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RENEW YOUR MEMBERSHIP TODAY!

Once again it is time to renew your membership to IPCAS. A New and Renewal of membership form is at the end of the newsletter. Your membership dues help support our Chapter in pursuing the goals and mission of both IPCAS and the CAS by helping fund publications, lectures, and outreach activities. So don't wait, **RENEW** today!

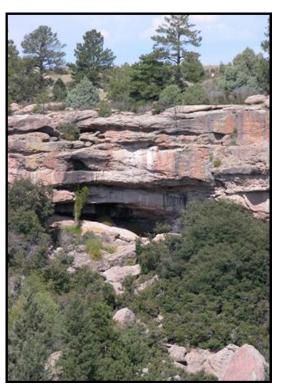
From the President

By Rosi Dennett

Our March lecture by Larry Benson on the oldest known petroglyph site in North America, was our best attended lecture this year. The location of the site adjacent to a lake and an in-depth (pardon the pun) analysis of prehistoric water levels of the lake provided a unique, effecting dating method. This month's lecture by Dr. Kevin Gilmore on the Promontory culture on the plains: Franktown Cave and Proto-Apachean migration in eastern Colorado is another one you don't want to miss!

Now is a good time for you to get involved communicating concerns to your congressional delegation regarding a variety of pending actions on the

federal level. Dr. Deborah Gangloff, President and CEO of the Crow Canyon Archaeological Center, recently posted an article on Facebook regarding concerns about the proposed federal 2018 budget that cuts National funding to the Endowment for the Humanities. This organization provides critical funding for research and outreach in humanities including summer teacher training workshops for the Center and educational programs for History Colorado. Let your opinions be known!



Franktown Cave archaeological site. Photo courtesy of Kevin Gilmore



Dr. Kevin Gilmore. Photo courtesy of Kevin Gilmore

About Kevin Gilmore

Dr. Gilmore is the Archaeology Program Manager HDR's in Englewood office. Dr. Gilmore has pursued both archaeology and physical geography academically as well as professionally through Cultural Resource Management (CRM) for over 35 years. During this has supervised time he or participated in hundreds of Class III surveys, site recording, test excavation, and data recovery projects throughout Colorado and the broader western United States including Arizona, California, New Mexico, Nebraska, North Dakota, Oklahoma, South Dakota, Wyoming, and Utah. He is the senior author on the Prehistoric Context for the Platte River Basin (1999) sponsored by the Colorado Council of Professional Archaeologists. Dr. Gilmore's specialties include and emphasis in cultural resource management, prehistory of the United States. western paleoenvironmental reconstructions, and prehistoric adaptations to climate change.

IPCAS Lectures

When:	Thursday, April 13 at 7:00 pm
Where:	CU Museum, Dinosaur Room
Cost:	Free and Open to the Public

Dr. Kevin Gilmore - Archaeology Program Manager at HDR

Promontory Culture on the Plains: Franktown Cave and proto-Apachean Migration in Eastern Colorado

Similar diagnostic artifacts from the Promontory Cave sites in Utah and from Franktown Cave in Colorado have been interpreted as evidence of a pre-A.D. 1300 migration of proto-Apachean speakers into the Rocky Mountain west using both Intermontane and Plains margin migration routes. A suite of AMS dates on perishable objects, including an almost complete moccasin, indicates the site was occupied for 40-85 years in the early A.D. 13th century just prior to the occupation of Promontory Cave 1 during the late 13th century. The nearly identical timing of the onset of Promontory Culture occupation of sites 700 km apart, coupled with analogous moccasin types and other artifacts indicative of Subarctic roots, both favor a common Dene origin for the occupants. Evidence suggests that these people occupied a large area along the foot of the Rocky Mountains and traveled widely through it, establishing trade relationships among themselves and with more sedentary groups of people on the plains.

