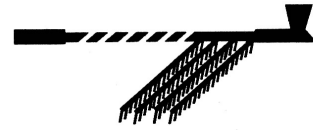


# CALUMET



Newsletter of the Indian Peaks Chapter of the Colorado Archaeological Society  
April, 2010

## 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**

- April 1** IPCAS Executive Board Meeting, 7:30  
**April 15** **IPCAS Presentation Meeting**, Dr. Arthur Joyce,  
Topic: Rio Viejo Site, Oaxaca, Mexico  
**>>>>>NOTE UNUSUAL MEETING DATE!**  
**April 28** CU Museum, 6PM, Dr. Sue Ware, Topic is CSI: La Brea: Murder & Mayhem on Wilshire Blvd.
- May 6** IPCAS Executive Board Meeting, 7:30  
**May 8** Loveland Museum, Finding Ancestors Underground  
**May 13** **IPCAS Presentation Meeting**, Dr. James Benedict, Topic: Archeology Above Timberline.  
**May 14-16** CRAA Rock Art Symposium and Annual Meeting, Trinidad
- June 22-28** CAS Trip to Easter Island  
**June 28-July 23** UNC Field School  
**June 29-July 11** CAS Trip to Northern Peru and the Sacred Valley
- July 24** CAS Quarterly Meeting, Cortez
- September 2** IPCAS Executive Board Meeting, 7:30  
**September 9** **IPCAS Presentation Meeting**, TBA  
**September 26** Soapstone Prairie Natural Area Tour, Ft. Collins,  
7:30AM – 3PM
- October 7** IPCAS Executive Board Meeting, 7:30  
**October 14** **IPCAS Presentation Meeting**, Alice Tratebas,  
Newcastle, Wyoming BLM, Topic: Whoop-up  
Canyon - dating, fire damage, and finished  
photogrammetry.
- November 4** IPCAS Executive Board Meeting, 7:30  
**November 11** **IPCAS Presentation Meeting**, TBA
- December 2** IPCAS Executive Board Meeting, 7:30  
**December 9** **IPCAS Christmas Party**, TBA

| <b>Inside This CALUMET</b> |    |
|----------------------------|----|
| Calendar of Events         | 1  |
| April Presentation         | 2  |
| March Presentation Review  | 2  |
| Machu Picchu Music         | 3  |
| DNA Articles               |    |
| INTCAL09                   | 4  |
| King Tut DNA               | 5  |
| Medieval Manuscripts       | 5  |
| Dating Human Migrations    | 6  |
| East Asian in Early Italy  | 6  |
| Polynesian/Taiwanese Link  | 7  |
| King Tut Controversy       | 8  |
| New Human Species?         | 9  |
| Single Main Migration      | 9  |
| 2010 Dues Schedule         | 10 |
| March Board Minutes        | 11 |
| Officers/Board Members     | 12 |
| Membership Application     | 12 |

## April Topic

This month's presentation will feature Dr. Arthur Joyce and possibly some graduate-level students, who will present information on the Rio Viejo Site, Oaxaca, Mexico. **The presentation will be on April 15<sup>th</sup>, due to a scheduling conflict with the museum.** See you there, then!

## March Presentation Meeting



Dr. Brunswig discusses "Research at UNC and Beyond"



Drs. Brunswig and Sellet will have opportunities for volunteers during the UNC fieldwork this year both in the area around Walden, Colorado and in Rocky Mountain National Park. A precise schedule has not been determined but there will be work during the last week of June through the third week of July. As soon as detail information becomes available it will be distributed to the club via the *Calumet* and email.

## Machu Picchu Music

Editors Note: I was reading *TEN DISCOVERIES THAT REWROTE HISTORY*, by Dr. Patrick Hunt. I was especially impressed by a story that he told of a visit to Machu Picchu. He was familiar with the acoustics of Greek and Roman amphitheatres and was curious about the acoustics of the small amphitheater at Machu Picchu and the cliff walls of granite about a mile away. I contacted Dr. Hunt who graciously allowed the *Calumet* to publish his account and he sent additional information and sources on ancient acoustic locations. What follows is his story:

“That began an unforgettable experiment. I thought up a short musical theme, easily remembered, and played it straight toward the far cliff. Pausing, I listened intently and when it returned almost as clear as it went out, I harmonized over it. I almost fell off the amphitheater terrace. It was almost a religious experience, like a miracle. I continued this for some minutes, architecturally adding third and sixth and ninth tones before there was any noticeable decay of sound dimming out in the first and second melody sent out. Even though I had studied and even written about planned acoustics in ancient Greek theaters, I had never heard of anything like this before. It was simply one of the most incredible moments in my life as I continued trying out harmonies and counterpoint melodies for probably close to half an hour. My excitement rose until it was almost unbearable. Near the end, out of the corner of my eye with peripheral vision I finally noticed a few persons had gathered around me, but I was too intent on the sound to even glance over at them. Then something happened that was slightly eerie. The clouds lifted slightly and sun broke through the mist; creating a triple rainbow, the first I had ever witnessed. It was so breathtaking, I used the inspiration to form a musical cadenza climax, gentle but intricate with almost endless arcs of harmonics, at which point I stopped because I was almost frightened by the beauty. As the music finally echoed and reechoed before finally dying away, I sensed there would never be a moment like this again in my life and I shivered.

