropology Program, Department of Anthropology, CSU Chico.*

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*PCR technology has made possible research that was never before possible. Smith has expressed to me that the potential inquiries also have potential outcomes, and these outcomes may affect ongoing Native American cultural heritage and cultural patrimony issues, or even originate new issues. Clearly, this gives rise to a number of legal and political implications, some of which may change long-standing political relationships and partnerships (see Kennewick web sites listed below). I agree with Smith that archaeologists must recognize that these potentials now exist, and must identify the new concerns and bring them under review — Editor*

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### For Further Study

Lorenz, J.G. and D.G. Smith  
1996 Distribution of Four Founding mtDNA Haplogroups Among Native North Americans. *American Journal of Physical Anthropology* 101:307-323.

Chatters, J.C.  
<[http://www.nmnh.si.edu/arctic/html/kennewick\\_man.html](http://www.nmnh.si.edu/arctic/html/kennewick_man.html)>

Tri-City Herald Kennewick Man Virtual Interpretive Center  
<<http://www.tri-cityherald.com/bones/links.html>>

## Articles

### Report of an Expedition to Siberia I

*E. Breck Parkman, Director  
Fort Ross ~ Global Village*

On June 24, 1998, a nine-person delegation left San Francisco bound for Siberia as part of a month-long cultural exchange associated with the Fort Ross ~ Global Village project (hereafter FR~GV). FR~GV is an UNESCO-sponsored Internet educational program being conducted by a consortium of organizations, including the Society for California Archaeology, University of California at Berkeley, and California State Parks. The delegates of the Fort Ross-Irkutsk Expedition (hereafter Expedition) consisted of six students, ages 13-17 (Jamie Barlow, Jeremy Gould-Ginesi, Rebecca Guinther, Lisa Hudson, Elaina Ramos, and Lucas Wellman), two parent-chaperons (Sarah Gould-Ginesi and Linda Hudson), and myself. We went to Siberia at the invitation of Dr. Vadim Shakhеров, Professor of History at Irkutsk National University, and Director of the Irkutsk Museum of History. While there, we worked with the members of the Irkutsk-Fort Ross Club on an archaeological excavation in Irkutsk, and participated in archaeological and ecological studies at nearby Lake Baikal. Of course, our journey to Siberia was more than just an opportunity to learn about archaeology and ecology, for we wanted to learn about ourselves as well. For some, the journey was a road to self-discovery, while for others it was a mission of peace. As our departure grew near, we suspected that we would all be different people upon our return. Thus, we began to perceive the journey as an odyssey of enlightenment.

Following an emotional send-off by family and friends at the airport, the Expedition boarded a practically empty Aeroflot Aleutian 62, and flew to Anchorage, and then on to Khabarovsk in the Russian Far East. We arrived in Khabarovsk 14 hours after departing San Francisco. The weather there was oppressively hot and humid, and in no time we had worked up a sweat struggling with our luggage at customs. Apparently the airport and city center were under extreme military and police scrutiny. As the kids speculated whether the hundreds of armed personnel and K9 units were at the airport to greet us, we discovered that a high-ranking government official from Moscow was arriving in a while, and authorities intended to take no chances with his safety. Fortunately, we were met at the airport by Denis Nemirovsky, a 21-year-old engineering student sent by his father, Youry (our travel agent in Irkutsk), to meet us and escort us back to Irkutsk. He proved to be our guardian angel for the next four days.

