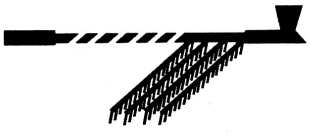
CALUMET



Newsletter of the Indian Peaks Chapter of the Colorado Archaeological Society
January, 2011

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

January 11, 12 PAAC Lowry Lab, 8:30AM-4:30PM, see Page 2

January 13 **IPCAS Presentation Meeting**, 7PM. Laurie White. Topic: TBA.

January 14, 15, 19, 20, 25, 26 PAAC Lowry Lab, 8:30AM-4:30PM, see Page 2

January 27 **Archaeology Discussion Group**, 7:00PM. Meeting Location: Boulder Library Meeting Room
This month's Topic: The Anasazi - anything you wish on the topic of the Anasazi. We will also pick the March meetings topic.

February 2-4 Colorado Preservation, Inc. "Saving Places" conference, Denver

February 10 **IPCAS Presentation Meeting**, 7PM. Caitlin Sommer, Masters Candidate, CU-Boulder. Her topic is "Research on Feathered Artifacts in the Mantle's Cave Collection at the CU Museum". Caitlin received a 2010 Alice Hamilton Scholarship to obtain one AMS date for a sample of one of the feathered artifacts.

March 10 **IPCAS Presentation Meeting**, 7PM. David T. Williams, Masters Candidate, CU-Boulder. David's topic is "Research on Lithic Assemblages within the Lower Rio Verde River Valley region of Oaxaca, Mexico". David received a 2010 Alice Hamilton Scholarship for living expenses and to obtain sourcing analysis of obsidian artifacts at the University of Missouri Research Reactor (MURR) using X-Ray Fluorescence Spectrometry (XRF).

March 24 **Archaeology Discussion Group,** 7:00PM. Meeting Location: TBD

March 24-27 Colorado Council of Professional Archaeologists and CAS joint meeting, La Junta

March 30 to April 3 Society for American Archaeology annual meeting, Sacramento, California

April 14 **IPCAS Presentation Meeting,** 7PM, Dinosaur Room, Dr. Robert Brunswig. Topic is the Dearfield Project (there will be volunteer opportunities in June/July).

April 29 to May 1 Chimney Rock in the Chacoan World conference, Pagosa Springs

May 12 **IPCAS Presentation Meeting**, 7PM. Craig Lee, Topic: TBA.

June 9 **1st Annual IPCAS Picnic Potluck Picnic**, Thursday, June 9 at 6:00PM at Betasso Preserve, Boulder County Open Space - Bring a dish to share.

Inside This CALUMET

Hi Folks,

Just a short message to let you know there is LOTS of space available for virtually all dates in December and January on the lab training project at our Lowry facility;
see http://coloradohistory-oahp.org/programareas/paac/certreq/labcreditb.htm for details.
Although January 15 has been the most popular choice, no dates have completely filled. It's first-come, first served with lab space, so do let me know if you'd like to attend, two days minimum [need not be consecutive].

The lab work is usually held at the Colorado Historical Society's Museum Support Center in east Denver (MSCD), on intermittent days in January, 8:30AM-4:30PM. The dates for January are:
January 11, January 12, January 14, January 15, January 19, January 20, January 25, and January 26.
Prospective volunteers should contact the State Training Coordinator to participate.

All supervised hours spent with specific materials in the collections apply toward the 40 hours of lab time required for certification. While the collection includes a variety of prehistoric and historical materials, a large majority is lithic (flaked stone and ground stone artifacts).

Kevin Black
ph 303-866-4671
fax 303-866-2711
kevin.black@chs.state.co.us
www.coloradohistory-oahp.org

Requesting additional IPCAS board members for 2011

2011 IPCAS Officers
President - Anne Robinson
Vice- President - Karen Kinnear
Treasurer - Carolyn Camell-Coppin
Professional Adviser Dr. Robert Brunswig
PAAC Coordinator - Dave Hawley
Archivist/ Librarian - Kris Holien
Board member - Cheryl Damon
Board Member - Kris Holien
Board Member - Joanne Turner

Open positions:
Newsletter editor,
Web administrator,
Membership Chair,
CAS Representative,
Field Trip Chair,
Outreach coordinator,
and Secretary.
Please consider volunteering for the board and, possibly, one of the open positions.