Then after a minute or two of complete motionless silence, I suddenly realized the small amphitheater was packed with at least twenty people. I looked and saw all the people sitting there were Quechua; I had no idea where they had come from. A man slowly approached me with immense dignity. He looked at me with the most intense but respectful gaze through very thick glass lenses. I rose as he stood before me. He only came up to my chest but had the gravity of a huge man. His words were soft but firm in Quechua-inflected Spanish, but poor Spanish on both our parts...”

*"Tu es un amauta. (You are an amauta.)"*

*"No, yo no soy un amauta. Solamente un arqueologo. (No, I am not an amauta. Only an archaeologist.)"*

"No, you are an amauta," he insisted quietly. *"Verdad. It is true. What you have done here today has not been done for five hundred years. This was a special place for this."* His quiet Spanish words were filled with certainty.

Dr. Hunt adds:

Both Garcilaso de la Vega and Fra Bernabe Cobo around 1609 relate Inca flute music and the Inca musical ability to imitate sounds with flutes.

Acoustics were possibly a significant part of Peruvian ceremony for millennia, as Chris Scarre has noted in *ARCHAEOLOGICAL APPROACHES TO SOUND*: "A classic example is the pre-Inca ceremonial site of Chavín de Huántar in the Peruvian Andes, where channels and galleries in the substructure create or amplify acoustic effects which may have been exploited in ceremonial practice." (online at Acoustics and Music of British Prehistory Research Network), (also see Chris Scarre and G. Lawson, eds. *ARCHAEOACOUSTICS* (Cambridge, 2007).

John Rick's archaeological and acoustic research at Chavin de Huantar is now well known correlated with his finding of 20 strombus conch shell trumpets (one can also note Metropolitan Museum, NY, Heilbrunn Timeline article "Music in the Ancient Andes" by Hélène Bernier, 2000). Similar acoustic phenomena are also suggested at Inca sites where exterior water channels and human-adapted geomorphology were used for effect and possible other uses.

Also apropos is Roger Atwood's article in *ARCHAEOLOGY Magazine*, Vol. 60 No. 5, Sept/Oct. 2007: "Moray, by contrast, is an inward journey. The largest bowl is some 600 feet in diameter and its sides are arranged in 12 orderly terraces. It took me half an hour to reach the bottom by foot. Once there, I found myself at the center of a frozen whirlpool of concentric rings. The sensation was disorienting and mildly hypnotic, and it was heightened by the strange acoustics. Bird calls echoed loudly, and I could hear the voices of people 50 feet away. These auditory effects have inspired theories that Moray could have been some kind of amphitheater. Though travelers and scholars have long noted the site's strange morphology, its function in Inca times is a source of enduring mystery."

Jerry Moore's review in *ANTIQUITY* 81 (2007) 795 also discusses echo music in general. More research is needed to explore and confirm other such musical connections to Peruvian and specifically Inca culture.

## **Archaeological 'Time Machine' Greatly Improves Accuracy of Early Radiocarbon Dating**

Submitted by Joanne

ScienceDaily (Feb. 11, 2010) — Researchers at Queen's University have helped produce a new archaeological tool which could answer key questions in human evolution. The new calibration curve, which extends back 50,000 years, is a major landmark in radiocarbon dating -- the method used by archaeologists and geoscientists to establish the age of carbon-based materials. It could help research issues including the effect of climate change on human adaptation and migrations.

The curve called INTCAL09, has just been published in the journal *Radiocarbon*. It not only extends radiocarbon calibration but also considerably improves earlier parts of the curve.

Dr Ron Reimer of the Queen's School of Geography, Archaeology and Palaeoecology said: "The new radiocarbon calibration curve will be used worldwide by archaeologists and earth scientists to convert radiocarbon ages into a meaningful time scale comparable to historical dates or other estimates of calendar age. "It is significant because this agreed calibration curve now extends over the entire normal range of radiocarbon dating, up to 50,000 years before today. Comparisons of the new curve to ice-core or other climate archives will provide information about changes in solar activity and ocean circulation."

