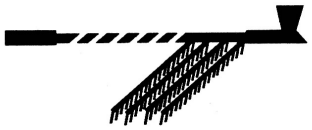
CALUMET



Newsletter of the Indian Peaks Chapter of the Colorado Archaeological Society
March, 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

March 10 **IPCAS Presentation Meeting**, 7PM. David T. Williams and Harold "Hal" Baillie, Masters Candidates, CU-Boulder. Their topic is "Research On Lithic Assemblages within the Lower Rio Verde River Valley region of Oaxaca, Mexico".

March 12 **Tour – CU Museum of Natural History**, 10AM. **** NEW DATE ****
Tour will include both the museum exhibits and behind the scenes information. Please RSVP your interest to indianpeaksarchaeology@gmail.com. Tour is limited to 25 people.

March 10 **IPCAS Presentation Meeting**, 7PM. David T. Williams and Harold "Hal" Baillie, Masters Candidates, CU-Boulder. Their topic is "Research on Lithic Assemblages within the Lower Rio Verde River Valley region of Oaxaca, Mexico".

March 24 **Archaeology Discussion Group,** 7:00PM. Meeting Location: TBD, Topic: Peopling the Americas. Read any book or article on the topic. Be prepared to share some topics from your reading.

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 6 PAAC Class - Basic Site Surveying Techniques (session 1 of 8)

April 13 PAAC Class - Basic Site Surveying Techniques (continued, session 2)

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 20, 27 PAAC Class - Basic Site Surveying Techniques (continued, sessions 3–4)

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

May 4,11 PAAC Class - Basic Site Surveying Techniques (continued, session 5-6)

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

May 14, 18 PAAC Class - Basic Site Surveying Techniques (sessions 7–8 end)

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.

October 15-16 **CAS Annual Conference, Boulder (IPCAS is hosting)**

Inside This CALUMET

March Presentation Meeting

Our speakers for the March 10th meeting are David T. Williams and Harold "Hal" Baillie. The topic is: "Research on Lithic Assemblages within the Lower Rio Verde River Valley region of Oaxaca, Mexico".

CU Natural History Museum Tour

Join us for a tour of the CU Natural History Museum Anthropology Hall Saturday, March 12 at 10:00 am
Cost: $2.00 per person

IPCAS Reading and Discussion Group

The next Discussion Group meeting will be held on Thursday, March 24 at 7PM and is open to all IPCAS members and the general public. We will meet at the Reynolds Library (3595 Table Mesa Drive, Boulder, 80305). The topic will be "Peopling the Americas". Read any book or article on the topic and be prepared to share important or interesting information from your reading (or just come to listen).

Spring 2011 Boulder PAAC Class

The **Spring 2011 Indian Peaks, Colorado Archeology Society (IPCAS) Program for Avocational Archaeological Certification (PAAC)** class will be ***Basic Site Surveying Techniques***, which covers the history of archaeological survey, site identification, formation processes, survey methods, recording procedures, basic equipment usage, reading USGS topographic maps, goals and problems of archaeological survey, curation of archaeological remains, and necessity for final reports. Also part of the course is a field trip to identify and record a site. PAAC classes are open to everyone, not just IPCAS members.
See the class outline at: http://coloradohistory-oahp.org/programareas/paac/classinfo/surveytech.htm
Class dates and Times: Wednesdays 6:00 to 9:00 pm: April 6, 13, 20, 27; May 4, 11, 14 (Field Trip), 18 (total of 7 evening classes + Field Trip.
Location: 29th Street Community Room in Boulder. Room faces 29th Street and is reached by taking the elevator or stairs in front of Borders Bookstore to the top (3rd) floor and then walking north about 50 feet along the walkway that parallels 29th Street – the conference room is on the right. Parking is free, both street and underground parking lot (and the elevator – south end of the parking lot, near the Borders location - may be accessed from the underground parking lot).
Instructor: Kevin Black, Assistant State Archaeologist (a dynamic presenter)
Class Size: Minimum 10, maximum 40
To register: To guarantee a slot, send two checks - one for $12 payable to *CHS*, and one for $13 payable to *IPCAS,* to Dave Hawley, IPCAS PAAC Coordinator, 1516 Lodge Court, Boulder, CO 80303. Cost includes all materials. Include name, address, and, for receipt confirmation and coordination, email address.
Cancellations: Once registered, the PAAC statewide policy is not to allow refunds unless the course is cancelled, but in lieu of a refund, the full handout packet for that course is mailed. Please note that the handout packets for most PAAC courses are quite voluminous.
Questions: Contact Dave at 303-443-2332 or dave_hawley@comcast.net.

