



Concho Valley Archeological Society Newsletter

February 2014

Independence Creek 2014 Schedule

Lisa Wrinkle has worked out a tentative schedule with Evans Turpin for the IAS/CVAS outings/recordings.

April 26th:

Day visit to scout upper portions of the south half of the preserve - and GPS features found

June 27th-29th:

This will really be an all-day survey on Saturday the 28th, but housing will be available if folks want to come Friday evening and stay over through Sunday. This trip will be to help survey the creek bank and find any newly exposed bones post-flood, as well as record what was torn up during the floods this past fall. This will be an "in-the-water" survey, so we figured summer would be ideal for this one

October 3rd-5th:

Return trip to survey mesa tops on south end of ranch (recording what was found in April and looking for any new

Ancient Southwest Texas Project – Texas State University

Long-term archaeological research program in the Lower Pecos Canyonlands of Texas

By Steve Black and Jake Sullivan , aswtproject.wordpress.com



Yesterday's blog mentioned that geoarchaeologists Charles Frederick and Ken Lawrence would be with us in the field today. For an archaeologist it is often a humbling experience to have a geoarch look at the same dirt you have been digging through and staring at for days—the things they see that we don't! They have both archaeological and geological training and whereas we 'pure' archaeologists look for cultural layers and cultural things, they look first at the natural formation processes. How and when did the layers form, and how were they transformed since being created by the hand of man and the myriad vectors of 'bioturbation'? This may seem easy enough to decipher with a simple layer-cake stratigraphic profile, but what we have in the rockshelters of Eagle Nest Canyon is anything but simple—convoluted layers chopped up and partially blended by burrowing animals, insects, and the pits, fires, and scratching around that peoples ancient and historic have done. Let's introduce our collaborators of the geoarchaeological persuasion.

Dr. Charles Frederick is regarded by most as the preeminent geoarchaeologist working in Texas today and arguably one of the best in the world. He earned his Ph.D. at UT-Austin under the famed geographer Karl Butzer and he has worked all across Texas and many other places in the world. Charles taught in the University of Sheffield in the UK, but returned to Texas where he is an independent consultant who works as a subcontractor for many different firms and organizations. What sets him apart is his encyclopedic knowledge of geology, pedology (study of soils), and natural

Ancient Southwest Texas Project – Texas State University

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science in general. That and the way he approaches any research project—with an open, critical mind and the belief that something useful can be learned if you pose the right questions and link the big picture to the nitty gritty details. Charles is a true scientist, he forms hypotheses (trial explanations) and then he tries to test them by seeking the hard evidence that could either disprove or strengthen the notion.

His comrade in arms on this trip is Ken Lawrence. Ken earned his M.A. at Texas State University where he studied under geoarchaeologist Dr. Britt Bousman. He works for SWCA an Austin environmental consulting firm. But like Charles he is here volunteering his time to help us because he likes the challenge of working in an area where few geoarchs have ventured. The chance to do pure research unfettered by regulation and the bottom line. Ken, too, appreciates the opportunity to be able to spend time in the field with Frederick. Geoarchaeologists often find it a bit frustrating to work with the unwashed (archaeologists who lack geological training) because we speak different lingo and we don't look at the dirt through the same lens. Watching the two of them bounce ideas and observations off one another is quite educational.

Their mission for the next several days is twofold. First and foremost is helping Dan Rodriguez, the Texas State graduate student who is studying Kelley Cave and adjacent Skiles Shelter for his Master's thesis. Last week Dan and fellow grad students finished digging a 1-x-2m unit in Kelley, or at least he took it as deep as they could practically (and safely) go – a bit over 7 feet deep. When the digging was done, Dan carefully cleaned several of the profiles (walls) and took many overlapping detailed photographs using LED light panels to illuminate the dark confines. This week Black cleaned up the walls a bit more and sprayed them down with a fine mist. Dan's dry photos show some things well, but wetting the walls makes many subtle and obvious details 'pop out.' So we took another round of several hundred overlapping LED-lit close-up photos and through computer magic stitched these together to form geo-referenced mosaic and 3D model using the Structure from Motion (SfM) approach pioneered by our collaborator and archaeo-geek extraordinaire Mark Willis. But we'll tell more about Mark and SfM in future posts.