It has taken nearly 30 years for researchers to produce a calibration curve this far back in time. Since the early 1980s, an international working group called INTCAL has been working on the project.

The principle of radiocarbon dating is that plants and animals absorb trace amounts of radioactive carbon-14 from carbon dioxide in the atmosphere while they are alive but stop doing so when they die. The carbon-14 decays from archaeological and geological samples so the amount left in the sample gives an indication of how old the sample is. As the amount of carbon -14 in the atmosphere is not constant, but varies with the strength of Earth's magnetic field, solar activity and ocean radiocarbon ages must be corrected with a calibration curve.

Most experts consider the technical limit of radiocarbon dating to be about 50,000 years, after which there is too little carbon-14 left to measure accurately with present day technology.

The project was led by Queen's University Belfast through a National Environment Research Centre (NERC) funded research grant to Dr Paula Reimer and Professor Gerry McCormac from the Centre for Climate, the Environment and Chronology (14CHRONO) at Queen's and statisticians at the University of Sheffield. Ron Reimer and Professor Emeritus Mike Baillie from Queen's School of Geography, Archaeology and Palaeoecology also contributed to the work.

## **King Tut DNA** Submitted by Ken

I have been following both male y-DNA and female mt-DNA for a few years now and will share with you another interesting story.

Last month the Egyptian authorities announced that DNA had been tested on King Tut and a few other mummies. What they found was that in the New Kingdom the DNA was not of the Levant or Africa. Instead they released "markers" which many on the internet immediately recognized as "R1b". This comes from a haplogroup "R" dating back 25,000 years ago begun in the Caucasus, then spread NW, West and SW into Africa. NW became 'R1a' and spread as far as Norway initially - West spread through Europe becoming "R1b" and is the dominant male haplogroup there today. SW was also "R1b" and while the Egyptians did not announce formally that King Tut is "R1b", the Discovery Channel televised enough of his DNA markers for internet researchers to draw the conclusion. Today the internet is alive with this knowledge.

Keep in mind that "R1a" is credited with the domestication of the horse and invention of the chariot. "R1b" adopted both and used them to overcome others on their journey west. Egyptian rulers had chariots did they not? Other "R1b" peoples were the Hittites in Turkey. In fact when King Tut died from a severe case of malaria his wife wrote to the King of the Hittites stating she wanted to marry one of his seven sons. Did she somehow know that the Hittites were of the same DNA haplogroup? Its possible, and perhaps there was some earlier connection between them. A fascinating website to view is Eupedia.com which is the European version of Wikipedia. You like Maps?? Man ... do they have maps! See for yourself! <http://www.eupedia.com/genetics/>

### **DNA Testing May Unlock Secrets Of Medieval Manuscripts**

ScienceDaily (Jan. 17, 2009) — Thousands of painstakingly handwritten books produced in medieval Europe still exist today, but scholars have long struggled with questions about when and where the majority of these works originated. Now a researcher from North Carolina State University is using modern advances in genetics to develop techniques that will shed light on the origins of these important cultural artifacts.

Many medieval manuscripts were written on parchment made from animal skin, and NC State Assistant Professor of English Timothy Stinson is working to perfect techniques for extracting and analyzing the DNA contained in these skins with the long-term goal of creating a genetic database that can be used to determine when and where a manuscript was written. "Dating and localizing manuscripts have historically presented persistent problems," Stinson says, "because they have largely been based on the handwriting and dialect of the scribes who created the manuscripts – techniques that have proven unreliable for a number of reasons."

Stinson says genetic testing could resolve these issues by creating a baseline using the DNA of parchment found in the relatively small number of manuscripts that can be reliably dated and localized. Each manuscript can provide a wealth of genetic data, Stinson explains, because a typical medieval parchment book includes the skins of more than 100 animals. Once Stinson has created a baseline of DNA markers with known dates and localities, he can take samples from manuscripts of unknown origin. Stinson can then determine what degree of relationship there is between the animals whose skins were used in manuscripts of unknown origin and those used in the baseline manuscripts. Stinson hopes this DNA comparison will enable him to identify genetic similarities that would indicate the general time and locale where a book was written.

On a larger scale, Stinson says, this research "will also allow us to trace the trade route of parchments" throughout the medieval world – a scholarly achievement that would provide a wealth of data on the evolution of the book industry during the Middle Ages. Stinson will be presenting the findings of his early research in this area at the annual meeting of the Bibliographical Society of America in New York City on Jan. 23. Stinson is one of three researchers asked to participate in the society's New Scholars Program for 2009. The work that Stinson will be presenting was funded by grants from the Digital Research and Curation Center at Johns Hopkins University and the Council on Library and Information Resources.

