SEPTEMBER PCAS SPEAKER

Dr. Steven J. Waller

*Cave Art to Stonehenge: Artifacts of Mythical Beliefs Arising from Auditory Illusions of the Supernatural*

Sound phenomena perplexed pre-scientific cultures lacking wave theory. Echo myths suggest virtual acoustic images were perceived as supernatural non-corporeal agents. Similarly, destructive interference can be modeled as virtual sound attenuators casting acoustic shadows. Prehistoric cave paintings, canyon petroglyphs, megalithic monuments, and related myths of echo spirits and mag- ic pipers are analyzed as evidence for ancient veneration rites tied to particular archaeological soundscapes.

(Continued on p. 3)

DINNER WITH THE SPEAKER

Please join this month’s speaker, Dr. Steven Waller, and PCAS members for dinner before the September 12th 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*

September 12 - 7:30 pm

Speaker: Dr. Steven J. Waller

Topic: *Cave Art to Stonehenge: Artifacts of Mythical Beliefs Arising from Auditory Illusions of the Supernatural*

Location: IRWD Community Room
15500 Sand Canyon Ave, Irvine

The Irvine Ranch Water District neither supports nor endorses the causes or activities of organizations that use the District’s meeting rooms which are made available for public use.

BOARD MEETING

*All Members Welcome*

September 19 - 7:00 pm

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

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This is the combined August/September Newsletter.
JUNE SPEAKER NOTES

The Murals of San Bartolo:
Olmec Presence in the Preclassic Maya Peten

Submitted by Megan Galway

Celso Jaquez began his presentation by recounting the discovery of the San Bartolo murals in 2001 by Dr. William Saturno in northeastern Guatemala. Suffering from dehydration, Dr. Saturno took shelter in a looter’s trench. Looking at the trench wall, he saw portions of a mural, including an image of the Maize God. This mural is now the focal point of the Preclassic Maya site of San Bartolo located in the Department of Petén, Guatemala. Much of the San Bartolo mural iconography directly descends from Olmec cosmology.

Mr. Jaquez discussed the 60-year debate over Olmec influence in the Maya Preclassic period and argued that there was at least a shared cosmology between the two cultures. In the early Maya Preclassic period there was rapid population growth and “maize was life.” The associated depictions of this life include those identified as the Maize God, rain, and jaguars. An early Olmec depiction of the Maize God with a serpent has been dated to 1600 BC. The Olmec society was led by shamans who are often depicted in a transformative state, most often into a jaguar spirit. This demonstrated their supernatural abilities and association with the deities.

The Olmec site of La Venta, which dates to 600 BC, has altars and thrones that had been modified from earlier Olmec heads. One panel depicts a chief emerging and holding a Maize God, while side panels also include the Maize and Rain Gods. A large percentage of images depict genderless infants. The San Bartolo murals continued to use this iconography.

Mr. Jaquez also described a “Flowery Paradisal Realm,” a celestial paradise, replacing a previous dark, unpleasant underworld. He identifies certain symbols as “floral metaphors” associated with the ascent of souls, and identifies this symbolism as dating to 800 BC and appearing consistently for 2000 years. Depictions of serpents—beings of breath and wind—are identified with a person’s “Breath Soul” or life essence.

September Field Trip

Where: Southern Utah (Kanab area)
When: September 28, 2013

Contact Scott Findlay (fieldtrips@pcas.org or 714-342-2534) for additional information and to sign up for this field trip.

PCAS BOARD NOMINATIONS

The Nominations Committee—composed of Bob Brace, Gail Cochlin, and Hank Koerper—requests that members interested in serving on the PCAS Board of Directors contact a committee member. The committee is seeking candidates willing to take an active role as a member of a working Board of Directors and who will attend Board Meetings and General Meetings. A biography, not to exceed 125 words, must be submitted to one of the committee members no later than the September General Meeting, September 12, 2013. The submitted biographies will appear in the October PCAS Newsletter.

At the November General Meeting, PCAS members will elect three Board Members who will serve three-year terms. At this election meeting, nominations may be made from the floor by any member, with the prior consent of the nominee.

Please contact: Bob Brace (treasurer@pcas.org), Gail Cochlin (refreshments@pcas.org), or Hank Koerper (publications@pcas.org).
JUNE BOARD MEETING SUMMARY

Submitted by Brian Steffensen

President Megan Galway called the meeting to order at 7:05 pm at the Old Orange County Courthouse in Santa Ana, California. Board members present: Bob Brace, Gail Cochlin, Sherri Gust, Joe Hodulik, Hank Koerper, Steve O’Neil, and Brian Steffensen. Members present: Scott Findlay, Rene Brace, and Kathleen Shada.

The Board approved the minutes of the May 2013 meeting. The Treasurer’s report and expenditures were approved.

