

# glyphs

The Monthly Newsletter of the  
Arizona Archaeological and Historical Society

Vol. 70, No. 6

March 2020



*Examples of red archaeological paint cakes*

**Next General Meeting:**  
**March 16, 2020; 7:00 p.m.**  
**Environmental and Natural**  
**Resources 2 Building, Room S107**  
**1064 E. Lowell Street**  
**Tucson, Arizona**  
[www.az-arch-and-hist.org](http://www.az-arch-and-hist.org)

## **In This Issue**

- 2 President's Message
- 6 *Technologies of Capturing Color: Paint Practice and Its Analysis in the U.S. Southwest*, Kelsey Hanson
- 10 *Finding Power in Chaco Canyon: Season Two*, Jenny L. Adams, Catherine M. Cameron, and William B. Gillespie
- 14 Cornerstone

## President's Message

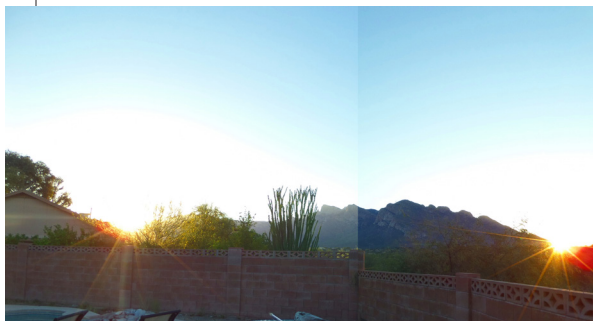
by John D. Hall

Spring is here (almost)! For me, spring is a wonderful time when leaves bud and flowers bloom. The force behind the changing plant cycles and weather, and thus, the changing seasons, is the angle of the sun in our sky. This year in the Northern Hemisphere, Friday, March 20 will be the spring (or vernal) equinox, marking the time when the sun rises directly east on the horizon, and that day will have an almost equal amount of daylight and dark. The spring and autumn equinoxes are also midway between the winter and summer solstice. At our latitude in Tucson, Arizona (about  $32^\circ$ ), the point on the horizon where the sun rises between the winter and summer solstice is significant. As an example, the photograph here shows this perspective. The sun rising along the left-hand side of the photograph

is the sun's position on the horizon for the summer solstice and the sun rising along the right-hand side of the photograph is the sun's position on the horizon for the winter solstice.

Tracking the seasons and tracing the sun's path on the horizon is likely one of the earliest

human observations into the cosmos. This endeavor extends back far beyond recorded history; however, early records do exist of how people documented the seasons. One of the most famous examples is Stonehenge in England. Perhaps one of the earliest examples of a solstice marker, the megaliths at Stonehenge were erected as early as 2000–3000 BC, and they are aligned in the direction of the summer solstice sunrise and the winter solstice sunset.

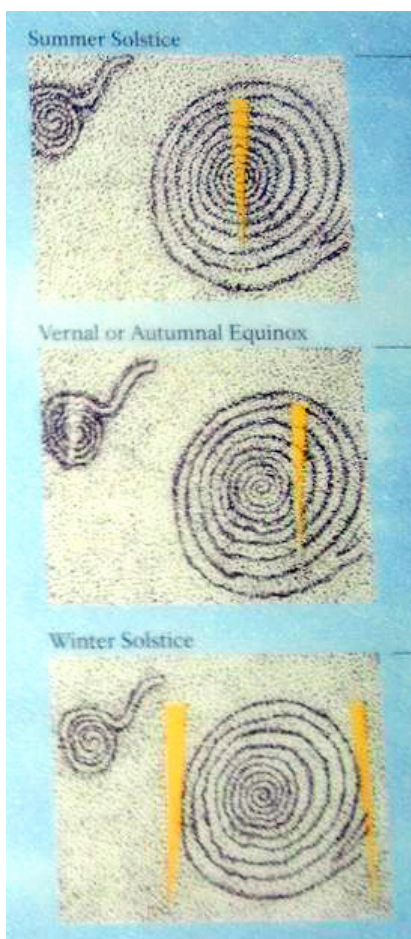


*Combined photographs showing the summer solstice sunrise (left) and the winter solstice sunrise (right) over the Catalina Mountains, Tucson, Arizona. View is to the east.*

One of the best-known solstice markers in the U.S. is the Sun Dagger petroglyph on Fajada Butte at Chaco Culture National Historical Park, New Mexico. On Fajada Butte, a spiral petroglyph was carved along a cliff face under a series of fallen boulders so that a sliver of sunlight would shine across the center of the spiral during the summer solstice, and two slivers of light frame the spiral for the winter solstice.

