

Jornada Research Institute

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The Jornada Research Institute (JRI) has as its mission the study of the archaeological, ethnohistoric, and natural resources of the northern Chihuahuan Desert of Arizona, New Mexico, the Trans Pecos west and adjacent regions. JRI is committed to the protection and preservation of these resources so that current and future generations may benefit from their research and educational values. JRI is represented by a group of talented researchers from diverse backgrounds, allowing the institute to focus on multi-disciplinary approaches while sharing and engaging the public through a variety of educational and training opportunities.

Did you know that... Australia's recent wildfires have revealed an ancient aquaculture system built by indigenous people which is thought to predate the time of the Pyramids of Egypt. The *Budj Bim* Cultural Landscape is situated south-west of Victoria and features an elaborate series of stone-lined channels and pools set up by the *Gunditjmarra* people to harvest eels. As of 2019, the site was added to the Unesco World Heritage List. Some parts of the elaborate system also show evidence of stone dwellings dating to around 6,600 years ago.

But after a bushfire which was sparked in December and only brought under control last week, extra sites were spotted that were previously hidden under vegetation. The sites are also believed to be part of the aquaculture system.

<https://www.independent.co.uk/topic/Australia>



CONTENTS

CORPORATE SPONSORS	2
RESEARCH RESULTS	3
IN THE NEWS	6
AROUND THE KIVA	8
RESEARCH UPDATES	10
IN MEMORIAM	15

"THE MISERABLE HISTORY OF SEASONAL ALLERGIES"

It's that time of year...winds, pollen, blowing dust and bug parts. Allergies have been with us since the dawn of time, and people of many different cultures have struggled to find relief. Kara Wada (Quartz, April 3, 2019) writes that over 5,000 years ago, the Chinese used the berries of the horse-tail plant to relieve congestion and decrease mucous production associated with plant fever during the fall. In Egypt, the "Papyrus Ebers" written around 1650 BC, recommended over 20 treatments for coughs or difficulty breathing: sing honey, dates, juniper and beer. Paradoxically, Europeans exported Inca tobacco to experiment with seasonal allergies. Now, Big Pharma has thrown spaghetti at the wall. Personally, I'll take the beer. -JH

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Research Results

The Possible Age and Geological Context of Wesley Hurt's Mammoth, Salinas Pueblo Missions National Monument (Quarai Unit), New Mexico.

By David M. Rachal Ph.D.¹, Ronald C. D. Fields, M.A.², and Marc LeFrancois²

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In 1939, road construction at the Quarai unit of Salinas Pueblo Missions National Monument (SAPU) unearthed an Ice Age megafauna skeleton. Photographs taken at the time show a bone bed that consisted of a tooth, toe, several ribs, pelvis, a possible scapula or innominate, and a humerus belonging to a proboscidean, possibly a mammoth (Figures 1A-1D) (Fields, 2019). Archaeologist Wesley Hurt removed several of these bones from the road cut. However, a national search of museum collections has failed to locate the bones removed during Hurt's expedition (Thorpe et al., 2017).

On December 11-13, 2019, a testing project was conducted to determine whether additional skeletal remains of the Hurt's mammoth are still present in the road cut in the Quarai unit. The team consisted of 15 volunteers, one geomorphology consultant, and additional personnel from two government agencies (National Park Service and Natural Resource Conservation Service). The objectives of this project are as follows: 1) Locate the stratigraphic deposit that contained the mammoth skeleton; 2) Establish a coarse chronological framework to determine the relative age of the mammoth skeleton; and 3) Determine whether the mammoth skeleton was discovered in primary or secondary context.

In order to locate the stratigraphic deposit that contained the mammoth skeleton, historic notes from Hibben (1941) were reviewed for stratigraphic clues that could be used to refine the approximate location of the bone bed within the road cut. For instance, Hibben (1941) stated that the mammoth bones were found immediately below a layer of alluvium and on top of a bed of reddish clay.

