

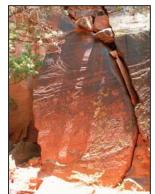
Project Archaeology



The VVAC is partnering with the Arizona Chapter of Project Archaeology, an organization dedicated to education in both the

scientific and cultural aspects of archaeology, using a *Teach the Teacher* format. The AZ Project Archaeology working committee identified the rock art at the V-bar-V Heritage Site as a resource for this program. Since the VVAC publishes *The Rock Art of Sedona and the Verde Valley*, we were contacted to participate in the **Cultural Expressions** portion of the program. AZ Project

Archaeology has a videographer commissioned to this project to record a 20-minute segment on Sinagua rock art. We will be visiting the site in mid-May to record this segment. The cultural expressions lesson will focus on the use of rock art to communicate, specifically as it relates to story telling and cosmology. Once completed the entire video series will be made available to teachers as a resource in teaching archaeology.



Verde Valley Archaeologist Receives an ISSN



INTERNATIONAL STANDARD SERIAL NUMBER UNITED STATES An International Standard Serial Number (ISSN) is an 8-digit code used to identify continuing publications that are ongoing without any

predetermined conclusion such as journals, magazine, newspapers, updating databases and certain types of websites. Resources are eligible whether they are print or electronic. The ISSN can be thought of as the social security number of the serials world. Just as an individual's social security number is used in many automated systems to distinguish that person from others with the same or similar names, the ISSN distinguishes a particular serial from others with which it might be confused. The ISSN also helps library patrons, libraries, and others who handle large numbers of serials to find and identify titles in automated systems more quickly and easily. Our ISSN is located in the copyright section on page 2.

VVAC To Publish Tuzigoot History

The VVAC is the official Nonprofit Partner of the National Park Service (NPS) for Montezuma Castle and Tuzigoot monuments. The Center received a request from the NPS for assistance in publishing the administrative history of the Tuzigoot National Monument, similar to a previous volume on Montezuma Castle published by the Western National Parks Association. This study was written several years

National Parks Association. This study was written several years ago but never published. The NPS asked for assistance in getting the study into a printable format for publication. The VVAC accepted this assignment and will publish this volume through its Amazon Direct Kindle Publishing account for printing on demand. The first printable draft has been completed and is awaiting review and some images. It is anticipated that this will be available in July. The Center is pleased to be able to assist in this way.



New Building Purchase A Step Closer



As of press time, the VVAC had received a purchase proposal from the owners of the 460 Finnie Flat Building. Over the past few

months, the Center had hired a commercial building inspector for an overall inspection and a structural engineering firm to review the building foundation. A roofing firm and HVAC servicing company were also brought in to assess those aspects of the building. We have also been working with an architect to design the interior so that a cost estimate for renovations could be developed. As a result of these efforts, the Center is in a position to consider the proposal and to seek financing options. Hopefully, the results of these efforts can be announced in the coming weeks.

Letter from the President



Spring is in full swing, and visitors to the Verde Valley and the Archaeology Center have increased substantially. The Center is now open from 10-2 Tuesday through Saturday. Reservations are no longer required. We have averaged over 6 visitors a day in the past month. People are out and about and catching up on activities that have been denied them this past year.

We have recently added three new and very talented people to our Board of Directors. Linda Buchanan, Gay Chanler and Vivian Sayward (page 7). Our board has been meeting monthly, although

we have not had an in-person board or committee meeting since February of 2020. Thank goodness for Zoom and email!

