

PREMIER ISSUE

Archaeology ¹Discovering

January / February 1999

**Amelia Earhart
Found?**

**Forgotten Rock
Art of Egypt**

**New Evidence
of the
First Americans**

**Ötzi the
Iceman**

**did he practice
acupuncture
5000 years ago?**



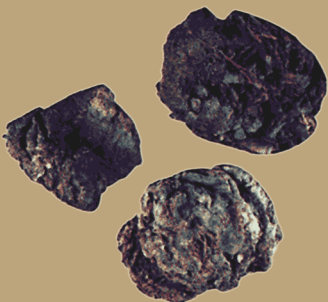
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Studying the Passed

What can feces tell us about gender? Everything, according to researcher Kristin Sobolik.

Sobolik is one of a handful of scientists who use DNA found in ancient human feces to determine the gender of the depositor. Working with 6000-year-old material from Hinds Cave in west Texas, the University of Maine researcher was able to identify the producer of one of three deposits in the cave as a female.

Sobolik had already used another technique, the presence of the steroids estradiol and testosterone, to distinguish gender in twelve paleofeces



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sampled from Mammoth Cave in Kentucky, which is famous for its evidence of prehistoric mining of raw materials. All the feces had been left by men, a finding which suggests gender-specific exploring and mining in the cave over two millennia ago. Uncovering such gender-specific activities in the past is an important goal of the research. Because undigested material in feces provides direct evidence of diet, researchers also may be able to document dietary differences between males and females in prehistoric populations. The new method of gender identification from DNA requires polymerase chain reaction (PCR) amplification of DNA regions diagnostic of the X and Y chromosomes which determine sex. Like the steroid technique, it is not always successful due to the degradation and contamination of the specimen over time. Sobolik is encouraged that even one of the 6000-year-old specimens provided a positive result. []

F.A., N.E.P., J.D.L.

Are Ötzi's Tattoos Acupuncture?

Skin markings on the Tyrolean Iceman may have been treatment for his ills

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The 47 tattoos on Ötzi's legs and back could suggest a wild lifestyle. In fact, these markings might have been an acupuncture treatment for chronic ailments suffered by the ancient hunter more than 5000 years ago. His body was found frozen in the Similaun Glacier in the Alps in 1991.

The tattoo designs are simple, sometimes irregular geometric shapes organized in groups of one to seven lines parallel to the longitudinal axis of the body. There are also two crosses, one on the medial right knee and one on the dorsal left ankle.

The markings are located on parts of Ötzi's body which are not typical for display of tattoos. Therefore, an ornamental or aesthetic function for the tattoos is unlikely.

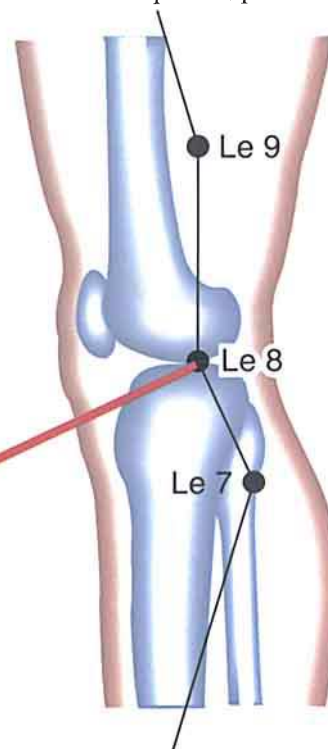
Previously, we demonstrated that some of the tattoo locations on the back and the left leg of the Iceman are in

close proximity or directly on the locations of classical acupuncture points for treatment of arthrosis of the lumbar spine². Radiological studies found evidence of exactly that disease in the Iceman³. Signs of degeneration were found along the lumbar spine as well as in the joints of the hip, knee, and ankle.

In acupuncture, perforation or irritation of the skin at specific locations, the acupuncture points, causes a reflectory change in the action of the related inner organs, or in the relief of pain or inflammation. Different modes of irritation are used in Chinese and Asian acupuncture: moxibustion (combustion of herbs over the points), puncture with



M. MOSER



On the left is an example of a perfect hit of a classical chinese acupuncture point (Liver 8) indicated by a tattoo cross, colored bluish by charcoal on the medial left knee of the Iceman. Above is an anatomical drawing of the location of the acupuncture point for Liver 8 shown for comparison.



During past decades several prehistoric human mummies bearing well-preserved tattoos have been found¹. Although there are examples obviously displaying ornamental tattoos, some of the skin artifacts can hardly be understood from an aesthetic point of view. By far the oldest known mummified human body bearing tattoos, the Tyrolean Iceman shows a total of 47 well preserved tattoo lines on his back and legs.

needles, and sometimes tattooing, especially in chronic diseases.

Nine of the 15 tattoo groups are located on the urinary bladder channel, which is one of the acupuncture meridians in which Chinese medicine organizes the acupuncture points. This channel, running along the back and down to the feet, is also the primary location for treatment of back pain. Five additional tattoos are located on or proximal to acupuncture points connected to digestive functions, e.g., the gall bladder channel, the liver channel, and the spleen channel.

The photograph of Ötzi's leg shows a perfect hit on the "Liver 8" acupuncture point by one of the tattoo crosses on the medial right knee joint. These points are indicated for treatment of abdominal disorders. Two recent findings make it likely that the Iceman suffered from severe abdominal disorders: 1) numerous whip worm eggs (*Trichuris trichiura*) were discovered in the mummy's colon⁴ - if present in large numbers, this intestinal parasite causes diarrhea; 2) a recent study by the University of Innsbruck discovered that 25 percent of the colon's content consisted of charcoal⁵, an agent used

for the treatment of intestinal disorders even today.

In the opinion of three accredited acupuncturists⁶, the tattoo points are specific acupuncture locations. The combination of points represents a treatment equivalent to a modern acupuncture regimen for the diseases identified from scientific evidence in the Iceman. Brief application of needles might not have been sufficient to influence body functions by cuti-visceral-reflexes in this patient. Instead, permanent tattoos were applied to the same locations.

These findings add an additional facet to the hypothesis that medical treatment was the reason for the tattoos on the Iceman's back and legs. The spatial relation of the tattoos to classical acupuncture points indicates that a medical system similar or identical to Chinese acupuncture was employed far from the traditional geographic and temporal confines of the practice⁷. Although handed down to the present only in Chinese medicine, acupuncture might have originated not only in east Asia, but polygenetically in different cultures, mirroring a deep and possibly intuitive knowledge of body function by prehistoric populations. □

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