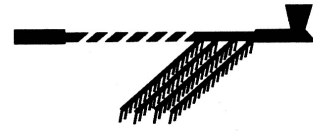


CALUMET



Newsletter of the Indian Peaks Chapter of the Colorado Archaeological Society
December, 2009

CALENDAR OF EVENTS

Presentation (lecture) meetings are held in the University of Colorado Museum, Dinosaur Room on the Second Thursday of most Months, at 7:00 PM. **The public is always welcome.**

Web Site: WWW.INDIANPEAKSARCHAEOLOGY.ORG

December 3 IPCAS SPECIAL MEETING, 7:00, See Following Article

December 10 IPCAS Christmas Party, See Page 2

To All IPCAS Members:

There have been no volunteers for filling vacancies of IPCAS Officers and Board of Directors for leading IPCAS in 2010. The election for the next year's officers is normally held at the November meeting. Due to lack of candidates, at last week's program the members in attendance voted to postpone the election until the January 2010 meeting in hopes of producing a slate of candidates.

Katherine McComb is leaving the Treasurer office. I am stepping down from President after several years of holding Co-President or President. The Vice President office was vacant this year. Only Dave Hawley has agreed to continue as Secretary. There is also a need for a few more Directors.

It is obvious that the Chapter cannot continue to operate without leadership and a treasurer. Some of you may have recently received a phone call or email with this information. The majority comments received have been disappointing with folks too busy, already over-committed to higher priorities, out of town/traveling, or just not interested and not active members. These are not just excuses, but a reality check of our own lives. Too many things we want to do, and not enough time.

Yes, we can all agree that IPCAS is not attracting new and younger members. I can tell you that at the State level of CAS there is the same concern with shrinking membership state-wide. Recruiting and marketing for new members are long term strategies. Bottom line, the Chapter is in dire straits NOW, and there is no magic pill to cure it unless the *current members themselves wish for it to survive*.

Thus, all interested members are invited to attend the December Board meeting to provide positive input for where we are heading as a Chapter - to survive, if possible, with realistic solutions. Or make a thoughtful decision to dissolve IPCAS in the near future. Please give some serious thought to this - we are definitely at a crossroads.

The meeting is scheduled for Thursday, December 3 at 7:00 pm at the Community Room of the 29th Street Shopping Center in Boulder. The Community Room is reached from the tri-level parking garage on the east side of the Shopping Center off of 30th St and north of Century Theater. Drive to and park in the top level of the garage, then take the walkway to the elevator and go to the top floor. The Room is just southwest of the elevator.

Suggestions via phone or email are welcome, however the true level of commitment is to be there in person to make your voice heard and discuss the alternatives. If you can attend the meeting (it may be the last one), please RSVP to Tom Cree so we have adequate seating, enough handouts and maybe a few refreshments.

Kris Holien
IPCAS President

Editor’s Opinion: The problem in IPCAS is real. IPCAS is a decades-old organization that is experiencing a current problem that is common to many organizations. IPCAS has a core of strong leaders. However, our current officers have served on and off (mostly on) for over a decade and they are tired (burned out). They need a couple of years away from IPCAS leadership to recharge their batteries. Most of the current leadership is remaining on the Board of Directors.

Other than the current leadership problem, IPCAS is in great shape. We have more than sufficient funds in our treasury. We have an active membership that participates in volunteer projects, both within the club and outside, and that comes to presentation meetings that interest them. IPCAS has a good presentation venue at the CU Museum and attracts speakers of varied topic and background. IPCAS has a good working relationship with the Colorado State CAS and Historical Society, as well as participation with National Park, National Forest, BLM, and Boulder County agencies.

What IPCAS currently needs are members to serve in leadership positions for the next few years. For 2010, we need members to serve as President, Vice-President, Treasurer, and Membership Chair. In the past, two members have served as Co-Presidents as a team, sharing the President and Vice-President roles, and this has worked very well. IPCAS also needs members to join the Board (get their “feet wet”, so to speak) with the intention of moving into leadership roles in 2011 or 2012. The past leadership will also be on the board to assist in this process. And new ideas are always a benefit to an organization.

Please consider accepting one of these leadership roles, either this year or in the next couple of years. Your help is needed.

Annual Christmas Party

The IPCAS Christmas Party will begin at 6:00 PM Thursday, December 10, in the basement Dining Hall at St. Andrew's Church, located at 3700 Baseline Road in Boulder. Our Christmas Party is a potluck dinner and fun get-together. The club provides the table service, utensils, and the beverages. Each person (or couple) attending brings one main dish and one salad/dessert to share. Bring your spouse or a friend, please. Plan on 25 people attending.

We also feature the White Mammoth Exchange. Each person brings a wrapped gift for exchange. Gifts should be something that you no longer need, no longer want, and are tired of looking at. Not-so-great gifts are the norm. The White Mammoth Exchange is very exciting and a fun end to our program year.

