



THE SANTA CRUZ ARCHAEOLOGICAL SOCIETY NEWSLETTER—SUMMER 2022

Scotts Valley Revisited, Forty Years Later

by Rob Edwards

***A 12,000-Year-Old Settlement in Scotts Valley, California that led to the
Largest Volunteer Archaeological Excavation in Central California
-Continuation-***

The information generated by this “salvage” effort about the importance of the site led the City of Scotts Valley to have to provide funds for a large excavation in 1987 when the Scotts Valley City Hall parking lot plans were redesigned. While better funded, the 1987 excavation also utilized volunteers. A great deal more specific and controlled excavated data was produced, analyzed, and included in the monograph.

Analysis and post-excavation research

Many scholars were involved in the analysis of the material from both the 1983 and 1987 excavations under the coordination of Dr. Robert Cartier. The final monograph was published by the Santa Cruz Archaeological Society and A.R.M. (Cartier, 1993). There was a display at City Hall created by A.R.M. Artifacts that were discovered in the both excavations were later curated at UC Santa Cruz (Gifford-Gonzalez, 2017).

While not going into detail there were exceptional analyses done that related the findings in time (back 12,000 years) and space (to previous archaeological findings in Western North America). In the monograph, in a series of chapters, various scholars carefully examined the history of the process that led to the excavation, how the volunteer excavation was carried out, and the analysis of various types of data generated from both the 1983 and 1987 excavations.

Cartier notes in his concluding comments, “the exceptional character of the Scotts Valley site lies in its well documented antiquity, its long duration of occupation....and the relative integrity of its site structure.”(Cartier, 1993, p.271)

It was concluded that; based on the style of the artifacts, the geological context, the 72 sourced obsidian hydration readings, and the 37 carbon dates:

- 1) “There are few archaeological sites known of this antiquity with this degree of dating” (Cartier, 1993, p. 93).
- 2) While its occupation seems to have been episodic, it “contains one of the longest records of human occupation yet known (*as of 1993*) for western North America (Cartier, 1993, p.241).

- 3) And CA-SCR-177, “The Scotts Valley Site” is clearly of great significance (Fenenga, 1993) locally, regionally, Statewide and in North America.

Hopefully, this provides an answer to the why question, of the subsequent Mayor of Scotts Valley, Ray Rezloff, who spoke to the volunteers over pizza and beer at the end of the “Dig” and said,

“I’m not sure why what you all have done is important, but your work has convinced me that it must be important, and I thank you all for your efforts” (Edwards, 1993).

Looking back from 40 years, I think all of us who were involved in and who contributed time, effort, and or money deserve a ***Thank You and a Well Done!***

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Footprints in New Mexico are oldest evidence of humans in the Americas

By Paul Rincon

Science editor, BBC News website

Reprint from <https://www.bbc.com/news/science-environment-58638854>



The footprints belonged to teenagers and children who lived between 23,000 and 21,000 years ago—BOURNEMOUTH UNIVERSITY

Humans reached the Americas at least 7,000 years earlier than previously thought, according to new findings.

The topic of when the continent was first settled from Asia has been controversial for decades.

Many researchers are skeptical of evidence for humans in the North American interior much earlier than 16,000 years ago.

Now, a team working in New Mexico has found scores of human footprints dated to between 23,000 and 21,000 years old.

The discovery could transform views about when the continent was settled. It suggests there could have been great migrations that we know nothing about. And it raises the possibility that these earlier populations could have gone extinct.

The footprints were formed in soft mud on the margins of a shallow lake which now forms part of Alkali Flat in White Sands. The research has been published in the journal *Science*.

Earliest evidence for humans in the Americas

Tools 'demand new American story'

A team from the US Geological Survey carried out radiocarbon dating on seeds found in sediment layers above and below where the footprints were found. This gave the researchers remarkably precise dates for the impressions themselves.

