MARCH PCAS SPEAKER

Matthew Wetherbee

*Bolsa Chica Archaeology
Part Six: Foodstuff*

*A Comprehensive Zooarchaeological Investigation of the Bolsa Chica Mesa*

Several zooarchaeological studies have been conducted on vertebrate remains from the Bolsa Chica area since the 1980s. The current study incorporates all the previous studies along with analyses of additional vertebrate remains over the last three years from the Bolsa Chica Mesa. These analyses provide evidence regarding subsistence strategies and past environmental conditions of the landscape. The results suggest that hunting strategies emphasized predation on fish, small mammals, sea mammals, and a variety of rodents supplemented by large game and birds. The larger presence of sea mammals in the later periods of occupation may reflect a shift in subsistence strategies to a marine focused economy due to an increase in fishing technology.

Bone tools and other culturally modified bone artifacts from CA-ORA-83 and ORA-85 represent ten different general classes, with awls the most prominent. Other non-utilitarian objects, such as ornaments, pendants, beads, tubes, and possible gaming pieces for the ring-and-pin game, were also recovered.

The presence of midden deposits may suggest long-term campsites, as opposed to seasonal campsites. The taxa identified * (continued on p. 3)

DINNER WITH THE SPEAKER

Please join this month’s speaker, Matthew Wetherbee, and PCAS members for dinner before the March 8th General Meeting. We will meet at 6 pm at Mimi’s Café, 4030 Barranca Parkway, Irvine.

PCAS MEETINGS CALENDAR

GENERAL MEETING

*Free and Open to the Public*
March 8 - 7:30 pm

Speaker: Matthew Wetherbee
Topic: Bolsa Chica Archaeology
Part Six: Foodstuff
Location: Irvine Ranch Water District
15600 Sand Canyon Ave., Irvine

BOARD MEETING

*All Members Welcome*
March 15 - 7:00 pm

Location: Old Orange County Courthouse
PCAS Library, Ground Floor
211 W. Santa Ana Blvd., Santa Ana

INSIDE THIS ISSUE

2 February Speaker Notes
3 February Board Meeting Summary
3 Curation
4 More on Crystals (Part II)
5 Field Trips
6 Dig This - Exhibits, Lectures, and more
7 Legacy Gifts
7 Speaker Schedule

Remember to Renew your PCAS Membership!
Use the form in this newsletter.
FEBRUARY SPEAKER NOTES

Bolsa Chica Archaeology
Part Five: Features and Functions

Submitted by Megan Galway

Dr. Nancy Anastasia Wiley presented Part Five of her series of reports on the Scientific Resource Surveys, Inc. project at Bolsa Chica. Dr. Wiley has led this project since 1980 and is currently preparing the final report. This talk concentrated on features found in the study area with a focus on those found in ORA-83, the Cogged Stone site. The features were described as falling into three categories: cultural (defined as a concentration of three or more items), structural depressions, and natural features.

The cultural features were composed of rock arrangements (natural or fire-affected rock [FAR]), shell, and lithics (any rock that was culturally modified). The area described was roughly 35 by 60 m and was excavated in 2 m units. It was located parallel to and a short distance from the mesa edge.

Dr. Wiley described various features in detail. PF#12 was a hearth-like feature, apparently associated with a burial. No FAR was found suggesting limited use of the feature. PF#22 and PF#23 were shell features identified within a shell midden. These were concentrations of bivalve shell beads—one coated with red ochre. The beads were made on-site and dated to 9,000-8,000 BP. Further excavations identified *Olivella* beads in the lower levels that dated younger (7,500-6,500 BP) than the bivalves. Dr. Wiley believes this was caused by the later beads being included with burials that had cut through the bivalve layer.

PF#18 included a buried killed metate of which 19 pieces were found. This was closely associated with PF#17 which included a cobbled stone cache at the same depth as the metate. Dr. Wiley suggests the cobbled stones had been gathered by people of a later occupation and reburied out of respect. This unit was 2 feet from an earlier Eberhart unit in which nothing was found. Shell from this earlier excavation was thrown back on the site and is now, itself, recorded as a feature in the latest study.