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Archaeologists Track Infamous Conquistador Through Southeast

ScienceDaily (Nov. 5, 2009) — Archaeologists at Atlanta's Fernbank Museum of Natural History have discovered unprecedented evidence that helps map Hernando de Soto's journey through the Southeast in 1540. No evidence of De Soto's path between Tallahassee and North Carolina has been found until now, and few sites have been located anywhere. Fernbank's Curator of Native American Archaeology, Dennis Blanton, has amassed an impressive collection of objects that reveal a probable stop in today's Telfair County, Ga., a location important not only for its critical mass of de Soto-era artifacts but also for its position off the previously predicted route. He'll present a scholarly paper before colleagues at the Southeastern Archaeological Conference on November 5 in Mobile, Alabama. "When we first started this excavation, I was surprised to learn there is no concrete evidence in Georgia of De Soto's path from Tallahassee to North Carolina. A single bead has been found here, a bead has been found there, but nothing of this nature," he said. "What we have now is the best-documented collection of Spanish artifacts in Georgia. Many are unique and they are the only examples of certain artifacts ever found outside Florida."

The most significant findings -- rare glass beads, metal artifacts and other objects -- add up to a heap of evidence that De Soto came calling near McRae, Ga. over 450 years ago. Because Native Americans did not have glass or metal before the arrival of Europeans, archaeologists look for these materials when documenting early explorers. Fernbank's site has both. Until now, many scholars expected De Soto's path to veer farther west, toward Macon.

"Archaeologists have a pretty good handle now on what a De Soto site would look like. I think it's a good working hypothesis that this was a De Soto contact site. It's close enough to the [estimated] route. It's got the right kind of materials," said Dr. Charles Ewen, an archaeologist at East Carolina University who co-directed the excavation of De Soto's 1539 winter encampment in Tallahassee, Fla. "Sometimes a hypothesis is as good as it gets in archaeology. Right now this looks like De Soto went through there. Without going back in time, this evidence may be as close as you are going to get [to identifying De Soto's path]. No matter what, it's a great site."

Among Fernbank's rare finds are two types of glass beads never found outside Florida and several chevron beads that date to the Spanish exploration -- the types of artifacts often seen as "calling cards" of De Soto due to their distinctive patterns and limited production. Blanton has meticulously recorded the context of the artifacts, something missing from most other Georgia finds as a result of treasure hunters and looters.

"The fact that it [Fernbank's research] is being carried out in a controlled, scientific fashion is absolutely essential for correctly interpreting the site and its contents," said Dr. Jeffrey M. Mitchem, an archaeologist and De Soto scholar at the Parkin Archaeological State Park in Arkansas, which many scholars believe to be the Native American village of Casqui visited by De Soto's expedition in the summer of 1541. "So many of the archaeological sites that have yielded bits and pieces of evidence for early Spanish contact were destroyed by uncontrolled digging and looting. In those cases we end up with a bunch of pretty objects but little else."

The rarest artifacts were recovered within the context of a large structure that Blanton believes was a "council house," typically established in major communities for ceremonies and other business within the territory. "Applying the logic that De Soto targeted prominent Native communities raises the odds that he visited our site," Blanton said. "This research is a bit controversial because we found evidence of De Soto where we weren't supposed to...all this evidence might just be saying 'Hernando de Soto slept here.'"

Blanton sees "a certain amount of serendipity" in his monumental findings because he didn't set out to search for De Soto when he began the archaeology program in 2006. Blanton's initial hope was to find the lost Spanish Mission settlement of Santa Isabel de Utinahica, a site that would have dated to the early-1600s. As the excavation began producing only objects that pre-dated the mission system, Blanton devoted himself to the process of accounting for the unanticipated findings.

The research isn't over, though. Blanton intends to continue excavations -- in Telfair County and beyond -- in an effort to establish concrete stops along De Soto's journey. Tracking the infamous conquistador's journey through Native communities reveals how he affected Native populations. The research helps provide a bridge between the historic and prehistoric periods.

Dr. Ewen said he hopes to see more evidence of what the link to De Soto could offer about what life was like for Native Americans before the arrival of Europeans. "I don't think the public understands how complex the societies were that De Soto came into contact with. We tend to have a simplistic view of what the Indians were before the Spanish," he said. "We're now starting to get a handle on what the Indians were thinking as the Europeans arrived."

Blanton agrees that a big part of establishing De Soto's path is the window it opens into the indigenous landscape of the area. "Until we know De Soto's path, we won't fully understand Native populations or the changes that took place after European contact. This is where the Spanish story and the Native story become one," Blanton said.

New Technology For Dating Ancient Rock Paintings

ScienceDaily (Mar. 16, 2009) — A new dating method finally is allowing archaeologists to incorporate rock paintings — some of the most mysterious and personalized remnants of ancient cultures — into the tapestry of evidence used to study life in prehistoric times.

In the study, Marvin W. Rowe points out that rock paintings, or pictographs, are among the most difficult archaeological artifacts to date. They lack the high levels of organic material needed to assess a pictograph's age using radiocarbon dating, the standard archaeological technique for more than a half-century.

Rowe describes a new, highly sensitive dating method, called accelerator mass spectrometry, that requires only 0.05 milligrams of carbon (the weight of 50 specks of dust). That's much less than the several grams of carbon needed with radiocarbon dating.