PAAC Schedule: January–June 2011

January

*11–26	Denver	PAAC Laboratory Project, various dates, see page 2
22	Pueblo	PAAC Board meeting
23	Pueblo	Introduction to Archaeology, CAS, and PAAC

February

3, 10	Denver	Ceramics Description & Analysis (sessions 1–2 of 7)
11–14	Cortez	Historical Archaeology
17	Denver	Ceramics Description & Analysis (continued, session 3)
22	Ft. Collins/Loveland	Archaeological Dating Methods (session 1 of 5)
24	Denver	Ceramics Description & Analysis (continued, session 4)
25–28	Montrose	Colorado Archaeology

March

1	Ft. Collins/Loveland	Archaeological Dating Methods (continued, session 2)
3	Denver	Ceramics Description & Analysis (continued, session 5)
4–6	Pueblo	Prehistoric Lithics Description & Analysis
8	Ft. Collins/Loveland	Archaeological Dating Methods (continued, session 3)
10	Denver	Ceramics Description & Analysis (continued, session 6)
15	Ft. Collins/Loveland	Archaeological Dating Methods (continued, session 4)
17	Denver	Ceramics Description & Analysis (end, session 7)
18–20	Alamosa	Principles of Archaeological Excavation
22	Ft. Collins/Loveland	Archaeological Dating Methods (end, session 5)

April

6	Boulder	Basic Site Surveying Techniques (session 1 of 8)
9–10	Gunnison	Archaeological Dating Methods
13	Boulder	Basic Site Surveying Techniques (continued, session 2)
16–17	Grand Junction	Introduction to Archaeology, CAS, and PAAC
20, 27	Boulder	Basic Site Surveying Techniques (continued, sessions 3–4)
29–30	Durango	Colorado Archaeology (sessions 1–2 of 3)

May

1	Durango	Colorado Archaeology (end, session 3)
4	Boulder	Basic Site Surveying Techniques (continued, session 5)
7–8	Colo. Springs/Fountain	Field and Lab Photography
11, 14, 18	Boulder	Basic Site Surveying Techniques (end, sessions 6–8)
20–22	Glenwood Springs	Prehistoric Ceramics Description & Analysis

June

3–5	Craig	Prehistoric Ceramics Description & Analysis
TBD	near Salida	PAAC Summer Training Survey at Antelope Gulch

Other Notable Events:

Society for Historical Archaeology annual conference, January 5–9 in Austin, TX
Colorado Preservation, Inc. “Saving Places” conference, February 2–4 in Denver
Colorado Council of Professional Archaeologists & CAS joint meeting, March 24–27 in La Junta
Society for American Archaeology annual meeting, March 30–April 3 in Sacramento, CA
Chimney Rock in the Chacoan World conference, April 29–May 1 in Pagosa Springs

Egyptians Perfected Ancient Dye Technique

By Randolph E. Schmid, The Associated Press

WASHINGTON - Four thousand years ago Egyptians had mastered the process of making madder, a red dye, according to a researcher who uncovered the earliest known example of the color still used today.

Refining a technique that allows the study of microscopic bits of pigment, Marco Leona of the Metropolitan Museum of Art in New York was able to analyze the color of a fragment of leather from an ancient Egyptian quiver. The discovery that the color was madder is the earliest evidence for the complex chemical knowledge needed to extract the dye from a plant and turn it into a pigment, Leona reports in Proceedings of the National Academy of Science. The find is some 700 years earlier than any previously known use of madder, which became highly popular in the Middle Ages and provides many of the red shades and glazes in the work of the Dutch painter Johannes Vermeer.

"Tracing the use of organic colorants offers a way to follow trade routes, identify relations among archaeological objects, detect forgeries and attribute works of art", Leona wrote. In addition to tracing madder, he was able to identify as kermes the red in the painting "St. John the Baptist Bearing Witness," from the workshop of Francesco Granacci in the early 1500s in Florence, Italy.

Egyptian Blue Found in Romanesque Altarpiece

ScienceDaily (May 18, 2010) — A team of researchers from the University of Barcelona (UB) has discovered remains of Egyptian blue in a Romanesque altarpiece in the church of Sant Pere de Terrassa (Barcelona). This blue pigment was used from the days of ancient Egypt until the end of the Roman Empire, but was not made after this time. So how could it turn up in a 12th Century church?

Egyptian blue or Pompeian blue was a pigment frequently used by the ancient Egyptians and Romans to decorate objects and murals. Following the fall of the Western Roman Empire (476 AD), this pigment fell out of use and was no longer made. But a team of Catalan scientists has now found it in the altarpiece of the 12th Century Romanesque church of Sant Pere de Terrassa (Barcelona). The results of this research have just been published in the journal *Archaeometry*.