Based on their sizes, scientists think the tracks were made mainly by teenagers and younger children travelling back and forth - along with the occasional adult.



Researchers dated seeds found above and below the layers containing the footprints—BOURNEMOUTH UNIVERSITY

They offer a fascinating window into what life was like for these early occupants of what is now the South West US.

The scientists don't know for sure what the teenagers were doing, but it is possible they were helping the adults with a type of hunting custom seen in later Native American cultures. This was known as the buffalo jump and involved driving animals over a shallow cliff edge.

The animals "all had to be processed in a short period of time," explained Dr Sally Reynolds, co-author from Bournemouth University. "You'd have to start fires, you'd have to start rendering the fat." The teenagers could have been helping out by collecting firewood, water or other essentials.

The age of the discovery is key, because there have been countless claims of early human settlement in the Americas. But virtually all are disputed in some way.

It often comes down to a debate over whether stone tools found at an ancient site are in fact what they appear to be, or are simply rocks broken through some natural process - such as falling from a cliff.

The proposed artefacts at early locales are sometimes less clear-cut than the exquisitely crafted spear-points found in North America from 13,000 years ago onwards. This leaves the door open for doubt about their identity.



A stone point made by the Clovis people. They were once believed to be the first Americans—Getty Images

"Footprints aren't like stone tools. A footprint is a footprint, and it can't move up and down [in the soil layers]."

While the nature of the physical evidence here is harder to dismiss, the researchers had to ensure the dating evidence was - quite literally - watertight.

A potential complication flagged up by the journal during the early stages of review was the "reservoir effect". This refers to the way that old carbon can sometimes get recycled in aqueous environments, interfering with radiocarbon results by making a site seem older than it is.

However, the team members say they have accounted for this effect and believe it is not significant here.

Prof Tom Higham, a radiocarbon dating expert at the University of Vienna, said: "They've undertaken some checks on the dates of material from near to the footprint location and found that fully terrestrial samples (charcoal) produced ages similar to those of the aquatic species they dated from nearer to the footprints.

"They've also argued, I think justifiably, that the lake must have been shallow at the time people walked there, mitigating the effect of reservoir effects introduced by old carbon sources." The consistency of the results and the support from a different dating technique applied to the site both supported the validity of the results, he added.

"I think taken together this is a 21,000-23,000-year-old sequence," Prof Higham told BBC News.

The controversies in early American archaeology have much to do with the historical development of the field.

During the second half of the 20th Century, a consensus emerged among North American archaeologists that people belonging to the Clovis culture had been the first to reach the Americas.



Team members record the seed layers above the prints —BOURNEMOUTH UNIVERSITY

These big game hunters were thought to have crossed a land bridge across the Bering Straits that connected Siberia with Alaska during the last ice age, when sea levels were much lower.

As the "Clovis First" idea took hold, reports of more ancient settlement were dismissed as unreliable and some archaeologists actually stopped looking for signs of earlier occupation.

But in the 1970s, this orthodoxy was challenged.

In the 1980s, solid evidence turned up for a 14,500-year-old human presence at Monte Verde in Chile.

And since the 2000s, other pre-Clovis sites have become widely accepted - such as the 15,500-year-old Buttermilk Creek Complex in central Texas and the 16,000-year-old Cooper's Ferry site in Idaho.

Now, the footprint evidence from New Mexico suggests humans had made it to the North American interior by the height of the last Ice Age, when massive ice sheets covered much of what is today Canada. This would have blocked entry to humans crossing from Asia, perhaps suggesting that humans arrived even earlier when a path - or "corridor" - through the ice was open.

Gary Haynes, an emeritus professor at the University of Nevada, Reno, said: "I cannot find fault with the work that was done or with the interpretations - the paper is important and provocative.

"The trackways are so far south of the Bering land connection that we now have to wonder (1) if the people or their ancestors (or other people) had made the crossing from Asia to the Americas much earlier, (2) if people moved quickly through the continents after each crossing, and (3) if they left any descendants."

