

Verde Valley Archaeologist

A Quarterly Publication of the Verde Valley Archaeology Center

VVAC Closes on Purchase of New Building

The Board of Directors of the Verde Valley Archaeology Center (VVAC) is pleased to announce it has closed on the purchase of the former Verde Valley Medical Center (VVMC) clinic building at 460 Finnie Flat Rd, Camp Verde, in the Verde Village shopping area. The 1.2-acre property includes an 11,000 sq. ft. building with parking to accommodate 50 cars. The VVAC took possession of the property on Thursday, July 29.

The VVAC was in need of more space to expand its collections and exhibitions and to better serve the Verde Valley community. The Center initially planned to develop a new archaeology campus on its property located on Homestead Parkway; however, skyrocketing construction costs brought on by problematic supply chain issues forced the VVAC Board of Directors to search for a more economical alternative. It is the continued desire and vision of the Board of Directors to one-day construct a new home for VVAC on the property located on Homestead Parkway. That property currently offers the public a groomed trail and a native garden demonstration plot. Recently, the Center has partnered with the Town of Camp Verde to receive a \$150,000 grant from Arizona State Parks and Trails to extend the trail and make it ADA accessible, as well as to construct a permanent restroom.

An immediate solution presented itself with an offer for the former VVMC building. This space is almost 11,000 sq. ft., more than three-times the Center's current 3,300 sq. ft. building. A third of the new building has a large open area, providing space for the artifact collection center requiring minimal renovation. The building has excellent space which will serve well as exhibit space, more than doubling the current museum's exhibit space. To accomplish this purchase, the VVAC is leveraging \$600,000 of its assets together with a very generous donation of \$500,000 from the Paul Dyck Foundation Research Institution of American Indian Culture, as well as over \$100,000 in donations from its supportive members to the Capital Campaign. In addition, the Center received a generous reduction in the purchase price of the VVMC property through the sellers' agreement to a "bargain sale" price. Bargain sales are often used by donors who wish to make a charitable donation in a form other than cash. The difference between the fair market value and the actual purchase price is considered a gift for tax deduction purposes.

"While we were planning to build on the Homestead property, this building became available for purchase and it meets our current needs perfectly," said Executive Director Ken Zoll, "plus it is a much more financially viable option. The location is very visible and accessible, with its entrance at the busiest retail center in Camp Verde."

The final interior design for the Finnie Flat building has been completed and is shown on page 6. Tierra Verde Builders has been selected as the contractor. The current museum will close on September 5 while museum displays and curated artifacts are relocated to their new home. It is expected that renovations will take about three months.

Board President Cheri Meyerhofer said "This is probably the most significant decision the Center has made in its short 10-year history, but we are confident that it is the correct one for the future of the Center. It also shows our commitment to the Town of Camp Verde, a community that has welcomed us from the very beginning."

Grand Opening Plans

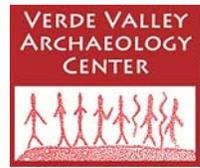
Mark your calendars (in pencil). If the renovations stay on schedule, here are our plans for the Grand Opening:

- November 20 - Founder's Circle Member Reception - 6:00 pm
- November 21 - Members-Only Sneak Peek - 1:00 pm to 4:00 pm
- November 26 - Grand Opening to the Public - 10 am to 4:00 pm

Volunteers Needed for New Museum

We are planning for the new museum to be open seven days a week. We will continue with the self-tours for visitors, with an updated Tour Guide. We expect, however, to offer one docent-led tour a day. Volunteers are needed for this service. Docent training will be provided. In addition, there will be an admission fee charged to all non-members. This fee will be collected in the expanded Gift Shop. This activity can also use several volunteers to cover each day. We will ask volunteers to cover a 3-hour shift. If you can help out with either of these activities, or want more information, please contact Ken Zoll at director@verdevalleyarchaeology.org. Thanks!

Letter from the President



Greetings!