"We carried out a systematic study of the pigments used in the altarpiece during restoration work on the church, and we could show that most of them were fairly local and 'poor' -- earth, whites from lime, blacks from smoke -- and we were completely unprepared for Egyptian blue to turn up," Mario Vendrell, co-author of the study and a geologist from the UB's Grup Patrimoni research group, said. The researcher says the preliminary chemical and microscopic study made them suspect that the samples taken were of Egyptian blue. To confirm their suspicions, they analysed them at the Daresbury SRS Laboratory in the United Kingdom, where they used X-ray diffraction techniques with synchrotron radiation. It will be possible to carry out these tests in Spain once the ALBA Synchrotron Light Facility at Cerdanyola del Vallés (Barcelona) comes into operation.

"The results show without any shadow of a doubt that the pigment is Egyptian blue," says Vendrell, who says it could not be any other kind of blue pigment used in Romanesque murals, such as azurite, lapis lazuli or aerinite, "which in any case came from far-off lands and were difficult to get hold of for a frontier economy, as the Kingdom Aragon was between the 11th and 15th Centuries."

A possible solution to the mystery

The geologist also says there is no evidence that people in Medieval times had knowledge of how to manufacture this pigment, which is made of copper silicate and calcium: "In fact it has never been found in any mural from the era." "The most likely hypothesis is that the builders of the church happened upon a 'ball' of Egyptian blue from the Roman period and decided to use it in the paintings on the stone altarpiece," Vendrell explains. The set of monuments made up by the churches of Sant Pere, Sant Miquel and Santa María de Terrassa are built upon ancient Iberian and Roman settlements, and the much-prized blue pigment could have remained hidden underground for many centuries. "But only a little of it, because this substance couldn't be replaced -- once the ball was all used up the blue was gone," concludes Vendrell.

A Look Inside A Mummy

Radiologists Use CT Scan To Diagnose Ancient Causes Of Death

July 1, 2007 — Medical physicists used computed tomography to compose a picture of the body within an ancient mummy. The scan provided more detail in both bone and tissue than a conventional x-ray. The three dimensional image can offer much more information to determine the age and cause of death of the person inside a mummy.

It's a high-tech medical tool doctors use to find tumors, or to map out surgery. A computed tomography scan -- or a CT scan -- gives doctors a precise look at what's going on inside, without surgery. But the technology is also allowing radiologists to unveil some amazing secrets from the past.

Science knew little about the story behind a two thousand year old mummy -- until now. "We had a number of questions because a doctor had x-rayed it in 1986 and had thought he was a bit older than he has actually proven to be," says Sandra Olsen, Ph.D. and Anthropologist at the Carnegie Museum of Natural History.

Archaeologists unearthed the three-foot tall Egyptian child mummy in 1912, but could offer very few other facts about the boy's past. Two decades ago, researchers thought the child might have had an enlarged head -- and possibly died from a genetic disease -- but removing any wrapping to investigate would damage the priceless artifact.

"What's so exciting about CT scanning -- the reason why we turned to that medical technique -- is that it is non-invasive and non-destructive," Olsen explains. The CT scan takes hundreds of images and uses a computer to join them together in three dimensional views. Bone and tissue are seen with more clarity than a traditional x-ray. Anthropologists were able to better determine the age of the mummy after they found a missing tooth at the base of the child's skull. Had it fallen out naturally, this child would have been closer to eight when he died. "In the end we found out he was only about three years old and his head is probably normal in relationship to his body," Olsen says.

Researchers are hoping to have an artist build a cast of his face, like investigators do in forensics, to see what the mummy looked like as a living little boy. "The tools that we have at our disposal are fortunately ideally suited to uncovering mysteries that are in archeology-in addition to anybody with an ailment who comes our way," says Jeffrey Towers, MD, Chief of Muscular-Skeletal Radiation at the University of Pittsburgh.

BACKGROUND: The Carnegie Museum of Natural History has collaborated with the University of Pittsburgh Medical Center to scan the mummy of a small child now on display at the museum. Child mummies are rare, and this one is smaller than normal, with an oversized head and a slight curvature of the spine. The researchers hope to determine what disorder the child may have suffered from in life to cause those features.

MUMMIFY ME: To mummify the deceased in Egypt, first, the brain was scrambled with hot, sharp hooks to liquefy the gray matter, then yanked out through the nostrils; the Egyptians didn't consider the brain to be an important asset for the afterlife, unlike the rest of the vital organs, which were carefully removed and stored in jars. The head was stuffed with sawdust and various resins, and the body covered in natron, a salt common to the region. This dried out the body and prevented decomposition. The corpse was then wrapped in strips of white linen treated with resins from fir and pine trees, beeswax, myrrh, palm wine, cassia, camphor oil, and other naturally microbe-resistant ingredients. The mummy was then wrapped in a sheet of canvas in a coffin, surrounded by various sacred charms and amulets.

