

13 November 2007

By: Stefan Anitei, Science Editor



[Oetzi, The Oldest Preserved Human Being: 5,300 Years Old](#)

And the oldest natural ice mummy

At first sight, it looked like a crime place. A drought cadaver was lying face downward, half stuck in the ice. An accidental death or a crime? Or just another mountaineering victim at 3,200 m (10,660 ft) height in the Tirol Alps?

The Ice Man was found in September 1991 by casualty by a couple of German mountaineers wandering on the Mount Similaun (in Oetztal Alps, at the border between Austria and Italy). The extremely warm summer in that year melt a great part of the Schnalstal glacier, revealing the body. Specialists arrived at the place, unaware of the finding, extracted the body from the Ice in a rude manner, harming it. But soon, it appeared that this was not a regular corpse. The objects accompanying the deceased differed a lot from what modern tourists use.

The first analysis made at the Innsbruck University shocked everybody: the 13 kg (30 pounds) heavy mummy was the oldest natural ice mummy: 5,300-year old, and the oldest preserved human being ever discovered intact. The previous oldest ice mummy was an Inuit (Eskimo) woman mummy, 2,400-year old.

Oetzi remained for millennia in a groove in a narrow valley, covered by snow, being this way protected against the movement of the glacier. If he had frozen inside the glacier, his body would have been torn apart and destroyed. The shelter preserved him intact.

Near the body, scientists discovered his personal objects: a yew bow lacking the cord, a roe deer skin quiver with 14 arrows (2 finished, the other uncompleted), a flint-bladed dagger, an ax, a type of primitive rucksack, a leather bag, two birch bark recipients (used for transporting coal necessary for igniting the fire), clothing pieces and other tools.

When found, Oetzi still bore some ropes and had skin footwear filled with straw as protection against the cold. Near the head was a mat made of straws, like the man would have died victim of tiresome and cold.

Scientists believe that Oetzi preserved due to a natural mummification process (dehydration) due to cold, sun and fohn (a warm and dry wind), a sudden snowfall that hid the body from scavengers and the protection against the glacier conferred by the cavity in which was found. Some point that the fohn does not go so high in that area of the Alps.

What's sure is that Oetzi was 45 years old at the time of his death, 1.65 m (5 ft. 5 in.) tall and weighed 38 kg (84 lbs).

It was well built and muscular, and his brown hair was neat and regularly cut. DNA analysis showed that Oetzi belonged to a population that during those times inhabited central and northern Europe. The worn teeth pointed that he consumed low quality bread, thus he could have belonged to a community of farmers, fact also indicated by the wheat grains encountered in his clothes.

It was established that Oetzi died towards the end of the summer or beginning of the fall: in his bag were found some wild plums that ripe in the late summer.

What was Oetzi: a warrior, a shaman, a shepherd or a hunter? Did he die isolated or was accompanied by others? The bow and the arrows would suggest he was a hunter. But the 1.8 m (6 ft) long bow was too long for Oetzi's height, and too big for the Alpine game. Moreover, it would have been a burden while traveling through the mountains, that's why the presence of the bow and arrows represents a puzzle.

The ax was made of copper and extremely worn. Its presence places Oetzi at the beginning of the Copper Age, 4,800-5,500 years ago. The copper ax was similar to those found further south, on the shores of Lake Garda, and could have been the result of a commercial transaction. The handle was made of deer antler and bound by fibers to the copper blade. The ax was used both for butchering animals and cutting wood, as molecular traces revealed.

The dagger, with a triangular section, with all the three edges being used for cutting, was used for cleaning skins, cutting plants and detaching meat off the bones. The rounded edge could have been used for hacking and polishing bones (femurs and tibiae) and wood. The tips of the arrows presented traces of blood of a type of mouflon, thus the man killed and butchered animals.

The man experienced arthrosis, very worn knees and ankles, several broken ribs, and gut parasites (worms and bacteria resembling those causing cholera). Oetzi also had died hungry.

Oetzi could not be identified with a specific ancient civilization, and the copper ax was too technologically advanced, as during those times, copper was known only by the Middle East civilizations. Besides the ax, the dagger's sheath was extremely refined, made of woven plant material, a prestige item, pointing that Oetzi could have had a high rank.

The finished arrows head at one top the typical glued feathers so that they formed an angle producing the rotation of the arrow in flight, allowing them to have a high precision till 30 m (100 ft). The arrows were made of cornel or guelder-rose wood with gritted tips. An unprocessed tendon belonging to Oetzi could be turned into a bow. An antler part could be used for skinning the hunted animals. A tile pencil-sized tool could have been used for sharpening the tip of the arrows and the blades.

The clothes were made of processed skin pieces coming from various animal species (deer, roe deer and chamois), bound with the help of tendons or plant fibers, resulting something like a mosaic. Over the tunic, Oetzi wore a cloak woven from straws, ideal against cold, and which could also have been used as mattress, to isolate the body from the soil. This type of cloak was still worn by Tirolese shepherds at the beginning of the 20th century. Oetzi worn a kind of bear fur cap. Mushrooms found near Oetzi's body could have been using for starting the fire, or as therapeutic, due to their antimicrobial action.

Some deteriorated areas of the knees, ankles and vertebrae had been treated by cauterization over the painful areas, and over the wound the Ice Age physician applied the ash got from a medicinal plant.

Some said Oetzi could have been a bleeding and beaten fugitive, which died in his hiding in the mountains, as he had a few broken ribs and a fractured jaw. But none could say if the blows were received before or after death. And if he was the victim of a violent act, why did he still have the precious items, like the copper ax, on him.

Oetzi could have come from a farming village from the basin of the Adige River, connecting Italia to central Europe. Archaeologists found in the area villages of those times at 2,000 m (6,660 ft) altitude, made of three to tens of one-chambered houses, with the floor made of puddled soil, a fireplace in the middle and sometimes an oven, with sharp roofs; each hut harbored a family.

The flints found amongst Oetzi's belongings were also valuable in the commerce practiced along the Adige Valley.

In 2000, Oetzi was temporarily thawed for investigation. His last meal was made of unleavened bread and some greens, but also venison, thus the man seems to have been a hunter. The recent analyses revealed that his good health and equipment do not point towards a laborer.

In 2007, a team led by Frank Rühli of the Institute of Anatomy at the University of Zurich in Switzerland discovered a lesion of an artery near the shoulder, below the clavicle bone, caused by an arrowhead, which had previously been tracked into the mummy's back and it was accompanied by a large hematoma (bruise). The Iceman could have died within a short time due to the arrow shot, as he basically bled to death, after the shock and heart attack.

Still, subsequent CAT scans revealed he died of head trauma, not by arrow wound. Blood loss from the arrow wound must have made Oetzi lose consciousness, but he could have died either from hitting his head on a rock when he fell or because his attacker inflicted him a blow in the head.

The new research considers the way the man's body was discovered: face down, with his left arm across his chest. Oetzi could have fallen backward, but was turned onto his stomach by his aggressor, who then pulled out his arrow, leaving the arrowhead imbedded in Oetzi's body. It appeared that the Iceman got his final position before rigor mortis installed.