Next Month... On Thursday, May 18th

Dr. Phil R. Geib - Lecturer at the University of Nebraska - Lincoln

Basketmaker II Warfare and Fending Sticks in the North American Southwest

Spotlight: Gretchen Acharya

By Gretchen Acharya

During my childhood, I often visited archaeological sites throughout the southwest during summer vacations. Although I was very exited about science (archaeology, geology, astronomy and biology) like so many girls of my generation, I found myself redirected to a more appropriate venue. I got my degree from CU in fine arts and became an artist and instructor.

When I finally reached the wonderful age of 55, I discovered the Senior Auditors Program at CU. I immediately began to take as many classes as I could manage. In an archaeology class another senior suggested that I should check out IPCAS. I went to a meeting, just to see, not planning to join anything, as I was overcommitted already and way too busy. I did find the lecture very interesting. When I attempted to make a quiet exit I was diverted by the plate of Oreos on the table. Before I could leave, Tom Cree politely insisted that I sign a guest list and take a newsletter. As my mouth was full of cookies, I couldn't argue. I was hooked. Newsletters were full

of opportunities for field trips, classes, and volunteering on surveys and excavations. In addition, I found I had stumbled into a group of people as motivated by curiosity as I am.

I soon discovered the PAAC program. In 2006 my 1st class was Rock Art. Classes taught by Kevin Black were both entertaining and a great supplement to my CU auditing. This time I got credit. I earned my certifications for PAAC Scholar and Laboratory Trainee.



Gretchen Acharya at Machu Picchu. Photo Courtesy of Gretchen Acharya.

In 2012 I joined the IPCAS Board as PAAC Coordinator. I have served on the board in several roles since then and am currently CU Liaison.

The really big hook came in 2007. I decided that, if I was going to spend all this time studying archaeology, I should find out if I actually liked hiking around way out in the wilderness looking for mystery stuff on the ground or sitting in the dirt in the summer heat going through someone's 1000 year old trash. I volunteered for Dr. Doug Bamforth's CU field school near Chadron, Nebraska. This turned out to be a perfect introduction to hands on real life archaeology.

I learned how to excavate, record the data, draw a profile and deal with the dust storm resulting from attempting to screen in a high wind. I was intrigued by the mystery, figuring out ancient lives based on the stuff left behind. I LOVED it!

The next week I was camping near Fairplay, working on a PIT survey. I learned about flint knapping, debitage, lithic scatter, flagging, culturally altered trees and filling out forms. The view was fabulous. The artist in me loved the patterns of tiny gold and red flakes which littered the ground. A few weeks later I was in Hermit Park on a PAAC survey. We walked through forest and clambered over rocky outcrops, eyes to the ground. I can still hear Kevin's voice as I climbed up a huge rock certain that the best find was just over the ridge, "Don't die for Archaeology". I didn't fall, but I did actually map a nasty tangle of rusty barbed wire.

Many surveys, excavations, field trips, and conferences followed, getting better all the time as I became more knowledgeable and skilled. I have participated in the Site Stewardship program and gone on some great trips. I worked in North Park and Allen's Park with Dr. Bob Brunswig. I worked on Dave Dove's sites in Dove Creek and Cortez and more.

Then I discovered Lab. Beginning in January 2012 I was one of several IPCAS members who volunteered with Jakob Sedig, a Ph. D. candidate at CU. Jakob had conducted excavations at

Woodrow Ruin, a Mimbres site, since 2011. He had thousands of ceramic shards which needed to be washed, typed, weighed, counted and curated. Fascinating!!! This work continued until Jacob completed his dissertation in 2015. Meanwhile, in 2013, spring semester, Dr. Steve Lekson invited 3 Senior Auditors to enroll in his pottery analysis practicum, which focused on museum collections from the archaeological site of Yellow Jacket. We participated in hands-on laboratory analyses of ceramic artifacts, and learned about the archaeology of the Mesa Verde region. Amazing!

I was worried about an absence of lab work at CU after Jakob left, but in the fall of 2015 Dr. Scott Ortman invited us to participate in ceramic typology for the Pojoaque Heritage Project. It seem there is still plenty to be done in archaeology and IPCAS offers great opportunities.



Gretchen visiting a kiva. Photo courtesy of Gretchen Acharya.