## **New 'Molecular Clock' Aids Dating Of Human Migration History**

ScienceDaily (June 22, 2009) — Researchers at the University of Leeds have devised a more accurate method of dating ancient human migration – even when no corroborating archaeological evidence exists.

Estimating the chronology of population migrations throughout mankind's early history has always been problematic. The most widely used genetic method works back to find the last common ancestor of any particular set of lineages using samples of mitochondrial DNA (mtDNA), but this method has recently been shown to be unreliable, throwing 20 years of research into doubt.

The new method refines the mtDNA calculation by taking into account the process of natural selection - which researchers realized was skewing their results - and has been tested successfully against known colonization dates confirmed by archaeological evidence, such as in Polynesia in the Pacific (approximately 3,000 years ago), and the Canary Islands (approximately 2,500 years ago). Says PhD student Pedro Soares who devised the new method: "Natural selection's very gradual removal of harmful gene mutations in the mtDNA produces a time-dependent effect on how many mutations you see in the family tree. What we've done is work out a formula that corrects this effect so that we now have a reliable way of dating genetic lineages.

"This means that we can put a timescale on any part of the particular family tree, right back to humanity's last common maternal ancestor, known as 'Mitochondrial Eve', who lived some 200,000 years ago. In fact we can date any migration for which we have available data," he says. Moreover, working with a published database of more than 2,000 fully sequenced mtDNA samples, Soares' calculation, for the first time, uses data from the whole of the mtDNA molecule. This means that the results are not only more accurate, but also more precise, giving narrower date ranges.

The new method has already yielded some surprising findings. Says archaeogeneticist Professor Martin Richards, who supervised Soares: "We can settle the debate regarding mankind's expansion through the Americas. Researchers have been estimating dates from mtDNA that are too old for the archaeological evidence, but our calculations confirm the date to be some 15,000 years ago, around the time of the first unequivocal archaeological remains.

"Furthermore, we can say with some confidence that the estimate of humanity's 'out of Africa' migration was around 60-70,000 years ago – some 10-20,000 years earlier than previously thought." The team has devised a simple calculator into which researchers can feed their data and this is being made freely available on the University of Leeds website.

The paper is published in the current edition of the *American Journal of Human Genetics*.

## **DNA Testing on 2,000-Year-Old Bones in Italy Reveal East Asian Ancestry**

ScienceDaily (Feb. 2, 2010) — Researchers excavating an ancient Roman cemetery made a surprising discovery when they extracted ancient mitochondrial DNA (mtDNA) from one of the skeletons buried at the site: the 2,000-year-old bones revealed a maternal East Asian ancestry. The results will be presented at the Roman Archeology Conference at Oxford, England, in March, and published in the *Journal of Roman Archaeology*.

According to Tracy Prowse, assistant professor of Anthropology, and the lead author on the study, the isotopic evidence indicates that about 20% of the sample analyzed to-date was not born in the area around Vagnari. The mtDNA is another line of evidence that indicates at least one individual was of East Asian descent.

"These preliminary isotopic and mtDNA data provide tantalizing evidence that some of the people who lived and died at Vagnari were foreigners, and that they may have come to Vagnari from beyond the borders of the Roman Empire," says Prowse. "This research addresses broader issues relating to globalization, human mobility, identity, and diversity in Roman Italy."

Based on her work in the region, she thinks the East Asian man, who lived sometime between the first to second centuries AD -- the early Roman Empire -- was a slave or worker on the site. His surviving grave goods consist of a single pot (which archaeologists used to date the burial). What's more, his burial was disturbed in antiquity and someone was buried on top of him. Prowse's team cannot say how recently he, or his ancestors, left East Asia: he could have made the journey alone, or his East Asian genes might have come from a distant maternal ancestor. However, the oxygen isotope evidence indicates that he was definitely not born in Italy and likely came here from elsewhere in the Roman Empire.

During this era, Vagnari was an Imperial estate owned by the emperor in Rome and controlled by a local administrator. Workers were employed in industrial activities on the site, including iron smelting and tile production. These tiles were used for roofing buildings on the site and were also used as grave covers for the people buried in the cemetery. Fragmentary tiles found in and around Vagnari are marked "Gratus Caesaris," which translates into "slave of the emperor."