The June 6 Garfield School Archaeology Day outreach program was a huge success. Volunteers included members, friends, and family. A demonstration of the making of coiled clay pottery may be added next year. An email flier for the July 11, 2013 PCAS Annual Picnic at Irvine Regional Park will be sent to members at the end of June. There will be no board meetings in July or August.

Bob Brace, Gail Cochlin, and Hank Koerper were appointed to the Nominations Committee to present Board Member candidates for the November election. Attendees at the monthly meetings will be asked to hold questions until the end of the lectures. This will avoid delay and disruption of the presentations. The sign-in table was discussed and appears to be an effective way to greet attendees.

The next curation workday will be July 13. Joe Hodulik’s Award-Donation table raised $133 for the scholarship fund at the June meeting! Field Trip Chair Scott Findlay reported that there is a field trip to San Juan Capistrano on June 22 which will include visits to the Blas Aguilar Adobe Museum, the mission, and time permitting, the Los Rios Historic District. Additionally, Findlay is planning a multi-day field trip to Utah in late September.

Editor Hank Koerper stated that a PCAS Quarterly double-issue (48:3&4), “Assessing the Contributions of Malcolm J. Rogers,” will be published this summer. Don Laylander served as guest editor. Several more Quarterly issues are in the planning stages including a double-issue on coggd stones.

The meeting was adjourned at 7:45 pm.

September Speaker (continued from p. 1)

Just as virtual images appear within a mirror due to light reflection, virtual sound sources can seem to originate deep within a cliff due to sound reflection. Modern ray tracing modeling takes advantage of the fact that sound reflections from a surface are mathematically identical to sound waves emanating from virtual acoustic sources behind the reflecting plane. Myths around the world attest to beliefs that echoes were spirit voices calling out from rocks. Acoustic measurements support the hypothesis that ancient rock art locations were deliberately chosen for their sound reflection characteristics and decorated with images that relate to the echo spirits believed to dwell there. Furthermore, thunderous reverberation at rock art sites relates ungulate iconography to myths of thunder gods galloping across the sky, as well as thunderbirds, etc.

In a similar auditory illusion, sound attenuation caused by destructive wave cancellation from two sound sources can be misperceived as acoustic shadows. Interference patterns can be modeled by virtual sound-blocking objects perturbing the ambient sound. To people unaware of wave cancellation and reinforcement, the pattern of dead zones alternating with loud zones would have been completely mysterious, hence magical. Experiments with two flutes demonstrate that blindfolded participants can misinterpret the interference patterns as acoustic shadows cast by a ring of "pillars" similar to Stonehenge. This auditory illusion of unseen massive objects can be categorized as delusional perception, in which correctly sensed physical phenomena were given some additional interpretational significance. Myths of walls of air forming invisible towers, and two magic pipers who caused the formation of stone rings, provide additional clues. Measurements of the actual acoustic shadows radiating outward from Stonehenge are quantitatively and geometrically similar to a two point sound wave interference pattern. These data support the new theory that sound wave interference patterns were attributed to massive invisible objects and that this "vision" of a ring of magic stones served as a blueprint for Stonehenge.

See http://sites.google.com/site/rockartacoustics/ for details including photos and sound clips.

Steven J. Waller, Ph.D. (Biochemistry/Biophysics, 1981, UVA) has conducted acoustical research for 30 years. Experiencing the sonic environment of prehistoric cave art in 1987 led him to realize that echoes, which inspired myths about spirits living in rock, could also have inspired decoration of echoing rock surfaces with images of these echo spirits. His Rock Art Acoustics theory has been featured in Nature, New Scientist, WSJ, Archaeology, Discover, and on the BBC. Steve advocates preservation of archaeological soundscapes.
A C-14 Date for Level 2 at the Malaga Cove Site

Henry C. Koerper

The April 2013 PCAS Newsletter carried an article focused on CA-LAN-138 radiocarbon dates. In it, Desautel-Wiley and Koerper (2013) drew attention to a little known letter that reported three LAN-138 dates on shell samples submitted by William Wallace to the UCR Radiocarbon Laboratory (R. E. Taylor to W. J. Wallace, letter, 18 January 1994). The article also referred to Sutton and Grenda’s (2012:138-139) discussion of four other LAN-138 dates. None of the seven C-14 assays can be assigned to Walker’s (1937, 1951) Level 2.

Level 2 presented an enigma. Did its artifacts bespeak any phase of the Encinitas Tradition (see Sutton and Gardner 2010)? Did Level 2 contain manifestations of some phase or phases of the Del Rey Tradition (see Sutton 2010)? Could Level 2 have contained a mix of both Middle Holocene and Late Holocene cultural remains?