News Highlights from the World of Archaeology

By Christopher J. Kerns

As promised in last month's News from the World of Archaeology, this month I'm going to focus on some exciting research recently published on Chaco Canyon. Next month I will cover the dubious study of Platinum dust at archaeological sites that was recently published and claimed an extraterrestrial impact caused the Younger Dryas climate phenomenon.

Very exciting research on Chaco Canyon was published in two separate journal articles (Kennett et al. 2017; Price et al. 2017) over the past month and reported on by Western Digs (De Pastino 2017a; 2017b). These stories got a lot of attention on our facebook page and are clearly of interest to many of our members. The two articles cover research projects that were conducted in tandem and even shared co-authors. The researchers utilized radiocarbon dating and modelling, isotopic, osteological, and DNA analyses to examine a number of burials from within Pueblo Bonito. The researchers interpret the results of their analyses to indicate that there was matrilineal, descent based, elite leadership at Chaco for around 350 years and that the elite buried in Pueblo Bonito were local residents to the Chaco area and had not migrated from areas further afield.

The two studies focus on Pueblo Bonito, one of the best known of the Chaco Great Houses. Pueblo Bonito was founded around AD 800 and grew to just under 650 rooms and 40 kivas. Construction ceased and the area was mostly depopulated around AD 1130. The pueblo itself is thought to have potentially housed as many as 500 people (Price et al. 2017). Room 33 - the focus of one of the research papers - was constructed at the core of the pueblo and contained

the richest grave goods at Chaco Canyon (Kennett et al. 2017). Three rooms (32, 53, and 56) adjacent to Room 33 also contain burials. These four rooms together form the "North Cluster" of burials at Pueblo Bonito. Four rooms (320, 326, 329, and 330) located in the western arc - referred to as the "West Cluster" were later converted into a burial area, after construction, sometime around AD 852. There



Pueblo Bonito ruins at Chaco Canyon. Photo by the National Park Service. Public Domain.

were approximately 25 burials in the North Cluster and 80 burials in the West Cluster.

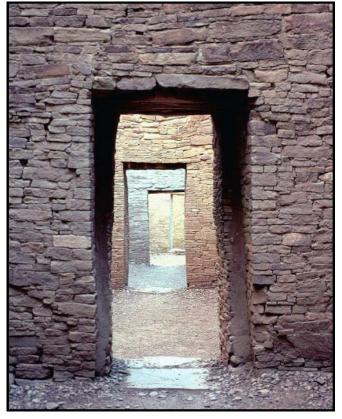
The genetic study (Kennett et al. 2017: 5) is one of the first studies to use "genome-wide data to document hereditary relationships among individuals within an elite lineage using archaeogenomics." The study was able to successfully sample nine of the fourteen individuals buried within room 33 of the North Cluster at Pueblo Bonito (Kennet et al. 2017: 2). The study examined both mitochondrial DNA (mtDNA) and nuclear genome SNP genotyping. Mitochondrial DNA is only inherited through the maternal line while nuclear DNA is inherited equally from both parents. The mtDNA was used to determine the haplogroup of those interred in room 33, while the nuclear genome SNP genotyping was used to estimate how closely related genetically and familially the different interred individuals were as well as to genetically identify the sex of the individuals.

All nine of the sampled individuals in room 33 have identical mtDNA, meaning that they all share a maternal lineage (Kennet et al. 2017: 3). The individuals all belonged to the B2y1 haplotype, part of the B2 haplogroup. Overall, the B2 haplogroup is relatively rare in modern Southwest Native American groups which the authors (Kennet et al. 2017: 3) argue further supports their conclusion that the individuals interred in room 33 belonged to "a single, elite matriline that played a central leadership role in the Chacoan polity for \sim 330 years."

The combination of radiocarbon dates and genetic-based estimates of sex and relatedness also allowed the researchers (Kennet et al. 2017: 5) to identify two paired familial relationships between individuals buried within Room 33. One relationship between the individuals examined is suggested to be grandmother-grandson relationship, while the other is suggested to be a mother-daughter relationship.