In addition to the mystery the find uncovers, Prowse sees the broader scientific impact for archaeologists, physical anthropologists, and classicists: The grave goods from this individual's burial gave no indication that he was foreign-born or of East Asian descent. "This multi-faceted research demonstrates that human skeletal remains can provide another layer of evidence in conjunction with archaeological and historical information," says Prowse. For the last seven years, Prowse has been digging the cemetery at the site of Vagnari, just west of the city of Bari in southern Italy. The cemetery was first discovered in 2002 by her colleague, Alastair Small (University of Edinburgh), who directs the excavations at Vagnari and continues to excavate other areas of the site. Prowse's research focuses on the bioarchaeological analysis of the people buried in the cemetery, including isotopic, palaeopathological, and a DNA analysis. The ancient DNA analyses were conducted by her coauthors on the paper, Jodi Barta and Tanya vonHunnius, at McMaster University.

The research was funded by the Social Sciences and Humanities Research Council of Canada.

## **Genetic Link Confirmed Between Polynesians And Indigenous Taiwanese**

ScienceDaily (July 6, 2005) — According to folklore, Polynesians originated from a mythical homeland called Hawaiki. Their origins and the existence of such a place, however, have been the subject of much speculation. In a new study in the premier open access journal PLoS Biology, Jean Trejaut and colleagues now provide the first direct evidence for the common ancestry of Polynesians and indigenous Taiwanese.

Genetic techniques involving mitochondrial DNA (mtDNA) have been used to try and determine whether there is a link between Polynesians and other Southeast Asian populations by estimating how much mtDNA different populations have in common. Early results were conflicting or inconclusive; however, the research by Trejaut et al. has finally nailed this down. Trejaut et al. analyzed mtDNA from people in China, Southeast Asia, Polynesia, and Taiwan. The authors focused specifically on the aboriginal populations of Taiwan, suggested to be ancestors of today's Polynesians, and looked for unique genetic markers that occurred in the aboriginal people. They then compared these markers to those found in mainland Chinese, Taiwanese, and other Southeast Asian peoples.

Trejaut et al. found that the indigenous Taiwanese, Melanesian, and Polynesian populations share three specific mutations in their mtDNA that do not occur in mainland east Asian populations. Furthermore, they showed that there are enough different mtDNA mutations between the mainland Chinese population and the aboriginal Taiwanese to support archeological findings suggesting a long period of habitation. These results indicate that Taiwanese aboriginal populations have been genetically isolated from mainland Chinese for 10,000 to 20,000 years, and that Polynesian migration probably originated from people identical to the aboriginal Taiwanese. Further research will be necessary to precisely determine the origins of the aboriginal Taiwanese; however, these results are a step towards clarifying the origins of Polynesians.

Citation: Trejaut JA, Kivisild T, Loo JH, Lee CL, He CL, et al. (2005) Traces of archaic mitochondrial lineages persist in Austronesian-speaking Formosan populations. PLoS Biol 3(8): e247.

## Controversy Arises Over King Tut Findings

By [Rossella Lorenzi](#)

February 18, 2010

Dr. Zahi Hawass, the head of Egypt's Supreme Council of Antiquities, unveiled new evidence for King Tut's lineage and cause of death at a packed press conference on Wednesday. Hawass confirmed the principal conclusions made in a paper published in the *Journal of the American Medical Association*. He said that Tutankhamun's father was most likely the "heretic" king, Akhenaten, whose body is now almost certainly identified with the mummy from KV 55 in the Valley of the Kings. King Tut's mother, who still cannot be identified by name, is the "Younger Lady" buried in the tomb of Amenhotep II (KV 35).

The mummy of the "Elder Lady" from the same tomb can now be conclusively identified as Tutankhamun's grandmother, Queen Tiye. Hawass added that new light was shed on the cause of death for Tutankhamun with the discovery of DNA from the parasite that causes malaria; it is likely that the boy king died from complications resulting from a severe form of this disease.

"We found evidence from DNA that proves he had very severe malaria. He was ill, weak, walked on a cane," Hawass was reported to say. "When he was 19 and got malaria, he fell...When he fell, and was weak from malaria, he died," he added.

Study author Ashraf Selim, professor of radiology at Cairo University, told Discovery News that malaria could have been indeed the cause of death for King Tut. "The type of malaria found is what is sometimes referred to as malignant malaria as being the most vicious of all types and certainly might have led to his death," Selim said. However, Selim does not rule out some other interacting causes.

"The fracture of his thigh bone might have had complications like septicemia (blood stream infection) and fat embolism (fat in the blood reaching the lungs). Both can lead to the death of an individual," the researcher said.

However, some outside mummy experts contacted by Discovery News are skeptical, and question the claim that malaria and bone necrosis might have caused King Tut's demise:

**Frank Rühli**, Head Applied Anatomy and head of the Swiss Mummy Project at the University of Zurich. He participated in the CT scan analysis of Tutankhamun in 2005.

