

glyphs

The Monthly Newsletter of the
Arizona Archaeological and Historical Society

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Be part of AAHS@Home!

Until it is safe to meet again in person, AAHS is holding
monthly lectures and some field trips online.

Members will receive personal emails with details.
Up-to-date schedules and information are posted on:

AAHS Website: www.az-arch-and-hist.org
Facebook: www.facebook.com/ArchandHist



Next General Meeting:
September 21, 2020
7:00 pm

AAHS@Home (Zoom webinar)
www.az-arch-and-hist.org

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President's Message

by John D. Hall

The great naturalist Gary Nabhan once asked a Tohono O'odham youngster what the desert smells like to him. "He answered with little hesitation, 'The desert smells like rain.' His reply is a contradiction in the minds of most people. How could the desert smell like rain, when deserts are, by definition, places that lack substantial rainfall?" (Nabhan 1982:5–6). The boy's response shows the deep meaning and understanding the O'odham people have for the desert. Anyone who lives in the desert knows that when the rain falls after such a long dry period, the smells are intense and wonderful! However, the process that causes this smell is complicated.

In the Sonoran Desert, the oils secreted by creosote (*Larrea tridentata*) are synonymous with the smell of rain. Scientific research also has recognized an organic compound produced by bacteria that creates an earthy scent, called geosmin (Gerber and Lechevalier 1965). Recent research has identified a possible evolutionary explanation for the smell. A symbiosis exists between the bacteria that produce geosmin and springtails (*Collembola*), insect-like arthropods. Springtails are attracted to the geosmin, consume the bacteria, and spread the bacteria's spores, thereby propagating the bacteria (Becher et al. 2020). By coincidence, humans and other animals can detect this strong scent. When rain drops hit the ground, geosmin and other chemicals like creosote oils are released into the air, releasing that familiar smell of rain. This condition is pronounced when the rain falls on land that is exceedingly dry. What better describes the monsoon season in the Sonoran Desert!

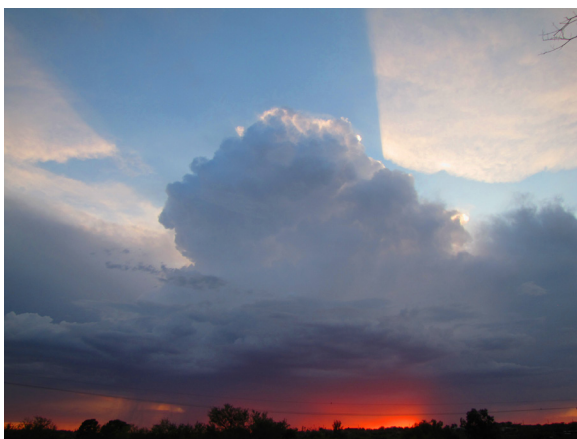
The Sonoran Desert in southern Arizona and northwestern Mexico is at its harshest in late June. Temperatures of 100–120° F are routine in the low desert. Typically, the end of June and the beginning of July (officially June 15 for Arizona, per the National Weather Service) marks the beginning of monsoon season in the U.S. Southwest and Northwest Mexico (Guido 2008).

Our sun is the engine of the monsoon. As the sun heats up the desert during the spring and summer, hot air rises into the atmosphere. At the same time, the sun has increased the surface ocean temperature off the coast of Baja California.

However, the ocean has a moderating

effect on temperature rise, thus creating a temperature imbalance between the desert and the ocean. This temperature imbalance becomes large enough that high altitude atmospheric winds change course, and moisture from the Gulf of Mexico is drawn northward by low altitude winds. When the moist air from the Gulf of Mexico hits the sunbaked land and mountain ranges in Arizona and New Mexico, the moist air ascends, expands, and cools. The air temperature falls below the dew point—the temperature below which the air can hold moisture—then condenses and becomes rain (Guido 2008:3). This cycle continues until the land becomes cool again in early fall.

By definition, the North American monsoon is not a true monsoon. Although the Southwest region experiences pronounced variability in seasonal precipitation, a true monsoon is defined as a complete reversal of prevailing surface winds (Rohli and Vega 2012:187). This scenario, or a true monsoon, occurs over southern Asian and is associated with seasonal weather patterns affected by the Himalayan and Hindu Kush Mountains and the Indian ocean. In fact, southern Asia has both a winter and a summer monsoon, differentiated by a complete reversal of wind patterns, which produces very different seasonal weather (Rohli and Vega 2012:183).