Does anyone remember the tilt-a-whirl at county fairs? Slow circles, fast circles, forward circles, backward circles, in and out. That's the kind of ride VVAC has been on the past few years. One thing constant throughout was the determination of the Board of Directors to provide a new home for the Center.

Leading that charge was Ken Zoll, Executive Director. He had the vision and the persistence to make it happen. Enter Todd Stell, the Board Treasurer and chief negotiator with the seller, banks, and the US Department of Agriculture. The number of hours Ken and Todd spent on the project was overwhelming. Then on July 29, WE CLOSED ON THE BUILDING!!

Our new address will be 460 Finnie Flats Road in Camp Verde. We will triple our space from 3,000 square feet to 11,000 square feet, allowing for more and expanded exhibits, a large laboratory and repository, as well as a classroom, meeting space, library and offices for staff. We could not have completed this transaction without the support of the Paul Dyck Foundation Research Institution of American Indian Culture, as well as generous donations from our members over the past few years to the Capital Campaign.

We will be closing the current Center building on Main Street to the public beginning September 5 in order to complete necessary renovations and move our exhibits and repository to the new location. If the work proceeds on schedule, we plan to reopen in late-November.

Ken Zoll has been working tirelessly and creatively to design new exhibits that we hope will appeal to a wider audience. Several organizations have teamed up with Ken to sponsor these exhibits. For example, Basha's has provided \$2,500 to underwrite the Dyck exhibit on diet and subsistence. Meteor Crater will participate in the exhibit on the Camp Verde Meteorite that will again be on loan from Arizona State University. We are also working with the Tucson Museum of Art and the Phoenix Art Museum to acquire some Paul Dyck paintings on loan for a special retrospective exhibit for the Grand Opening.

Our board is working to have a calendar of events ready to kick off on January 1. We will restart our monthly lecture series, and we have planned hikes and a wide selection of tours available for members to take part in. If you would like to volunteer to lead hikes or have ideas for tours or lectures, please contact me at president@vvarchcenter.org. We will also have a need for additional volunteers when we reopen at the new location for our front desk, docents, and lab workers.

We are also pleased to tell you that we now have a Director of Collections (Curator), Jeffrey King, and that we also recently hired a Deputy Executive Director, Monica Buckle. You can read about them on page 7. Both bring years of experience, energy, and passion to the organization.

Again, I want to especially recognize Ken Zoll for all he did to make our new museum a reality. His passion and dedication to the Center are boundless. It has been inspirational to watch him plough through all of the obstacles and manage to come out on top. Thank you Ken for making the Archaeology Center a Camp Verde destination!

Cheri Meyerhofer

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Kenneth J. Zoll

Deputy Executive Director

Monica G. Buckle

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Kathryn Turney, M.A., M.L.S., RPA

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NATIVE AMERICAN GARDEN & PATHWAY

Summer Garden

Rob Estrada

With farming, exciting does not necessarily mean productive. There is a jungle off of Homestead Parkway, which used to be known as the Verde Valley Archaeology Center's Ancestral Garden. Seriously though, we've had an exciting Summer of 2021 at the Ancestral Garden so far. In June, we experienced some of the warmest temperatures in the history of the Verde Valley, with three weeks of triple-digit temperatures. These 'scorchers' occurred while most of our plants were in the vegetative stage of development. A plant creates most of its chlorophyll mass during the vegetative stage in preparation for the next stage of flowering development, but our crops were struggling in the heat.

The next stage is the flowering stage, where a plant needs less nitrogen and more potassium to produce flowers that become fruits or vegetables. Unfortunately, we finally received record precipitation during this flowering stage which prevented adequate pollination. As a result, our squash and corn yield will be significantly lower than last year, despite all of the greenery. For example, if we had some spring showers and high temperatures now, the yield would have been better.

The heavy monsoons have also washed out and obstructed all of the culverts on the trail. Three days before the heaviest rains, I turned down the irrigation times to prevent mold and fungus.



On the Fourth of July, we hosted an 'Open Garden' event from 8 am until 1:00 pm. With only minimal exposure on Facebook and our members list, we welcomed over fifty visitors! This successful turnout proves that our facility would be a prominent destination for any future Verde Valley Garden tours organized by other local organizations.