The research included analyzing pictographs from numerous countries over a span of 15 years. It validates the method and allows rock painting to join bones, pottery and other artifacts that tell secrets of ancient societies, Rowe said. "Because of the prior lack of methods for dating rock art, archaeologists had almost completely ignored it before the 1990s," he explained. "But with the ability to obtain reliable radiocarbon dates on pictographs, archaeologists have now begun to incorporate rock art into a broader study that includes other cultural remains."

Nasca People Of Ancient Peru: Forest Clearances Sealed Civilization's Downfall

ScienceDaily (Nov. 3, 2009) — An ancient South American civilization which disappeared around 1,500 years ago helped to cause its own demise by damaging the fragile ecosystem that held it in place, a study has found. Archaeologists examining the remains of the Nasca, who once flourished in the valleys of south coastal Peru, have uncovered a sequence of human-induced events which led to their "catastrophic" collapse around 500 AD.

The Nasca are probably best known for the famous "Nazca Lines," giant geoglyphs which they left etched into the surface of the vast, empty desert plain that lies between the Peruvian towns of Nazca and Palpa.

The depictions have spawned various wild theories, including that they were created by aliens. Most scholars now believe that they were sacred pathways which Nasca people followed during the course of their ancient rituals. Other aspects of Nasca history and culture remain less clearly understood, however. In particular, experts have struggled to explain why a society which clearly prospered during the first half of the first Millennium AD then collapsed into a bloody resource war and eventually vanished.

Some have argued that a mega-El Niño, which hit the region at around that time, may have been the cause. Writing in the journal *Latin American Antiquity*, however, a team of researchers led by Dr. David Beresford-Jones from the McDonald Institute for Archaeological Research at Cambridge University, suggest that the Nasca inadvertently wrought their own demise.

Using plant remains gathered in the lower Ica Valley, the team found evidence that over the course of many generations, the Nasca cleared areas of forest to make way for their own agriculture. Studies of pollen samples taken by co-researcher Alex Chepstow-Lusty, of the French Institute of Andean Studies in Lima, showed that the huarango tree, which once covered what is now a desert area, was gradually replaced by crops such as cotton and maize. As the paper explains, however, the huarango was more than just a tree -- it was a crucial part of the desert's fragile ecosystem, which enhanced soil fertility and moisture and helped to hold the Nasca's narrow, vulnerable irrigation channels in place.

Eventually, they cut down so many trees that they reached a tipping point at which the arid ecosystem was irreversibly damaged. The authors do not dispute that a major, El Niño-style event then occurred -- finding hard evidence for this for the first time. But they also find that the impact of this flood would have been far less devastating had the forests which protected the delicate desert ecology still been there. "These were very particular forests," Dr. Beresford-Jones said. "The huarango is a remarkable nitrogen-fixing tree and it was an important source of food, forage, timber and fuel for the local people. Furthermore, it is the ecological 'keystone'

species in this desert zone, enhancing soil fertility and moisture, ameliorating desert extremes in the microclimate beneath its canopy and underpinning the floodplain with one of the deepest root systems of any tree known.

"In time, gradual woodland clearance crossed an ecological threshold -- sharply defined in such desert environments -- exposing the landscape to the region's extraordinary desert winds and the effects of El Niño floods." In the absence of huarango cover, when El Niño did strike, the river down-cut into its floodplain, Nasca irrigation systems were damaged and the area became unworkable for agriculture. This fits with other evidence that shows that the generations that came afterwards did not fare as well as their predecessors: infant mortality rose, while average adult life expectancy fell. The crops cultivated by their ancestors disappeared in the lower Ica Valley and the area was probably afflicted by a severe drought.

The study's authors say that their work contradicts a popular view that Native American peoples always lived in harmony with their environment until the Spanish Conquest. Perhaps more importantly, however, their research also stresses the importance of huarango woodlands for sustaining livelihoods and creating fertile areas in these environments. There are now no undisturbed ecosystems in the region and what remains of the old-growth huarango forests is being destroyed in illegal charcoal-burning operations.

"The mistakes of prehistory offer us important lessons for our management of fragile, arid areas in the present," co-author Oliver Whaley of the Royal Botanic Gardens, Kew, added.

Archaeologist 'Strikes Gold' With Find Of Ancient Nasca Iron Ore Mine In Peru

ScienceDaily (Feb. 3, 2008) — A Purdue University archaeologist discovered an intact ancient iron ore mine in South America that shows how civilizations before the Inca Empire were mining this valuable ore.

"Archaeologists know people in the Old and New worlds have mined minerals for thousands and thousands of years," said Kevin J. Vaughn, an assistant professor of anthropology who studies the Nasca civilization, which existed from A.D. 1 to A.D. 750. "Iron mining in the Old World, specifically in Africa, goes back 40,000 years. And we know the ancient people in Mexico, Central America and North America were mining for various materials. There isn't much evidence for these types of mines.