Matrilineal systems of social organization are present ethnographically in all of the modern "Western Pueblos and the Rio Grande Pueblos that speak the Keresan language (Kennet et al. 2017: 5)," which may indicate that the modern system has ancient roots in the southwest and cultural affinities with the former inhabitants of Chaco Canyon. In particular, the Hope and Zuni have emphasized matrilineal clans at the foundation of their social organization, while matrilineal leaders have played key roles in their social history (ibid). Interestingly, the primary burials - with the most elaborate grave good - in room 33 are both male from the same matrilineal line, but overall room 33 contained nearly equal male and female burials. This may further suggest a complex matrilineal "clan" based system of social organization in which kinship, leadership, or elite status was inherited through the maternal line, but was not gender specific.

Price et al. (2017: 264) conducted isotopic proveniencing on the a total of 61 individuals from both the North and West burial clusters using a combination of strontium, lead and oxygen isotopes. The isotopic proveniencing indicates where an individual grew up during the years their teeth were developing which is often useful in identifying individuals who moved to an area later in life. The particular isotopes used in this kind of analysis are absorbed through drinking water.



An image of the ruins of Pueblo Bonito in Chaco Canyon (New Mexico, United States); shown is a series of doorways. Photo by the National Park Service. Public Domain.

The ratio of particular lead and strontium isotopes is determined by the underlying geology through which the drinking water passes and is therefore nearly as variable as the geology within a given area. The particular oxygen isotope ratio used in these analyses is broadly influenced by rainfall and predominant weather patterns. Local, nonmigratory mammals, such as mice or deer are often used as reference samples for these analyses.

The results for the isotopic proveniencing prove to be very interesting. Overall, there was relatively minimal variation within the burials at Pueblo Bonito despite statistically significant differences between the North and West burial clusters (Price et al. 2017: 271). The data from the study suggested to the authors (Price et al. 2017: 271) that the West Cluster represented a segment of the North Cluster. The authors further interpret the data as suggesting that "a large percentage of the high-status individuals interred in the two Pueblo Bonito burial crypts were born

either in Chaco Canyon or the nearby southern San Juan Basin." The stated primary goal of the study was to determine whether the cultural developments which took place at Chaco Canyon were the result of foreigners moving into the area, and the authors believe that they have demonstrated that this is not the case. However, The limits of the analysis leave open the potential that the generation or two prior to the birth of those examined in the elite burials may have moved to the area from somewhere distant and that it took at least a generation for those foreigners to the area to gain elite status and for the new cultural paradigm of the region to be established. Once the cultural paradigm was established, those individuals buried in such a fashion as to indicate high social status were all local to the area for the following, nearly 350 years.

The osteological investigation when combined with the DNA analysis and the isotope analysis also yielded fascinating results. The woman identified as the mother in the "mother-daughter" relationship from the genetic study and dating from the late 10th and early 11th centuries is a slight outlier in terms of the isotope analysis (Price et al. 2017: 268). Such an outlier may indicate that the matrilineal "clan-based" kinship that has been proposed for the hereditary elite at Chaco recognized members of the group who did not live their entire lives at Pueblo Bonito. The two room 33 foundation burials - interred beneath a wooden plan - are also

interesting beyond being the earliest dated members of the matrilineal descent group identified in room 33. These burials are not only distinguishable from the broader group of burials isotopically based on their lead isotope levels, but also distinguishable from each other (Price et. al. 2017: 270). Both of the foundation burials in room 33 also had occipital cranial deformation, while the rest of the individuals in room 33 had lambdoidal cranial deformation (ibid). One of these two foundation burials was also polydactyl (six-toed). Two very early burials from the adjacent rooms in the North Cluster also have occipital deformation, one of whom was also an outlier in the isotopic analysis (ibid). The most significant isotopic outlier is a female from the West cluster who can only be dated to prior to AD 1020. Not only is she an outlier isotopically, but she is one of the three out of 52 individuals examined in the West Cluster to exhibit occipital deformation (Price et al. 2017: 269). Further, she was also polydactyl like one of the foundation burials in room 33.