(Continued on Page 4)

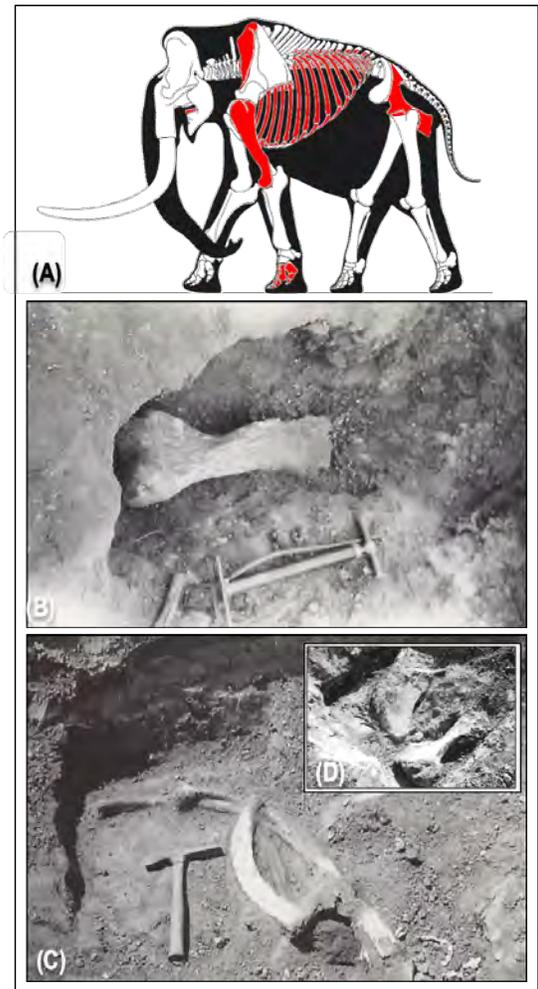


Figure 1. Historic 1939 photographs of the mammoth remains discovered at Quarai. (A) Schematic drawing of a mammoth skeleton. Bones that were recovered by Wesley Hurt are indicated in red. (B) Photograph of a mammoth humerus. (identified by Bruce Huckell – UNM). Note the air pump for scale. (C) Photograph of mammoth ribs. (D) Photograph of a mammoth pelvis and possible sacrum. All photographs were taken by Wesley Hurt in 1939. All historical photographs are from Fields' (2019) technical report.

Research Results, continued.

This red clay transitions to a reduced or gleyed bluish color with depth. Auger probe transects were conducted across the top and north-facing side of the road cut in an attempt to locate this stratigraphic sequence. Each probe that contained this deposit was considered a high-value target. Three areas that contained this sequence were selected for backhoe trenching to determine if any additional fossil remains, fragments, and artifacts were present in this deposit.

Though no mammoth bones were recovered during the testing project, a compelling argument can be made for the approximate stratigraphic provenance of the skeleton within the road cut. For instance, we were able to locate a similar stratigraphic sequence described by Hibben (1941). This deposit (i.e., Unit II) contains two reduced horizons with an interbedded reddish clay bed (Figure 2A-2D). Interestingly, small bone fragments were recovered from the upper, reduced horizon in this deposit. It appears that these fragments belong to a limb bone of a medium-sized mammal like a bison or horse, both of which are common in New Mexico Pleistocene faunas (G. Morgan, personal communication, December 18, 2019). Given these lines of evidence, it is plausible that the mammoth bones were recovered from the red bed. Another fascinating aspect of this deposit is its age. The lower and upper gleyed horizons in this unit yielded bulk sediment ages of ~18,960 rcybp and ~10,500 rcybp, respectively. This age range overlaps the end of the Last Glacial Maximum. If this age range is correct, the mammoth skeleton could possibly be terminal Pleistocene in age.

If the mammoth skeleton had been recovered from the terminal Pleistocene red bed documented by this study, it was important to determine whether it was found in a primary (undisturbed) or secondary (disturbed) context. Gravels in the three stratigraphic units (I-III) consist of angular red siltstones and sandstones fragments that make up less than 15% per volume for each deposit. These fragments appear to be colluvial in origin and have been deposited by localized hillslope sheetwash processes that occurred along the margins of the drainage. Rounded, mixed, river gravels are not common in the road cut stratigraphy. The lack of axial stream gravels in these deposits suggests that the mammoth skeleton most likely did not wash into the site by a past flashy catastrophic flood.