ABOUT CAT SCANS: Any X-ray imaging machining shoots a beam of x-rays onto the body. As they pass through the body, different tissues absorb different amounts of the radiation. Bones absorb a lot of the energy and appear white on the x-ray image. Soft tissues, such as skin, fat and muscle, absorb less ad appear in various shades of gray. The lungs, filled with air, absorb almost no energy and appear dark. A CAT scan is just like a standard x-ray, except it uses an x-ray generating device that moves around the entire body to generate cross-sectioned images that are fed into a computer to produce a full 3D image.

CAT scan images reveal far more detail of things like internal organs, adrenal glands and blood vessels, than conventional x-ray machines reveal.

WHO KILLED KING TUT? In 2005, scientists subjected the mummified corpse of Tutankhamen to a 15-minute CT scan, producing 1700 images. Earlier x-rays seemed to indicate the presence of bone fragments, suggestive of a blow to the head, leading to speculation that Tut had been murdered. There also was a dense spot at the lower back of the skull, which researchers interpreted as evidence of a subdural hematoma, also consistent with a blow to the head. The 2005 CT scans put the speculation to rest, finding no evidence of foul play. Rather, it seems Tut died of a broken leg that turned gangrenous, killing him within days, possibly even hours. More information at:
http://archive.ncsa.uiuc.edu/Cyberia/videoTestbed/Projects/Mummy/mummyhome.html

Constraining the Reign of Ancient Egypt

ScienceDaily (June 18, 2010) — For several thousands of years, ancient Egypt dominated the Mediterranean world -- and scholars across the globe have spent more than a century trying to document the reigns of the various rulers of Egypt's Old, Middle and New Kingdoms. Now, a detailed radiocarbon analysis of short-lived plant remains from the region is providing scientists with a long and accurate chronology of ancient Egyptian dynasties that agrees with most previous estimates but also imposes some historic revisions.

Although previous chronologies have been precise in relative ways, assigning absolute dates to specific events in ancient Egyptian history has been an extremely contentious undertaking. This new study tightly constrains those previous predictions, especially for the Old Kingdom, which was determined to be slightly older than some scholars had believed. The study will also allow for more accurate historical comparisons to surrounding areas, like Libya and Sudan, which have been subject to many radiocarbon dating techniques in the past.

Christopher Bronk Ramsey and colleagues from the Universities of Oxford and Cranfield in England, along with a team of researchers from France, Austria and Israel, collected radiocarbon measurements from 211 various plants -- obtained from museum collections in the form of seeds, baskets, textiles, plant stems and fruits -- that were directly associated with particular reigns of ancient Egyptian kings. They then combined their radiocarbon data with historical information about the order and length of each king's reign to make a complete chronology of ancient Egyptian dynasties. "My colleague, Joanne Rowland, went to a lot of museums, explaining what we were doing and asking for their participation," Bronk Ramsey said. "The museums were all very helpful in providing material we were interested in -- especially important since export of samples from Egypt is currently prohibited. Fortunately, we only needed samples that were about the same size as a grain of wheat."

The researchers' new chronology does indicate that a few events occurred earlier than previously predicted. It suggests, for example, that the reign of Djoser in the Old Kingdom actually started between 2691 and 2625 B.C. and that the New Kingdom began between 1570 and 1544 B.C. Bronk Ramsey and his colleagues also found some discrepancies in the radiocarbon levels of the Nile Valley, but they suggest that these are due to ancient Egypt's unusual growing season, which is concentrated in the winter months.

For the most part, the new chronology simply narrows down the various historical scenarios that researchers have been considering for ancient Egypt. "For the first time, radiocarbon dating has become precise enough to constrain the history of ancient Egypt to very specific dates," said Bronk Ramsey. "I think scholars and scientists will be glad to hear that our small team of researchers has independently corroborated a century of scholarship in just three years."

This report by Bronk Ramsey *et al.* was funded by the Leverhulme Trust with additional financial support from the German-Israeli Foundation for Scientific Research and Development, NERC, CNRS, CEA, IRSN, IRD, and Ministère de La Culture.