Features described as structural depressions are further classified as shallow, hard-packed floors; associated burials; storage areas; large caliche/clay floors; and deep, exposed, pigment layers. Calcium carbonate occurs naturally on the mesa and was readily available. Twenty-five depressions were identified by backhoe trenching and excavation grading. DP#15 was a shallow area, 4 cm deep and 6 m in diameter with one identified post-hole, identified as a possible dance floor. DP#7 was a burial on the outer edge of the feature concentration with evidence of excavation through an earlier cultural level. DP#17 was defined as a storage feature in the core area of the site. It was 5 to 6 m in diameter and 80 to 110 cm deep. A large caliche-floored feature (DP#4a/4b) was slightly removed from the main concentration and had two chambers. There was evidence of two occupations, and this was also the area of the cogged stone cache and burial. DP#1 was a lined hearth that included FAR and burned animal bones. Many pigments are still visible in the bluff and were used extensively on artifacts. The depressions were found to date to the same period as the *Olivella* beads and burials. Overall, there appear to have been three different occupations.

Stratigraphic profiles provide evidence of natural features, including rodent burrows and seismic fault lines. Rodents are active in an upper grazing area, the vegetation root zone, and their lower living tunnels at 200 to 210 cm. At the time of the earliest identified occupation at the site, the shorefront would have been a considerable distance from the bluff, gradually coming closer during the period of glacial melt. Dr. Wiley noted how the shells and beads changed along with the change from an ocean to a bay environment.

PCAS Program Chair Joe Hodulik with February speaker Dr. Nancy Anastasia Wiley.
**FEBRUARY BOARD MEETING SUMMARY**

President Scott Findlay called the meeting to order at 7:07 pm at the Old Orange County Courthouse, Santa Ana, California. Board members present: Bob Brace, Linda Christison, Gail Cochlin, Sherry Gust, Joe Hodulik, Hank Koerper, Kathleen Shada, and Jane Gothold. Members present: Rene Brace and Megan Galway.

The January 2012 minutes were approved. The treasurer’s report and expenditures were approved. Bob Brace reported that Chase Bank is increasing the minimum balance required for a fee waiver and asked the board to approve moving our checking account to a new bank – recommending Wells Fargo. The board approved his request. Our secretary will prepare a board action letter for this new account.

Testing of our digital archive server is still pending. Jane Gothold has books from the Lavinia Knight collection ready to shelve and is ready for the commemorative bookplates. Galway will forward the draft design to Sherri Gust to format and print the first 100 labels.

The board discussed “Legacy Gifting,” and Rene Brace will prepare a short notice for the newsletter, suggesting that members consider including PCAS in their estate planning. Mark Roeder will continue to check with Jim Brock’s brother regarding the return of a set of Quarterly issues, loaned to Brock for outreach activities after his library burned in Sawtooth Complex Fire. The Orange County Archives has asked for the donation of any Orange County historical society newsletters we may have in our files and that we have no real use for. Jane Gothold will do this. The board will also review the EIRs we have on file and offer any that do not directly relate to our collections. All this material will continue to be available through the OC Archives.

The inventory of ORA-83 is complete and the next project is to handle a number of small collections, beginning with ORA-189 (Buck Gully #2). Joe Hodulik’s Donation/Award table generated $140 in February! Joe Hodulik reported our June speaker has cancelled, and he is currently looking for a replacement. Brian Steffensen has expanded the capacity of the February 25th Weir Canyon hike to 20 participants. The March field trip will be to the Mojave Preserve the weekend of March 17-19. Quarterly Volume 46, Numbers 1 & 2, is still expected to be published in March.

The meeting was adjourned at 8:02 pm.