"What we found is the only hematite mine, a type of iron also known as ochre, recorded in South America prior to the Spanish conquest. This discovery demonstrates that iron ores were important to ancient Andean civilizations." In 2004 and 2005, Vaughn and his team excavated Mina Primavera, which is located in the Ingenio Valley of the Andes Mountains in southern Peru. The research team performed field checks and collected some samples in 2006 and 2007. The researchers determined that the mine is a human-made cave that was first created around 2,000 years ago. An estimated 3,710 metric tons was extracted from the mine during more than 1,400 years of use. The mine, which is nearly 700 cubic meters, is in a cliffside facing a modern ochre mine.

Vaughn hypothesizes that the Nasca people used the red-pigmented mineral primarily for ceramic paints, but they also could have used it as body paint, to paint textiles and even to paint adobe walls. The Nasca civilization is known for hundreds of drawings in the Nasca Desert, which are known as the Nasca-Lines and can only be seen from the air, and for an aqueduct system that is still used today.

Vaughn and his team discovered a number of artifacts in the mine, including corncobs, stone tools, and pieces of textiles and pottery. The age of the items was determined by radiocarbon dating, a process that determines age based on the decay of naturally occurring elements.

"Archaeologists have a very good sequence of pottery from this region, so I can look at most pots from this region and determine a date within a century that is based on stylistic changes of the pottery," Vaughn said. "Even before the dating, we knew this was an ancient mine because of the ceramic pieces. These very small fragments, about the size of a penny, had distinct designs on them that are characteristic of the early Nasca civilization." The artifacts from the excavation are being curated by the Instituto Nacional de Cultura of Peru at its museum in Ica, Peru.

Now that there is archaeological evidence that ancient cultures in the Andes were mining iron ore, it is important to give credit to New World civilizations, Vaughn said. "Even though ancient Andean people smelted some metals, such as copper, they never smelted iron like they did in the Old World," he said. "Metals were used for a variety of tools in the Old World, such as weapons, while in the Americas, metals were used as prestige goods for the wealthy elite."

This excavation was part of Vaughn's Early Nasca Craft Economy Project, a multiyear National Science Foundation-funded study of Nasca ceramic production and distribution. The project's goal is to better understand the origins of inequality and political economy in this ancient culture. Vaughn says material scientists and engineers, as well as mineralogists, will be interested in this discovery.

"This study of mining is a great example of how archaeology bridges the social and physical sciences," he said. The National Science Foundation and the Heinz Foundation funded the Mina Primavera excavation. Next, Vaughn will be excavating a habitation site that has a 4,000-year occupation in hopes of understanding the long-term settlement history of the region.

"I hope to continue surveying for mines and mining-related sites in the region, and hopefully undertake additional excavations at the mine," he said. The findings of the excavation are published in December's *Journal of the Minerals, Metals & Materials Society*.

Oldest Human Footprints With Modern Anatomy Found

John Roach for [National Geographic News](#), February 26, 2009

About 1.5 million years ago, human ancestors walked upright with a spring in their steps just as modern humans do today, suggests an analysis of ancient footprints found in northern Kenya. The prints are the oldest known to show modern foot anatomy. The discovery also helps round out the picture of a cooling and drying episode in [Africa](#) that compelled tree-dwelling human ancestors to venture into the open landscape for food, said John Harris, a paleoanthropologist at Rutgers University in New Brunswick, New Jersey.

The ancient footprints indicate a rounded heel, pronounced arch, and a big toe parallel to the other toes just as modern humans have, Harris noted. The big toes of chimpanzees, by contrast, splay outward, which is useful for grasping branches. "We've lost that, but what we've created is a platform from which we can step up on and balance ourselves on and push off on in bipedal locomotion," said Harris, who is a co-author of a paper describing the footprints in tomorrow's issue of the journal *Science*.

Embedded in Mud

The rare prints were found embedded in what was once muddy soil among tracks of ancient birds, lions, antelopes, and other critters. Harris said the print makers were likely walking to or from a watering hole. The size and spacing of the footprints indicate they were made by people with bodies similar to modern humans. Given their age, the prints were most likely made by *Homo erectus*, the first human ancestor to sport long legs and short arms, Harris said.

At the time *H. erectus* emerged, about 1.5 to 1.7 million years ago, global climate was cooling and the African landscape was changing from tropical forest to open savanna. Food sources—nuts, fruits, vegetables, and animals—were becoming more dispersed. "There was selection for creatures, including ourselves, that could walk over longer distances on the landscape between the patches of more productive food," Harris said.

Adapted for Running?

Daniel Lieberman is an anthropologist at Harvard University in Cambridge, Massachusetts and an expert on the evolution of human locomotion. In an email exchange, he said the "prints unambiguously indicate that by 1.5 million years ago *H. erectus* had a human-like foot." Other human ancestors such as the australopithecines may have also been efficient walkers, he said. But a more modern foot anatomy with spring-like arches and short toes is important for running, which may have contributed to the success of *H. erectus*. "I would be surprised if this were not the case," Lieberman said. "Because how could *H. erectus* have hunted more than a million years before the invention of tipped spears—as we know it did—without the ability to run well?"