Rafting and Rock Art with Sally Cole

State CAS has announced a rafting trip on the San Juan River, known for its spectacular rock art sites and ruins. This will be a three day, two night trip, June 7-9, out of Bluff, UT to Mexican Hat. We will explore the rock art and archaeology on the river, including Chinle Wash on the Navajo Reservation. Sally Cole, archaeologist and author of *Legacy on Stone*, has offered to act as interpretive guide for this Alice Hamilton Scholarship fund raising event. We have obtained a special discounted rate of $493 per person, which includes a 10% crew tip (the regular rate is $713). $50 of this fee will go to the Alice Hamilton Scholarship Fund and is tax-deductible. Due to this discounted rate, we can only accept credit cards for the trip deposit ($200 by March 23) with a 4% non-refundable service charge. The balance, $293, must be paid by check and received no later than April 23. Cancellations prior to April 24th are subject to a $100.00 service fee. No refunds after April 24. If we can fill your space, deposits will be refunded. This trip is contingent on a minimum of 18 registrations by March 23.

New Written Language of Ancient Scotland Discovered

By Jennifer Viegas, Mar 31, 2010

Once thought to be rock art, carved depictions of soldiers, horses and other figures are in fact part of a written language dating back to the Iron Age.

Riders and horn blowers appear next to hunting dogs on what is called the Hilton of Cadboll stone, pictured here. *Rob Knell and Rob Lee*

THE GIST:
A new written language, belonging to the early Pict society of Scotland, has just been identified.
Stylized rock engravings have been found on hundreds of Pictish Stones.
If the writing can be deciphered, it would provide a unique insight into early Scottish history.

The ancestors of modern Scottish people left behind mysterious, carved stones that new research has just determined contain the written language of the Picts, an Iron Age society that existed in Scotland from 300 to 843. The highly stylized rock engravings, found on what are known as the Pictish Stones, had once been thought to be rock art or tied to heraldry.

The new study, published in the *Proceedings of the Royal Society A*, instead concludes that the engravings represent the long lost language of the Picts, a confederation of Celtic tribes that lived in modern-day eastern and northern Scotland.

"We know that the Picts had a spoken language to complement the writing of the symbols, as Bede (a monk and historian who died in 735) writes that there are four languages in Britain in this time: British, Pictish, Scottish and English," lead author Rob Lee told Discovery News.

Scotland's First People Left Behind Toolkit
HowStuffWorks: Scotland
Druid Grave Unearthed in UK

"We know that the three other languages were -- and are -- complex spoken languages, so there is every indication that Pictish was also a complex spoken language," added Lee, a professor in the School of Biosciences at the University of Exeter.

He and colleagues Philip Jonathan and Pauline Ziman analyzed the engravings, found on the few hundred known Pictish Stones. The researchers used a mathematical process known as Shannon entropy to study the order, direction, randomness and other characteristics of each engraving.

The resulting data was compared with that for numerous written languages, such as Egyptian hieroglyphs, Chinese texts and written Latin, Anglo-Saxon, Old Norse, Ancient Irish, Old Irish and Old Welsh. While the Pictish Stone engravings did not match any of these, they displayed characteristics of writing based on a spoken

language. Lee explained that writing comes in two basic forms: lexigraphic writing that is based on speech and semasiography, which is not based on speech.

"Lexigraphic writing contains symbols that represent parts of speech, such as words, or sounds like syllables or letters, and tends to be written in a linear or directional manner mimicking the flow of speech," he said. "In semasiography, the symbols do not represent speech -- such as the cartoon symbols used to show you how to build a flat pack piece of furniture -- and generally do not come in a linear manner." Although Lee and his team have not yet deciphered the Pictish language, some of the symbols provide intriguing clues. One symbol looks like a dog's head, for example, while others look like horses, trumpets, mirrors, combs, stags, weapons and crosses.