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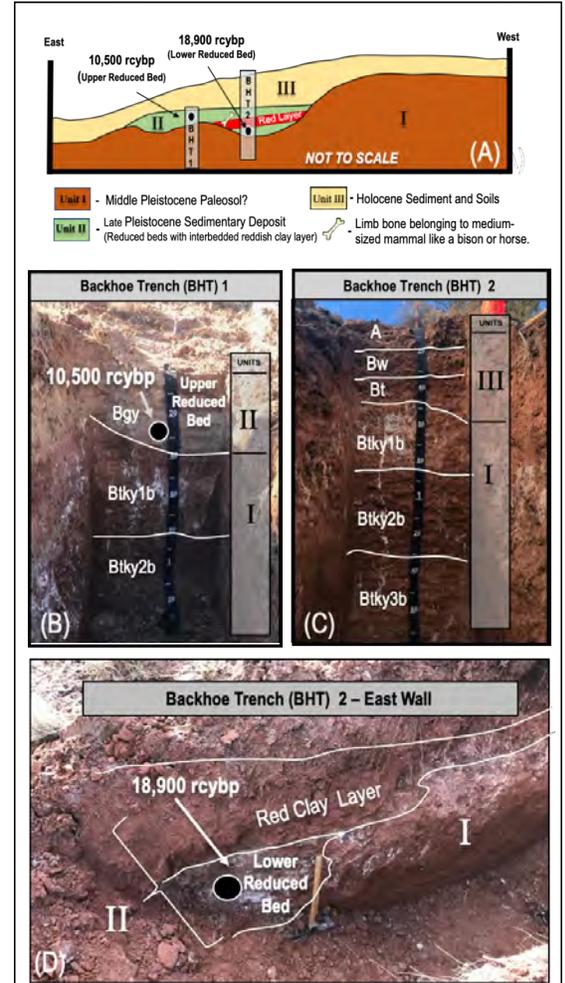


Figure 2. Late Quaternary stratigraphy of the road cut. (A) Simplified cross section of the road cut. (B-D) Photographs of drafted stratigraphic sections exposed in two backhoe trenches. Note the 10,500 years and 18,900 years BP radiocarbon dates in BHTs 1 and 2.

SPRING 2020 NEWSLETTER

Research Results, continued.

Instead, it is conceivable that the mammoth died within the general vicinity of where it was recovered. However, the bones had most likely been disarticulated to some degree by scavengers before the skeletal remains had been buried by fine-grained hillslope sediments. Unfortunately, the team did not find the bones belonging to the Hurt's mammoth in the road cut stratigraphy. In order to determine the exact geological context of the skeleton, the physical remains of the mammoth will have to be discovered to adequately test this hypothesis.

ACKNOWLEDGEMENTS

This research wishes to recognize the many people that made this opportunity come to fruition. First and foremost, we wish to thank the Albright-Wirth Grant Committee for funding this endeavor. Their funding has not just helped Salinas Pueblo Missions learn more about the geology, paleoenvironment, geomorphology, and attempt at relocating more of the Hurt Mammoth; it has created a synergy between people and organizations. Synergy has flowed from SAPU to NPS's Paleontological Division (Vincent Santucci, PhD; Jeremy Tweet) to NPS's Natural Resources Division (Don Weeks, MA). From SAPU synergy flowed out to the such organizations like the Central New Mexico Community College (CNM), Friends of Salinas Pueblo Missions, New Mexico Museum of Natural History and Science, Torrance County Archaeological Society (TCAS), and the University of New Mexico (UNM). Without their assistance this endeavor could not and emphatically would not have occurred.

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SPRING 2020 NEWSLETTER

In the News

Amazonian crop domestication began at least 10,000 years ago

Published: April 8, 2020 at 2:48 PM Brooks Hays

April 8 (UPI) -- New research suggests southwestern Amazonia was one of several global hotspots for early crop cultivation.

Around the same time, during the early Holocene Epoch, humans began cultivating crops for the first time in different parts of the world. In China, people cultivated rice. In the Middle East, early civilizations started growing pulses and grains. On the other side of the world, in Mesoamerica, people cultivated maize, beans and squash. And in the Andes, humans started growing potatoes and quinoa.

Now, scientists know that around the same time, roughly 10,000 years ago, hunter- gatherers in southwestern Amazonia began cultivating manioc, squash and other edibles, according to a study published Wednesday in the journal Nature.

By analyzing the shapes of island forest plots that dot Bolivia's Llanos de Moxos, a large savannah, researchers found evidence that region's early inhabitants were altering the landscape thousands of years ago. "We were trying to find a straightforward way to differentiating anthropic forest islands without having to core or excavate each one," José Capriles, assistant professor of anthropology at Pennsylvania State University, told UPI in an email. "Geometry was the first logical idea as many of these are extremely symmetrical."

"In our previous work we had sampled a few of these sites and found that circular forest islands were indeed anthropic so we decided to test in a broader region and although the pattern holds, there is much more complexity involved," Capriles said. Because the Llanos de Moxos is a giant alluvial plain, it is completely devoid of rock deposits. As a result, archaeological evidence of human habitation is hard to come by.