About 90 miles north of Fajada Butte is another fascinating astronomical marker, known as Chimney Rock. Chimney Rock is a Chacoan outlier located in southern Colorado; it was likely constructed sometime after AD 1000. The site consists of several small pueblos constructed on a high, narrow ridge. At the east end of the ridge are two prominent rock pinnacles.

A rare astronomical event, called the major lunar standstill, is visible rising between the two rock pinnacles from the main pueblo. The major lunar standstill occurs every 18.6 years and is characterized by the moon rising much further north on the horizon than usual. I first learned of Chimney Rock when I was studying archaeology as an undergraduate at Fort Lewis College in Durango, Colorado, only an hour drive west of Chimney Rock. To me, the sequence of events necessary for Chacoan people to have created



*Diagram of the Sun Dagger solstice and equinox marker on Fajada Butte, Chaco Canyon. (Image created by the National Park Service.)*

*(continued on page 4)*

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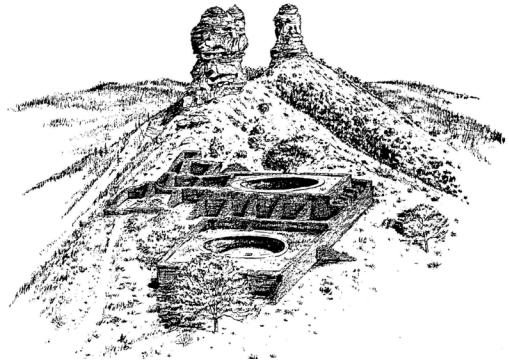
the astronomical observatory at Chimney Rock was fascinating (although to be fair, my professor Jim Judge was the one who described this to me).

Because the major lunar standstill occurs only every 18.6 years, someone around AD 1000 would

have had to witness the lunar standstill through Chimney Rock and understand its significance and timing. This person would then need to relay that information to others who also were knowledgeable about astronomical events. This information eventually would be disseminated to people with cultural ties to Chaco Canyon and who possessed the authority and incentive to build structures atop the Chimney Rock formation as an astronomical observatory.

Judge and Malville (2004) also speculated that the observatory at Chimney Rock functioned as a precise calendar for the regional Chacoan system. Tracking and predicting the seasons and other astronomical events would have afforded the inhabitants of Chimney Rock special knowledge and power. The harsh environment of the Chacoan region made agricultural pursuits difficult, especially for a large population, and the knowledge of seasons was an essential part of life.

Another important, but not well-known Chacoan solstice marker is located at Lowry Pueblo in southwest Colorado (Martin 1936). From the Great Kiva at Lowry Pueblo, the summer solstice sun appears to rise out of a conspicuous notch on the south side of Lone Cone Mountain. Lone Cone is a solitary mountain peak located about 40 miles northeast of Lowry Pueblo in the San Juan Mountains. As an undergraduate at Fort Lewis College, I did my archaeological field school at a site adjacent to Lowry Pueblo, and I was able to witness



*Drawing of Chimney Rock Pueblo. (Image created by the U.S. Forest Service [USFS 1988].)*

this summer solstice sunrise from the Great Kiva at Lowry! Clearly, the Chacoan people revered astronomical knowledge and integrated this knowledge into their architecture and settlement choices.

These days, observing the solstice and equinox does not require special expertise or observatories. For example, I anticipate and try to view each solstice and equinox sunrise (see photograph on page 2), and I'm not even a farmer! Even though I do not track the solstice and equinox by necessity, it does fill me with a sense of awe and respect for those who first calculated the seasons, and it reminds me of our connection to the universe and the delicate balance of life on this Earth.