Today Frederick, Lawrence, and Rodriguez spent all day in and out of the Kelley Cave excavation unit, carefully and minutely examining the stratigraphy (layering) and spotting details neither the photos nor our archaeological eyes had seen. Ken and Charles took turns in the hole, each annotating the printed photomosaics with their take on the layers. Dan watched from above and annotated his own set, asking questions and trying to put the geoarch's observations and explanations in the context of what his excavations had encountered. And we haven't even mentioned the sampling.

We should explain that one of us was also present and madly taking notes. I (Jake) have been tasked by Dr. B (Steve) to make myself useful to the geoarchaeologists, now and as the project unfolds. My minor at Texas State was Geology, so I have an inkling of what they are doing. Both Charles and Ken expressed that the Kelley profile is as complicated and messy a profile as they have ever seen. Their goal is to take as many samples as possible to try and deconstruct how all the sediment came to be in the shelter. According to Charles, the sediment could be alluvium from the Rio Grande, alluvium from Mile Canyon, soil from above the shelter on the canyon rim, and possibly even from swallow and mud dauber nests.

Ken began by taking samples from within the north profile's different stratigraphic layers. Using a trowel he dug as far into the layers as he needed to fill the quart sized sample bags. Once Ken was finished Charles took several micromorphology samples called micromorph blocks. The blocks are handled with the utmost care, wrapped in toilet paper and tape to help maintain their structure. These intact cubes of sediment can later be impregnated with plastic, and once impregnated they can be shaved into thin sections for microscopic analysis. Ken and Charles hope to piece together the jigsaw puzzle of depositional processes within the rockshelter by analyzing the dirt's composition. Today was the first step towards that end.

Above we said that the geoarchaeological mission was twofold. Part two is the big picture: how did the deposits within Eagle Nest Canyon form and transform over time and how did the landscape itself form and weather the passage of time? OK, threefold: Charles and Ken are also here to help us strategize how we will investigate Eagle Cave, the biggest of the canyon's rockshelters, over the next few months. We have formed our basic research plan, but they will help us figure out how we can maximize the amount of data we can collect as we document and sample the rock shelter's discontinuous stratigraphic profiles. Data that will speak to the big picture and inform us as to the nitty-gritty. Stretching before our research eyes are many forms of dirt by other names.

Oldest Javelins Predate Modern Humans, Raise Questions on Evolution

<http://news.nationalgeographic.com>, Charles Q. Choi, November 26, 2013

The oldest known stone-tipped projectiles have been discovered in Ethiopia. The javelins are roughly 280,000 years old and predate the earliest known fossils of our species, *Homo sapiens*, by about 80,000 years.

These javelins are some 200,000 years older than previous examples of similar weapons, suggesting that modern humans and their extinct relatives had the know-how to create these sorts of complex thrown projectiles much earlier than often thought.

Scientists investigated stone tools unearthed at the Gademotta Formation on the flanks of an ancient, large collapsed volcanic crater in central Ethiopia's Rift Valley.

"Today, the area represents a ridge overlooking one of the four lakes in the vicinity, Lake Ziway," said researcher Yonatan Sahle, an archaeologist at the University of California, Berkeley.



During much of the Middle Pleistocene, about 125,000 to 780,000 years ago, "the area was overlooking an even bigger paleolake—a megalake composed of today's four separate lakes." Antelope and hippo remains have been recovered from the grassy, forested site.

The oldest artifacts at the site are roughly 279,000 years old. In comparison, the earliest known fossils of *Homo sapiens*, previously discovered at sites elsewhere in Ethiopia, are about 200,000 years old.

Pointed artifacts with damage suggesting they were used in spears are common at the site. The researchers focused on 141 such obsidian artifacts.

The Tip of the Spear

"We were only interested in testing the hypothesis that these tools were definitely used to tip spears," Sahle said. "The eureka came much later as we did the analysis and found out that the features we were dealing with were the result of throwing impact, not thrusting."