"Historically and ethnographically, human groups inhabiting this region used mostly organic-based technology including bows and arrows completely made with plant materials and animal materials, feathers and beeswax," Capriles told UPI. "No projectile points are known from this region. Thus, researchers traditionally dismissed any possibility of finding foraging sites there."

However, the earth itself is marked by the presence of humans. In addition to human- shaped forest islands, the savannah also features raised fields, mounds and canals. After identifying the most promising forest plots, researchers collected and radio- carbon-dated dozens of sedimentary cores. Scientists surveyed the cores for concentrations of silica-based phytoliths, tiny minerals that form inside plants. Because phytoliths are characterized by the plants they're sourced from, scientists were able to use the tiny minerals to identify plants grown inside the forest islands thousands of years ago. The sediment cores revealed the remnants of manioc plants, the family that includes cassava and yuca -- evidence that early inhabitants of the region began cultivating crops during the Holocene.

(Continued on Page 7)

In the News, continued.

"These hunter-gatherers were experimenting with agriculture as early as some of the oldest farmers in the Old World," Capriles said. "As such they tell us that hunter-gatherers in the Americas were very quite sophisticated people."

"They were not just at the mercy of the environment procuring what was available, but had intent in manipulating the landscape and resources in their favor," he said. "They were able to domesticate some of the most important plants the world feeds with today."

The findings are consistent with the results of previous genomic analysis, which identified Amazonia as the home of cassava, sweet potatoes and peanuts.

Capriles and his colleagues plan to continue their archaeological analysis of the Amazonian lowlands, a region scientists suggest is woefully understudied.

"We are very much interested in understanding why some of these socio-ecological systems could have encouraged biodiversity not depressed it, how some of the earliest complex societies in this region evolved, and through what mechanisms some of the early crops eventually made their way to the Andean highlands and beyond," Capriles said.

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Sediment cores from forest island in Amazonian lowlands of Bolivia suggest humans in the region began cultivating crops during the Early and Middle Holocene. Photo by José Capriles/Penn State.

Around the Kiva

First Impressions, by Lay Powell, MFA

After my first two days of volunteer work at Creekside Village, I had trouble sleeping that night because I was so wound up from stirrings (thoughts running through my head) from the trench we dug across one of the irrigation canals and the test pit in the reservoir. Giving up my thoughts is not always so important, as I am still low on education and training in archaeology. But my existence and interest in the archaeological world began when I was a child. My family condoned and spawned these desires of mine to chase prehistory, and now I am the "sponge in the jar"!

It's probably best that I have not read the published material on Creekside Village and, thus, remain a silent objector to the project. My eyes are fresh and naïve to what they are seeing unfold to a desert space I have driven past for over 50 years!! Appease me and take a quick trip through my eyes...

I heard about the Creekside great kiva a couple of years ago - they call the place I live "Rumordoso". How cool to hear about a kiva of all things found next to a stream! I joined Jornada Research, met Dave Greenwald, and he took me on a tour of the "site." Its apparent that it's not just a kiva by the stream, but composed of multiple-use irrigation ditches, erosion events, a reservoir, a spring mound, a great kiva, dozens of pit houses, and a modified landscape - in every sense of the word... and I still have not even seen the Twin Kivas site or the Great-Great Kiva!!! Eager to jump in, I volunteer for digging the trench across the irrigation canal and do well with the medium of earth and strangers I just met, looking for clues. Teasing the dirt to make it talk was easy with the metal tools we had; Hell, we made it look like an art project! The trench revealed two ditches, side-by-side, in the same canal alignment. That day I gave up my thoughts on what I saw, to Dave via e-mail, and slept with a smile on my face.

Yesterday, I felt amazed at so many curious minds trying to help read the story on the dirt exposed in the test trench profiles. The power of numbers was prevalent! Dave, the project director, Tim and Victor (professional archaeologists), Dave Rachel (geomorphologist), and six other JRI volunteers examined, argued, and settled on a strategy for collecting samples from the channels of each ditch. Still buzzing from information overload, I was tasked to start a test pit in what was called the "reservoir" and did so with much enthusiasm. My co-worker, Victor, and I got along great and made great strides in expanding an excavation unit into what seemed to be a pond or modified lakebed. Victor had started the unit the day before and had mentioned that after removing the deposit that accumulated since its use, he hit a zone of clay and stopped for the day. Now, our job together was to bust through the clay and find the bottom of the pond. However, in my diggings and exposing the earth, I did not see the "clay", but rather a grey zone that continued for nearly three feet unchanged - less a single stray stone found midway in the grey body, and its color deepening near the end of the three foot zone. It was at this level that a pottery sherd emerged, and we laughed about little Indian boys once casting stones and skipping pottery pieces into the "reservoir". I was so convinced that I was digging in a prehistoric pond, that I even surmised fish cultivation and the new layer we found was that of peat, organic matter representing accumulated

(Continued on Page 9)

SPRING 2020 NEWSLETTER

Around the Kiva, continued.

decayed vegetation and biota that accumulated while the reservoir was in use, visualizing something like a bottom layer of dried moss.