The later Pictish Stones also contain images, like Celtic knots, similar to those found in the Book of Kells and other early works from nearby regions. These more decorative looking images frame what Lee and his team believe is the written Pictish language. "It is unclear at the moment whether the imagery, such as the knots, form any part of the communication," Lee said. He believes the stones also contain semasiographic symbols, such as a picture of riders and horn blowers next to hunting dogs on what is called the Hilton of Cadboll stone. Yet another stone shows what appears to be a battle scene.

Paul Bouissac, a University of Toronto professor who is one of the world's leading experts on signs and symbols, told Discovery News that he agrees "it is more than plausible that the Pictish symbols are examples of a script, in the sense that they encoded some information, which also had a spoken form." What is known about a writing system, however, "does not amount to deciphering this putative script," Bouissac added.

"We will have to wait for the discovery of what would be the Pictish equivalent of the Rosetta Stone, which made possible the cracking of the Egyptian hieroglyphic code," he said. "This may or may not ever happen."

Researchers Shed Light on Ancient Assyrian Tablets

ScienceDaily (Apr. 10, 2010) — A cache of cuneiform tablets unearthed by a team led by a University of Toronto archaeologist has been found to contain a largely intact Assyrian treaty from the early 7th century BCE.

"The tablet is quite spectacular. It records a treaty -- or covenant -- between Esarhaddon, King of the Assyrian Empire and a secondary ruler who acknowledged Assyrian power. The treaty was confirmed in 672 BCE at elaborate ceremonies held in the Assyrian royal city of Nimrud (ancient Kalhu). In the text, the ruler vows to recognize the authority of Esarhaddon's successor, his son Ashurbanipal," said Timothy Harrison, professor of near eastern archaeology in the Department of Near & Middle Eastern Civilizations and director of U of T's Tayinat Archaeological Project (TAP).

"The treaties were designed to secure Ashurbanipal's accession to the throne and avoid the political crisis that transpired at the start of his father's reign. Esarhaddon came to power when his brothers assassinated their father, Sennacherib."

The 43 by 28 centimeter tablet -- known as the Vassal Treaties of Esarhaddon -- contains about 650 lines and is in a very fragile state. "It will take months of further work before the document will be fully legible," added Harrison. "These tablets are like a very complex puzzle, involving hundreds of pieces, some missing. It is not just a matter of pulling the tablet out, sitting down and reading. We expect to learn much more as we restore and analyze the document."

The researchers hope to glean information about Assyria's imperial relations with the west during a critical period, the early 7th century BCE. It marked the rise of the Phrygians and other rival powers in highland Anatolia -- now modern-day Turkey -- along the northwestern frontier of the Assyrian empire, and coincided with the divided monarchy of Biblical Israel, as well as an era of increased contact between the Levantine peoples of the Eastern Mediterranean and Egypt, as well as the Greeks of the Aegean world.

The cache of tablets -- which date back to the Iron Age -- were unearthed in August 2009 during excavations at the site of an ancient temple at Tell Tayinat, located in southeastern Turkey. A wealth of religious paraphernalia -- including gold, bronze and iron implements, libation vessels and ornately decorated ritual objects -- was also uncovered.

TAP is an international project, involving researchers from a dozen countries, and more than 20 universities and research institutes. It operates in close collaboration with the Ministry of Culture of Turkey, and provides research opportunities and training for both graduate and undergraduate students. The project is funded by the Social Sciences and Humanities Research Council of Canada and the Institute for Aegean Prehistory (INSTAP), and receives support from the University of Toronto.

Rare Hebrew Seal From First Temple Period Discovered In Archaeological Excavations In Jerusalem's Western Wall Plaza

ScienceDaily (Nov. 13, 2008) — In archaeological excavations the Israel Antiquities Authority is carrying out at the behest of the Western Wall Heritage Foundation, in the northwestern part of the Western Wall plaza in Jerusalem, a rare and impressive Hebrew seal was discovered that dates to the latter part of the First Temple period. The seal was found in a building that is currently being uncovered, which dates to the seventh century BCE – to the time when the kings Manasseh and Josiah reigned.

The seal will be shown today (Thursday, October 30, 2008) during a study day dealing with “Innovations in the Archaeology of Jerusalem and its Surroundings”, organized by the Jerusalem Region of the Israel Antiquities Authority and the Institute of Archaeology of the Hebrew University of Jerusalem.