---

**PCAS Curation**

March Curation Workday

When: March 10, 2012  
Time: 1 pm  
Where: Red Car Building

We have finished the inventory and rebagging of the PCAS ORA-83 collection. Curation volunteers matched the Cogged Stone site collection artifacts with those described by reports in past issues of the *PCAS Quarterly*. Our work on this collection was made more interesting by the series of Bolsa Chica lectures Dr. Wiley is presenting at PCAS meetings. Next, we plan to work on a series of small collections.

Everyone is welcome. Please contact Mark Roeder (714-299-4150, curator@pcas.org) or Rene Brace (714-544-6282, info@pcas.org) for directions and to let us know you will be coming.

---

**March Speaker (continued from p. 1)**

correspond with findings at other Milling Stone, Intermediate, and Late Prehistoric sites in the broader region with exploitation of a marine and marsh environment, along with woodland and grassland on the Tustin Plain and in the Newport Bay area.

Mr. Matthew Wetherbee is an archaeologist with 10 years experience in archaeological practice throughout southern California and Egypt, as well as in cultural resources management (CRM), including prehistoric and historic archaeology and Native American consultation. He earned a Master’s of Science degree in the Paleoeconomy of Human Societies from the Institute of Archaeology, University College, London, where he focused his studies on archaeology and zooarchaeology. He has planned and directed cultural resources literature searches, archaeological field surveys, testing and evaluation and data recovery programs, site recordation and mapping, Native American consultation, and construction monitoring for small and large-scale projects. In addition, Mr. Wetherbee has been conducting faunal analysis throughout California for the past eight years. His vast experience includes the analysis of faunal assemblages from excavations throughout southern California and Egypt. His studies in California have contributed to the knowledge of the use of vertebrate remains to study subsistence strategies of prehistoric peoples in the Coachella Valley as well as hunter-gatherer societies on Bolsa Chica Mesa and in the Tomato Springs area.
MORE ON CRYSTALS (Part 2)

Henry C. Koerper

Possible Mimicry of Rainbows: Additional Food for Thought

Given the prominence of quartz crystals and crystal imagery in regional Native cultures (e.g., Applegate 1978:54; Hudson and Underhay 1978:49; Hudson and Blackburn 1986:154; Walker and Hudson 1993:53; Koerper et al. 2006; Koerper 2012), it stretches credulity to suppose that the mineral had gone undiscovered as a natural prism that might elicit bands of vibrant colors from the sun’s white light. Mimicry of a rainbow requires only an effective concordance between a crystal held up to the earth’s star and a shaded, light-reflecting “screen” such as, say, the concave surface of the valve of a Giant Egg cockle (see figure).

Hudson and Underhay (1978:49) indicated that Chumash used quartz crystals to produce the visible light spectrum, but neither of their implied authorities, Hoover (1975) and Bean (1976:414), had actually reported such. Perhaps Hudson and Underhay’s authority was J. P. Harrington, but if so, they were remiss in not citing the Smithsonian scholar.

Supposing rainbow mimicry had actually been a regional culture trait, perhaps the prisms were those crystals set atop shamans’ wands and *sivut paviut* artifacts (see Sparkman 1908:211; DuBois 1908:98; Heye 1921:94, Plate 59a; Gifford 1940:173, 214 [K1]; Orr 1947:119, 131; Hoover 1975). The wands pictured in Burnett (1944:50-52, Plates 56-58) are unequivocally bogus. Unfortunately, Hoover (1975:108-109) seems to have conflated two distinct kinds of artifacts, shamans’ wands and sunsticks, in the final paragraph of his otherwise informative essay.

Possible Mimicry of Lightning: Some Last Food for Thought

Triboluminescence refers to production of luminescence through friction usually involving crystalline substances. Years ago, to demonstrate triboluminescence for my Cypress College students, in a darkened classroom, I would rub two large crystals together followed by streaking the tip end of one crystal across the face of another. In the first instance there occurred an eerie glow, and in the second instance there appeared a very bright but fleeting linear shaft of “lightning.” I would further point out the damage done to crystals in such exercises while admonishing any future archaeologists among the group not to infer that a quartz crystal exhibiting use wear, particularly at its tip, necessarily indicated a utilitarian purpose (e.g., drilling). I had thought it likely that at least some Native Californians had observed triboluminescence involving crystals, and it was easy to imagine possible applications of these wondrous light shows to magico-religious purposes.