Headless Statue of Ancient Egyptian King Unearthed

Analysis by Rossella Lorenzi, May 4, 2010

A headless granite statue of a Ptolemaic king has emerged from the ruins of an ancient Egyptian limestone temple believed to be the burial site of Queen Cleopatra and her lover Mark Antony. According to a statement issued on Tuesday by the Supreme Council of Antiquities, the sculpture was unearthed at Taposiris Magna, a site some 30 miles from the port city of Alexandria, by an Egyptian-Dominican team searching for the tomb of the doomed lovers.

More than 2,000 years old, the statue represents the traditional shape of an ancient Egyptian pharaoh wearing collar and kilt. “Even though the head is missing, this is one of the most beautiful statues from the Ptolemaic period. I think it portrays Ptolemy IV, the pharaoh who constructed temple,” Dr. Zahi Hawass, chief of Egypt's Supreme Council of Antiquities, told Discovery News. The team, led by Dr. Hawass in collaboration with the Dominican archaeologist Kathleen Martinez, also discovered the temple’s original gate on its western side. The entrance of the building, which was dedicated to Osiris, the Egyptian god of the underworld, was made up of a series of limestone foundation stones. One of the stones showed traces that a sphinx statue once stood upon it.
“This means that there was a sphinx avenue similar to those of the pharaonic era outside and inside the temple,” Hawass said.

The Egyptian-Dominican team spent the past five years trying to locate the last resting place of Cleopatra and Mark Antony, the Roman general who became Cleopatra’s lover and had three children with her. The couple supposedly committed suicide after their combined forces were defeated by Roman Emperor Octavian in the Battle of Actium more than two millennia ago.

While excavating the site --a radar survey of the temple has identified three spots where a burial chamber might lie deep underground -- the archaeologists have unearthed several significant artifacts. These include a number of headless royal statues, which may have been subjected to destruction during the Byzantine and Christian eras, a collection of heads featuring Queen Cleopatra, and 24 metal coins bearing Cleopatra’s profile.

Behind the crumbling temple, a necropolis was also discovered, containing many Graeco-Roman style mummies. Early investigations, said Hawass, show that the mummies were buried with their faces turned toward the temple, which means that a significant royal personality could be buried inside the temple. “All these findings are leading us to the discovery of the tomb of Cleopatra. They show that something important is waiting for us inside the temple,” Hawass said.

-

King Tut’s Tomb Set For Renovation

CAIRO - Egypt's famous Tomb of Tutankhamun will undergo a five-year project to clean and restore the lavish wall paintings in the underground chambers of the boy king whose golden mask and artifacts have long awed the world. The project to restore the country's most famous tomb is the latest collaboration between Egypt's Supreme Council of Antiquities and the Los Angeles~ based Getty Conservation Institute, which in the past restored nearby tombs and designed airtight cases to display Egypt's mummies. Since the small, four-roomed tomb and its famous golden burial mask were discovered in 1922 by British archaeologist Howard Carter, observers have noted strange brown spots marring the wall paintings. .

"I always see the tomb of King Tut and wonder about those spots, which no scientist has been able to explain," said Zahi Hawass, the head of the SCA, in a statement. "Now I am happy that the Getty will look at the tomb and preserve its beautiful scenes," he added. Thousands of tourists visit the underground chambers in the Valley of the Kings every month, bringing heat and humidity, which damage the more than 3,000-year-old tomb.

Pyramid of Mystery Pharaoh Possibly Located

The long-lost tomb of the 4,300-year-old Egyptian pharaoh Userkare may have been located.

By Rossella Lorenzi, Mar 29, 2010

A photograph taken from the area immediately south of the Unas pyramid, visible in the foreground.

THE GIST:
The second pharaoh of the 6th Dynasty, Userkare, has long been lost from history.
New research points to a series of invisible lines in South Saqqara as the spot of Userkare's tomb.
Userkare's tomb is the only missing piece in the grid.

The missing pyramid of an obscure pharaoh that ruled Egypt some 4,300 years ago could lie at the intersection of a series of invisible lines in South Saqqara, according to new astronomical and topographical research.

Connecting the funerary complexes raised by the kings of the 6th Dynasty between 2,322 B.C. and 2,151 B.C., these lines would have governed the sacred space of the Saqqara area, in accordance with a number of criteria such as dynastic lineage, religion and astronomical alignment.

"We are talking of meridian and diagonal alignments, with pyramids raised at their intersections. The only missing piece in this sort of grid is the pyramid of Userkare," Giulio Magli, professor of archaeoastronomy at Milan's Polytechnic University, told Discovery News. His research will appear in the next issue of the journal *Mediterranean Archaeology and Archaeometry.*

Known only from the king lists, Userkare was the second pharaoh of the 6th Dynasty and ruled briefly between Teti and Teti's son Pepi I. He took power after Teti was murdered, perhaps in a conspiracy he himself had maneuvered.