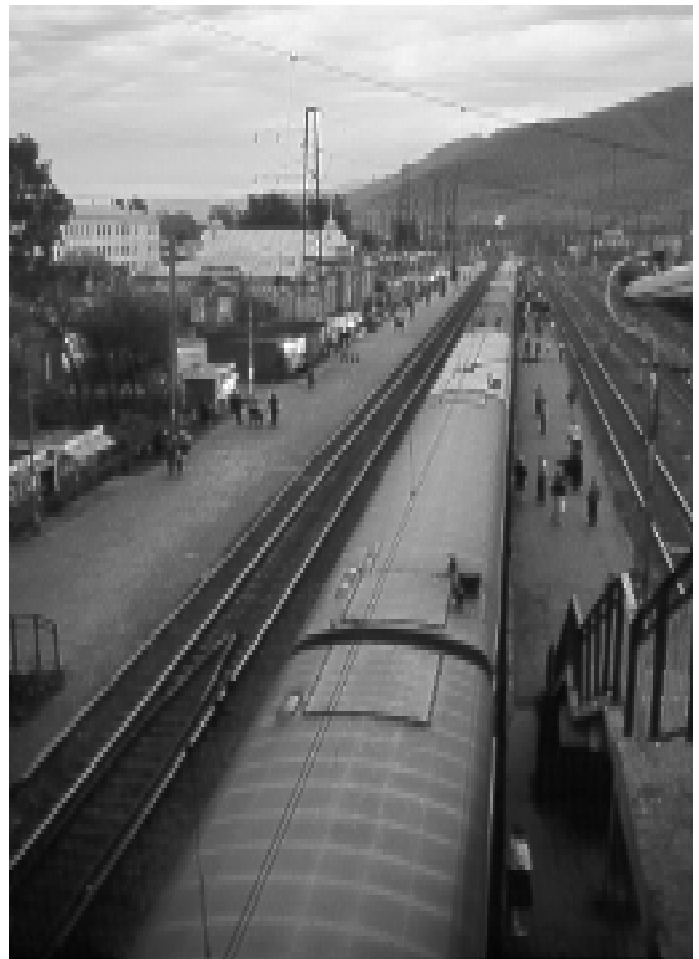
Khabarovsk is an attractive city of 650,000, situated on the Amur River only 18 miles from Manchurian China. From the banks of the river, you can look across and see distant Chinese mountains. A dispute of the border area resulted in a pitched battle between Russian and Chinese

troops in 1969. Because of the conflict, the area witnessed a massive military buildup throughout the 1970s and early 1980s. In recent years, however, there has been a general easing of tensions, and today Khabarovsk is full of Chinese entrepreneurs participating in the growing trade between the two nations.

The Expedition spent a couple of days touring the city, then boarded the Trans-Siberian Railroad's (hereafter TSR) Rossiya for the 2000 mile journey west to Irkutsk. The TSR is one of the world's great railroads. Constructed at the turn-of-the-century, the line links Moscow in European Russia with Vladivostok, located on the Sea of Japan in Russia's Far East, a distance of almost 6000 miles. Historically, the TSR has served as an economic lifeline for Russia. Although in decline, it still serves an essential service. Due to the line's importance, military sentinels guard most bridges and tunnels in the Far East to safeguard the line from acts of terrorism. Losing the TSR for even a few days would wreck havoc on Russia's struggling economy.

It took 60 hours by train to reach Irkutsk. The Expedition settled into its 2nd-class berths (four people to a

*The Train at a Stop*





*The Trans-Siberian Railroad is one of the most famous train journeys in all the world. Leaving Moscow in the European west, the line travels almost 6000 miles east to Vladivostok on the Sea of Japan. The Khabarovsk to Irkutsk segment of the line measures 2000 miles in length, and takes 60 hours to travel.*

compartment), and prepared for the long ride. Denis and I shared a compartment with two strangers, a woman and her young son who were traveling to Novosibirsk from their home on the Kamchatka Peninsula. The other eight members of the Expedition shared two compartments among themselves. Russians, including several families with children, filled the remaining compartments. At first, everyone remained distant and aloof, unsure of the strangers about them. However, within a day, the American kids had befriended the Russian kids. Soon, the tensions eased, and our railroad car began to feel like a rolling village. During the course of the train ride to and from Irkutsk, we would meet many Russian travelers, and become befriended by many of them.

Dah-dah-dah-dun. Dah-dah-dah-dun. Dah-dah-dah-dun... After a while, the melodic and all pervasive sound of the train traveling on its tracks became a part of us. Day-in and day-out, day after day, we heard and felt the rhythm. We began to anticipate the sways and dips, and even the sudden braking. Sleeping on the train was like being a small child again, rocked to sleep in a cradle.