According to the excavation director, archaeologist Shlomit Wexler-Bdolah of the IAA, “The seal, which apparently belonged to a private individual, is made of black stone, is elliptical in shape and measures 1.2 x 1.4 cm. It is adorned with an engraved decoration of an archer shooting a bow and arrow. The name of the archer is engraved in ancient Hebrew script next to him and reads LHGB (meaning: for Hagab). The name Hagab is mentioned in the Bible in Ezra 2:46, as well as in the Lachish Letters, which also date to the time of the First Temple”.

The seal was sent for expert evaluation to Professor Benjamin Sass of the Tel Aviv University and Dr. Tali Ornan of the Hebrew University of Jerusalem. According to them the image of the archer was influenced by Assyrian wall reliefs in which archers are portrayed shooting bows and arrows – such as those that are known from the Lachish relief. The image of the archer appears in profile: he is standing in a firing position with his right foot in front of his left. His face is portrayed schematically but his body, his dress and especially the muscles of his arms and legs stand out prominently. He is barefoot.

His attire includes a headband and a skirt that is wrapped around his hips. A quiver hangs from his back and its straps are drawn tightly across his exposed chest. He is holding a bow and arrow in his hands. His right hand is extended forward holding the bow while his left is pulled back grasping the arrow. The seal is quite unique since this is the first time that a private seal has been discovered that bears a Hebrew name and is decorated in the Assyrian style. The seal attests to the strong Assyrian influence that existed in Jerusalem in the seventh century BCE. It is usually assumed that the owner of private seals were individuals who held government positions. We can suggest that the owner of the seal – Hagab, who chose to portray himself as a Hebrew archer depicted in the Assyrian style – served in a senior military role in Judah.

In the building where Hagab’s seal was discovered, archaeologist Wexler-Bdolah has previously found a number of Hebrew seals of individuals that held public positions, as well as ten handles of storage jars for oil and wine that are stamped with royal impressions. According to her, “This building was erected at the foot of the Upper City, at a distance of about one hundred meters from the Western Wall and it looks out over the Temple Mount. The walls of the structure were preserved to an amazing height of approximately five meters. The high quality of its construction and the artifacts that were discovered inside it indicate that the building and especially its inhabitants had a very important status in Jerusalem at the end of the First Temple period.”

Reading Zip Codes of 3,500-Year-Old Letters: Non-Destructive X-Ray Scanning of Archaeological Finds

ScienceDaily (Aug. 6, 2010) — Unfortunately, when ancient kings sent letters to each other, their post offices didn't record the sender' return address. It takes quite a bit of super-sleuthing by today's archaeologists to determine the geographical origin of this correspondence -- which can reveal a great deal about ancient rulers and civilizations.

Now, by adapting an off-the-shelf portable x-ray lab tool that analyzes the composition of chemicals, Prof. Yuval Goren of Tel Aviv University's Department of Archaeology and Ancient Near Eastern Civilizations can reveal hidden information about a tablet's composition without damaging the precious ancient find itself. These x-rays reveal the soil and clay composition of a tablet or artefact, to help determine its precise origin.

But Prof. Goren's process, based on x-ray fluorescence (XRF) spectrometry, can go much further. Over the years, he has collected extensive data through physical "destructive" sampling of artefacts. By comparing this data to readouts produced by the XRF device, he's built a table of results so that he can now scan a tablet -- touching the surface of it gently with the machine -- and immediately assess its clay type and the geographical origin of its minerals.

The tool, he says, can also be applied to coins, ancient plasters, and glass, and can be used on site or in a lab. He plans to make this information widely available to other archaeological researchers.

Preserving artifacts for the future

Prof. Goren's field intersects the worlds of geology, mineralogy and ancient technology as he tries to understand where ancient tablets and pots are made, based on the crystals and minerals found in the materials of these artifacts.

Traditionally archaeological scientists have had to take small samples of an artifact -- a chip or a slice -- in order to analyze its soil and clay composition. But as more and more museums and archaeology sites ban these destructive means of investigating archaeological finds, Prof. Goren's new tool may help save archaeological structures while solving some of its deepest mysteries.