This is a major work in Egyptian mummy studies. It proves the value of modern methods such as CT and molecular testing. Yet, one needs to be cautious in stating any definite medical diagnosis. There is still a range of possible interacting causes for King Tut's cause of death: bone infection is possible, yet without the internal organs this assessment is always incomplete. The present condition of the mummy will never allow not to medically rule out all possibilities.

**Stephen Buckley**, University of York.

His research projects include the Tomb KV35 in the Valley of the Kings.

It is surprising that DNA should survive in these mummies given the very harsh conditions the bodies have been subjected to over the last 3000 years. I'm referring, for example, to the methods of embalming, the relatively high temperatures and oxidizing environments. Hopefully, closer independent scrutiny by ancient DNA experts might help explain these very surprising results.

**Gino Fornaciari**, director of palaeopathology at the University of Pisa in Italy.

It is a scientifically rigorous study. Indeed, that type of malaria might have caused his death. However, the diagnosis of bone necrosis is not clear from the published images. There is also the possibility that the necrosis was a consequence of malaria, caused by the malaria infection itself.



## **A New Human Species?**

The Associated Press

Longmont Times-Call, March 25, 2010

NEW YORK - In the latest use of DNA to investigate the story of humankind, scientists have decoded genetic material from an unidentified human ancestor that lived in Siberia and concluded it might be a new member of the human family tree.

The DNA doesn't match modern humans or Neanderthals, two species that lived in that area around the same time - 30,000 to 50,000 years ago. Instead, it suggests the Siberian species lineage split off from the branch leading to moderns and Neanderthals a million years ago, the researchers calculated. And they said that doesn't seem to match the history of human ancestors previously known from fossils. So the Siberian species may be brand new, although the scientists cautioned that they're not ready to make that claim yet.

The new work, published online Wednesday by the journal *Nature*, is reported by Johannes Krause and Svante Paabo of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, and others. They describe mapping DNA from what appeared to be a youngster's pinkie finger bone, which had been recovered in 2008 from Denisova Cave in the Altai Mountains of southern Siberia. They showed how it differed from DNA of 54 modern-day people and six Neanderthals. Their analysis indicated the Siberian species last shared a common ancestor with modern humans and Neanderthals about 1 million years ago.

Rick Potts, director of the Smithsonian Institution's Human Origins Program, said the Siberian find might represent *Homo heidelbergensis* or *Homo erectus*. And even analysis of the Siberian species' nuclear DNA won't show if it's distinct from those ancestors, he said. Potts said that in the new work, "what we're seeing is a really, really interesting distant echo of the DNA history of human evolution."

## **Gene Study Supports Single Main Migration Across Bering Strait**

ScienceDaily (Nov. 28, 2007) — Did a relatively small number of people from Siberia who trekked across a Bering Strait land bridge some 12,000 years ago give rise to the native peoples of North and South America? Or did the ancestors of today's native peoples come from other parts of Asia or Polynesia, arriving multiple times at several places on the two continents, by sea as well as by land, in successive migrations that began as early as 30,000 years ago?

The questions -- featured on magazine covers and TV specials -- have agitated anthropologists, archaeologists and others for decades.

University of Michigan scientists, working with an international team of geneticists and anthropologists, have produced new genetic evidence that's likely to hearten proponents of the land bridge theory. The study, published online in *PLoS Genetics*, is one of the most comprehensive analyses so far among efforts to use genetic data to shed light on the topic.

The researchers examined genetic variation at 678 key locations or markers in the DNA of present-day members of 29 Native American populations across North, Central and South America. They also analyzed data from two Siberian groups. The analysis shows:

- genetic diversity, as well as genetic similarity to the Siberian groups, decreases the farther a native population is from the Bering Strait -- adding to existing archaeological and genetic evidence that the ancestors of native North and South Americans came by the northwest route.
- a unique genetic variant is widespread in Native Americans across both American continents -- suggesting that the first humans in the Americas came in a single migration or multiple waves from a single source, not in waves of migrations from different sources. The variant, which is not part of a gene and has no biological function, has not been found in genetic studies of people elsewhere in the world except eastern Siberia.

The researchers say the variant likely occurred shortly prior to migration to the Americas, or immediately afterwards. "We have reasonably clear genetic evidence that the most likely candidate for the source of Native American populations is somewhere in east Asia," says Noah A. Rosenberg, Ph.D., assistant professor of human genetics and assistant research professor of bioinformatics at the Center for Computational Medicine and Biology at the U-M Medical School and assistant research professor at the U-M Life Sciences Institute. "If there were a large number of migrations, and most of the source groups didn't have the variant, then we would not see the widespread presence of the mutation in the Americas," he says.

Rosenberg has previously studied the same set of 678 genetic markers used in the new study in 50 populations around the world, to learn which populations are genetically similar and what migration patterns might explain the similarities. For North and South America, the current research breaks new ground by looking at a large number of native populations using a large number of markers.