Spectrum cast onto a shell.

If production of crystal “lightning” had indeed taken place in ritual performances, such would have played out best in dark places, settings perfect for shamanic legerdemain. Interestingly, Chumash held that lightning bolts entering the ground accounted for the existence of quartz crystals (Hudson and Blackburn 1986:154).

On a final note, do not accept Kroeber’s (1925:249-250) assertion that precontact Pomo understood how to make fire by rubbing together or striking together lumps of quartz and showering the sparks onto tinder. This will not produce fire.

References

Applegate, R. B.

Bean, Lowell

Blackburn, Thomas

Burnett, E. K.

Driver, Harold E.

DuBois, Constance G.

Frazer, James

(Continued on p. 5)
More on Crystals (Continued from p. 4)

Gayton, Anna H.
1948 *Yokuts and Western Mono Ethnography*. University of California Anthropological Records 10(1). Berkeley.

Gifford, Edwin W.

Heye, George G.

Hoover, Robert

Hudson, Travis, and Thomas C. Blackburn

Hudson, Travis, and Ernest Underhay

Koerper, Henry C.

Koerper, Henry C., Nancy Anastasia Desautels, and Jeffrey S. Couch

Kroeber, Alfred L.

Orr, Phil C.

Sparkman, P. S.

Voegelin, Erminie W.

Walker, Phillip L., and Travis Hudson

Whitley, David S.

March 2012

PCAS Newsletter

Vol. 51 No. 3

March Field Trip

When: March 17-19, 2012

Where: Mojave National Preserve

Join PCAS members on this three-day field trip. We plan to visit prehistoric and historic archaeological sites and several rock art sites. Spring equinox is March 19, and we hope to observe solar interaction at Counsel Rocks.

Please sign up for this field trip by contacting Scott Findlay at 714-342-2534 or fieldtrips@pcas.org. Please be aware that you will be required to sign a code of ethics and waiver of liability, which acknowledges that some areas we plan to visit have inherent natural dangers. If you are unable to attend a field trip for which you have signed up, contact Scott as soon as possible. For contact the day of the field trip, call cell phone 714-342-2534.

2012 PCAS Scholarships and Grants

Help us spread the word about our undergraduate scholarships. We have two $750 awards available. Students must be majoring in Anthropology, entering their junior or senior year this fall, and residents of or attending schools in California. Complete eligibility guidelines and application forms are available on our website at www.pcas.org/scholarship. Questions should be directed to scholarships@pcas.org.
DIG THIS...

Exhibits


Lectures


Seth, the Evil God of Power and Light, by Dr. Eugene Cruz Uribe (Northern Arizona University), March 10, 1:30 pm; and Life and Death in the Pyramid Age: The Old Kingdom at Emory University, by Dr. Peter Lacovara, (Michael C Carlos Museum), March 24, 1:30 pm. Both are ARCE lecture, Bowers Museum. Free. Information: www.bowers.org or 714-567-3677.

Publication

Archaeology and Indigenous Peoples – Pimu Catalina Island Archaeology Project, by Wendy Teeter (Curator of Archaeology, UCLA Fowler Museum), Desiree Renee-Martinez (Gabrieliño, Cogstone Resource Management archaeologist), and Cindi Alvitre (Tongva, Co-founder/Director, Ti'at Society). Western Science Center, Hemet, March 15, 7 pm. Fee: $8; members free. Information: 951-791-0033 or www.westerncentermuseum.org.

Chinigchimish - Early Southern California Indian Religion, by Justin Farmer, a lecture of the Native American Institute. Orange Education Center, 1465 N. Batavia Street, Orange, March 16, 7 pm. Free. Information: www.ocnai.org or 714-879-1337.