When pointed artifacts are used as weapons, V-shaped fractures, called fracture wings, can form at the moment of impact; the apexes mark where the cracks started. Past experiments in materials such as obsidian have shown that the narrower the V-shapes of fracture wings, the higher the speed of the fracturing that created them.

The researchers discovered that the fracture wings seen in a dozen of these obsidian points suggest that the fracture cracking sped faster than 1,820 miles an hour (2,930 kilometers an hour). In experiments with thrusting spears, that's the maximum velocity seen in fracturing. And some of these artifacts apparently developed fractures after impact at speeds of up to 3,345 miles an hour (5,385 kilometers an hour), close to the maximum velocity seen with fracturing in thrown spears.

A number of these artifacts are among the oldest at the site, suggesting that javelins were used as early as 279,000 years ago. Such weapons are considered signs of complex behavior and were pivotal to the spread of modern humans.

"The implication is that certain behavioral traits that are considered complex and mostly only the domains of anatomically modern humans—such as the capacity to make and use projectiles—were not only incorporated into the technological repertoire of the African early *Homo sapiens*, but also had earlier roots and were present in populations ancestral to *Homo sapiens*," Sahle said.

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Advantages of Throwing

The invention of projectile weapons was a major advance over thrusting spears carried in hand. Projectiles empowered prehistoric hunters to strike at a distance, reducing the risk of injury from dangerous animals and broadening the range of prey that people might capture.

Paleoanthropologist John Shea at Stony Brook University, in New York, who did not take part in this research, said these findings were sound.

"In this area, I can see these thrown spears probably being used against crocodiles, hippos, or some other big animal that one could get close to with boats," Shea said.

Stone-tipped hunting spears appear in the fossil record beginning about 500,000 years ago. However, these were thrusting spears, not thrown javelins. Until now, the oldest conclusive evidence dated such projectiles at 80,000 years old.

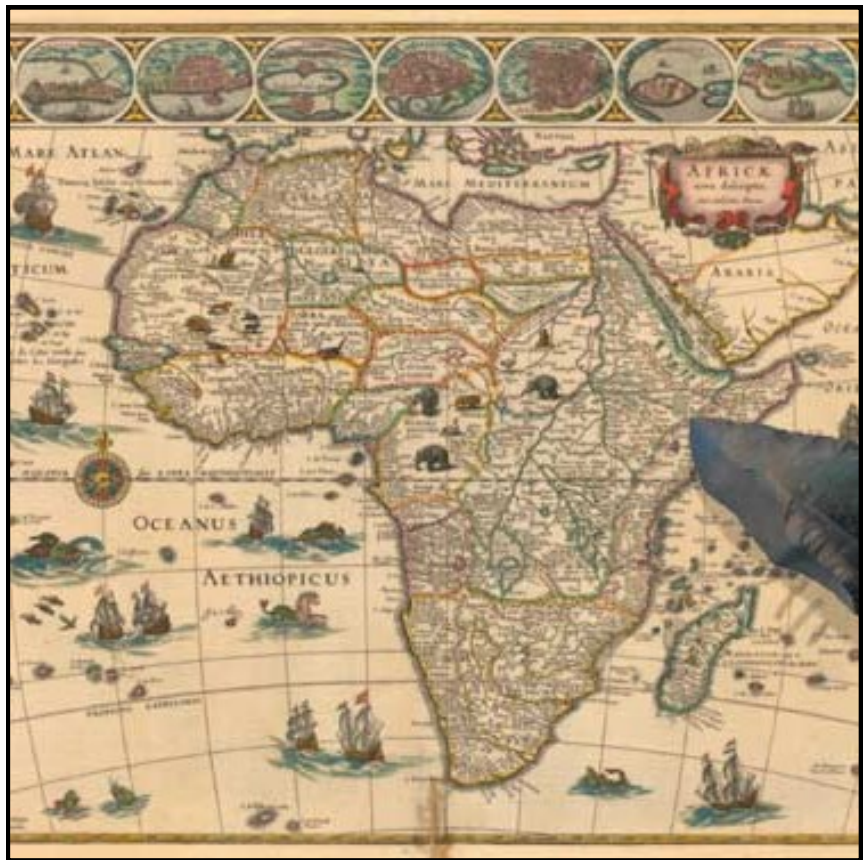
The creator of the most ancient obsidian javelins found at Gademotta was probably *Homo heidelbergensis*, the most likely ancestor to modern humans and Neanderthals, Shea said. There may be no way to determine whether *Homo sapiens* discovered how to make these weapons independently or if they learned how to do so from *Homo heidelbergensis*.