The pattern the research uncovered -- that as the founding populations moved south from the Bering Strait, genetic diversity declined -- is what one would expect when migration is relatively recent, says Mattias Jakobsson, Ph.D., co-first author of the paper and a post-doctoral fellow in human genetics at the U-M Medical School and the U-M Center for Computational Medicine and Biology. There has not been time yet for mutations that typically occur over longer periods to diversify the gene pool.

In addition, the study's findings hint at supporting evidence for scholars who believe early inhabitants followed the coasts to spread south into South America, rather than moving in waves across the interior. "Assuming a migration route along the coast provides a slightly better fit with the pattern we see in genetic diversity," Rosenberg says.

The study also found that:

- Populations in the Andes and Central America showed genetic similarities.
- Populations from western South America showed more genetic variation than populations from eastern South America.
- Among closely related populations, the ones more similar linguistically were also more similar genetically.

Citation: PLoS Genet 3(11): e185. doi:10.1371/journal.pgen.0030185

In addition to Rosenberg and Jakobsson, study authors include Cecil M. Lewis, Jr., former post-doctoral fellow in the U-M Department of Human Genetics, and 24 researchers at U.S., Canadian, British, Central and South American universities.

## 2010 Dues Renewal Schedule

Below is a table of the renewal fees for existing members for 2010. This will get all memberships to be renewed together on January 1, 2011. This table will also serve for new members, so that their membership will also renew on the same date. If you have not been contacted already with renewal information, you will be contacted soon.

| <b>Quarterly new member<br/>enrollment</b> | <i>Fees:</i> |         |         |
|--|--------------|---------|---------|
|  | Individual   | Family  | Student |
| January-March                              | \$28.50      | \$33.00 | \$14.25 |
| April-June                                 | \$21.50      | \$24.75 | \$10.75 |
| July-September                             | \$14.25      | \$16.50 | \$7.25  |
| October-December                           | \$7.25       | \$8.25  | \$3.75  |

Note: All renewals are due in January. New members pay a portion of the annual dues depending on during which quarter they join.

## Minutes – IPCAS Executive Board Meeting; March 4, 2010; 7:40PM–9:00PM

**Location:** Boulder (Dave Hawley residence)

**Executive Board Member Attendees:** Carolyn Camell-Coppin, Cheryl Damon, Kris Holien, Karen Kinnear, Joanne Turner, Dave Hawley, and Anne Robinson.

**Secretary's Report (Hawley):** Draft minutes of the last Board meeting on February 4, 2010 were published in the March 2010 *Calumet* Newsletter. The final minutes were approved.

**Treasurer's Report (Camell-Coppin):**

| End of Month Date | Beginning Balance | Ending Balance | New Members | Renewals |
|-------------------|-------------------|----------------|-------------|----------|
| February 2010     | \$2,547.41        | \$2,698.91     | 1           | 5        |

Will pay quarterly CAS bill this coming month. Carolyn prepared an itemized cost list for the 2009 calendar year to share with the Board on what items expenditures were made. Based on an anticipated shortfall in funding, the Board will closely examine each expenditure before the fact. Also based on this listing, she will prepare another draft budget for 2010, and cover any shortfalls in balancing with anticipated receipts of dues from new members, thereby informing the Board of how many new members need to be recruited. Carolyn will send emails to those who have allowed their dues to lapse, encouraging them to bring their dues current. Carolyn will re-send the marked-up Bylaws to Board members for more input preparatory to updating these Bylaws to reflect a calendar-year dues basis and also to modernize and clarify other verbiage. The State Historical Society is seeking details on our May 2010 meeting schedule – Anne will provide that information to the State.

**President's Report (Robinson):** Anne shared that the next State Quarterly meeting is March 27 in Montrose in conjunction with the CCPA Annual meeting March 26-28. She plans to attend, and other Board members are encouraged to also attend.

**Old Business:** IPCAS Website – no new information.

**Speaker Scorecard:** Mar 2010 Meeting: Bob Brunswig, and possibly Fred Sellet, will present, and include an update on the Walden dig and plans for this summer.

Apr 2010 Meeting: Dr. Arthur Joyce and possibly grad students will present on the Rio Viejo Site, Oaxaca, Mex.

May 2010 Meeting: This is the month to celebrate Colorado Archeology & Historic Preservation, and our keynote speaker will be Dr. James Benedict, who will present on “Archeology Above Timberline.”

Sep 2010 Meeting: TBD.

Oct 2010 Meeting: Alice Tratebas will present on “South Dakota Archeology.”

Nov 2010 Meeting: TBD.