Underwater Exploration Seeks Evidence Of Early Americans

ScienceDaily (July 9, 2009) — Where the first Americans came from, when they arrived and how they got here is as lively a debate as ever, only most of the research to date has focused on dry land excavations. But, last summer's pivotal underwater exploration in the Gulf of Mexico led by Mercyhurst College archaeologist Dr. James Adovasio yielded evidence of inundated terrestrial sites that may well have supported human occupation more than 12,000 years ago, and paved the way for another expedition this July.

As part of their 2008 findings, the researchers located and mapped buried stream and river channels and identified in-filled sinkholes that could potentially help document the late Pleistocene landscape and contain artifacts and associated animal remains from early human occupations. Continued exploration, Adovasio said, will be geared toward assessing a human presence on the now submerged beaches and intersecting river channels.

"There's no doubt that early North American occupations are underwater, but it's like looking for a needle in a haystack," he said. "We have found the haystack; now we've got to find the needles."

That happens July 23-Aug. 7 when Adovasio leads a team of scientists representing leading institutions from government and higher education to St. Petersburg, Fla., where they'll resume their search for evidence of early Americans in an area 100-to-200 miles off Florida's west coast, now about 300 feet under water. For the second year, Adovasio will be assisted by co-principal investigator Dr. C. Andrew Hemmings of Mercyhurst College and the Gault School of Archaeological Research in Austin, Texas. This year as last, the primary funding source is the National Oceanic and Atmospheric Administration (NOAA).

The decision to take their expedition underwater in the first place, Adovasio said, stems from the premise that early Americans probably hugged the American coastline, congregating around freshwater rivers, before heading inland. At that time, much of the world's water was confined to glaciers, causing ocean levels to be lower and exposing more of the continental shelf. As the earth warmed and water levels rose, evidence of past settlements became submerged.

Dredging and storms have turned up artifacts on the Gulf Coast as well as the Atlantic and Pacific coastlines, but Adovasio said this is the first time a group of scientists has staked out a submerged piece of real estate suspected of containing preserved Ice Age beaches and systematically gone in search of early human occupations. From the University of South Florida's research boat, the team will use remotely operated vehicles and remote sensing tools to explore the submerged sites. In shallower depths, divers will inspect sites to collect artifacts and animal fossils and recover sediments for geological analysis and possible radiocarbon testing.

"Proof of past human habitation here would reinforce the disintegration of the once prevalent hypothesis about who the first Americans were, how they got here and when they arrived," said Adovasio, who rose to fame 30 years ago while excavating the Meadowcroft Rockshelter near Pittsburgh, Pa. Radiocarbon dating at Meadowcroft revealed the presence of human campsites as many as 16,000 years ago, which went a long way toward dashing the Clovis-first paradigm, holding that the first humans arrived in the Americas about 12,000 years ago, as revealed by a site near Clovis, New Mexico.

The inaugural expedition confirmed many of the scientists' original hypotheses and earned second-year funding from NOAA in the amount of \$120,000, Adovasio said. Besides NOAA, additional supporters, providing everything from in-kind services to personnel, include the Mercyhurst Archaeological Institute, the Gault School of Archaeological Research, the Florida Bureau of Archaeological Research, the Florida Geological Survey, the University of South Florida, the University of Michigan and the University of Illinois at Chicago Circle, among others, Adovasio noted.

New Research Forces U-turn In Population Migration Theory

ScienceDaily (May 26, 2008) — Research led by the University of Leeds has discovered genetic evidence that overturns existing theories about human migration into Island Southeast Asia (covering the Philippines, Indonesia and Malaysian Borneo) - taking the timeline back by nearly 10,000 years. Prevailing theory suggests that the

present-day populations of Island Southeast Asia (ISEA) originate largely from a Neolithic expansion from Taiwan driven by rice agriculture about 4,000 years ago - the so-called "Out of Taiwan" model.

However an international research team, led by the UK's first Professor of Archaeogenetics, Martin Richards, has shown that a substantial fraction of their mitochondrial DNA lineages (inherited down the female line of descent), have been evolving within ISEA for a much longer period, possibly since modern humans arrived some 50,000 years ago. Moreover, the lineage can be shown to have actually expanded in the opposite direction - into Taiwan - within the last 10,000 years.

Says Professor Richards: "I think the study results are going to be a big surprise for many archaeologists and linguists on whose studies conventional migration theories are based. These population expansions had nothing to do with agriculture, but were most likely to have been driven by climate change - in particular, global warming and the resulting sea-level rises at the end of the Ice Age between 15,000-7,000 years ago." At this time the ancient continent known as Sundaland -- an extension of the Asian landmass as far as Borneo and Java -- was flooded to create the present-day archipelago.

Although sea-level rise no doubt devastated many communities, it also opened up a huge amount of new coastal territory for those who survived(1). The present-day coastline is about twice as great as it was 15,000 years ago.