Previously overlooked pre-WWII documents (a manuscript, letters, and photographs) relating to the relic collecting of Thomas Peter Tower, as well as artifacts he recovered at the Malaga Cove site, are now receiving close attention. They offer information and data that coupled with a recently run AMS date indicate that Del Rey Tradition culture occurred within Level 2. The AMS determination was derived from a single *Olivella* Barrel Type (B3) bead (see Bennyhoff and Hughes 1987:121-122, 149; also King 1990:107; Gibson 1992:27).

A grandson of Thomas Tower donated the bead for assay. Beta Analytic Inc. generated a measured radiocarbon age, or uncorrected age, of 930 ±30 BP. The conventional radiocarbon age is 1360±30 BP. Adjusted for local reservoir correction, the date becomes Cal BP 1580±50 (D. Hood to H. Koerper, letter report, 24 May 2013). This adjusted age falls to around the interface of the Angeles II and Angeles III phases of the Del Rey Tradition, close to when bow and arrow technology first appeared in coastal Shoshonean territory, as evidenced by Marymount or Rose Spring projectile points (see Sutton 2010:8, Table 1).

The larger story surrounding Level 2 deserves a journal-length article. Such a study is in progress, but for now suffice it to say that Thomas Tower’s Stratum 3 unequivocally equates with Walker’s Level 2 and that it was in one of the Stratum 3/Level 2 interment features that the bead was discovered among a grouping of at least 33 other Barrel beads (Figure 1). Other mortuary furniture included a *Haliothis* dish, a *Cardium elatum* shell, two geometrically incised tablets, and two bifaces.

References Cited

Bennyhoff, James A., and Richard E. Hughes

Desautel-Wiley, Nancy Anastasia, and Henry C. Koerper

Gibson, Robert O.

King, Chester D.

Sutton, Mark Q.

Sutton, Mark Q., and Jill K. Gardner

Sutton, Mark Q., and Donn R. Grenda

Walker, Edwin Francis

ARCHAEOLOGY DAY 2013 AT GARFIELD ELEMENTARY SCHOOL

The June 6th PCAS outreach at Garfield Elementary was a huge success! The PCAS Curation Facility, the Red Car Building, is on the grounds of Garfield in Santa Ana. PCAS volunteers presented six activities to 5th grade students who rotated through the activity stations. Although construction around the Red Car Building necessitated moving the activities to a lawn area in front of the school, with the assistance of school personnel, the event went on without any problems.

The students were interested and engaged, and they were a pleasure to work with. We thank Garfield principal, Mrs. Linda DeLeon, and all the 5th grade teachers for welcoming this event.

This event would not have been possible without our volunteers: Judy Bernal, Tom Bogdan, Bob and Rene Brace, Gail Cochlin, Dorothy Degennaro, Scott Findlay, Megan Galway, Ardy Haworth, Rene Horneman, Hank Koerper, Jennifer Rampone, Teresa Rampone, Mark Roeder, and Kathleen Shada, and Brian and Emily Steffensen.
Exhibits


Lectures

**The Cave of Áy-í-í—Spirits and Tides Along the Orange County Coast**, by Stephen O’Neil, will present the story of a sea cave that is part of the Acjachemen link to the ocean, shamanic practices, and cosmological beliefs. An Orange County Natural History lecture, Back Bay Science Center, 600 Shellmaker Rd, Newport Beach, September 4, 7 pm (gates open at 6:30 pm; no admission after 7:15). Free. Reservations encouraged: tidepools@newportbeachca.gov. Information: www.backbaysciencecenter.org/lecture-series/.


**Beneath the Sands of Egypt: An Archaeologist Explores the Valley of the Kings**, by Dr. Donald P. Ryan, an AIA, Orange County Society, lecture. September 29, 2 pm, DeNault Auditorium in Grimm Hall, Concordia University. Fee: $5; members and students free. Information: http://aia-oc.org.

Websites

Visit www.pcas.org for all the latest news
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

October 10, 2013
Jeremy Coltman
On the Dark Side of the Cosmos: Witchcraft, Sorcery, and Religion in the Mesoamerican World

November 14, 2013
Dr. Brian Dervin Dillon
AQUÍ NACIÓ EL MUNDO: Takalik Abaj, Guatemala, and Early Mesoamerican Civilization

December 12, 2013
Don Christensen
Rock Art and the Cultural Landscape: A Study in the East Mojave

PCAS members enjoyed good weather and great food at the July 11th Annual Picnic. Thanks to everyone who brought dishes to share!
# 2013 PCAS Board Members and Committee Contacts

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*Denotes PCAS Board Member

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**PACIFIC COAST ARCHAEOLOGICAL SOCIETY**

2013 Calendar Year Membership and Subscription Form

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Address: ____________________________________________

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☐ 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**

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