Little is known about this shadowy pharaoh. "When Pepi I took control a few years later, Userkare disappeared from history. Finding his tomb might help understand those obscure years.

The walls in his burial might also contain intact copies of the Pyramid Texts," Magli said, referring to the oldest known religious texts in the world that were carved on the walls and sarcophagi of the pyramids at Saqqara during the 5th and 6th Dynasties of the Old Kingdom.

Roman Era Mummy Uncovered in Egypt Oasis

Analysis by Rossella Lorenzi, April 12, 2010

A bejeweled mummy dressed in Roman robes has emerged from the sands of Egypt's Bahariya Oasis, the Supreme Council of Antiquities said Monday. Entombed in a decorated gypsum sarcophagus, the 38-inch tall mummy belonged to a woman or girl who died in the Greco-Roman period about 2,300 years ago.

Unearthed in a rock-hewn tomb at a modern construction site near the town of Bawiti, in Bahariya Oasis, some 185 miles southwest of Cairo, the mummy points to the existence of a large Greco-Roman necropolis nearby, Mahmoud Affifi, director of Cairo and Giza antiquities, said in a statement. Indeed, Egyptian archaeologists uncovered 14 Graeco-Roman tombs at the site dating to the third century B.C. They also found four anthropoid masks made of plaster, a collection of coins, clay and glass vessels of different shapes and sizes, and a sheet of gold depicting Imsety, Duamutef, Hapi and Qebehsenuef -- the four sons of the ancient Egyptian sky god Horus.

According to Affifi, the tombs have a unique interior design. They consist of a long stairway leading to a corridor which ends in a hall. Each corner of the hall contains mastabas (rectangular structures found above many Egyptian tombs) that were used in burning the deceased. Set in a depression covering over 1,250 square miles in Egypt's Western Desert near the city of Bawiti, the Bahariya Oasis consists of colonies of palm trees and hot springs, with black hills in the background. There is no trace of pyramids -- tombs par excellence -- or of mausoleums. Yet it is here that in 1996 Dr. Zahi Hawass discovered 17 tombs with 254 gold-masked mummies. Called the Valley of the Golden Mummies, the site has turned out to be the biggest ancient Egyptian cemetery ever uncovered -- holding perhaps as many as 10,000 mummies buried more than 2,000 years ago.

Study Examines Family Lineage of King Tut and Possible Cause of Death

ScienceDaily (Feb. 17, 2010) — Using several scientific methods, including analyzing DNA from royal mummies, research findings suggest that malaria and bone abnormalities appear to have contributed to the death of Egyptian pharaoh King Tutankhamun, with other results appearing to identify members of the royal family, including King Tut's father and mother, according to a study in the February 17 issue of *JAMA*.

The 18th dynasty (circa 1550-1295 B.C.) of the New Kingdom was one of the most powerful royal houses of ancient Egypt, and included the reign of Tutankhamun, probably the most famous of all pharaohs, although his tenure was brief. He died in the ninth year of his reign, circa 1324 B.C., at age 19 years. "Little was known of Tutankhamun and his ancestry prior to Howard Carter's discovery of his intact tomb (KV62) in the Valley of the Kings in 1922, but his mummy and the priceless treasures buried with him, along with other important archeological discoveries of the 20th century, have provided significant information about the boy pharaoh's life and family," the authors write.

Because Tutankhamun died so young, and left no heirs, there have been numerous speculations regarding diseases that may have occurred in his family, as well as debate regarding the cause of Tutankhamun's death. Also, artifacts have shown the royalty of that era as having a somewhat feminized or androgynous appearance. Diseases that have been suggested to explain this appearance include a form of gynecomastia (excessive development of the breasts in males; usually the result of a hormonal imbalance), Marfan syndrome and others. "However, most of the disease diagnoses are hypotheses derived by observing and interpreting artifacts and not by evaluating the mummified remains of royal individuals apart from these artifacts," they write. There have also been questions regarding the identification of a number of royal mummies from this era and the exact relationships between some members of the royal family.