Judge, W. James, and J. McKim Malville

2004 Calendrical Knowledge and Ritual Power. In *Chimney Rock: The Ultimate Outlier*, edited by J. McKim Malville. Lexington Books, Boulder.

Martin, Paul S.

1936 *Lowry Ruin in Southwest Colorado*. Anthropological Series Vol. 23(1). Field Museum of Natural History, Chicago.

U.S. Forest Service [USFS]

1988 Chimney Rock Archeological Area. Pagosa Ranger District, San Juan National Forest. Electronic document, <http://npshistory.com/publications/usfs/chimney-rock/archeological-area.pdf>, accessed January 2020.



## AAHS Lecture Series

All meetings are held in Room S107, Environment and Natural Resources Building, University of Arizona, 1064 E. Lowell Street  
Third Monday of the month, 7:00 p.m.

Apr. 20, 2020: Harry Winters, *O'odham Place Names Based on Rocks and Minerals*

May 18, 2020: Don Liponi, *The Prehistoric Rock Art of the Kumeyaay and Cahuilla Native American Shamans in the Southern California Deserts*

June 15, 2020: Steve James, *Chicken Bones on Pueblo Grande*



## March 16: Topic of the General Meeting

### *Technologies of Capturing Color: Paint Practice and Its Analysis in the U.S. Southwest*

Kelsey Hanson

The American Southwest is brilliantly colored. However, naturally occurring colors are not easily imparted into the material world. The ability to capture color from the natural world through paint requires deep cultural knowledge of geologic sources, processing requirements, and application techniques that remain severely understudied. In this lecture, I will contextualize paint practice as a technology. The production of paint is a sequence of combining colorants and binders—the recipes for which are remarkably diverse. Few have ventured to investigate the diversity of paint recipes and processing techniques represented by this important material class. The Arizona State Museum (ASM) boasts an extensive collection of more than 500 objects reflecting different stages of the paint production process from raw pigment to semi-prepared paint cakes.

I will then discuss the initial stages of a multi-year project to analyze the diversity of paint recipes manifest in prepared paint cakes



*Examples of red archaeological paint cakes with Munsell color chart sheets.*

in ASM collections and its implication for studies of craft specialization and identity manifest in multimedia paint practices in the U.S. Southwest. Preliminary results of complementary analyses (i.e., optical microscopy, X-ray fluorescence [XRF], Fourier Transform Infrared Spectroscopy [FTIR], and Raman spectroscopy) will be presented, the results of which will begin to shed light on the spatial, temporal, and technological diversity of approaches to capturing color.



*Streaks of experimentally produced paints.*

**Speaker Kelsey Hanson** is a Ph.D. candidate in the School of Anthropology at the University of Arizona. She is an anthropological archaeologist with broad interests in craft specialization, identity, performance, and religious practice. Ms. Hanson is currently engaging with these topics through the study of paint practice, drawing from disciplinary intersections among archaeology, ethnography, and conservation sciences to construct social histories of color production.

### **Suggested Readings:**

Munson, Marit K.

- 2019 Color in the Pueblo World. In *Color in the Ancestral Pueblo Southwest*, edited by M. K. Munson and K. Hays-Gilpin. University of Utah Press, Salt Lake City.

Odegaard, Nancy

- 1998 An Investigation of the Nature of Paint on Wood Objects in the Indigenous Southwest. In *Painted Wood: History and Conservation*, edited by V. Dorge and F. C. Howlett, pp. 255–267. The Getty Conservation Institute, Los Angeles.