Of course, there was too much excitement for sleep. I spent most of my time staring out of the windows, into the backyards and back forests of the Far East and Siberia. The

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*Soon, the tensions eased, and our railroad car began to feel like a rolling village.*

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constantly unfolding scene was strangely hypnotic, holding my attention with fleeting glances and partial images. We crossed the Bureya, Khingan, and Yablonovy Ranges, followed the Amur, Bureja, Seledza, and Silka Rivers, and passed through the communities of Birobidzhan, Arkhara,

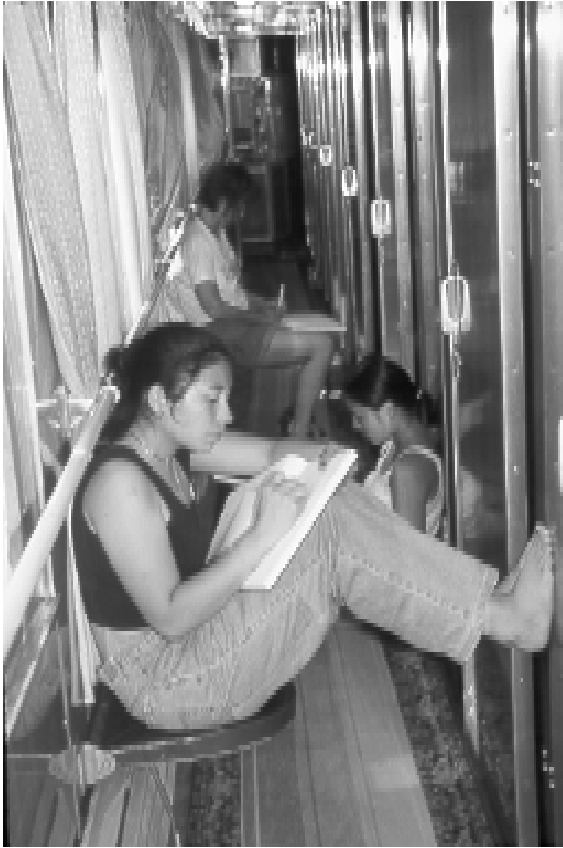
Skovorodino, Amazar, Chita, and Ulan Ude. The landscape was exotic and forever changing. In awe of it all, I stuck my camera through the open window and captured countless images on film.

There was also ample time for writing and reading. I especially enjoyed reading the accounts of the TSR by earlier travelers, including Laurens Van Der Post (*Journey into Russia*, 1964), Farley Mowat (*The Siberians*, 1970), and Paul Theroux (*The Great Railway Bazaar*, 1975). As luck would have it, the June 1998 issue of *National Geographic* contained a more contemporary account of the TSR.

After one day's journey out of Khabarovsk, we crossed an imaginary boundary separating the Russian Far East from Siberia. Slowly and hypnotically the landscape unfolded before us. The heat and humidity became less oppressive as we followed the sun inland. We snaked our way out of the coastal lowlands, across interior mountain ranges, through the vast taiga (forest), and onto the broad Siberian steppes. A river was usually in view, some of them wonderfully wild in their appearance. The view was punctuated by occasional villages and hamlets of old wooden houses, barns, and backyard gardens. The villages were colorful and quaint, with many of their residents busy at work in backyard gardens, toiling in their yards, fishing from the banks of local streams, or otherwise engaged in their daily business. The larger towns were equally fascinating, but were often marked by the incredibly-drab concrete apartment buildings that sprung up all over Siberia in the 1960s.

Whereas the towns were occasionally punctuated by drabness, the countryside was wonderfully colorful. Siberia may sleep through the winter's long, cold embrace, but with the appearance of summer, she puts on her party dress and goes out dancing. Landscapes once frigid and whitened by ice and snow revel in their warmth and color, while wild flowers explode in a million degrees of color, in hues of purple, blue, red, pink, yellow, and orange. A massive blue sky bends down to kiss the edges of svelte green plains, and distant mountains are darkened by thick forest, home to trees such as fir, pine, and larch.