Cranial deformation was a common practice throughout the northern Southwest starting sometime around 700 AD and generally took the form of either occipital or lambdoidal deformation. Occipital cranial deformation refers to the head having been artificially flattened at the back and top meaning that together they form a nearly 90 degree angle, while Lambdoidal deformation refers to the head having been artificially flattened at the top and the back flattened towards the neck leaving a small bulge. Based on the dating and isotopic evidence it can be suggested the occipital deformation was practiced early on at Pueblo Bonito, or had its origins from further afield, but that lambdoidal deformation became ubiquitous later on. Polydactylism is also a rare condition in the Southwest but generally considered positive and special trait due, in part, to its depiction in rock art, rubbings on room wall as well as artifacts recovered from Pueblo Bonito (Price et al. 2017:270).

Taking all the information presented in the two articles together it becomes clear that further genetic and isotopic research is warranted. The research has only created further questions regarding the genealogical and geographical origins of those individuals interred in elite burials at Pueblo Bonito. It appears that the earliest burials are also the most exceptional burials. These earliest burials are exceptional not only for the grave goods, but also because they are outliers in both isotopic values as well as cranial deformation practices. What does it all mean for the development of Chaco Canyon as dominant cultural phenomena within the region from AD 800 to 1130?

Ancient DNA analysis combined with various isotopic analyses will continue to dramatically change our understanding of the past just like radiocarbon dating did 65 years ago. Archaeologists now have the potential to understand familial relationships as well as the movement of both people and animals geographically through isotope analysis. These advances are going to continue to rapidly change how we all understand the lives of past peoples.

As always, I encourage you to follow IPCAS on facebook or twitter (@indianpeaksCAS) where I frequently post news stories related to archaeological discoveries and research. You can also check out some of these websites, pages, podcasts and twitter feeds for additional archaeology news.

Archaeology Podcast Network: <u>https://www.archaeologypodcastnetwork.com/</u> Science Daily: <u>http://www.sciencedaily.com/news/fossils_ruins/archaeology/</u> Archaeology Magazine: <u>http://archaeology.org/news</u> The Archaeology Channel: <u>http://www.archaeologychannel.org</u> Western Digs: <u>http://westerndigs.org/</u> Heritage Daily: <u>http://www.heritagedaily.com</u>

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- 2017a Elite 'Dynasty' at Chaco Canyon Got Its Power From One Woman, DNA Shows. *Western Digs*. February 21, 2017. Available online at: <u>http://westerndigs.org/ancient-leaders-at-chaco-canyon-were-members-of-matrilineal-dynasty-dna-shows/</u>
- 2017b Chaco's Elites Were Natives of Chaco Canyon, Not Migrants, Their Remains Show. *Western Digs*. March 3, 2017. Available online at: <u>http://westerndigs.org/chacos-elites-were-native-to-the-canyon-not-migrants-their-remains-show/</u>

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Price, T. Douglas, Stephen Plog, Steven A. LeBlanc, and John Krigbaum.

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APRIL EVENTS CALANDER

Lectures			
4/10/2017 7:00pm	The Application of LiDAR Scanning for the Documentation of Ancient Cities and Regions	Dr. Christopher T. Fisher (CSU)	Denver Museum of Nature and Science. Ricketson Auditorium
4/13/2017 7:00pm	Promontory Culture on the Plains: Franktown Cave and proto-Apachean Migration in Eastern Colorado	Dr. Kevin Gilmore	University of Colorado Museum, Paleontology Hall (IPCAS Lecture)
4/15/2017 2:00 pm	<i>"The line drawn upon a map, and the Country is a wilderness":</i> British Colonial Memory and the San Pedro Maya of Western Belize	Dr. Minette Church	University of Colorado - Denver, Department of Anthropology, North Classroom #4002R. 1100 Lawrence St. Denver, CO 80204
4/17/2017 1:00pm & 7:00pm	Unearthed: Ancient Life in the Boulder Valley	Dr. Doug Bamforth	Colorado Room, History Colorado Center
4/26/2017 7:00pm	Death and Value in the Land of King Midas of the Golden Touch	Dr. Elspeth Dusinberre	University of Colorado Museum, Paleontology Hall (AIA Boulder)
Events and Conf	erences		
03/29/2017 to 04/02/2017	Society for American Archaeology (SAA) 82nd Annual Meeting	Vancouver, BC	http://saa.org/AbouttheSociety/ AnnualMeeting/tabid/138/ Default.aspx
4/28/2017 to 4/29/2017	Southwestern Anthropological Association	Hilton San Jose, San Jose, CA	https://swaa-anthro.org/swaa- 88th-annual-conference/
Exhibitions			
March 10th thru August 13th	Vikings: Beyond the Legend	Denver Museum of Nature and Science	http://www.dmns.org/calendar