*Follow AAHS on Facebook at [www.facebook.com/pages/Tucson-AZ/Arizona-Archaeological-and-Historical-Society](https://www.facebook.com/pages/Tucson-AZ/Arizona-Archaeological-and-Historical-Society)*

## Upcoming AAHS Field Trips

*Participation in field trips is limited to members of AAHS.  
There is generally a 20-person limit on field trips, so sign up early.*

### Some Petroglyphs of Saguaro West April 4, 2020

Join us for an early morning hike to see the rock imagery in King Canyon and Javelina Wash. For the past two years, an AAHS-affiliated group, "The Rock Band," led by Janine Hernbrode, has been recording the rock imagery in the park. Janine will share the discoveries made by the group. The two sites are very different, and this is a special opportunity to visit Javelina Wash, which is normally off-limits to the public and to explore King Canyon in depth.

The tour will involve about 3 miles of wash walking. Binoculars are essential for King Canyon. To sign up, email Katherine Cerino at [kcerino@gmail.com](mailto:kcerino@gmail.com).



Photo: Lance K. Trask

### Mimbres Sites and Pony Hills Petroglyphs May 22–24, 2020

Join us for a trip to Silver City and the Mimbres Valley led by Mimbres scholar Pat Gilman. We will arrive Friday afternoon or evening. For those who are able to come before 4:30 pm, there is the option of visiting the Mimbres pottery collection (probably the largest on display in the world) at the Western New Mexico University Museum in Silver City. The Deming Luna Museum in Deming is also worth a stop on the way to Silver City to view their Mimbres pottery. The museum closes at 4:00 pm.







That evening, we will have a group dinner with some guests from the Grant County Archaeological Society.

On Saturday, we will visit the Mattocks site, one of the dozen or so large Mimbres pueblos in the

Mimbres Valley. Pat was the crew chief for excavations at the site in the 1970s and has recently published a book analyzing the site. We will then walk a half mile to see some Apache pictographs, and we will stop at an overlook to view the location of the tragically destroyed Galaz site, one of the two ritual centers in the Mimbres Valley. Then, we will visit Old Town, at the south end of the valley, the second ritual center.

On Monday, as we head home, we will visit the Pony Hills Petroglyph site, northeast of Deming.

It is about a 3.5 hour drive to Silver City from Tucson. Silver City has some historic hotels and several of interesting restaurants. Camping is also available.

Both the Mattocks site and the Western New Mexico University museum have \$5.00 donations. To register for the trip, email Katherine Cerino at [kcerino@gmail.com](mailto:kcerino@gmail.com).

## NEW AAHS LOGO T-SHIRTS!

Just off the press, new 100% cotton AAHS Logo T-shirts are available! Regular cut in gray with black logo or beige with brown logo. Also available in a women's cut in red with white logo. Buy them from the AAHS website store (\$18) or at various AAHS events (\$15).



## Current Research

### *Finding Power in Chaco Canyon: Season Two*

Jenny L. Adams, Ph.D., Retired

Catherine M. Cameron, Ph.D., Emerita

William B. Gillespie, M.A., Retired

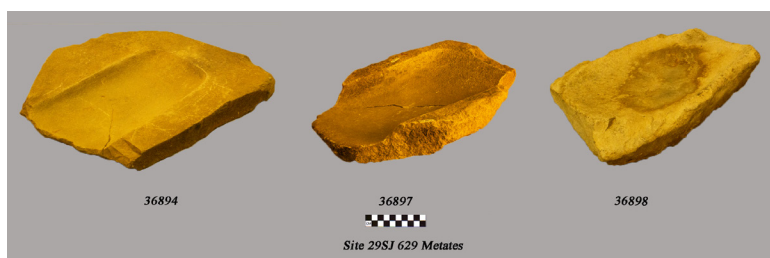
Funding from the AAHS supported a second year of research on Chaco Canyon ground stone. In 2018, Jenny Adams, Cathy Cameron, Bill Gillespie, and Steve Lekson traveled to the American Museum of Natural History (AMNH) in New York City on our first AAHS Scholarship and Research grant to study ground stone from Pueblo Bonito collected by George Pepper and the Hyde Exploring Expedition, 1896–1899 (see *Glyphs* March 2019). In December 2019, Jenny, Cathy, and Bill traveled to Albuquerque to study manos and metates housed at the Hibben Center on the University of New Mexico campus. The sampled artifacts were recovered from small sites excavated during the National Park Service’s Chaco Project in the 1970s. We hypothesized that tool design, wear amounts, and

percentage of secondary use differ between small sites and Pueblo Bonito.