Shea noted many complex behaviors started appearing between 200,000 and 300,000 years ago. "You see a shift in anatomical structures that would have allowed us to speak, and a shift toward more complex tools," he said. "I think the advances seen here in tools have to do with the emergence of language."

Shea cautioned not to read too much into the fact that these findings were made in Ethiopia. "It's often assumed that the earliest discovery of anything is the first instance of anything," Shea said. "This is just the oldest example we have so far of this technology—it doesn't mean that this is where it first evolved."

He suggested similar research could be conducted at other sites "to see how widespread similar points are, to see if everyone at this time is doing the same thing or if there are regional differences."

In the future, the researchers would like to discover when humans began using even more complex mechanically propelled weapons, such as the bow and arrow, and the spear-thrower known as the atlatl, which may have been developed between 60,000 and 100,000 years ago. These weapons may have helped modern humans expand out of Africa and outcompete Neanderthals, they noted.



Location point was found

February Meeting Program

In late October Tee and I attended the TAS annual meeting in Del Rio. One of the highlights was our trip to Meyers Springs at Dryden, Texas. We were part of a small group of TAS members electing to participate in the tour to the springs where we viewed the rock art and military era construction. The Rock Art Foundation is acting as a Steward to the site with full cooperation of the owners. We enjoyed a leisurely hike to the rock art site and spent a good bit of the day examining and photographing the site. Greg Williams of the Rock Art Foundation was our guide and offered a thorough history of the site, including historic military occupation and some history of more ancient times. We found represented in the rock art Pecos River Rock Art style, rock art style chronicling the Spanish influence and the more historic rock art recorded by the soldiers from Fort Clark. Also present are markings inscribed on the limestone walls by the various cowboys.

During this tour I recorded as many photos of the rock art as I could. I was the last one out of the hole and as usual had to get one more photo. I'll be showing some of these photos at our meeting on the 27th of February. Come see us and share the story.

C.A. Maedgen

Toyah Creek

I received information from Evans about the Toyah Creek Field Trip. The trip will be a archeological survey designed by Eric Schroeder with help from both the Iraan Archeological Society and the Concho Valley Archeological Society. The survey will be an effort to identify possible locations of Jumano archeological sites and to identify a hypothetical archeological signature for them.

It will be on Saturday 22nd February. If anyone is interested in making it to the trip that they can call me for more details.

-- Callan

CVAS paper & presentation at SWFAS annual symposium

Tom Ashmore will represent CVAS at the Southwest Federation of Archeological Societies annual symposium in Canyon, Texas on May 3rd. Tom will present information on the recording of two shelters recorded: Dry Creek #1 (41TE687) and Dry Creek #2 (41TE688) within the Independence Creek Nature Preserve in April 2013.

2014 Dues

Please don't forget that annual dues are due this month. The new application form is on the back of this newsletter or you can pay at the meeting to our treasurer, Peter Norris or send it in via mail using the application on the last page of this newsletter.

WE'RE ON THE WEB AT
CVASSANANGELO.ORG

Meeting Location

Please remember that our meetings are now in the classroom at the Fort Concho Living History Stables, **236 Henry O. Flipper St.** We enter through the side door.

2014 Membership Application

Name _____

Address _____

City _____

Zip _____ Phone _____

Cell _____

Family members _____

Email _____

I pledge I will not intentionally violate the terms or conditions of any current or future state or local statute concerning cultural resources or engage in the practice of buying or selling artifacts for commercial purposes, or engage in the willful destruction of archeological data, or disregard proper archeological field techniques

Signature _____ Date _____

Individual	\$15	<input type="checkbox"/>
Family	\$20	<input type="checkbox"/>
Student or military N/C		<input type="checkbox"/>

(active military only)

Mail to: CVAS, 6438 Indian Path, San Angelo, TX 76901