As always, if you know of any events, lectures, exhibits, or fieldtrips you would like added to our events calendar, please send an email to <u>indianpeaksarchaeology@gmail.com</u>

2017 IPCAS Board & Supporting Members

Board Members President

President	Rosi Dennett	rosidennett@gmail.com
Vice President Elect	Lynda McNeil	lynda.mcneil@colorado.edu
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	Kris Holien	kjholien@aol.com
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PAAC Coordinator/CAS Rep	Delane Mechling	mechlings@hotmail.com
Outreach Coordinator	Allison Kerns	AllisonMKerns@gmail.com
CU Liaison	Gretchen Acharya	gacharyafinearts@gmail.com
Archivist	Kris Holien	kjholien@aol.com
Calumet Editor/News & Events	Christopher Kerns	ChrisJKerns@gmail.com
Website Administrator	OPEN	
Professional Advisor	Bob Brunswig	robert.brunswig@unco.edu

Editor: Christopher J. Kerns

Members are encouraged to send ideas or material for The Calumet. All content is subject to review and approval by the IPCAS Board.

The submission deadline is the 3rd Monday of the month for the next month's issue. Send to <u>indianpeaksarchaeology@gmail.com</u> or <u>ChrisJKerns@gmail.com</u>





MEMBERSHIP APPLICATION – INDIAN PEAKS CHAPTER

	Category	Amount
	Individual	\$28.00
	 – Family	\$33.00
	 Senior – Individual (does not receive Southwes Lore) 	tern \$14.00
	 	n Lore) \$16.50
	 Student – Individual	\$14.00
	 Student – Family	\$16.50
	 Secondary Membership (Must be a member o separate CAS Chapter)	fa \$10.00
***Men	Renewal Tax-Exempt Donation\$10, od runs from January 1 through December 31 (calenda	
Name(s)		
	Secondary Email:	
Address_	 	
	State	Zip Code

Primary Chapter Membership (Only if you are requesting a secondary membership):_____

Please make check payable to: Indian Peaks Chapter, CAS. Mail to: PO Box 18301, Boulder, CO 80308-1301

l(We)	give	CAS	permission	to	:
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Yes <u>No</u> disclose phone numbers to other CAS members

Yes <u>No</u> publish name/contact information in chapter directory

Yes _____No _____publish name in newsletter (which may be sent to other chapters, published on the internet, etc.)

CODE OF ETHICS

As a member of the Colorado Archaeological Society, I pledge: To uphold state and federal antiquities laws. To support policies and educational programs designed to protect our cultural heritage and our state's antiquities. To encourage protection and discourage exploitation of archaeological resources. To encourage the study and recording of Colorado's archaeology and cultural history. To take an active part by participating in field and laboratory work for the purpose of developing new and significant information about the past. To respect the property rights of landowners. To assist whenever possible in locating, mapping and recording archaeological sites within Colorado, using State Site Survey forms. To respect the dignity of peoples whose cultural histories and spiritual practices are the subject of any investigation. To support only scientifically conducted activities and never participate in conduct involving dishonesty, deceit or misrepresentation about archaeological matters. To report vandalism. To remember that cultural resources are non-renewable and do not belong to you or me, but are ours to respect, to study and to enjoy.

Signature:	Signature:
Signature	