On a short lunch break, Victor took me over to see another test trench on a ditch system that was leaving the "reservoir" to feed the slopes of the terraced fields. The trench was cut a couple of years ago and successfully exposed a perfect cross-section of a prehistoric water ditch. My eyes went straight to the outer band of the ditch, which had an almost pink or reddish tone to it, like a red clay. Was this another clay-lined and sun hardened ditch, like we had discussed in a group regarding the other ditch? My mind was on fire with revelations and soil samples, as we finished cleaning out my test pit... now nearly 5 feet deep! We hadn't reached the bottom, but the day ended, and I went home filled with two days of overwhelming experiences and impressions.

That night it happened, the gears were going around in my head about this Early Tularosa Eden and its waterworks. Voices with opinion, a scientist with tiny bottles of truth (Dave Rachel applying hydrochloric acid to sediments testing for the presence of carbonates), trowels forming definitions, and conjectures on colored soils. The mind is a powerful thing - blinded by some and guided to others. It is a succubus's fantasy or a layman's nightmare!! Sharon (another volunteer) had spoken out from behind the group, in her light monotone voice, "what if... it was a garden 'development'?" My mind heard her and keyed onto that thought. I recalled just reading the last edition of *American Archaeology*, vol. 23 no. 4, which the *Paquime* article was good, but the prehistoric waterworks excavated at *Las Capas*, near Tucson, stirred me. It was the color of gardens versus non-cultivated land when that light came on! The grey soil in the "reservoir" was not like reading a water laden irrigation ditch, but instead may be garden cultivation. The soil material in the historic ditch channel (which was choked by vegetation) is almost identical to the new zone of soil found some five feet down in the trench. I surmise that the bottom will be reached on not a reservoir, per se, but an area of land that was created to generate a wetland. No earthen dam is visible because it's not there; instead, a low berm would correlate to the low-grade of the terrain. Here, a low level of water would spread out over a wide space, with a spill-out corner. This offers more than a fishpond, but an artificial Cienega, or marsh, full of bird, animal and plant materials. So, the idea is to establish a marsh or wetland, put all of the water and life into it you can, convert the marsh to garden with the organic materials under it, and BOOM, you now have a mega-garden, made on a self-filling and self-leveling terrace (a garden development rather than a reservoir).

The above discussion reflects the impressionist and viewpoint of Lay Powell and provide an interesting perspective on some of the features and elements of Creekside Village. We hope every visitor and volunteer experiences similar enthusiasm, leaving them much to ponder and consider. While Lay's descriptions and suggested functions of the features are intriguing, we have already determined the "mega-garden" is a reservoir with sloping sides. An examination of the fluvial deposits provided conclusive evidence of materials that accumulated within a stagnant environment. The stratigraphy is undisturbed other than by burrowing insects and plant roots, unlike what is found in agricultural sediments, churned by tilling. However, expressions of one's first day or days at the site are rarely captured so vividly and innocently; as a result, we have someone's honest (and somewhat colorful) description of how their experience impacted them, almost beyond what they had ever anticipated.

Research Updates

Taking Some of the Guesswork Out of Sketch Work Margaret Berrier and Robert Mark

The Fort Stanton Petroglyph Rock has been documented in the past using various photographic and drawing techniques. Recently I used a Structure from Motion (SfM) 3-D model to help take the guesswork out of my sketch work to create a more complete and accurate drawing.

Many of the petroglyphs in the Sacramento Valley vicinity are easy to see and photograph due to the contrast between the dark patina and the original color of the rocks revealed when the indigenous people pecked through the desert varnish. But occasionally researchers are confronted by difficult panels that were placed on rocks with little to no patina. Furthermore, these are often softer surfaces which rapidly deteriorate.

The Fort Stanton Petroglyph Rock (Figure 1) was created by pecking and carving into a large sandstone boulder found along the Rio Bonito drainage near Fort Stanton, on the western slope of the Sacramento Mountains in Lincoln County, New Mexico.