"Our genetic evidence suggests that probably from about 12,000 years ago these people began to recover from the natural catastrophes and expanded greatly in numbers, spreading out in all directions, including north to Taiwan, west to the Southeast Asian mainland, and east towards New Guinea. These migrations have not previously been recognised archaeologically, but we have been able to show that there is supporting evidence in the archaeological record too."

The interdisciplinary research team comprised colleagues from Leeds, Oxford, Glasgow, Australia and Taiwan. The study was funded by the Bradshaw Foundation and the European Union Marie Curie Early Stage Training program and is published in the current issue of *Molecular Biology and Evolution* (MBE).

Ancient Shipwreck's Stone Cargo Linked to Apollo Temple

Helen Fields for [National Geographic magazine](#), February 23, 2009

For a few days back in July 2007, it was hard for archaeologist Deborah Carlson to get any work done at her site off the Aegean coast of western [Turkey](#). She was leading an underwater excavation of a 2,000-year-old shipwreck, but the Turkish members of her crew had taken time off to vote in national elections. So things were quiet at her camp on an isolated cape called Kızılburun.

The shipwrecks' main cargo was 50 tons of marble—elements of a huge column sent on an ill-fated journey to a temple, Carlson thought. But she didn't know which temple, so she used all her days off to drive around the area looking at possibilities. There were a lot—western Turkey, once part of ancient Greece and later in the Roman Empire, is home to sites like Ephesus and Troy. But Carlson had narrowed down her choices to a list of nearby temples that were in use in the first century BC—the likely date of the shipwrecks' column. The Temple of Apollo at Claros, about 40 miles (64 kilometers) from Kızılburun, was at the top of her list during the July 2007 election holiday. She drove up to the deserted site and knew she was on to something when she looked at the fallen-down marble columns scattered on the marshy land. "I was struck pretty much right away," she recalls. The columns were Doric, the same as the marble on the ship, and looked like the right size. She waded around in the spring water that floods the site, checking chunks of columns with a tape measure. "I thought, wow, this is definitely a candidate."

A year-and-a-half later, it looks like Carlson's first impression was right. Using a variety of techniques, she has linked the column in the Kızılburun shipwreck to its likely intended destination, the Claros temple—as well as to its origin, a marble quarry 200 miles (322 kilometers) away on an island in Turkey's Sea of Marmara.

First Radiocarbon Dating of Oxalate Crusts over Spanish Prehistoric Rock Art

Open-air rock paintings were discovered in the eastern Iberian Peninsula at the beginning of the 20th century. By the start of the 21st century, more than 800 such sites were included in the UNESCO World Heritage List (Rock art of the Mediterranean Basin in the Iberian Peninsula). Three main different styles have been described up to now. Levantine, Macroschematic and Schematic arts were identified as different expressions of hunter-gatherers and first farmer and herder groups, and so, as an important aspect of an evolutionary cultural change from the last predatory groups to productive economies. The chronology of these styles was derived from the images themselves, or from stylistic parallels with well dated artifacts, such as decorated ceramics.

Historiography

Nowadays, clear parallels have been established for Macroschematic and Schematic arts, but serious doubts remain about the Levantine art itself. Levantine art is mainly painted in red and is characterized by naturalistic animal and human figures depicted in complex scenes such as hunting. After its discovery in 1903, it was considered as the Mediterranean counterpart of Cantabrian cave art, and so of Palaeolithic age. Soon after that, discoveries occurred in all the regions near Mediterranean Spain. The Palaeolithic theory was held up to the 1950's. Then, a Palaeolithic age assignment was challenged because no glacial fauna was depicted, because the art was always found in open rock shelters instead of deep caves, and because painting techniques were different, as only plain colours and silhouettes without volume depiction were used in Levantine art. The frequent superimpositions of Levantine figures over schematic ones was taken to be the evidence of differences in their chronology. Thus, Levantine art was supposed to begin in the Mesolithic and develop up to the beginning of the Bronze Age.

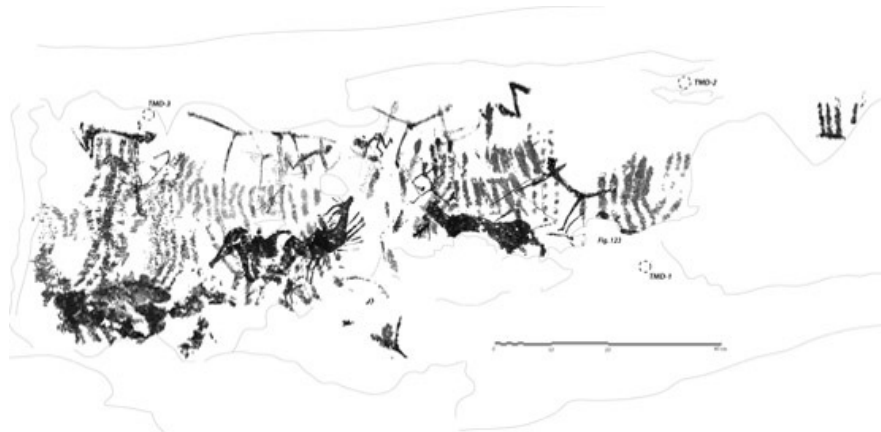


Fig. 3. Cueva del Tío Modesto main panel. We may observe the frequent superimposition of styles at this site. Sample positions have been indicated, as well as motif 123 from the 3rd stage.