Both Cathy and Bill worked for the Chaco Project. Cathy analyzed the manos, and John Schelberg, another member of the Chaco Project, studied the metates. Cathy recognized that most of the manos were used with trough metates (Figure 1), and John recognized that most of the metates had  $\frac{3}{4}$  troughs with only a few open troughs



Figure 1. Top: trough mano with two adjacent surfaces; bottom: trough mano with one grinding surface. (Bill Gillespie, photographer)



*Figure 2. Left: tabular  $\frac{3}{4}$ -trough metate; middle: block  $\frac{3}{4}$ -trough metate; right, block, open-trough metate. (Bill Gillespie, photographer)*

(Figure 2). Cathy categorized the manos by profile shape, which she recognized as indicative of how and how long the manos were used. Our reanalysis of manos she studied confirmed Cathy's impressions about shape and that a food grinder sometimes altered her grip on the mano, lifting one edge off the metate surface creating a second adjacent surface (see Figure 1, top).

John recognized that  $\frac{3}{4}$ - and open-trough metates did not reflect an evolutionary development toward increasingly efficient tools, which we all were taught at that time. He also identified two metate configurations—one made from tabular sandstone with a rectangular, relatively flat-bottomed trough and the second made from thick, blocky sandstone with a more concave trough (see Figure 2). John proposed that the thinner metates were intended to be propped at an angle within slab-lined bins.

Jenny's technological analysis approach recognizes  $\frac{3}{4}$ - and open-trough metates as designs made by different technological traditions. Open-trough metates were used by women south of Chaco, and  $\frac{3}{4}$ -trough metates were used by women indigenous to Chaco and the Four Corners area. Our analysis concluded that the thin metates were positioned flat on the floor and manos were worked with flat reciprocal strokes wearing the troughs uniformly flat. The blocky metates were positioned at an angle and the manos worked with rocking reciprocal strokes wearing a concave trough that deepens with repeated use.

*(continued on page 12)*

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Future plans include a trip to Chaco to examine metates warehoused there and to the National Museum where collections are housed from excavations at Pueblo Bonito by Neil Judd, 1921–1927. We need to expand and diversify our samples of mano, metates, and other artifact types until we have enough data to compare the representation of power in small sites and in Pueblo Bonito.

We owe a debt of thanks to Dr. Wendy Bustard, Museum Curator at the Hibben Center, and Lisa B. Hunter and Caroline C. Diemer, who facilitated our work there.



**In Memoriam**  
**RAYMOND HARRIS THOMPSON**

At the beginning of 1961, and after having graduated from Columbia University, I arrived at the University of Arizona to begin my graduate career. The first faculty member I met was Ray, ensconced in a tiny office under the stairs of the old Arizona State Museum building, before it was moved to the old University of Arizona library, and before the new anthropology building was constructed. Even though I was an anthropology major at Columbia, he suggested that I audit his introduction to archaeology class—it was a marvel. He had taught it for many years, and it was finely tuned and a perfect example of what a baseline introductory class should be.

Ray soon became the editor-in-chief of the flagship archaeology journal in the U.S., *American Antiquity*. It was an extremely taxing role, and I don’t believe he had a reduced teaching load.

Ray was noted for wearing his Phi Beta Kappa logo on his watch chain (along with the gray Hush Puppies he was also famous for), so at one Anthro Christmas party, a student posing as Ray at a faculty meeting arrived on stage hauling a huge and heavy fake chain with an enormous Phi Beta Kappa insignia on it.

What an intellect he was! This is especially surprising considering he grew up in a small New England traveling circus that his parents worked for. But, he got his Ph.D. from Harvard.

Even though I took the majority of my graduate classes from Emil Haury, who directed my dissertation, I took every class that Ray offered and enjoyed them tremendously, because they were always well researched and perfectly organized. Note-taking was a breeze.