Another exciting day near the Garden was the surface excavation and trenching project on July 9th of the parcel of land that was being sold. The excavation was organized by Jeff King, Kathryn Turney and Jim Graceffa, along with several volunteers. The area was surveyed and a few artifacts were recorded. Jim selected five locations for trenches, but artifacts were observed in only one. The first trench, southwest of the garden, had a couple of broken metates and several nice manos that are now on display in the gated area. We had to stop work by noon due to the extreme heat that day, but fortunately, we all stayed well hydrated.

On a more personal note, I'm grateful to no longer require the use of supplemental oxygen after my bout with COVID. On August 6th, I will undergo a test to determine whether or not I may need a concentrator for future pulmonary deficiencies. Wish me luck.



Top left:
Desert Blanket

Top right:
Mano and Metate
from excavation

Bottom left:
Crew screens the
backhoe material

Bottom right:
Archaeologist
Kathryn Turney "in
the trenches"



ARCHAEOLOGY 101: CARBON DATING

What is Radiocarbon Dating?

Radiocarbon dating is a method that provides objective age estimates for carbon-based materials that originated from living organisms. An age could be estimated by measuring the amount of carbon-14 present in the sample and comparing this against an internationally used reference standard.

The impact of the radiocarbon dating technique on modern man has made it one of the most significant discoveries of the 20th century. No other scientific method has managed to revolutionize man's understanding not only of his present but also of events that happened thousands of years ago. Archaeology and other human sciences use radiocarbon dating to prove or disprove theories. Over the years, carbon 14 dating has also found applications in geology, hydrology, geophysics, atmospheric science, oceanography, paleoclimatology and even biomedicine.

Basic Principles of Carbon Dating

Radiocarbon (carbon 14) is an isotope of the element carbon that is unstable and weakly radioactive. The stable isotopes are carbon 12 and carbon 13. Carbon 14 is continually being formed in the upper atmosphere by the effect of cosmic ray neutrons on nitrogen 14 atoms. It is rapidly oxidized in the air to form carbon dioxide to enter the global carbon cycle.

Plants and animals assimilate carbon 14 from carbon dioxide throughout their lifetimes. When they die, they stop exchanging carbon with the biosphere and their carbon 14 content then starts to decrease at a rate determined by the law of radioactive decay. Radiocarbon dating is essentially a method designed to measure residual radioactivity.

Measuring Radiocarbon

Accelerator mass spectrometry (AMS) is a modern radiocarbon dating method that is considered to be the more efficient way to measure radiocarbon content of a sample. In this method, the carbon 14 content is directly measured relative to the carbon 12 and carbon 13 present. The method does not count beta particles but the number of carbon atoms present in the sample and the proportion of the isotopes.

Carbon-14 Datable Materials

Most, if not all, organic compounds can be dated. Samples that have been radiocarbon dated since the inception of the method include charcoal, wood, twigs, seeds, bones, shells, leather, peat, lake mud, soil, hair, pottery, pollen, wall paintings, corals, blood residues, fabrics, paper or parchment, resins, and water, among others.

What is Radiocarbon Date Calibration?

Calibration of radiocarbon determinations is, in principle, very simple. If you have a radiocarbon measurement on a sample, you can try to find a tree ring with the same proportion of radiocarbon. Since the calendar age of the tree rings is known, this then tells you the age of your sample. In practice this is complicated by two factors:

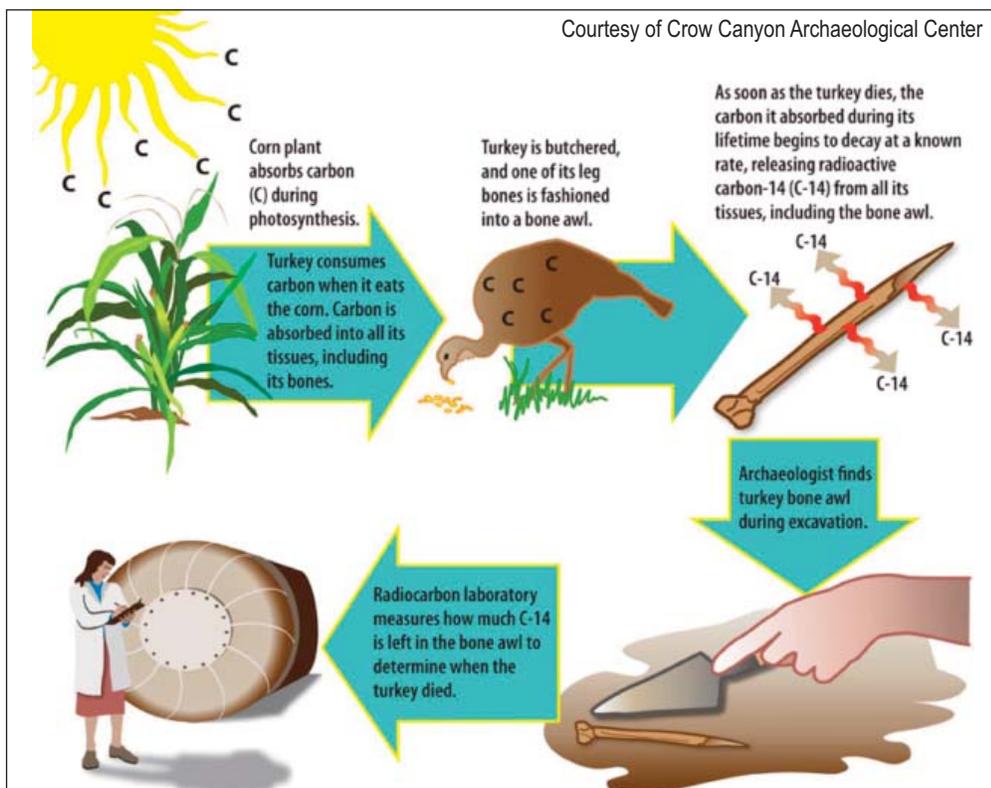
1. The measurements on both the tree rings and the samples have a limited precision and so there will be a range of possible calendar years
2. Given the way the atmospheric radiocarbon concentration has varied, there might be several possible ranges

The results of calibration are therefore often given as an age range. For example, we might say that we could be 95% sure that the sample comes from between 1375 cal BC and 1129 cal BC.

Physical and chemical pretreatments are done on these materials to remove possible contaminants before they are analyzed for their radiocarbon content.

As soon as a living organism dies, it stops taking in new carbon. The ratio of carbon-12 to carbon-14 at the moment of death is the same as every other living thing, but the carbon-14 decays and is not replaced. The carbon-14 decays with its half-life of 5,700 years, while the amount of carbon-12 remains constant in the sample. By looking at the ratio of carbon-12 to carbon-14 in the sample and comparing it to the ratio in a living organism, it is possible to determine the age of a formerly living thing fairly precisely.

Adapted with permission from radiocarbon.com



EXPLORING THE DYCK CLIFF DWELLING ARTIFACTS

Chapter 2 Excerpt - ARCHITECTURE

Todd W. Bostwick

PaleoWest Archaeology provided a grant for dating prickly pear cactus fruit seeds recovered from the Dyck Cliff Dwelling. The Arizona Archaeological and Historical Society also provided two grants for radiocarbon dating of one of the Dyck cotton seeds and two of the amaranth seeds. This excerpt will highlight these uses of radiocarbon dating.

Cist 5I

On September 19, 1968, unit 7G, was excavated. A large amount of rock fall, including large basalt cobbles, dominated the deposits. Because of the slow pace of digging, it was decided to



Sealed entrance to Cist 5I before excavation

excavate a midden deposit piled against the front of a cist located in the back wall of Room 4 in a portion of unit 5I. The feature became known as Cist 5I.

Cist 5I was sealed with a limestone masonry rock wall which had a couple of loose rocks.