"It's become a big ethical question," says Prof. Goren. "Many museums will not allow any more physical sampling of artefacts, and it's especially problematic for small tablet fragments and stamps which cannot be broken in the process. I had to find another way to know what these artefacts were made of."

Records from a Jesubite King

In his recent study published in the *Israel Exploration Journal*, Prof. Goren and his colleagues investigated a Late Bronze Age letter written in the Akkadian language and found among the Ophel excavations in Jerusalem.

Its style suggests that it is a rough and contemporary tablet of the Amarna letters -- letters written from officials throughout the Middle East to the Pharaohs in Egypt around 3,500 years ago, pre-biblical times. Using his device, Prof. Goren was able to determine that the letter is made from raw material typical to the Terra Rossa soils of the Central Hill Country around Jerusalem. This determination helped to confirm both the origin of the letter and possibly its sender.

"We believe this is a local product written by Jerusalem scribes, made of locally available soil. Found close to an acropolis, it is also likely that the letter fragment does in fact come from a king of Jerusalem," the researchers reported, adding that it may well be an archival copy of a letter from King Abdi-Heba, a Jesubite king in Jerusalem, to the Pharaoh in nearby Egypt.

Prof. Goren is also an expert at uncovering archaeological forgeries and has worked on the alleged ossuary, or bone box, of Jesus' brother James.

Virtual Library Of Medieval Manuscripts Created

ScienceDaily (Feb. 17, 2009) — Google "Edward the Confessor" and you'll get page after page of links to biographies of this 11th-century English king, to Westminster Abbey, which he founded and where he is buried, and to the Magna Carta, which was partly inspired by laws enacted during his 24-year reign.

But a completely digitized manuscript of the oldest surviving Anglo-Norman history of the king does not turn up — at least on the first 20 search pages — even though Cambridge University painstakingly scanned the sumptuously illustrated manuscript in 2003.

That history, "The Life of King Edward the Confessor," probably written by a Benedictine monk named Matthew Paris sometime between 1250 and 1260, is not alone. Somewhere between 5,000 and 10,000 rare and precious medieval manuscripts have been scanned over the past decade into formats that could be studied over the Internet if only scholars knew they existed and knew where to find them.

"Searching for medieval manuscripts gets you millions of hits, most of which have nothing to do with manuscripts, and when they do, they usually feature only images of a single page rather than the entire book," said Matthew Fisher, an assistant professor of English at UCLA. "Since finding these great projects is so tough, they're functionally invisible."

Fisher set out two years ago to remedy the situation. With the assistance of two graduate students in English, a computer developer from UCLA's Center for Digital Humanities and Christopher Baswell, a former UCLA professor of English, Fisher decided to collect links to every manuscript from the eighth to the 15th century that had been fully digitized by any library, archive, institute or private owner anywhere in the world.

In December 2008, the group launched the initial results. The UCLA-based Catalogue of Digitized Medieval Manuscripts now links to nearly 1,000 manuscripts by 193 authors in 20 languages from 59 libraries around the world, allowing users to flit from England to France to Switzerland to the United States — to name the locations of just a few of the featured repositories — with the click of a mouse.

Highlights of the virtual holdings include:
The largest surviving collection of the works of Christine de Pizan, one of the first women in Europe to earn a living as a writer. The manuscript was commissioned by Queen Isabeau of France in 1414 and is now held by the British Library. An Irish copy of the Gospel of John, bound in ivory and presented to Charlemagne sometime around 800, now in the library of the monastery of St. Gall in Switzerland.

The Junius manuscript, one of only four major manuscripts preserving poetry in Old English. Dated to around 1000, the book is now among the holdings of Oxford's Bodleian Library. "Because these manuscripts are so old and fragile, libraries are digitizing them, but you can't find them," Fisher said. "We're completing the step of making them accessible to the world."

Employing a Web application designed by the Center for Digital Humanities, which promotes the use of computer technology in humanities research and instruction, the Catalogue of Digitized Medieval Manuscripts allows users to search for manuscripts according to their author, title, language and archiving institution.

In its first three weeks of operation, the site had almost 5,000 visitors from Australia, England, France, Italy, Germany, Spain, the Netherlands, Sweden, Switzerland, Austria, Canada and all over the United States. In addition to librarians and academics, the site has been visited by hobbyists from such groups as the Society for Creative Anachronism. "The chorus of response has been, 'Thank you,'" said Fisher, who joined UCLA's faculty in 2006. "'We needed this.'"