Dec 2010 Meeting: Christmas party

**PAAC Classes** – We should know in April if the fall class will take place (depends on the status of the physical move of the Colorado Historical Society (CHS) offices in Denver).

**Membership Chair** – Karen will follow up with a potential candidate for the position.

**Historical Documentation / Files Disposition** – Tom still working these points – needs files input from Cheryl and Carolyn.

**New Business:**

Under the general subject, “Field Trips,” the following research will be pursued in an attempt to offer unique and interesting educational opportunities for the IPCAS membership:

South Park opportunities – Anne

Walden opportunities – to be addressed with Bob Brunswig during the March 2010 meeting

Lindenmeier tour opportunities – Kris

Archeology Class in coordination with our Education Outreach Chair – Dave

Fieldwork opportunities – Cheryl

Site Stewardship in RMNP – Kris

RMNP cultural opportunities - Kris

The next Board meeting on April 1, 2010 will focus on strategic planning and will be held at Joanne's home in Boulder. Members are welcome to attend but are requested to pre-coordinate with Joanne.

## 2010 IPCAS Officers, Board Members, and major functions

|                      |                       |                |  |
|----------------------|-----------------------|----------------|--|
| President            | Anne Robinson         | (720) 890-3944 | <a href="mailto:annerco@yahoo.com">annerco@yahoo.com</a>                   |
| Vice-President       | Karen Kinnear         | (303) 516-9260 | <a href="mailto:kinnearkaren@hotmail.com">kinnearkaren@hotmail.com</a>     |
| Treasurer            | Carolyn Camell-Coppin | (303) 775-9206 | <a href="mailto:cacc.co@live.com">cacc.co@live.com</a>                     |
| Secretary            | Dave Hawley           | (303) 443-2332 | <a href="mailto:dave_hawley@comcast.net">dave_hawley@comcast.net</a>       |
| Outreach Coordinator | Chris Strachan        | (303) 485-5415 | <a href="mailto:sduffy294@comcast.net">sduffy294@comcast.net</a>           |
| Professional Advisor | Dr. Robert Brunswig   | (970) 351-2138 | <a href="mailto:robert.brunswig@unco.edu">robert.brunswig@unco.edu</a>     |
| PAAC Coordinator     | Dave Hawley           | (303) 443-2332 | <a href="mailto:dave_hawley@comcast.net">dave_hawley@comcast.net</a>       |
| CAS Representative   |                       |                |  |
| Internet Manager     | Cyndi Cree            | (310) 663-0656 | <a href="mailto:c_cree@hotmail.com">c_cree@hotmail.com</a>                 |
| Archivist/Librarian  | Kris Holien           | (970) 586-8982 | <a href="mailto:kjholien@aol.com">kjholien@aol.com</a>                     |
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| Board Member         | Cheryl Damon          | (303) 678-8076 | <a href="mailto:cheryl_damon@msn.com">cheryl_damon@msn.com</a>             |
| Board Member         | Kris Holien           | (970) 586-8982 | <a href="mailto:kjholien@aol.com">kjholien@aol.com</a>                     |
| Board Member         | Joanne Turner         | (303) 494-7638 | <a href="mailto:joanne.turner@colorado.edu">joanne.turner@colorado.edu</a> |

### MEMBERSHIP APPLICATION - INDIAN PEAKS CHAPTER

|  |                   |                        |                |
|--|-------------------|------------------------|----------------|
| <u>Quarterly new member enrollment</u>   | <u>Individual</u> | <u>Family</u>          | <u>Student</u> |
| January-March  | \$28.50           | \$33.00                | \$14.25        |
| April-June   | \$21.50           | \$24.75                | \$10.75        |
| July-September   | \$14.25           | \$16.50                | \$7.25         |
| October-December   | \$7.25            | \$8.25                 | \$3.75         |
| <input type="checkbox"/> New <input type="checkbox"/> Renewal <b>Tax-Exempt Donation</b> <input type="checkbox"/> \$10, <input type="checkbox"/> \$25, <input type="checkbox"/> \$50, <b>Other</b> _____ |                   |                        |                |
| NAME _____   |                   | TELEPHONE (____) _____ |                |
| ADDRESS _____  |                   | E-MAIL _____           |                |
| CITY _____   |                   | STATE _____ ZIP _____  |                |

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

**I(We) give CAS permission to :**

- Yes \_\_\_ No \_\_\_ disclose phone numbers to other CAS members  
 Yes \_\_\_ No \_\_\_ 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: \_\_\_\_\_

## CALUMET

Newsletter of the Indian Peaks Chapter of the Colorado Archaeological Society

P.O. Box 18301

Boulder, CO 80308-1301