We recently restructured our Board committees and are looking for members to join us in planning our future. It is an exciting time to be on a committee as we expand both our space and our programs. The more people on a committee, the less work for others! We would love to have member perspectives, suggestions and ideas. Committees generally meet once a month, and most often by Zoom. Committees are as follows:

- 1. The **Finance Committee** provides financial oversight for VVAC. This includes budgeting and financial planning, reporting, and the creation and monitoring of internal controls and accountability policies. The committee is currently recruiting a member to be on our Endowment Board. This board manages the invested funds and oversees distribution from the Fund in compliance with policy. It would not be a time consuming obligation and would meet on an as needed basis.
- 2. The Outreach Committee has three components: Fundraising, Public elations/Marketing, and Membership. The Fundraising component oversees development and implementation of the Fundraising Plan, plans and coordinates fundraising events like raffles, galas, or silent auctions, and seeks out opportunities for gaining corporate sponsors, philanthropists, large donors, grants and endowments. The Public Relations/Marketing component oversees the development of all printed publications, such as brochures, flyers, leaflets, whitepapers and the website, oversees development and implementation of the Marketing Plan, including identifying potential markets and what products, services and programs will meet the needs of those markets, and promotes the organization's services to the community, including generating fees for those services. Membership recommends strategies for recruiting new members and keeping current members active and involved.
- 3. The **Program Committee** provides suggestions for lectures, classes, excursions, hikes, and courses. It provides guidance to the Executive Director in setting priorities and establishing fee schedules. Some members may be willing to volunteer their time in helping set up these programs, teaching classes, leading hikes, etc.

If interested in being on a committee or if you have questions, please contact me at 360-635-3804 or by email at President@VVarchcenter.org.

We have been putting in considerable time and energy on finalizing plans to purchase and move into our new building on Finnie Flat Road. Stay tuned.

Stay safe and visit us soon!!

Cheri Meyerhafer



The mission of the Verde Valley Archaeology Center is to preserve archaeological sites and collections, to curate the collections locally, and to make them available for research and education; to develop partnerships with American Indians, cultural groups and the communities it serves; and to foster a deeper understanding of prehistory and American Indian history in the Verde Valley through the science of archaeology.

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NATIVE AMERICAN GARDEN & PATHWAY

Prayer sticks were placed in the garden by a Hopi elder.

Sinagua Cotton

More than 820 domesticated cotton seeds, a cotton boll, 16 boll segments and fragments, and abundant amounts of unspun cotton fiber were found at the Dyck Cliff Dwelling. Domesticated cotton is one of the most important plants grown in the American Southwest, providing fibers for cordage, clothing, and blankets, as well as seeds for consumption.

Cotton was probably second only to corn in importance to the Hopi. Cotton has great symbolic significance, representing the precious clouds that bring rain to thirsty desert crops (Stevenson 1915). The Hopi cover the face of the deceased with raw matted cotton to symbolize their transformation into a cloud (Whiting 1939).

Originally a tropical, frost-sensitive perennial, domesticated cotton diffused northward from southern Mexico and Guatemala into the Southwest. The earliest evidence of cotton in a Southern Sinagua site was found along Oak Creek north of Cornville dating to AD 900-1150.



Spring Activities Rob Estrada

The Winter of 2020-2021 brought many challenges for us at the garden. Abnormally chilly nights, along with a prolonged drought, stressed our succulents to their limits. The opportunistic javelina and deer began feasting on the already stressed agave, prickly pear, and cholla. Donna Ullner and I did our best to protect the remaining agave with baskets and cages. Hopefully, they'll bounce back this summer.



Besides the natural perils, humans did more than their fair share of destruction, too. Unfortunately, we experienced vandalism by someone driving their vehicle on the trail (damaging culverts) and the theft of one of our generators. Due to these incidents, the parking area was temporarily closed to dissuade folks

from driving vehicles onto the trail. The parking area, however, has reopened now. We will be installing solar night lights and camera to hopefully dissuade further incidents.

After attending a couple of local gardening meetings, I've decided to expand the corn-field this year and add a plot of cotton, too. Last year, we experienced some pollination problems, which I'm hoping to solve by planting a greater area. I have a hybrid of 'Hopi Blue' from Second Mesa and 'Pima White' which is popular with the Apache. The hybrid is white dominant with a spattering of blue, giving the ears a binary code appearance. Cushaws and Hopi black beans will be planted again with the corn for our 'Three Sisters' display. Once again, I plan to cover much of the garden with plastic sheeting. The plastic acts as a greenhouse allowing the soil to stay warm and to retain moisture for the young sprouts. We'll also need to run new drip lines for the cotton. Cotton was ubiquitous with the ancestral farming of the Southwest, so despite being a bit of a high maintenance crop, we'll have a few examples of Pima cotton for educational purposes. The

cotton blossoms should be a bright pink this Summer and will be growing along with the sunflowers in the garden's eastern corner.