That's music to Fisher's ears. A member of a new generation of scholars who cut their teeth in the San Francisco Bay Area during the dot-com era, the Los Angeles native is motivated by a commitment to democratize access to some of the world's most exclusive repositories.

"The price of admission shouldn't be a plane ticket to a library in Europe or even Australia," he said. "These documents are part of the world's cultural patrimony. Everybody should have access."

So far, the effort has been funded by UCLA's Center for Medieval and Renaissance Studies and the University of California's Humanities Research Institute, a multicampus center designed to promote collaborative and interdisciplinary humanities research. But Fisher hopes eventually to get outside funding to speed up the process. He also hopes that libraries will start taking notice of the effort and revamp their cataloging procedures to make it easier to ferret out and link to newly digitized manuscripts.

"Now that UCLA has delivered the solution, it's time to get everybody involved," Fisher said. Ultimately, he envisions including every medieval manuscript that has been digitized it its entirety. "We'll never replace the joy of sitting down with an 800-year-old book," he said, "but we will bring the wonder of these manuscripts to people who might never experience them otherwise."

To view manuscripts: http://manuscripts.cmrs.ucla.edu/

Iceman May Have Received Ceremonial Burial

By Rossella Lorenzi, August 26, 2010

Ötzi, the mummy found in the Italian Alps, may have gotten a proper send-off, suggests new research.

THE GIST
Ötzi died a violent death in the spring
and was carried up to a high pass five months later for a ceremonial burial, according to a new study.
A map of the body and artifacts indicates that the Iceman was buried on a stone platform.
Over time, the body and the objects moved in semi-melted ice until they were found 19 years ago.

This facial reconstruction shows what Ötzi the Iceman may have looked like when he was alive.

Ötzi the Iceman, the 5,300-year-old mummy found in the Italian Alps, may have been ceremonially buried, according to a study which mapped the items found near the frozen corpse. According to research published in the journal Antiquity, the melting glacier in the Ötztal Alps, where the well-preserved mummy was found in 1991, was not the site of a murder, but a solemn burial ceremony.

"Our reconstruction suggests that Ötzi died at lower altitude in early-mid spring, and was then buried up on the mountain with his goods in late summer or early autumn," Luca Bondioli of the National Museum of Prehistory and Ethnology in Rome told Discovery News.

Pollen found in the mummy's gut indicated that Ötzi died in April, while pollen within the ice suggested the corpse was deposited there in August or September. The theory would explain this mismatch. The hypothesis is the last of a long series of speculation over the Iceman. Prior to the discovery in 2001 of an arrowhead in the

mummy's left shoulder, researchers believed Ötzi died at about age 45 from cold and hunger, or was the victim of a ritual sacrifice.

Further investigations established that the mortally wounded man froze at a high altitude with his tools and personal items, succumbing to the arrowhead that hit his left subclavian artery. He was escaping from a tribal clash, researchers theorized. "Interestingly, such reconstruction has never been supported by the publication of a detailed map of the items found over the Iceman site," Bondioli said.

Bondioli and colleagues investigated the geomorphology of the site where Ötzi was found, a shallow depression between two low ridges. Some five meters (16.4 feet) away, they noticed a small rock platform. The platform, which they believe was Ötzi's burial site, was connected by a natural fissure to the depression where the mummy was found 19 years ago. The researchers used this information to create the first comprehensive distribution map of the body and other artifacts, which they believe are funerary items rather than mountain equipment. Among the 466 items found at the site were a dagger, a backpack frame, an ax, a quiver, a birch-bark container, a grass mat, a bow and a pelt cap.

The researchers plotted the distribution of the items on a digital model of the Iceman site. The model suggested that over time, Ötzi and the objects moved in semi-melted ice and slumped into the lower depression through the fissure. "The bow and ax were captured, and the backpack frame stopped against a protruding rock," Bondioli said. According to the researchers, the corpse would have turned prone, with the feet towards the north and the arms hanging down, like a body floating in dense fluid. It then stopped against the boulder where it was found in 1991. "Here the left arm, trapped against the boulder, was slowly twisted to a peculiar angle, following the down slope flow traction of the body. A few lighter and hollow items like the quiver floated away to the northern edge of the basin," Bondioli said.