Zahi Hawass, Ph.D., of the Supreme Council of Antiquities, Cairo, Egypt, and colleagues conducted a study to determine familial relationships among 11 royal mummies of the New Kingdom, and to search for pathological features attributable to inherited disorders, infectious diseases and blood relationship. They also examined for evidence regarding Tutankhamun's death, with some scholars having hypothesized that

it was attributable to an injury; septicemia (bloodstream infection) or fat embolism (release of fat into an artery) secondary to a femur fracture; murder by a blow to the back of the head; or poisoning.

From September 2007 to October 2009, royal mummies underwent detailed anthropological, radiological, and genetic studies (DNA was extracted from 2 to 4 different biopsies per mummy). In addition to Tutankhamun, 10 mummies (circa 1410-1324 B.C.) possibly or definitely closely related in some way to Tutankhamun were chosen; of these, the identities were certain for only 3. In addition to these 11 mummies, 5 other royal individuals dating to the early New Kingdom (circa 1550-1479 B.C.) were selected that were distinct from the supposed members of the Tutankhamun lineage. Most of these 5 mummies were used as a morphological (form and structure) and genetic control group. Genetic fingerprinting allowed the construction of a 5-generation pedigree of Tutankhamun's immediate lineage.

The researchers found that several of the anonymous mummies or those with suspected identities were now able to be addressed by name, which included KV35EL, who is Tiye, mother of the pharaoh Akhenaten and grandmother of Tutankhamun, and the KV55 mummy, who is most probably Akhenaten, father of Tutankhamun. This kinship is supported in that several unique anthropological features are shared by the 2 mummies and that the blood group of both individuals is identical. The researchers identified the KV35YL mummy as likely Tutankhamun's mother.

No signs of gynecomastia or Marfan syndrome were found. "Therefore, the particular artistic presentation of persons in the Amarna period is confirmed as a royally decreed style most probably related to the religious reforms of Akhenaten. It is unlikely that either Tutankhamun or Akhenaten actually displayed a significantly bizarre or feminine physique. It is important to note that ancient Egyptian kings typically had themselves and their families represented in an idealized fashion," they write.

The researchers did find an accumulation of malformations in Tutankhamun's family. "Several pathologies including Kohler disease II [bone disorder] were diagnosed in Tutankhamun; none alone would have caused death. Genetic testing for STEVOR, AMA1, or MSP1 genes specific for Plasmodium falciparum [the malaria parasite] revealed indications of malaria tropica in 4 mummies, including Tutankhamun's. These results suggest avascular bone necrosis [condition in which the poor blood supply to the bone leads to weakening or destruction of an area of bone] in conjunction with the malarial infection as the most likely cause of death in Tutankhamun. Walking impairment and malarial disease sustained by Tutankhamun is supported by the discovery of canes and an afterlife pharmacy in his tomb," the authors write. They add that a sudden leg fracture, possibly from a fall, might have resulted in a life-threatening condition when a malaria infection occurred.

"In conclusion, this study suggests a new approach to research into the molecular genealogy and pathogen paleogenomics of the Pharaonic era. With additional data, a scientific discipline called molecular Egyptology might be established and consolidated, thereby merging natural sciences, life sciences, cultural sciences, humanities, medicine, and other fields."

In an accompanying editorial, Howard Markel, M.D., Ph.D., of the University of Michigan, Ann, Arbor, writes that while new scientific techniques can provide interesting insights into history, they also raise many questions. "… what is less clear is the development of ethical guidelines with which to conduct subsequent DNA, genetic, radiological, and other medical inquiries into human history. What will the rules be for exhuming bodies to solve vexing pathological puzzles? Are major historical figures entitled to the same privacy rules that private citizens enjoy even after death? Most pragmatically, what is actually gained from such studies? Will they change current thinking about and prevent threatening diseases such as influenza? Will they change the understanding of the past, such as the Jefferson study's powerful elucidation of intimacy during the era of slavery and the Tutankhamun study's window on the conduct of the royal family of Egypt?

"All historians are guilty of enjoying reading the mail and personal materials of others. Yet before disturbing the dead with the penetrating wonders of 21st-century medical science, it is essential to follow the lead of these authors by pondering all the ethical implications of such inquiries to avoid opening a historical Pandora's box."

Minutes – IPCAS Executive Board Meeting – November 4, 2010

Location: Longmont (Basil Flats restaurant on South Hover Road across from the Twin Peaks Mall)
Attendees: Carolyn Camell-Coppin, Cheryl Damon, Dave Hawley, Kris Holien, Karen Kinnear, Anne Robinson, Joanne Turner
Secretary's Report (Hawley): The October 2010 Minutes were approved.
Treasurer's Report (Camell-Coppin):

Bal as of 9/10/10	Bal as of 10/31/10*	New Members	Renewals
$2,501.14	$2355.80	0	3

*Paid state dues for 2nd Qtr and rental fee for Christmas Party venue
Speaker Scorecard (Robinson):

- Per the *Calumet* published 11/4/10, speakers are lined up through April 2011; Kris has a line on a possible speaker for May 2011.