Donna's flower bed was such a hit last year that I have asked her to double the size with more pollinators. The two mesquites will feature Bee Plant, Desert Marigolds, Indian Blanket, Desert Blanket, California Poppies, California Aster, Stemless Daisy, Mexican Poppies, Desert Lilly, Fire wheel, and Primrose. We'll introduce a variety of colorful chili peppers on the perimeter, which became staples following colonial contact with the Spanish.

Last week, while chipping the manure into the topsoil, I saw another roadrunner. Hopefully, it will make our garden part of it's foraging territory like its predecessor. If you decide to visit next month, I may be busy covering the corn with plastic sheeting, running new irrigation lines, or watering the succulents.

Sinagua Corn

A large quantity of maize (corn) was recovered from the Dyck Cliff Dwelling, including more than 10,000 corncobs and nearly 3,500 kernels. This corn was probably grown locally and used for local consumption. In contrast, the abundant cotton grown at the site may have been a trade item, possibly exchanged for decorated vessels or obsidian.

The Dyck farmers were able to successfully grow several crops along Beaver Creek. These include large quantities of corn with three different kernel colors (yellow, red, purple/blue).



Yellow corn kernels from the Dyck Cliff Dwelling

ARCHAEOLOGY 101: DIGITIZING ARCHAEOLOGICAL SITES

Photography and 3D Modeling of Cultural Sites

The Sedona Friends of the Forest (FOF) is dedicated to assisting the United States Forest Service (USFS) in maintaining, protecting and restoring the scenic beauty and natural and cultural resources of forest lands for the enjoyment and use of present and future generations. The objective of the non-profit, non-political, volunteer group is to work in partnership with the USFS, primarily in the Red Rock District of the Coconino Forest of north-central Arizona, in tasks it does not have the manpower or funds to accomplish on its own.

The Red Rock District has one of the highest concentrations of prehistoric and proto-historic sites on public lands in the United States. As a sub-group of the FOF Cultural Resources Committee, the site photography team has been photo-documenting archaeological and historic sites within the Coconino Forest since 2011. To date, they have completed detailed photo documentation of over 600 sites in the forest. This work includes over 100,000 photos of artifacts, stone habitation structures, petroglyphs, pictographs, and archaeological features.

In mid-2016, Forest Service archaeologists requested that FOF investigate the possibility of acquiring 3D photogrammetry of some of our Native American cultural sites. The Forest Service archaeologist stated "photogrammetry is the future of archaeology." The 3D process has been demonstrated to be an important upgrade to the documentation and evaluation of archaeological sites and information.

To date, they have uploaded over 2,000 3D models, (http://www.sketchfab.com/fofsedona) primarily for the Forest Service archaeologists to be able to work with and review. The public availability of these models allows others to see evidence of the rich cultural heritage in our region and also allows our volunteer docents and visitors at Forest Service-managed Heritage Sites to appreciate a high level of detail and variety within the sites.

By adding 3D photogrammetry to our technical arsenal, additional detail and measurement statistics are now available to the archaeologists. The reference photo sets that they and earlier workers acquired are frequently used to evaluate change over time at the various sites. Once

Tools and Equipment

The equipment used in this work is provided by the volunteers. They currently use 24MP Nikon DSLRs with a wide variety of lenses and support equipment including tripod-mounted wireless triggered flash units, fold-out shades, ladders, Macbeth color charts, scales, and, where legal, aerial drones. Images are processed on a 96GB RAM dual hex core workstation with GTX 970 GPU, using the basic version of Agisoft Photoscan/Metashape software.

they started acquiring 3D photos, one unexpected benefit was the ability to use the models to more easily compare new imagery with old. It is frequently difficult to compare old to new, due to differences in photographic equipment and conditions during acquisition such as varying angles and lighting. They are now able to manipulate 3D models to closely match photos taken 10 to 130 years ago.