Dr Andrea Manica, a geneticist from the University of Cambridge, said the finding had important implications for the population history of the Americas.

"I can't comment on how reliable the dating is (it is outside my expertise), but firm evidence of humans in North America 23,000 years ago is at odds with the genetics, which clearly shows a split of Native Americans from Asians approximately 15-16,000 years ago," he told BBC News.

"This would suggest that the initial colonists of the Americas were replaced when the ice corridor formed and another wave of colonists came in. We have no idea how that happened."

DNA reveals surprise ancestry of mysterious Chinese mummies

By Smriti Mallapaty

Reprint from <https://www.nature.com/articles/d41586-021-02948-y>

The genomes of 13 remarkably preserved 4,000-year-old mummies from the Tarim Basin suggest they weren't migrants who brought technology from the west, as previously supposed.



Cemeteries in the Taklamakan Desert, China, hold human remains up to 4,000 years old. Credit: Wenying Li, Xinjiang Institute of Cultural Relics and Archaeology

Since their discovery a century ago, hundreds of naturally preserved mummies found in China's Tarim Basin have been a mystery to archaeologists. Some thought the Bronze Age remains were from migrants from thousands of kilometres to the west, who had brought farming practices to the area. But now, a genomic analysis suggests they were indigenous people who may have adopted agricultural methods from neighbouring groups.

As they report today in *Nature*¹, researchers have traced the ancestry of these early Chinese farmers to Stone Age hunter-gatherers who lived in Asia some 9,000 years ago. They seem to have been genetically isolated, but despite this had learnt to raise livestock and grow grains in the same way as other groups.

The study hints at “the really diverse ways in which populations move and don't move, and how ideas can spread with, but also through, populations”, says co-author Christina Warinner, a molecular archaeologist at Harvard University in Boston, Massachusetts.

The finding demonstrates that cultural exchange doesn't always go hand in hand with genetic ties, says Michael Frachetti, an archaeologist at Washington University in St. Louis, Missouri. “Just because those people are trading, doesn't necessarily mean that they are marrying one another or having children,” he says.

Perfect preservation environment

Starting in the early twentieth century, the mummies were found in cemeteries belonging to the so-called Xiaohe culture, which are scattered across the Taklamakan Desert in the Xinjiang region of China. The desert “is one of the most hostile places on Earth”, says Alison Betts, an archaeologist at the University of Sydney in Australia.

Here, bodies had been buried in boat-shaped coffins wrapped in cattle hide. The hot, arid and salty environment of the desert naturally preserved them, keeping everything from hair to clothing perfectly intact. Before the latest study, “we knew an awful lot about these people, physically, but we knew nothing about who they were and why they were there”, says Betts.

The mummies — which were buried over a period of 2,000 years or more — date to a significant time in Xinjiang's history, when ancient communities were shifting from hunter-gatherers to farmers, she adds.



The harsh desert conditions preserved the bodies as natural mummies.

Credit: Wenyong Li, Xinjiang Institute of Cultural Relics and Archaeology

Some of the later mummies were buried with woollen fabrics and clothing similar to those of cultures found to the west. The graves also contained millet, wheat, animal bones and dairy products — evidence of agricultural and pastoral technologies characteristic of cultures in other regions of Eurasia, which led researchers to hypothesize that these people were originally migrants from the west, who had passed through Siberia, Afghanistan or Central Asia.

The researchers behind the latest study — based in China, South Korea, Germany and the United States — took DNA from the mummies to test these ideas, but found no evidence to support them.

They sequenced the genomes of 13 individuals who lived between 4,100 and 3,700 years ago and whose bodies were found in the lowest layers of the Tarim Basin cemeteries in southern Xinjiang, as well as another 5 mummies from hundreds of kilometres away in northern Xinjiang, who lived between 5,000 and 4,800 years ago.