But Frank Rühli, head of the Swiss Mummy Project at the University of Zurich and one of the experts who investigated the mummy, argues it's is unlikely that Ötzi's unnatural posture, with the left arm bent across the chest, was the result of a post-mortem event. "CT scans suggested that no major movement of the arm occurred after death," Rühli told Discovery News.

Chinese Pigs are Direct Descendants of First Domesticated Breeds

ScienceDaily (Apr. 20, 2010) — Modern-day Chinese pigs are directly descended from ancient pigs which were the first to be domesticated in the region 10,000 years ago, a new archaeological and genetic study has revealed. An international team of researchers, led by Durham University (UK) and the China Agricultural University, in Beijing, say their findings suggest a difference between patterns of early domestication and movement of pigs in Europe and parts of East Asia.

The research, published April 19 in the *Proceedings of the National Academy of Sciences* USA, looked at the DNA sequences of more than 1,500 modern and 18 ancient pigs. Lead author Dr Greger Larson, in the Department of Archaeology, at Durham University, said: "Previous studies of European domestic pigs demonstrated that the first pigs in Europe were imported from the Near East. Those first populations were then completely replaced by pigs descended from European wild boar. "However, despite the occurrence of genetically distinct populations of wild boar throughout modern China, these populations have not been incorporated into domestic stocks. "The earliest known Chinese domestic pigs have a direct connection with modern Chinese breeds, suggesting a long, unbroken history of pigs and people in this part of East Asia."

The finding is part of a wider research project into pig domestication and early human migration in East Asia. The study also uncovered multiple centers of pig domestication and a complex picture of human migration across East Asia. After pigs were incorporated into domestic stocks in Southeast Asia, the animals then migrated with people south and east to New Guinea, eventually reaching the remote Pacific, including Hawaii, Tahiti, and Fiji, the researchers said. The DNA analysis also found that wild boar were probably domesticated in many places including India and peninsular Southeast Asia several thousand years ago.

As current interpretations of archaeological records in these regions do not yet support these findings, the group has referred to them as "cryptic domestications." They suggest that additional archaeological digs and new analytical techniques may help to resolve the problem. Dr Larson added: "Our evidence suggests an intriguingly complex pattern of local domestication and regional turnover and calls for a reappraisal of the archaeological record across South and East Asia. "We may even find additional centers of pig domestication when we take a closer look at the picture in that part of the world."

The research is part of an ongoing research project based at Durham University which aims to re-evaluate the archaeological evidence for pig domestication and husbandry and explore the role of animals in reconstructing ancient human migration, trade and exchange networks. The DNA testing was carried out at the China Agricultural University and was analyzed at Durham University and Uppsala University, Sweden. The research was funded by the National Basic Research Programme of China and the National Key Technology R&D Programme of China.

Genetic Study Uncovers New Path to Polynesia

ScienceDaily (Feb. 7, 2011) — Surprising new evidence which overturns current theories of how humans colonized the Pacific has been discovered by scientists at the University of Leeds, UK. The islands of Polynesia were first inhabited around 3,000 years ago, but where these people came from has long been a hot topic of debate amongst scientists. The most commonly accepted view, based on archaeological and linguistic evidence as well as genetic studies, is that Pacific islanders were the latter part of a migration south and eastwards from Taiwan which began around 4,000 years ago.

But the Leeds research -- published February 3 in The *American Journal of Human Genetics* -- has found that the link to Taiwan does not stand up to scrutiny. In fact, the DNA of current Polynesians can be traced back to migrants from the Asian mainland who had already settled in islands close to New Guinea some 6-8,000 years ago. The type of DNA extracted and analyzed in this kind of study is that stored in the cell's mitochondria. Mitochondrial DNA (mtDNA) is passed down the maternal line, providing a record of inheritance which goes back thousands of years. The scientists look for genetic signatures which enable them to classify the DNA into different lineages and then use a 'molecular clock' to date when these lineages moved into different parts of the world.

Lead researcher, Professor Martin Richards, explains: "Most previous studies looked at a small piece of mtDNA, but for this research we studied 157 complete mitochondrial genomes in addition to smaller samples from over 4,750 people from across Southeast Asia and Polynesia. We also reworked our dating techniques to significantly reduce the margin of error. This means we can be confident that the Polynesian population -- at least on the female side -- came from people who arrived in the Bismarck Archipelago of Papua New Guinea thousands of years before the supposed migration from Taiwan took place."