As part of the documentation of LA 20301, this large boulder was "recorded by placing 4 mil clear polyethylene sheeting over the boulder and securing it with specialized rubber cement tape.

The pecked outlines were traced onto the plastic with indelible marker (Hammack 1982:7). As you can see from the photo in Figure 1, the boulder is at a steep angle, making tracing and attachment of the polyethylene a challenge.



Figure 1: Fort Stanton Petroglyph Rock along the Rio Bonito

(Continued on Page 11)

Research Updates. Continued.

From my experience with this material, it stretches and slips as the tracing is executed. This was state-of-the-art recording technique during that time, and this tracing is surprisingly accurate considering those challenges. A redrawn version of this tracing from Hammack's report is shown in Figure 2 (1982:7). This method eliminates some of the subjectivity of field sketches. Dennis Slifer's *Signs of Life: Rock Art along the Rio Grande* shows a drawing of the boulder with only a few of the elements (1998:207). Figure 3 is redrawn from Slifer and shows some of the inaccuracies of field sketches.

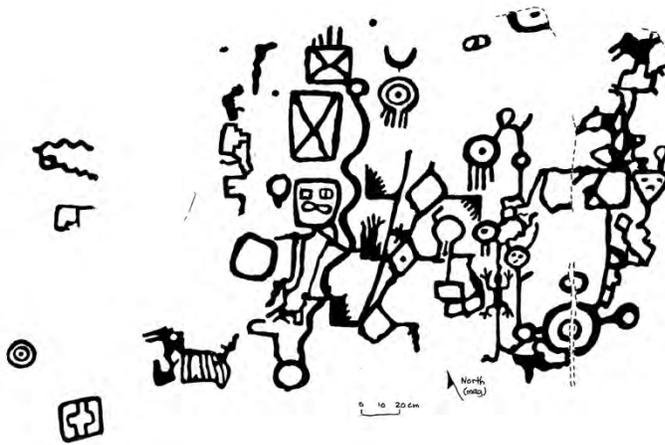


Figure 2: Redrawn from tracing done on polyethylene sheeting.



Figure 3: Redrawn from Slifer's illustration in *Signs of Life: Rock Art along the Rio Grande*.

(Continued on Page 12)

Research Updates, continued.

Tracing on polyethylene sheet has been used by many rock art researchers. Often, they use blue painter's tape to attach the sheeting to the rock. These tracings on plastic are difficult to reproduce and store due to their size. With new dating techniques for rock art, the use of plastic sheeting is being discouraged because even a tiny bit of residue from the sheeting could throw the dating off. In a previous study, plastic fibers were shown to have contaminated the radiocarbon age of a panel significantly (Miller et al 2002:80). Pressing on the plastic sheeting using an indelible marker could cause tiny particles of the plastic to adhere to the rock if not done very carefully, especially on rougher surfaces like this Dakota sandstone. The rubber cement tape or painter's tape also leave residue that may affect the dating. Current documentation recommendations encourage the minimal touching of the surface.

New state of the art recording techniques included SfM photogrammetry as a way to document rock art panels in a non-invasive way. SfM is a "photogrammetric method for creating three-dimensional models of a feature or topography using overlapping two-dimensional photographs taken from many locations and orientations to reconstruct the photographed scene (Crosby 2016)."

These 3-D models are an important part of a complete documentation of some sites. I gained experience with tracing two dimensional renderings of 3-D models while documenting horizontal sites using models and radiance scaling enhancements created by Robert Mark and Mark Willis (Berrier et al 2019). While revisiting Fort Stanton Petroglyph Rock site in the summer of 2019 I took a set of overlapping photos that provided Robert Mark with the needed geometry to create a 3-D model. Mark used additional images he had taken on a previous visit. Here's a link to the 3-D model <https://skfb.ly/6RPw>. Another version can be found at <https://skfb.ly/6RQ6w>. Robert Mark then created a radiance scaling enhancement using a technique described below the used that model. See Figure 4.

Robert Mark states,

High quality Structure from Motion (SfM) 3D models can be used to enhance the visibility of petroglyphs that are otherwise almost or completely invisible. The model must accurately capture the geometry of the rock surface. A colored curvature map, that is generated from the model's mesh using Meshlab Render Radiance Scaling and then is manipulated in Photoshop, can produce surprising results. Photoshop is used to blend (overlay, soft light, or hard light) the red or blue channel from the color curvature map with the original image or a shaded one that can also be generated in Radiance Scaling (2020:1).