## Articles



*Elaina, Linda, and Lisa Writing in the Hall*

In the midst of these wild lands, there is a lake richly majestic in its pristine beauty. Lake Baikal is the ancient one, 30 million years old, and guardian of much of Planet Earth's freshwater supply. The lake, known as "the Pearl of Siberia," stretches 400 miles to the north, and is so wide in places as to mimic the oceans. It is over one mile deep, and the water is unbelievably cold, clean, and clear. Local legend says that to swim in these waters is to be forever young. At Malore More, the channel separating Olkhon Island from the mainland, the water was just barely warm enough to swim in. We swam almost daily for two weeks. The Nerpa (the world's only freshwater seal) and many fish swim in the lake, as well, and its wildest shores are home to reindeer, moose, wolf, and brown bear. Few people live around the lake, although it is very popular with campers and fishermen during the summer.

There are 336 rivers flowing into Lake Baikal, but only one, the Angara, flowing out of it. Exiting the lake's south-western shore, the Angara flows quickly toward Irkutsk, then makes her way north to Bratsk, on to her confluence with the Yenisey River, and then to the Arctic Ocean. According to local legend, Old Man Baikal had 337 daughters, including Angara who went against her father's wishes when she decided to wed a boy named Yenisey. The

daughter was forced to flee when Baikal became enraged. In his anger, he threw a large stone at her, but it missed. Today, the stone emerges from the water at the point where the Angara River departs Lake Baikal.

The Expedition arrived in Irkutsk at 1 a.m. We had boarded the train thinking that we would arrive at 7 p.m., but soon realized that the train's posted schedule was based on Moscow time, six time zones away from Irkutsk. We wondered if there would be anyone there to meet us at such an ungodly hour. We were relieved to see there on the darkened platform several dozen people awaiting our arrival. I looked out on the platform and heard my name spoken by the crowd, almost in unison. As the children disembarked, kind voices called out their names and silhouetted figures huddled about them. Russian parents and children hugged the Americans, and with such simple grace made them feel instantly at home. Without a doubt, it was one of the most moving incidents of my life. In the middle of the night in a strange city, we were surrounded by friends, such as Vadim Shakherov, Elena Emelyanova, Valery Emelyanov, Larissa Glatskova, Alla Ilyina, Eduard Ilyin, and so many others. Following the warm greeting, everyone was placed in vehicles and whisked away to different locations throughout the city for a good night's sleep. It was a wonderful introduction to Irkutsk and to the generosity of the Russian people.

Irkutsk is a lovely city of 700,000 sprawled along both sides of the Angara River, about 40 miles from Lake Baikal. The city center is awash with attractive buildings, including many older wooden houses with richly-colored doors, windows, and shutters. Along the banks of the Angara, there is a promenade lined with food and beverage stands, outdoor cafes, and various other attractions. Nearby, on ulitsa Karla Marxa at ulitsa Lenina, there is a large statue of Lenin hailing a taxi (well that is what it looked like to me!). Elsewhere, the golden spires of Russian Orthodox churches broke the skyline as they have done for centuries.

*Excavating the Voznesensky Monastery*



The Expedition spent the first week in Irkutsk, residing in the homes of host families. I stayed at American House, the home of Lida Sklachini, whose life with her late American husband, Scotty, has been immortalized in the play, "From America With Love." While in Irkutsk, there were visits to meet the Deputy Mayor (the Mayor was out of town) and other city officials, trips to local art schools and youth clubs, concert halls, and museums. There were also meetings with the local news media in Irkutsk. Expedition members gave interviews to the local TV station three different times for stories aired on the evening news broadcasts. Accounts of our visit also appeared in the local newspapers.