Nevertheless, most linguists maintain that the Polynesian languages are part of the Austronesian language family which originates in Taiwan. And most archaeologists see evidence for a Southeast Asian influence on the appearance of the Lapita culture in the Bismarck Archipelago around 3,500 years ago. Characterized by distinctive dentate stamped ceramics and obsidian tools, Lapita is also a marker for the earliest settlers of Polynesia.

Professor Richards and co-researcher Dr Pedro Soares (now at the University of Porto), argue that the linguistic and cultural connections are due to smaller migratory movements from Taiwan that did not leave any substantial genetic impact on the pre-existing population. "Although our results throw out the likelihood of any maternal ancestry in Taiwan for the Polynesians, they don't preclude the possibility of a Taiwanese linguistic or cultural influence on the Bismarck Archipelago at that time," explains Professor Richards. "In fact, some minor mitochondrial lineages back up this idea. It seems likely there was a 'voyaging corridor' between the islands of Southeast Asia and the Bismarck Archipelago carrying maritime traders who brought their language and artefacts and perhaps helped to create the impetus for the migration into the Pacific.

"Our study of the mtDNA evidence shows the interactions between the islands of Southeast Asia and the Pacific was far more complex than previous accounts tended to suggest and it paves the way for new theories of the spread of Austronesian languages." The study, which involved researchers from the UK, Taiwan and Australia, was mainly funded by the British Academy, the Bradshaw Foundation and the European Union.

'Kelp Highway' May Have Helped Peopling Of The Americas

ScienceDaily (Feb. 21, 2006) — If humans migrated from Asia to the Americas along Pacific Rim coastlines near the end of the Pleistocene era, kelp forests may have aided their journey, according to research presented today at the American Association for the Advancement of Science (AAAS) annual meeting.

Until recently, the "coastal migration theory" was not accorded much importance by most scholars. However, new discoveries have moved it to the forefront of debate on the origins of the First Americans. It is now known that seafaring peoples living in the Ryuku Islands and Japan near the height of the last glacial period (about 35,000 to 15,000 years ago) adapted to cold waters comparable to those found today in the Gulf of Alaska. From Japan, they may have migrated northward through the Kurile Islands, to the southern coast of Beringia (ancient land bridge between what is now Siberia and Alaska), and into the Americas.

"The coastal migration theory has yet to be proven with hard evidence, but we have been finding earlier and more widespread evidence for coastal settlement around the Pacific Rim," said Jon Erlandson, professor of anthropology and director of the Museum of Natural and Cultural History at the University of Oregon and the study's lead researcher. "The fact that productive kelp forests are found adjacent to some of the earliest coastal archaeological sites in the Americas supports the idea that such forests may have facilitated human coastal migrations around the Pacific Rim near the end of the last glacial period. In essence, they may have acted as a sort of kelp highway."

Kelp forests are some of the world's richest ecosystems. They are found from Japan to Baja California and to South America's west coast. They would have provided a similar assortment of food resources--including shellfish, fish, sea mammals, and seabirds--along thousands of miles of the North Pacific coast, and also reduced wave energy for people in boats. These people also would have had access to a variety of land resources. In contrast, people migrating through the interior would have had fewer options and would have had to pass through much more varied landscapes, including tundra, boreal and tropical forests, and deserts.

"This study is a unique example of collaboration between coastal archaeologists and marine biologists" Erlandson said. "I've worked on many early sites near kelp forests from Alaska to California, but I never realized similar habitats were present around much of the Pacific Rim. Combining our very different perspectives provided an opportunity to reach insights that none of us would have attained alone."

The "kelp highway hypothesis" first crystallized among an interdisciplinary group working at the National Center for Ecological Analysis and Synthesis. The study's other researchers include: Michael Graham of Moss Landing Marine Laboratories; Bruce Bourque of Bates College; Debbie Corbett of the U.S. Fish and Wildlife Service in Anchorage, Alaska; James Estes of the U.S. Geological Survey and the University of California-Santa Cruz; and, Robert Steneck of the University of Maine.

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