In the 1980's, a new style was discovered in the Alicante province by Mauro Hernández who called it Macroschematic. Some years before, Levantine art had several times been found painted over long linear and zigzag motifs, as was also the case at some sites with Macroschematic art. So it became obvious that Levantine art was not the oldest of the open-air rock art traditions in Mediterranean Spain. Researchers soon proposed stylistic parallels for the big humans with raised arms known in Macroschematic art with Neolithic Cardial ceramics. They considered that impressed motifs on ancient Neolithic Cardial ware depicted the same kind of "orants" painted in shelters, so they were considered to be of the same age as the impressed wares (5460-5230 cal BC) based on the Cova de l'Or (Alicante) archaeological sequence. Furthermore, abstract motifs of Schematic art also have parallels in the Cardial ware, so the Neolithic appears to be the departure point for those three styles. However, many researchers do not agree with the hypothesis. All these chronological proposals are based on idealistic considerations of style, in a linear evolutionary fashion, that consider Levantine style as time-bound in a short or in a long sequence. But up to this current study, no absolute dating directly related to the paintings had been obtained. Three main obstacles to getting dates are: first, the general paucity of organic material in paintings; second, the absence of charcoal – even in black paintings; finally, the small size of the majority of these figures make it difficult to find good places to sample for AMS 14C dating. Nevertheless, it is evident that we need to look for an accurate base to firmly establish the archaeological chronology of the paintings.

Cueva del Tío Modesto

In the last few years we have been carrying out a multidisciplinary research project in Sierra de las Cuerdas (Cuenca). One of its main objectives has been to get a first answer to those chronological problems. We chose Cueva del Tío Modesto initially because of several reasons: the complex series of superimpositions on the main panel, the superb preservation of Levantine figures, and the presence of a thick greyish patina that covered the whole of the panel. This Triassic red sandstone painted shelter was discovered in 1998 and was quickly placed behind an iron fence, so no recent anthropic damage has occurred, except that caused by the installation of the fence itself.

Raman microscopy on tiny samples of pigments ($\approx 1 \text{ mm}^2$) from selected pictographs indicates that their main component is hematite, $\alpha\text{-Fe}_2\text{O}_3$. No organic binders were found by Raman analysis. Therefore, it is questionable that paintings could be used for direct AMS ^{14}C dating. Nevertheless, the Raman spectra of samples of the greyish crust show bands of calcium oxalate monohydrate, whewellite. Oxalate accretions on rock surfaces are usually attributed to the metabolic activity of fungi and lichens that live or have lived on the surfaces. Thus, AMS ^{14}C dating of oxalates may be used to establish maximum ages for pictographs painted on top of those accretions or minimum ages for paintings that are covered with oxalate.

Previously, four pictorial phases had been proposed for this shelter. After examining superimpositions in situ with a stereoscopic microscope, we noted a different stratigraphy, with six painting episodes of various styles. In Figure 3, the earliest painting episode consists of a series of 33 vertical zigzag lines. All other phases are superimposed over them. Painted over zigzag lines, the image that follows is that of a Levantine wild-goat hunting scene. The third phase, another Levantine hunting scene, is superimposed over the former. Both hunting scenes have parallels in the mid-Levantine sequence at other places, according to chronostylistic approaches. The 4th phase is on the left side of the panel, where three linear human figures cover zigzags and a Levantine archer from the 2nd or 3rd Levantine phase. The 5th phase is formed by several dotted lines and an anthropomorphic figure covering the 3rd phase on the right of the panel. The 6th and most recent episode is a group of orange vertical lines covering the 3rd and 5th painting episodes.

We have also examined the taphonomic processes at work in this shelter. The main panel is suffering flaking from its bottom towards the top. We have identified at least three levels in the present morphology of the panel. Most of the figures were painted on the primary level, which is fully covered with an oxalate crust, so that most paintings appear to be covered by this older accretion. Some flakes have broken from the bottom of the panel as in motif 123 (Fig. 3), and the newly exposed surfaces were then covered by a more recent deposit of oxalate. Finally, additional flakes are apparent in both levels, but oxalate has not yet formed on the surfaces left exposed by the more recent spalling.

To get chronological information, we sampled oxalate at three points, taking into consideration flaking and superimposition. TMD1 sample is related to the 2nd level of the panel and to the loss of motif 123. TMD2 sample is from the upper right of level 1; TMD3 from the upper left of level 1. The dates are: TMD2 $6180 \pm 35 \text{ BP}$ (2 sigma: 5230-5010 cal BC) (Fig. 5); TMD3 $5855 \pm 35 \text{ BP}$ (2 sigma: 4800-4610 cal BC); TMD1 $2800 \pm 35 \text{ BP}$ (2 sigma: 1050-840 cal BC). They are roughly coherent, because the last two samples have a similar date, and the younger age for TMD1 represents the later flaking moment of level 1. That coherence from the two widely separated parts of the panel suggests an approximately uniform deposition when averaged over a few millennia.