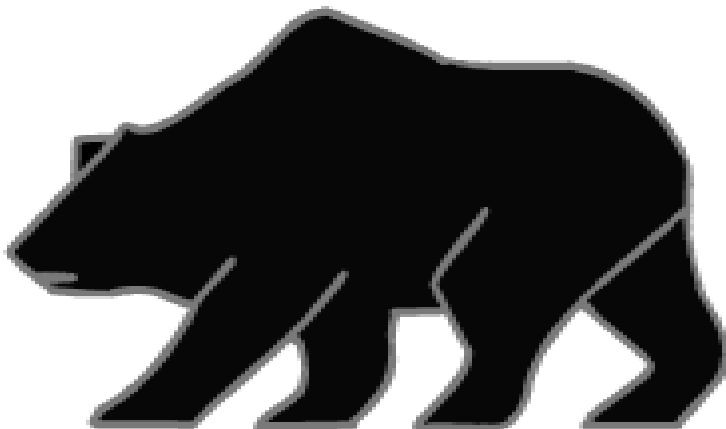
While in Irkutsk, the American kids participated alongside the Russians in an archaeological excavation at the site of the Voznesensky Monastery. The monastery was founded 300 years ago, and was closed following the Communist Revolution. Many church structures were destroyed in the 1930s. In the 1960s, apartment buildings were built atop much of the monastery's former grounds. Today, archaeologists and the members of the Irkutsk-Fort Ross Club (IFRC) are excavating to discover the foundations of the original buildings.

A highlight of our Siberian visit was getting to meet the members of the IFRC, such as Artem Rainikov, Dasha Sazonkina, Nastya Kouzminykh, Denis Glatskov, Jane Raguskina, Masha Barsukova, and Vova Emelyanov. Founded a year ago, the Club has about 100 members, drawn mostly from Schools 24 and 44. Vadim Shakherov, and teachers Elena Emelyanova and Larissa Glatskova organized the Club. Its purpose is to help in the FR-GV project by researching the history and archaeology of Irkutsk, the city from which the Russian American Company (RAC) emerged in 1799. Whereas Fort Ross represented the eastern limit of the RAC, Irkutsk in many ways represented its western boundary. Thus, the IFRC serves to connect these two distant places again.

*Images and some text appearing in this article are available*

*at <<http://www.mcn.org/led/ross/gv.htm>>.*

*Next Issue: Lake Baikal and Beyond*



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## Calendar of Events

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**January 5-10, 1999.** SHA Annual Meeting. Salt Lake City Hilton Hotel, Salt Lake City, Utah. For more information go to <http://www.sha.org/cfp-99.htm/>

**January 7-14, 1999.** The Inspiration of Astronomical Phenomena ("INSAP II"), to be held on The Mediterranean Island of Malta. For more information contact: Raymond E. White, Steward Observatory, University of Arizona (Chair) at [rwhite@as.arizona.edu](mailto:rwhite@as.arizona.edu) ; George V. Coyne, S.J., Vatican Observatory at [gcoyne@as.arizona.edu](mailto:gcoyne@as.arizona.edu) ; Rolf M. Sinclair, National Science Foundation, Arlington VA at [rsinclair@nsf.gov](mailto:rsinclair@nsf.gov) ; Frank Ventura, Malta at [fven@cis.um.edu.mt](mailto:fven@cis.um.edu.mt) or go to <http://ethel.as.arizona.edu/~white/insap.htm>

**January 10-14, 1999.** The World Archaeological Congress will be held at the University of Capetown, South Africa. For more information contact the Congress Secretariat at Global Conferences, P.O. Box 44503, Claremont, 7735, South Africa. Telephone: +27 (21) 762-8600, Fax: +27 (21) 762-8606 or e-mail: [wac4@globalconf.co.za](mailto:wac4@globalconf.co.za) . The conference has a website at <http://129.78.16.135/~wac99/>

**January 24-February 14 & February 14-March 7, 1999.** Ometepe Petroglyph Project Field Survey. Visit the project website at <http://ourworld.compuserve.com/homepages.jmartin> or for an application and information contact Suzanne Baker, Archaeological/Historical Consultants 609 Aileen St., Oakland, CA 94609 (510) 654-8635 or at [SuzanneBaker@compuserve.com](mailto:SuzanneBaker@compuserve.com) or James Martin at [jmartin@dnai.com](mailto:jmartin@dnai.com)