Earlier this year, the Forest Service archaeologist requested the team to record the Atkeson Pueblo that the VVAC manages. After clearing the project with the Archaeological Conservancy, the site was recorded. We then requested the team to record all of the Conservancy sites so that we may monitor any changes due to natural or other causes. The project shows the cooperation, mutual support and synergy between the various organizations. The image below is of the main masonry wall, while the lower image is from across Oak Creek showing the wall on top and the cavates below.





EXPLORING THE DYCK CLIFF DWELLING ARTIFACTS

Chapter 13 Excerpt - SPECIAL ARTIFACTS
Todd W. Bostwick

This page describes some of the unusual items found in the Dyck Cliff Dwelling from the Report.

Corncobs with Sticks

The Dyck collection contains more than 10,000 corncobs. Sixty-seven of those have sticks inserted into one of the ends, usually



Selection of corncobs with sticks inserted into one end.

the thickest end attached to the shank. These corncobs may have been used in a throwing game based on Pueblo analogies, such as the dart and circle game played by the Hopi.

Studies have shown that Hopi corncobs, with sticks inserted in one end and bird feathers in the opposite end, were

used as darts. This game was played by both men and boys, but not by women. The darts were thrown through loops that were rolled or held on a stick.

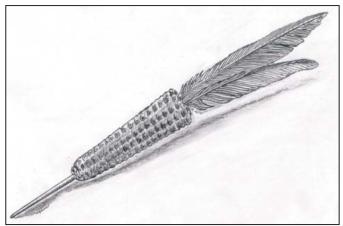


Illustration of Hopi corncob used in dart games with stick inserted in one end and feathers in the other end. Illustration by Keith Greiner.

Many of the sticks have been broken at their ends, but it appears that most of these were constructed that way, with the stick simply snapped off at an acceptable length. It should be noted that the sticks inserted into the Dyck corncobs are inserted into the large end of the corncob. If they were used as darts it would seem that the sticks would have been inserted into the small end to make them more aerodynamic. Furthermore, no feather remains were found with the corncobs and most of them did not have holes in the ends opposite where the sticks were inserted. Therefore, it cannot be stated with certainty that the corncobs with sticks were indeed darts.

Cotton Ball

A ball made of cotton cloth also may have been used in a kick or throw game. This ball is not perfectly round, but 2.4 x 2.2 in. in diameter, and weighs 1.4 oz. It was made of cotton cloth wadded



Cotton cloth ball from Dyck Cliff Dwelling.

or rolled up and bound with an open mesh of cotton thread. The cotton thread is twisted around itself several times in multiple locations to create a net-like structure that keeps the cotton wad together. The Hopi played a football race game in which individuals kicked a ball while running; this game took place every few days in the spring.

Bundle of Cactus Spines

A bundle of cactus spines tightly wrapped with a twisted 1-ply cotton yarn was found. The bundle is 1.8 in. long, 0.4 in. wide. There are approximately 40 brown-colored cactus spines that range from 0.3 to 0.43 in. long and vary in shape from round to oval to flat on one side and rounded on the opposing side. No barbs are visible on the spines, which are probably from a prickly pear cactus. The tips of the spines extend about 0.6 in. beyond the wrapping and are sharp points, slightly rounded points, or broken. There is no evidence of pigment present on any of the spines.



Bundle of cactus spines that may be a tattooing tool

Groups of cactus spines with yucca fibers found at other sites have been interpreted as tattooing tools.

Tattooing, primarily consisting of lines and dots, has been reported for numerous ethnographic groups in the Southwest. Hopi kastina dolls have facial markings that may represent tattoos. The O'odham used pulverized Willow or mesquite charcoal mixed with water. The thorns were dipped into the mixture and pricked into the skin along outlines drawn on the face. Southeastern Yavapai used "a little bundle of cactus or mesquite spines tied with sinew" and "pricking was accomplished by pressing it in with the fingers" A green vegetable pigment was rubbed into the pricked area of the face, followed by charcoal. Tattoos were applied to females at puberty and marked adulthood and social membership among groups. Tattoos among the Chiricahua Apache had spiritual power and were considered conduits for supernatural energy.