Adobe mortar had been used between most of the rocks and much of the wall had been thickly plastered, with the plaster cracking. There is no evidence that pot hunters attempted to enter the cist because when it was excavated, it was completely full of artifacts and trash materials and there was evidence that pack rats had chewed on some of the artifacts. In addition, the entrance to Cist 5I was not clearly visible because a thick midden deposit was present in front of it.

A wealth of artifacts is reported in field notes for Cist 5I. These include a broken wooden flute, nine sandals, four baskets and two basketry trays, four fire-stick hearths, four bows and two children's bows, fifty-eight arrow shafts and midshafts, several decorated reeds, four cloth or leather bags, six corn cobs with sticks inserted, five agave needles, four weaving battens, tied grass bundles, corn cobs, salt, cotton (plain weave and braided weave), reeds, sticks, gourds, walnuts, squash seeds, small mammal bones, three pieces of matting, two incised wooden sticks, cordage, cloth, arrow shafts, batten, basketry fragments, gourd cup fragment, sticks wrapped with cotton, cloth tied into a small bundle, knotted juniper bark, a ball of cotton yarn about 2 inch (5.1 cm) in diameter, two small pieces of rabbit hide, a wooden pottery paddle fragment, a small fungus tree mushroom which may have been used for dyeing cotton yarn, and black-on-white sherds.

After several days of excavation, such large amounts of artifacts were being retrieved that George Kritzman commented in his field notes that "the midden/debris appears at times to be endless." Although the cist was measured at 6 ft (1.8 m) north-south and 6 1/2 ft (2 m) east-west, it was very difficult to excavate due to its restricted entrance. Kritzman mentions in his field notes that "it was necessary to crawl in on your stomach to loosen up the midden" and that it was so dark that a flashlight had to be held in one hand while excavating with a trowel in the other hand.

Numerous plant remains were found in Cist 5I. The largest quantity of some of the plant species found in the Dyck Cliff Dwelling was recovered from Cist 5I. Plant remains from this storage cist include more than 400 corncobs, corn kernels, squash seeds and rinds, beans (n=89), devil's claw, cotton seeds and bolls, walnuts (n=181), piñon nuts and cones, acorns, juniper seeds (n=68), acacia seeds and pods, agave, banana yucca fruits, agave/yucca quids (n=627), prickly pear pads and seeds, wild squash seeds, and more than 30,000 amaranth seeds in a tied cotton cloth bundle. During the occupation of the cliff dwelling, the roof of Cist 5I collapsed. Its entrance was then sealed with mortared stones and except for rodent disturbance, remained completely intact until excavated in 1968.

The calibrated radiocarbon C14 dates, listed below, trend slightly early in the chronological sequence which is possibly because they were obtained from materials located in earlier contexts within the cliff dwelling, such as the sealed storage unit that was designated by the excavators as Cist 5I.

- (1) Prickly pear seed - *calibrated* AD 1053-1079, 1152-1260
- (2) Amaranth seed - *cal* AD 1021-1165
- (3) Amaranth seed - *cal* AD 1035-1186
- (4) Cotton seed - *cal* AD 1044-1099, 1119-1143, 1146-1210

The pads and fruits of the prickly pear are high in phosphorus and vitamin C, and the pads are high in calcium. Consumption of the pads has been demonstrated to lower cholesterol and glycemia.

Amaranths, or pigweed, grow readily in agricultural fields and were an important plant food in the Southwest, available even when corn crops failed. The young herbage supplied edible greens and are high in nutrients, and the tiny seeds were also a valuable food source.

Abundant quantities of raw cotton, cotton seeds, and boll segments were found at the dwelling, indicating cotton was grown in the area. The Beaver Creek floodplain offered an ideal habitat for cotton cultivation.



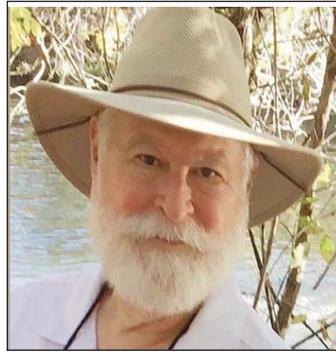
THE NEW VERDE VALLEY ARCHAEOLOGY CENTER

Below is the final floor plan for the building at 460 Finnie Flat Road. The exhibit rooms are at Opening and will change over time.