They then compared the genetic profiles of these people with previously sequenced genomes from more than 100 ancient groups of people, and those of more than 200 modern populations, from around the world.

Two groups of people

They found that the northern Xinjiang individuals shared some parts of their genomes with Bronze Age migrants from the Altai Mountains of Central Asia who lived about 5,000 years ago — supporting an earlier hypothesis.

But the 13 people from the Tarim Basin did not share this ancestry. They seem to be solely related to hunter-gatherers who lived in southern Siberia and what is now northern Kazakhstan some 9,000 years ago, says co-author Choongwon Jeong, a population and evolutionary geneticist at Seoul National University. The northern Xinjiang individuals also shared some of this ancestry.

Evidence of dairy products was found alongside the youngest mummies from the upper layers of cemeteries in the Tarim Basin, so the researchers analysed calcified dental plaque on the teeth of some of the older mummies to see how far back dairy farming went. In the plaque, they found milk proteins from cattle, sheep and goats, suggesting that even the earliest settlers here consumed dairy products. “This founding population had already incorporated dairy pastoralism into their way of life,” says Warinner.

But the study raises many more questions about how the people of the Xiaohe culture got these technologies, from where and from whom, says Betts. “That’s the next thing we need to try and solve.”

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California Partners in Preservation

Reprint from <https://www.blm.gov/programs/cultural-heritage-and-paleontology/archaeology/partners-in-preservation/california>



A variety of historic preservation partners help the BLM California to manage hundreds of significant cultural heritage resources for present and future generations. Among the longest standing, most stalwart partner is the Society for California Archaeology (SCA) -- a nonprofit scientific and educational organization dedicated to research, understanding, interpretation and conservation of the State's heritage. The BLM California has collaborated with SCA on California Archaeology Month and other heritage events. The BLM California also works closely with the California State University system (the CSU Sacramento and Chico campuses) to provide opportunities for research, education, and other preservation projects. Heritage education and hands-on public (including youth) involvement in the BLM California's Heritage Program have been enhanced by partnerships with the California Archaeological Site Stewardship Program, Project Archaeology, Hands on the Land, and the Nevada Rock Art Foundation.

Society for California Archaeology is a nonprofit scientific and educational organization dedicated to research, understanding, interpretation and conservation of California's heritage.

California Archaeological Site Stewardship Program trains volunteers to work with professional archaeologists to protect archaeological and historical resources by regularly visiting sites and recording changes. CASSP is organized by the Society for California Archaeology (SCA).

Chico State University is a campus of the California State University system.

Sacramento State University is a campus of the California State University system.

Nevada Rock Art Foundation is a non-profit organization that actively promotes the protection of prehistoric rock art in Nevada and surrounding areas. The Foundation implements its mission through programs that improve archaeological knowledge of rock art and raise public awareness of rock art's heritage significance.

Project Archaeology is an educational organization dedicated to teaching scientific and historical inquiry, cultural understanding, and the importance of protecting our nation's rich cultural resources. It is a national network of archaeologists, educators, and concerned citizens working to make archaeology education accessible to students and teachers nationwide through high-quality educational materials and professional development.

Hands on the Land is a national network of field classrooms and agency resources to connect students, teachers, families, and volunteers with public lands and waterways.

2022 Fall Speaker Lineup

Until further notice, SCAS General Meetings will be held online. For more information, and directions for how to RSVP for meetings, visit the SCAS website:

<http://www.santacruzarchsociety.org/calendar>

RESERVATION ONLY & SPACE LIMITED, WITH PREFERENCE TO CURRENT SCAS MEMBERS.

- September 8 Lucian Schrader, UC Davis
- October 13 Elaine Sullivan, Associate Professor, UCSC
- November 10 Jennifer Farquhar, Albion Environmental
- December 8 Tom Origer Santa Rosa Community College, Tom Origer & Associates

Archaeological Society Business

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