THE ARCHAEOLOGICAL RECORD - ATKESON PUEBLO

The Atkeson Pueblo on Oak Creek is situated on a bluff located 15 miles northwest of Camp Verde at an elevation of 3,300 ft near the confluence of Oak Creek and the Verde River. Oak Creek and the Verde River would have served as year-round sources of water, and agricultural fields would have been located in the immediate vicinity. The elevated location of the pueblo would have provided an excellent view of people travelling up and down Oak Creek. Atkeson Pueblo is one of a number of prehistoric sites located in regularly-spaced intervals of around 2 miles along the upper and middle Verde River and its tributaries (Pilles 1996). Nearby sites include the Sugarloaf Ruin, located upstream on Oak Creek, and the Bridgeport Ruin, located upstream on the nearby Verde River.

The first known detailed examination of the Atkeson Pueblo/Oak Creek was by Dr. Edgar A. Mearns, a U.S. Army surgeon who was stationed at Fort Verde from 1884 to 1888 (Ayers 2010; James and Pilles 2012). Dr. Mearns was also a skilled naturalist who developed an interest in archaeology while at Fort Verde, excavating a number of sites and taking photographs of them, including the Oak Creek Ruin. He later published the results of his excavations in an issue of Popular Science Monthly (Mearns 1890). Mearns' collections are now located at the American Museum of Natural History, the U.S. National Museum, and the Army Medical Museum (James and Pilles 2012).



1887 photo of Atkeson Pueblo from the south side of Oak Creek by Mearns, looking north (Courtesy of the Library of Congress).

In 1895, the U.S. National Museum of the Smithsonian Institution sent Jesse Walter Fewkes to collect artifacts for the museum from the Southwest region. Fewkes was interested in the "ancestral abodes" of certain Hopi clans and he thought that the Verde Valley was an ideal location to conduct his collections. He found pueblos in a number of locations along the Verde River and Oak Creek. One of those locations was at the Atkeson Pueblo, which Fewkes called the Oak Creek Ruin.

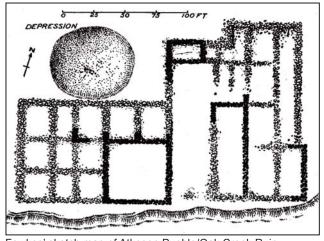
In 1906, Fewkes returned to central Arizona and recorded the Atkeson Pueblo/Oak Creek Ruin in more detail as part of his field work in the upper Verde Valley and Walnut Creek Canyon Valley. This work was considered preliminary and its intent was to document the types of prehistoric architecture of the region. His work was published six years



Prescott photographer C.R. Allen 1983 photograph of Atkeson Pueblo/Oak Creek Ruin (Courtesy of Arizona Historical Society)

later in the 28th Annual Report of the Bureau of American Ethnology Fewkes considered the Verde Valley "the western frontier of the ancient Pueblo country," where agricultural people "were subject to attack by powerful nomadic tribes," resulting in numerous defensive structures being built on hilltops.

Cavates are located to the south and east of the masonry rooms. Fewkes believed that the cavates and the masonry pueblo were occupied at the same time and may have had different functions (i.e., living quarters versus ceremonial rooms). About 24 rooms were recorded. He noted that the rooms were relatively large and the walls were made of "undressed reddish brown stones, bearing evidences that they were formerly plastered." He also recorded a circular depression northwest and below the pueblo, which he suggested may have been a water reservoir since there were no known circular kivas in the Verde Valley (none has been found since then). Most of Fewkes' 1912 report focused on the cavates. Masonry walls were recorded inside two of the cavate rooms. Other cavates contained carved out niches, mortars in the floors, and connecting passageways. Some of the cavates had smoke-blackened ceilings.



Fewkes' sketch map of Atkeson Pueblo/Oak Creek Ruin

INSIDE THE VVAC

Meet the Board

We are very pleased to welcome Vivian Sayward to the Board of Directors. Vivian is founder and CEO of Vivacity Sportswear®, an inclusive apparel line designed for and by women, based in San Diego, California, and Vivacity Advantage, a strategic consulting company for the apparel and textile industry.