The Great Cave Paintings of Baja California, by Ronald Smith (President, ARARA), an AIA, Orange County Chapter, lecture. De Naault Auditorium, Grimm Hall, Concordia University, Irvine, March 18, 2-4 pm. Fee: $5; members free. Information: http:aia-oc.org.

Classes, Meetings, and Events

The 46th Annual Meeting of the Society for California Archaeology will be held March 29-April 1 at the Town and Country Resort and Conference Center, San Diego. Information and registration: www.scahome.org.

Publications

Dancing to Heaven - Star Traditions of the Acjachemem, Part 1 in News from Native California, 25(2), Winter 2011/12, by Stephen O’Neil (PCAS Native American Liaison); illustrations by L. Frank. The article will be continued in the Spring 2012 issue.

Editor’s Note: Please confirm time and place of listing prior to the event. Submit items for Dig This to newsletter@pcas.org.
PCAS CODE OF ETHICS

The Pacific Coast Archaeological Society (PCAS) is a non-profit group of professional and avocational people dedicated to proper management of our cultural resources, public education, and the protection and preservation of archaeological materials and collections.

The following principles have been adopted by the PCAS:

1. Professional methods and forms will be used on all archaeological field surveys, excavations, and laboratory sessions.
2. A complete record of field and laboratory work will be filed with the PCAS Curator and stored at a facility approved by the Society’s Board of Directors.
3. No archaeological materials will be removed without proper permits, landowner permission, and a field research design.
4. Unless otherwise legally stipulated before activity commences, all materials collected will be deposited for further research with the Curator at a facility approved by the Society's Board of Directors.
5. All generated reports will be the property of the Society and distributed as deemed appropriate.
6. All Society field activities will be performed only under the direction of a qualified field archaeologist (Principal Investigator) and the supervision of field or site directors.
7. The above principles will be observed on both Society approved projects and projects performed under the direction of an authorized institution or organization.
8. The Society and its members will strive to educate the public of the importance and proper management of our non-renewable cultural resources and to discourage the collection and commercial exploitation of archaeological materials.
9. PCAS members shall not benefit from the acquisition, purchase, sale, or trade of archaeological artifacts, materials, or specimens.
10. All members shall adhere to City, County, State, and Federal antiquities laws.

PCAS SPEAKER CALENDAR

April 12, 2012
Stephen O’Neil
The Cave of Áy-li-ca and Acjachemen
Traditional Knowledge

May 10, 2012
Dr. Nancy Anastasia Wiley
Bolsa Chica Archaeology
Part Seven: Culture and Chronology

June 14, 2012
To be announced

September 12, 2012
Dr. Alan Gold

October 11, 2012
Dan Reeves

Founded in 1961, PCAS is now the oldest continually operating archaeological society in California.

Help to secure the future of PCAS by considering a legacy gift when you next update your will or trust. Scholarships, curation, and outreach events can all be enriched with your charitable donation.