**February 12-14, 1999.** The California Mission Studies Association will hold its 16th annual conference at Mission Santa Inés, 1760 Mission Drive, Solvang, CA 93463. For more information, write the California Mission Studies Association, P. O. Box 3357, Bakersfield, CA 93385-3357 or e-mail [cmsa@lightspeed.net](mailto:cmsa@lightspeed.net). Additional conference information and an abstract form can be found at CMSA's web site, <http://www.commissions.org>

**March 24-28, 1999.** SAA Annual Meeting Sheraton Chicago, Chicago, IL. For more information go to <http://www.saa.org/meetings/>

**March 29 - April 1, 1999.** Fifth Annual California Islands Symposium will be hosted by the Minerals Management Service and the Santa Barbara Museum of Natural History. For more information, visit the website at <http://www.mms.gov/omm/pacific/public/public.html> or at <http://www.sbnature.org/symposium99.htm>. Inquiries may be sent to MBC Applied Environmental Sciences, 3000 Redhill Avenue, Costa Mesa, CA 92626. (714) 850-4830.

**April 23-25, 1999.** Society for California Archaeology Annual Meeting. Red Lion's Sacramento Inn 1401

Arden Way. For more information contact the meeting organizers. Program Cochairs are Bill Hildebrandt and Kelly McGuire (530) 756-3941. Program Chair is Kathleen Hull (510) 465-4962, FAX (510) 465-1138 or e-mail [hull@qal.berkeley.edu](mailto:hull@qal.berkeley.edu)

**May 5-9, 1999.** Vernacular Architecture Forum 1999 Annual Meeting, Columbus, Georgia. For more information about the annual meeting, contact Julie Turner, 3039 Star Point Road, Franklin, GA 30217; (770) 854-8813; e-mail: [jturner648@aol.com](mailto:jturner648@aol.com) To participate, contact Julie Nicoletta, Assistant Professor, Liberal Studies Program, University of Washington Tacoma, Box 358436, 1900 Commerce Street, Tacoma, WA 98402-3100; (253) 692-4468.

The CRM editors wish to include in the 1999 production schedule issues devoted to the following themes: Hispanic Heritage, Asian-American History and Historic Railroads. If you are interested in contributing an article and/or you are interested in serving as a guest editor (issue coordinator), please contact Ron Greenberg at Editor, CRM, National Park Service-NC 350, 1849 C Street, NW, Washington, DC 20240 202-343-3411 or via e-mail [Ron\\_Greenberg@nps.gov](mailto:Ron_Greenberg@nps.gov).

The Federal Preservation Forum is now online at <http://www.ca.blm.gov/cdd/fpforum.html>. The FPFORUM listserver promotes and facilitates communication and information exchange among cultural resources professionals working with federal preservation programs. FPFORUM is hosted by the Bureau of Land Management in conjunction with Federal Preservation Forum, an organization dedicated to fostering communication and information exchange among preservation professionals and improving federal preservation programs nationwide. For subscriber information, list archives, and membership information visit the website.

The editors of **Internet Archaeology** <http://intarch.ac.uk/> are now seeking material for forthcoming issues. Internet Archaeology, Department of Archaeology, University of York, King's Manor, York YO1 7EP, Tel: +44 1904 433 955, Fax: +44 1904 433 939, E-mail: [editor@intarch.ac.uk](mailto:editor@intarch.ac.uk). E-mail discussion list: <http://www.mailbase.ac.uk/lists/intarch-interest/>

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**Calendar listings** include notices for meetings, lectures, museum openings, educational opportunities, etc. All submissions are welcome. For frequent updates and more background information visit the SCA web site <http://www.scanet.org>. Please send calendar listings to Donna Day, Tahoe National Forest, P.O. Box 6003, Nevada City, CA 95959-6003 or e-mail [day@jps.net](mailto:day@jps.net).

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