I was able to create a more complete and accurate drawing of the Fort Stanton Petroglyph boulder from a two-dimensional print of the radiance scaling model. See Figure 5.

Tracings are very time consuming, but makes it easier to see the details of the images by eliminating the distractions of color, texture and shadow which appear in the photos. A tracing eliminates some of the subjective tendencies of field sketches and insures a more accurate sense of proportion and distance among elements than field sketches and allows for easier identification of individual design elements.

(Continued on Page 13)

Research Updates. Continued

Caution was taken to insure that tracings were as objective as possible. No documentation is complete without both photos and tracings. Examples of older reports with no sketches are hard to decipher when only scanned or old copies are available or when photo quality is poor. In the future, if there is deterioration of digital data, the hard copies of the drawings may still be visible. The method of tracing the panels I use also provides researchers with the opportunity to re-examine the panels and become more aware of similarities and nuances that are not always noted when just photographing the panels. Tracing makes it easier to categorize and compare imagery, is useful for land managers to relocate imagery and can be used for publication.

Although most documentation of rock art sites does not require SfM 3-D models this tool is important for revealing details at sites like the Fort Stanton Petroglyph Rock.



Figure 4: Radiance Scaling Enhancement.



Figure 5: Tracing created using the Radiance Scaling Enhancement.

Acknowledgements

Thanks to Michael Bilbo and Scott Nicolay for accompanying me to take photos at the Fort Stanton Boulder in the summer of 2019 and to Mark Willis who provided me with other radiance scaling models to trace.

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SPRING 2019 NEWSLETTER

Research Updates, Continued.

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In Memoriam



Pete Examining pottery with a tour participant and discussing the Oliver Lee homestead on a restoration tour.

Into the Unknown: A Tribute to Peter L. Eidenbach, 1943 -2020

Story and photos by Joan E Price, JRI

Whether with students, professionals, or advocates of historic preservation and its future in the Tularosa Basin, Pete "Tio" Eidenbach brought years of curiosity and discovery, archaeological training, and state and federal paper work to get historic places and cultural landscapes in southcentral New Mexico into the public patrimony and protection. "Tio" died on May 1, 2020 leaving a uniquely rich legacy of service to this region.

Pete's public outreach is almost legendary; the only limit was the general lack of interest in south-central New Mexico. He never was slowed by that. For almost 50 years, he initiated or contributed to uncounted campaigns to save archaeological sites, historic buildings and the cultural landscapes that went with them, authoring over 20 documents and contributing to many more to substantiate protection under federal and state antiquities laws.

As a professor at New Mexico State University-Alamogordo for some 35 years, Pete interacted with students and the public in his determined dress of moccasins, a stylish western sombrero style woven straw hat, hand rolled cigarettes and black scruffy stringy beard that slowly turned gray over the decades. Most students loved his course topics "into the unknown" that extended the usual curriculum of now famous archaeologists and sites from Mesoamerica to Chaco Canyon to issues of intellectual property rights and Native American cultural affiliation and repatriations rights.

He was a "true Renaissance Man," interested in everything, an artist, a writer, a sharer of knowledge," always ready to put down a book and talk to his caller in a discussion guided by a wealth of people he knew and infused with knowledge and kindness. *(Continued on page 16)*

Peter L. Eidenbach, continued.

Twenty-five scholarly papers that Pete authored are on file at the NMSU-A Townsend Library and his university page became a “go-to-source” for historic preservation, innovative classrooms and even the early promise of digital cultural analysis.

“Tio” was born in New York City and, as a youth, decided to become a doctor with a talent for statistics, according to his wife Sara. One of the remarkable intuitive events in his life was when he filled out numerous applications to medical schools only to “forget” to mail them. And impulsively turned to an application to the Anthropology Department of the University of New Mexico in Albuquerque where he was accepted.

In addition to the esteemed Florence Hawley Ellis, ethnologist and archaeologist, Pete became friends with Dr. Frank Hibben, director of the UNM Department and was one of those entrusted with house-sitting when Hibben was away. Hibben lectured on the Mesoamerican origins of influences being found at Pottery Mound, a theme that Pete backed by his own findings and in association with Dr. Kay Sutherland, a cultural anthropologist from El Paso, Texas, and her findings of Mesoamerican influence in the southern Tularosa Basin.