PCAS is a 501(c)(3) organization.
2012 PCAS BOARD MEMBERS AND COMMITTEE CONTACTS

<table>
<thead>
<tr>
<th>Office</th>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>*President</td>
<td>Scott Findlay</td>
<td><a href="mailto:president@pcas.org">president@pcas.org</a></td>
<td>714-342-2534</td>
</tr>
<tr>
<td>*Vice-President</td>
<td>Joe Hodulik</td>
<td><a href="mailto:vicepresident@pcas.org">vicepresident@pcas.org</a></td>
<td>949-300-1864</td>
</tr>
<tr>
<td>*Secretary</td>
<td>Kathleen Shada</td>
<td><a href="mailto:secretary@pcas.org">secretary@pcas.org</a></td>
<td>714-381-8182</td>
</tr>
<tr>
<td>*Treasurer</td>
<td>Bob Brace</td>
<td><a href="mailto:treasurer@pcas.org">treasurer@pcas.org</a></td>
<td>714-544-6282</td>
</tr>
<tr>
<td>*Historian/Librarian/Archivist</td>
<td>Jane Gothold</td>
<td><a href="mailto:librarian-archivist@pcas.org">librarian-archivist@pcas.org</a></td>
<td>562-947-6506</td>
</tr>
<tr>
<td>*Quarterly Coeditor</td>
<td>Henry Koerper</td>
<td><a href="mailto:publications@pcas.org">publications@pcas.org</a></td>
<td>714-633-9287</td>
</tr>
<tr>
<td>*Quarterly Coeditor</td>
<td>Sherri Gust</td>
<td><a href="mailto:publications@pcas.org">publications@pcas.org</a></td>
<td>714-245-0264</td>
</tr>
<tr>
<td>*Refreshments</td>
<td>Gail Cochlin</td>
<td><a href="mailto:refreshments@pcas.org">refreshments@pcas.org</a></td>
<td>714-997-0852</td>
</tr>
<tr>
<td>*Voting member</td>
<td>Linda Christison</td>
<td><a href="mailto:lindachristison@pcas.org">lindachristison@pcas.org</a></td>
<td>209-777-2613</td>
</tr>
<tr>
<td>Curator</td>
<td>Mark Roeder</td>
<td><a href="mailto:curator@pcas.org">curator@pcas.org</a></td>
<td>714-299-4150</td>
</tr>
<tr>
<td>Donation-Awards Coordinator</td>
<td>Joe Hodulik</td>
<td><a href="mailto:donation-awards@pcas.org">donation-awards@pcas.org</a></td>
<td>949-300-1864</td>
</tr>
<tr>
<td>Field Trips</td>
<td>Scott Findlay</td>
<td><a href="mailto:fieldtrips@pcas.org">fieldtrips@pcas.org</a></td>
<td>714-342-2534</td>
</tr>
<tr>
<td>Membership</td>
<td>Megan Galway</td>
<td><a href="mailto:membership@pcas.org">membership@pcas.org</a></td>
<td>714-539-6354</td>
</tr>
<tr>
<td>Native American Liaison</td>
<td>Steve O’Neil</td>
<td><a href="mailto:nativeamericanliaison@pcas.org">nativeamericanliaison@pcas.org</a></td>
<td>949-548-7934</td>
</tr>
<tr>
<td>Newsletter Editor</td>
<td>Sherri Gust</td>
<td><a href="mailto:newsletter@pcas.org">newsletter@pcas.org</a></td>
<td>714-245-0264</td>
</tr>
<tr>
<td>Publicist</td>
<td>Joe Hodulik</td>
<td><a href="mailto:publicity@pcas.org">publicity@pcas.org</a></td>
<td>949-300-1864</td>
</tr>
<tr>
<td>Scholarship</td>
<td>Megan Galway</td>
<td><a href="mailto:scholarship@pcas.org">scholarship@pcas.org</a></td>
<td>714-539-6354</td>
</tr>
<tr>
<td>Website</td>
<td>Rene Brace</td>
<td><a href="mailto:info@pcas.org">info@pcas.org</a></td>
<td>714-544-6282</td>
</tr>
</tbody>
</table>

*Denotes PCAS Board Member

PACIFIC COAST ARCHAEOLOGICAL SOCIETY
2012 Calendar Year Membership and Subscription Form

Name(s): ____________________________________________
Address: ___________________________________________
City: _____________________________________________ State: ________ Zip Code ________
Phone: ___________________________________________ Email: ____________________________

☐ Yes, I would like to receive my Newsletter by email. Please be sure email above is legible.

I have read and agree to abide by the PCAS Code of Ethics ____________________________ Signature

**Membership** (Includes Quarterly/Newsletter) **Subscription Only** **Scholarship Fund**

☐ Active Member - $45
☐ Family Membership - $50
☐ Supporting Member* - $55
☐ Donor Member* - $75
☐ Lifetime Member* - $1000

* May be individual or family membership

□ Quarterly - $37
□ Newsletter - $18
□ Donation $________
□ Student Associate - $10 (email Newsletter only)

Return form with payment to:
PCAS Membership
PO Box 10926
Costa Mesa, CA 92627-0926

www.pcas.org