Vivian has held positions in finance, marketing and business development at Fortune 500 high-tech and healthcare companies. She has also consulted for start-ups in the healthcare and fashion and beauty industries.

Vivian is active in her local community, volunteering time and resources to educational and healthcare related foundations including Pro Kids/First Tee of San Diego, of which she serves on the board. She also participates on the small business advocacy council for the National Retail Federation and serves as a business mentor for various undergraduate program business incubation programs.

New Museum Hours

The VVAC instituted new hours beginning May 1. Advanced reservations are no longer needed. Masks are still required and the \$5 fee for nonmembers between age 18 and 64 remains.



ARCHAEOLOGY 101: XRF FOLLOW-UP



You may recall that in the Winter 2020 edition, we discussed X-Ray Fluorescence (XRF) that was used to identify the source of the obsidian found in the Dyck Cliff Dwelling. Obsidian sourcing is a well-established method employed by archaeologists that has allowed trade distribution networks to be studied. Being a volcanic glass, the physical properties of obsidian make it ideal for the manufacture of sharp edges, to be used as knives, scrapers, and spear or arrow points, while remaining resistant to breakage. But the rare property of obsidian that is advantageous to archaeologists is that it occurs in volcanic flows that are remarkably homogeneous in chemical composition within a flow, but preserve elemental signatures that are unique to volcanic centers, and in some cases individual flows. This provides the potential to trace worked obsidian right back to its place of origin.

Using a portable x-ray fluorescence (pXRF) spectrometer, archaeologist Michael Kellett identified the source of the obsidian in the Dyck Cliff Dwelling. Michael then requested VVAC

permission to study the obsidian at the Conservancy sites of Atkeson Pueblo, Ottens Pueblo and Hatalacva. Accompanying Michael were VVAC volunteers Rob Elliot, Bernie Molaskey and Ted Stratton. The results were as follows:

Hatalacva Obsidian Sources: Government Mountain (n = 30), RS Hill (n = 2), Presley Wash (n = 1), and Partridge Creek (n = 1).

Atkeson Pueblo Obsidian Sources: Government Mountain (n = 18) and Partridge Creek (n = 2).

Ottens Pueblo Obsidian Source: Government Mountain (n = 30)

These findings are consistent with the XRF analysis conducted by Michael on 114 of the Dyck obsidian artifacts with the majority from Government Mountain. The Government Mountain obsidian source is part of the San Francisco Mountain volcanic field located on the Coconino Plateau. Government Mountain obsidian was used from Paleoindian through the historic periods. It has been found at archaeological sites as far south as the Arizona and Sonora border, at sites on Black Mesa in northeastern Arizona, and as far east as Chaco Canyon in New Mexico.

Michael data further supports the finding that the Sinagua favored Government Mountain obsidian over all other sources.



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ABOUT OUR COVER HEADER

- Atkeson Pueblo has been known as the Oak Creek Ruin and as the Aztec Ruin.
- In 1906, Jesse Walter Fewkes, of the Smithsonian Institution, recorded the Atkeson Pueblo Ruin as part of his field work in the upper Verde Valley and Walnut Creek Canyon Valley.
- Fewkes considered the Verde Valley "the western frontier of the ancient Pueblo country."
- A 1928 site card states that the site contained a pueblo with about 30 rooms, possibly 3-stories in height, and a series of 33 cavates located along the cliff face to the south.
- In 1930, Museum of Northern Arizona staff members collected sherds from the Atkeson Pueblo as part of Harold Colton's ceramic research program for northern Arizona.
- In 1971, Arizona State Museum (ASM) at the University of Arizona recorded the site.
- In 1984, Arizona Governor Bruce Babbitt visited the site along with Mark Michel, President of the Archaeological Conservancy, and Steward L. Udall, Chair of the Archaeological Conservancy Board. The Conservancy purchased the site and dedicated it as an archaeological preserve on July 27, 1985.