Pete became fast friends with a number of students at UNM. Their graduate sponsor Cynthia Irwin Williams, a teacher from Eastern New Mexico University, fascinated with the prehistoric sites known in the Basin, initiated a field school to apply new innovative ideas for research design, excavation, documentation and reports at a prehistoric site near Alamogordo where Petes’ closest partner, Mark Wimberly, had grown up and explored. Pete returned with Mark to his homeland to a site in Fresno Canyon that fit all the descriptions of archaic shelters occupied by prehistoric hunter gatherers before the florescence of the ancestral Puebloan era.

The results of the excavations from 1969 through 1972 at Fresno Shelter rocked the young archaeologists, resetting timelines and the skill sets of the early peoples. They found that their more exacting screening processes revealed far more seed species being eaten besides mesquite, acorn and pinon nuts. It was the identification of ancient corn cobs among the layers of dirt floors dating to as early as 3650 BP, the earliest find of the time, that told them the staple food of the Western Hemisphere, the dawn of agriculture and a complete transformation of human organizations had arrived in the Tularosa Basin thousands of years ago from the south. But there was little notice in the wider archaeological community and other finds later advanced the corn dates further into antiquity.

Days in the dirt under the sizzling hot sun, campfire reveries and sleeping under the stars gave rise to the affinity to the eternal land they excavated for the vital clues of previous lifeways. In 1973, some 30 people then formed Human Systems Research, Inc. (HSR), a non-profit educational group to stay rooted in the Tularosa Basin and counter the more impersonal movement from site-to-site and lack of investment in the surrounding community practiced in conventional archaeology. They published almost 500 copies of a technical manual with 40 authors clearly demonstrating archaic and pre-Columbian occupation in the valley.

In 1975, Pete married Sara Hyde, a fiber artist from New Hampshire living in High Rolls who came west to find an exhilarating landscape of breathtaking open skies and a “more than rambunctious soul in Eidenbach” with his deep voice and laugh. Sara and Pete raised two daughters in High Rolls while his mother lived in the historic district of Tularosa near the HSR office. *(Continued on page 17).*

Peter L. Eidenbach, continued.

Deeply concerned with the destruction of so many historic buildings in Alamogordo, the couple turned their talents and attention to create a sense of historic preservation focused on Alamogordo and the surrounding communities of High Rolls, Cloudcroft, La Luz and Tularosa.

Recruiting volunteers, Pete directed public archaeological excavations of the Oliver Lee Ranch for New Mexico Parks and Recreation Division and wrote and produced the Park's interpretive film.

They curated an exhibit of large black and white historic photograph murals for the Van Winkles (now Lowes) grocery store in downtown Alamogordo. Using the digital Photoshop of the times, Sara brought the photographs that Pete found and researched to the high resolution and sharpness needed for the 800-foot photographic mural project with an accompanying brochure and CD-ROM of local history lesson plans for use in regional public schools.

Eidenbach headed years of archaeo-astronomical investigation of a prehistoric observatory he found along a ridge near the very top of Sierra Blanca. A deceptively simple cluster of cairns, a circle and a figure eight constructed of rough stones, demarked a solar clock with alignments on solstice key dates in every direction to distant shrines eventually reported in 1977 and registered as a New Mexico Cultural Property. This regional level of sophistication and timekeeping are the subject of two exhibits he curated--one for the New Mexico Museum of Space History in Alamogordo and the other at the National Solar Observatory at Sun Spot Visitor Center.

It was through two historic figures that Pete brought a special living flavor to this region and to his own talents and personality as well. Eugene Manlove Rhodes, a cowboy poet who thrilled readers of the Saturday Evening Post in the early 1900s and other East Coast publications with stories of life in the region, inspired Pete to read Rhodes work on a tour to his graveside on numerous occasions. In the 1930s, Roland Hazard III, a wealthy tourist turned developer of his own "little Mexico" in La Luz Canyon, created La Luz pottery production plant that employed many people and supplied signature Southwest Revival Style clay roof tiles and artistic household pottery. Both Pete and Sara discovered deeply personal family ties between the historic La Luz/Cloudcroft resident, the Hyde family establishment of New Hampshire towns and economic ventures in textiles and the Hazard family influence in Connecticut.

Continuing decades of professional surveys, archival studies, and data recovery, he also served as a consultant in numerous Native American projects establishing cultural affiliation and protections of tribal landscape claims, and on lawsuits involving Native American land and water claims. When he was not writing up technical papers for his projects, Pete was always available to give lectures at fundraisers, facilitating and networking among the local historic community to build a sense of place in the Tularosa Basin.