Old Business

- **Membership & Leadership**: Carolyn will update the Board on the latest membership roster – we're down to about 40 members and need to increase that number. Leadership challenges have not changed during the last month, and Anne will solicit for volunteers during the upcoming November General Meeting.
- **Fall 2010 and Spring 2011 PAAC Classes**: There are 20 registered for the Fall PAAC class, with 19 actually attending. The Spring 2011 PAAC class has been set – also for the 29th Street Conference Room. It will be the Survey Class and will start on Wednesday, April 6, 2011 (will cover all four Wednesdays in April, the first three Wednesdays in May, and Saturday May 14). There are already 18 tentatively signed up for this class, but there will continue to be plenty of room since Kevin stated that he could accommodate as many as 40 based on the large size of the 29th Street Conference Room.
- **Site Stewardship Program**: Paul Alford (South Zone Archeologist of Arapaho/Roosevelt NF) contacted Anne. Paul will attend our January 2011 meeting to roll out this program, and training for the program is expected to follow. Participation will be restricted to IPCAS members.
- **Event Calendar**: Anne is still working on this initiative (on-line Google calendar). Anne will establish a Gmail address for *Indian Peaks Archeology*.
- **Winter Field Trip**: Anne is still working with the CU Museum on scheduling a seminar / members-only viewing.
- **November 11, 2011 Lecture Location – Getting People There**: Board members will be positioned at the CU Museum and the Collections Building to guide people to the meeting, and a cell phone number will be published to enable those who arrive before about 7:10pm to get into the Collections Building. Renovations of the CU Museum will be completed in mid-November, so we'll be back on track for meetings in January.
- **Christmas Party**: Will be on 12/9/10 starting at 6pm at St. Andrews Church on Baseline Road, Boulder. Details will be published in the *Calumet* and via email. Board member responsibilities were discussed, and Anne will send out a reminder listing to Board members.
- **June 2011 Picnic**: Will be on 6/9/11 starting at 5:30pm at Betasso Preserve. Carolyn will send in the rental plus deposit charge. Kris will make some calls about recruiting an atlatl expert to demo and provide an opportunity to try out throwing spears using an atlatl at this picnic.
- **Elections for 2011**: Anne will prepare the slate for the November 11, 2011 meeting. Anne and Karen are working in coordination with Tom Cree on establishing a new website in January 2011.
- **Potluck at Ann Phillips Home Sunday November 21**: An opportunity to rub elbows with other IPCAS members and "try IPCAS on for size" for potential new members. All are welcome to participate.

New Business

- **Membership Renewals for 2011**: It was noted that dues for 2011 ($28.50 for standard membership, but other options are available) are due as of the January 2011 meeting. Dues may also be remitted in advance.
- **Summer 2011 Field Trip to Chimney Rock**: Planning just beginning, with the possibility of a members-only special tour.
- **Annual Meeting Planning**: It was noted that we should plan for about 75 to 100 attendees. Preliminary dates are for Friday thru Sunday, September 30, 2011 thru October 2, 2011. Will include a Saturday evening banquet, and Sunday field trips. Preliminary investigation of possible venues will be initiated.

2010 IPCAS Officers, Board Members, and major functions

President	Anne Robinson	(720) 890-3944	annerco@yahoo.com
Vice-President	Karen Kinnear	(303) 516-9260	kinnearkaren@hotmail.com
Treasurer	Carolyn Camell-Coppin	(303) 775-9206	cacc.co@live.com
Professional Advisor	Dr. Robert Brunswig	(970) 351-2138	robert.brunswig@unco.edu
PAAC Coordinator	Dave Hawley	(303) 443-2332	dave_hawley@comcast.net
Archivist/Librarian	Kris Holien	(970) 586-8982	kjholien@aol.com
Board Member	Cheryl Damon	(303) 678-8076	cheryl_damon@msn.com
Board Member	Kris Holien	(970) 586-8982	kjholien@aol.com
Board Member	Joanne Turner	(303) 494-7638	joanne.turner@colorado.edu

MEMBERSHIP APPLICATION - INDIAN PEAKS CHAPTER

Quarterly new member enrollment	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

____ New ____ Renewal Tax-Exempt Donation __ $10, __ $25, __ $50, Other _____

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