A thunderhead (cumulonimbus cloud) rises above the desert at sunset, near Tucson, Arizona.

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True monsoon or not, the people who live in the Southwestern U.S. or Northwest Mexico know and appreciate the North American 'monsoon.' Summer thunderstorms can be intense, with powerful winds, brilliant lightning shows, and heavy rain. Wash beds that have been dry for months can quickly become swollen with swift and dangerous floods. Arizona and New Mexico can receive half or more of their annual precipitation during these three months. The rain brings life to a hot and dry desert. Vegetation grows, humidity increases, and the cycle continues.

For me, the monsoon season is a wonderful time for the senses. The arrival of the monsoon is anticipated when the impressive thunderheads begin to accumulate above the horizon. The rains come and cool the landscape, and the sounds of the thunderstorms are soothing. I particularly enjoy when the desert smells like rain!

References:

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2020 Developmentally Regulated Volatiles Geosmin and 2-methylisoborneol Attract a Soil Arthropod to *Streptomyces* Bacteria Promoting Spore Dispersal. *Nature Microbiology*. Electronic document, <http://www.nature.com/articles/s41564-020-0697-x>, accessed April 2020.
- Gerber, N. N., and H. A. Lechevalier
1965 Geosmin, an Earthly-Smelling Substance Isolated from Actinomycetes. *Applied Microbiology* 13:935-938.
- Guido, Zack
2008 Understanding the Southwestern Monsoon. *Southwest Climate Outlook* 7(7):3-5.
- Nabhan, Gary Paul
1982 *The Desert Smells Like Rain: A Naturalist in O'odham Country*. University of Arizona Press, Tucson.
- Rohli, Robert V., and Anthony J. Vega
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AAHS Lecture Series

*Brought to you by AAHS@Home through Zoom
until we can meet again in person*

- Aug. 2020: No Lecture
- Sept. 21, 2020: Karen R. Adams, *Food for Thought: The Deep History of Your Dinner*
- Oct. 19, 2020: Kelsey Hanson, *Technologies of Capturing Color: Paint Practice and Its Analysis in the U.S. Southwest*
- Nov. 16, 2020: Jeffrey H. Altschul, *Using the Past as a Bridge to the Future*
- Dec. 21, 2020: TBD
- Jan. 18, 2020: TBD
- Feb. 15, 2021: Steve James, *Chicken Bones on Pueblo Grande*



Virtual Field Trips!

August Field Trip: brought to you
through AAHS@Home

Saturday, August 22, 2020
11:00 a.m.–12:30 p.m.

Members will receive an email with
details and how to register.



*Follow AAHS on Facebook at
www.facebook.com/archandhist*



glyphs: Information and articles to be included in *glyphs* must
be received by the first of each month for inclusion in the next
month's issue. Contact me, Emilee Mead, at emilee@desert.com.

NEW AAHS LOGO T-SHIRTS AVAILABLE ONLINE!

Need something to lounge around the house in? The new AAHS T-shirts are available in our online store: <https://www.az-arch-and-hist.org/shop/>. Regular cut in gray with black logo or beige with brown logo. Also available in a women's cut in red with white logo. We now have XLs and XXLs in stock in all three colors. The shirts are \$18 each, including postage.



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sources

JSTOR is offering AAHS members the opportunity to subscribe to JSTOR at a 50 percent discount through their JPASS program (\$99/year rather than \$199/year). The yearly JPASS includes unlimited reading access to the archival journals in JSTOR and up to 120 downloads.

You must subscribe through our website using your user name and password to have your membership validated: <https://www.az-arch-and-hist.org/publications/jpass-program/>.

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.

I wish to receive *Glyphs* by (circle your choice): Email Mail Both

I am interested in volunteering in AAHS activities: Yes Not at this time

Institutional Subscriptions

University libraries, public libraries, museums, and other institutions that wish to subscribe to *Kiva* must do so through the publisher, Taylor & Francis at tandfonline.com. For institutional subscriptions to *Glyphs* (\$100), contact AAHS VP for Membership at the address below.

You can join online at www.az-arch-and-hist.org, or by mailing the form below to:

Rebecca Renteria, VP Membership
Arizona Archaeological and Historical Society
Arizona State Museum, The University of Arizona
Tucson, AZ 85721-0026

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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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