After receiving my Ph.D., my contact with Ray diminished for a few years, but that changed when I was offered the Directorship of the Arizona State Museum in 1997. How proud I was following in the footsteps of two of my mentors, Emil Haury and Ray Thompson! Ray continued to mentor me at the Arizona State Museum, and I could always count on him for good advice, which he gave freely and which I desperately needed.

Ray will always be remembered as the scholar who built the great reputations of the University of Arizona Department of Anthropology and the Arizona State Museum.

*George J. Gumerman*

*Fourth Director of the Arizona State Museum (1998–2002)*

## USED BOOK SALE March 14–15, 2020

Come grab some used books! Once again, in conjunction with the Tucson Festival of Books, we will be set up in front of the Arizona State Museum with a ton of used books to sell. Lots of new archaeology, art, fiction, history, and so forth. All are very reasonably priced. This sale supports the Arizona State Museum Library.

If you would like to help during the sale or with set up or tear down, please contact Katherine Cerino at [kcerino@gmail.com](mailto:kcerino@gmail.com).





## Cornerstone

*Darlene Lizarraga, Director of Marketing  
Arizona State Museum*

### **Raymond H. Thompson 1924-2020**

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ASM Director Emeritus Raymond H. Thompson passed away on January 29 at the age of 95. His life was long, his career was distinguished, his impact far reaching, and his legacy immense. He will be missed by all who knew him as a friend, colleague, scholar, teacher, administrator, leader, and mentor. Anyone who has a career or interest in Arizona archaeology owes him a debt of gratitude.

You will find more about Dr. Thompson at  
<https://statemuseum.arizona.edu/about/raymond-h-thompson-1924-2020>  
and at  
<https://www.az-arch-and-hist.org/raymond-h-thompson>



This column, allotted to ASM, is called the *Cornerstone*, referring to the inextricable and foundational relationship between the museum and the society. Byron Cummings, ASM's first director, founded AAHS on 14 April 1916 with a mission dedicated to "the investigation and preservation of ancient ruins of Arizona and the development of the State Museum of Arizona at the University." In a speech delivered in 2016 to mark the 100th anniversary of AAHS, Dr. Thompson reminded us of this history:  
*Arch and Hist Ancestors*: <https://www.youtube.com/watch?v=EKFvOXKGonk>



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## AAHS Membership Application

Membership is open to anyone interested in the prehistory and history of Arizona and the Southwest and who support the aims of the Society. Membership runs for a full year from the date of receipt, and covers all individuals living in the same household. If you are joining as a household, please list all members of the household. Monthly meetings are free and open to the public. Society field trips require membership.

### Membership Categories

- ☐ \$60      **Kiva members** receive four issues of the Society's quarterly journal *Kiva* and 12 issues of *Glyphs*
- ☐ \$45      **Glyphs members** receive *Glyphs*
- ☐ \$35      **Student Kiva members** receive both *Kiva* and *Glyphs*
- ☐ \$100      **Contributing members** receive *Kiva*, *Glyphs*, and all current benefits
- ☐ \$150      **Supporting members** receive *Kiva*, *Glyphs*, and all current benefits
- ☐ \$300      **Sponsoring members** receive *Kiva*, *Glyphs*, and all current benefits
- ☐ \$1,500      **Lifetime members** receive *Kiva*, *Glyphs*, and all current benefits

*Note: For memberships outside the U.S., please add \$20. AAHS does not release membership information to other organizations.*

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You can join online at [www.az-arch-and-hist.org](http://www.az-arch-and-hist.org), or by mailing the form below to:

Barbara Montgomery, VP Membership  
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A A H S



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The objectives of the Arizona Archaeological and Historical Society are to encourage scholarly pursuits in areas of history and anthropology of the southwestern United States and northern Mexico; to encourage the preservation of archaeological and historical sites; to encourage the scientific and legal gathering of cultural information and materials; to publish the results of archaeological, historical, and ethnographic investigations; to aid in the functions and programs of the Arizona State Museum, University of Arizona; and to provide educational opportunities through lectures, field trips, and other activities. See inside back cover for information about the Society's programs and membership and subscription requirements.

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