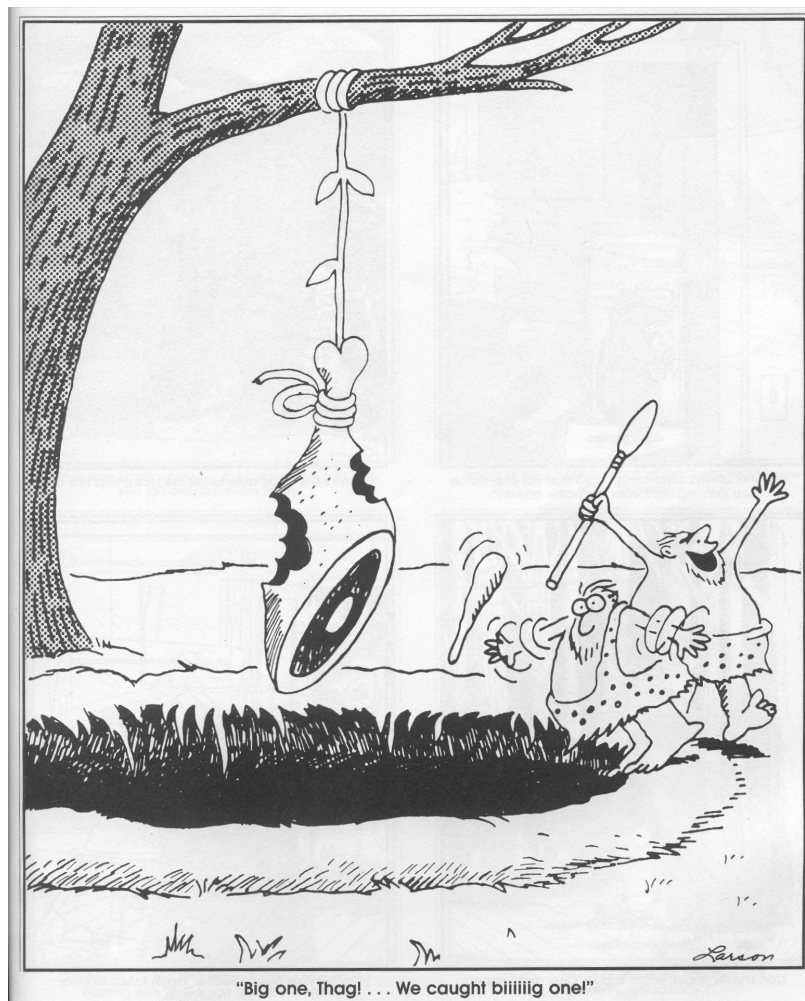
Radiocarbon dating of these samples was accomplished by applying the technique of selective oxidation of organic carbon to remove any contaminant organic matter before sending the samples to the Center for Accelerator Mass Spectrometry of the Lawrence Livermore National Laboratory for radiocarbon analyses. Carbonate minerals have not been detected. TMD2 and TMD3 samples are clearly related to the oxalate layer that is covering the 1st-3rd pictorial phases, and probably also the 4th and 5th. We have observed in a thin layer section that paintings from the 1st and 3rd phases are embedded within the oxalate crust. Now, we are trying to get a deeper knowledge of the oxalate deposition process, so we can develop a more meaningful archaeological valuation of these dates. In this respect, it must be remembered that the older dates we obtained are not necessarily the absolute chronological limit of this panel. Rather, it is the dating of the weighted average of the oxalate crust accumulated along time in these two places.

Early Americans Arrived Thousands of Years Earlier Than Previously Believed

ScienceDaily (Mar. 21, 2008) — A team led by two Texas A&M University anthropologists now believes the first Americans came to this country 1,000 to 2,000 years earlier than the 13,500 years ago previously thought, which could shift historic timelines. The team's findings are outlined in a review article in the journal *Science* entitled "The Late Pleistocene Dispersal of Modern Humans in the Americas," which synthesizes new data suggesting the migration from Alaska started about 15,000 years ago.

This theory is supported by not only archaeological evidence, but also from genetic evidence from living and ancient populations, says Ted Goebel, an anthropology professor at Texas A&M and associate director of Texas A&M's Center for the Study of the First Americans. He conducted the research with Michael R. Waters, a fellow anthropology professor at Texas A&M and director of the Center for the Study of the First Americans, and Dennis H. O'Rourke, an anthropology professor at the University of Utah. Previous theories stated that the first migrants spread from Beringia to Tierra del Fuego over a few centuries about. Goebel says scientists have concluded that the peopling of America was a much more complex process. The team focused primarily on molecular genetic, archaeological and human skeletal evidence to create a working model that explains the dispersal of modern humans across the New World.

Molecular geneticists have used refined method and an increasing sample of living populations and ancient remains to provide information on the Old World origins of the first Americans, the timing of their initial migration to the New World and the number of major dispersal events. Archaeologists have found new sites and reinvestigated old ones using new methods to explain how early populations colonized North and South America.



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