New Director of Collections

Jeffery King has joined the VVAC as Director of Collections and Exhibitions. A lifelong Arizonan and anthropologist, Jeff King's career has been evenly divided between field archaeology, museum and folklore studies, and managing community based nonprofits in the Phoenix Metro area.



A longtime resident of Yavapai County and former Yavapai County Archaeologist, Jeff has conducted and participated in archaeological surveys and excavations throughout the Southwest. His museum resume includes preparation and curation of permanent and traveling exhibits on Hohokam prehistory, and traveling traditional/indigenous arts.

He is currently on the City of Cottonwood's Historic Preservation Commission. Jeff has also been an interpretive volunteer at Tuzigoot National Monument and an Arizona Site Steward. Jeff and his wife reside in Clarkdale.

As the Director of Collections and Exhibitions, Jeff is responsible for maintaining professional standards in the preservation of and access to the museum collections in-house and in the public domain; and for the development, curation, preparation and installation of museum exhibitions that may be presented on-site, off-site and/or on the Internet.

New Deputy Executive Director

Monica Buckle has joined the VVAC as Deputy Executive Director and Assistant Curator of Fine Arts. Monica is a consultant, curator and scholar specializing in Native American arts and culture. She is an enrolled tribal member of the Cherokee Nation of Oklahoma. Monica holds a Master's Degree in Art Business from Sotheby's Institute of Art, New York.



Monica will provide a Native dialogue for the representation of Indigenous subject matter with her cultural knowledge and inter-tribal sensitivity. She is an advocate for the cultural continuity and sustainability of Native communities. Most recently, she was the Visual Arts Coordinator at the American Indian Community House in New York City, a non-profit organization serving New York City's urban Native population. She currently serves on the Board of Directors of the Mesa Verde Foundation, the non-profit, philanthropic partner to Mesa Verde National Park.

Monica has a love of horses and has overseen riding and horsemanship programs for youth, adults and veterans with disabilities and challenges at Pegasus Therapeutic Riding in Brewster, New York. She hopes to continue her equine therapy service work in the Verde Valley.

THE ARCHAEOLOGY CENTER ENDOWMENT FUND



ARIZONA
COMMUNITY
FOUNDATION

The Verde Valley Archaeology Center has established **The Archaeology Center Endowment** with the Arizona Community Foundation (ACF) Nonprofit Fund. The Nonprofit Fund is a convenient, flexible tool for nonprofit organizations. A nonprofit organization qualified in the state of Arizona, such as the VVAC, may establish a nonprofit fund at ACF. These are component funds of ACF and are



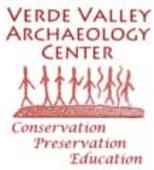
under the legal and fiduciary control of ACF. The VVAC may accept gifts from individual donors and then transfer those gifts to the Fund established under these terms and held at ACF.

ACF maintains five professionally managed investment pools to safeguard principal and achieve a rate of return. The VVAC has chosen to invest 50% of its funds in the Socially Responsible Pool that seeks to grow capital long term through funds screened for environmental, social, and governance (ESG) factors, and 50% in the Long Term Aggressive Growth Pool. This pool seeks to maximize growth of capital long term through funds that emphasize public equities with less diversification and a high level of volatility.

The Archaeology Center Endowment Fund is administered by a Board that consists of three to five (3-5) members in good standing appointed by the Board of Directors. The President, Treasurer, and Executive Director are ex-officio members with voice, but no vote. The Endowment Board members are Linda Guarino (Chair), Tom Taylor, and James Hose. This Board manages the invested funds and oversees distribution from the Fund in compliance with the Policies and Guidelines of the Fund.

Contributions to the Endowment can be made on the website at www.verdevalleyarchaeology.org/endowment, or by mail.





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