Südtiroler Archäologiemuseum
Museo Archeologico dell'Alto Adige
South Tyrol Museum of Archaeology

Press Information South Tyrol Museum of Archaeology

Content:

- Contact addresses for information and images
- Short information about the museum (trivia, statistics)
- Information about permanent and temporary exhibitions
- The significance of Ötzi the Iceman

Archaeology, Bozen-Bolzano, Italy; reconstruction of the Iceman (2011) and view in the permanent exhibition © South Tyrol Museum of Archaeology / foto-dpi.com / A. Ochsenreiter

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Photos and film:
Photo material and filming permission may be obtained free from Melitta Franceschini, tel. +39-0471-320118, e-mail: photo@iceman.it. Some photo images can also be downloaded from our homepage at www.iceman.it/en/media-archive/. Authorization for professional photography in the Museum will only be granted in exceptional circumstances and must be obtained in advance.

Press mailing list, social media:
To receive our press releases with news of the Iceman, you can register for the **Press Distribution List** either at the ticket desk or on the Museum's press web page at: www.iceman.it/en/press-area/press-releases/ or follow us on Facebook or Instagram OetziTheIceman

Short information

The South Tyrol Museum of Archaeology
building and exhibitions:
The South Tyrol Museum of Archaeology belongs to the museums run by the Autonomous Province of Bozen-Bolzano, South Tyrol, Italy. It is located in a former bank, dating from 1912 when the city was part of the Austrian Empire, on the edge of Bozen's pedestrian zone. Designed in 1998 as a space featuring exhibits from the archaeology of the southern Alpine arc, Ötzi and numerous topics associated with the Iceman can now be seen on three floors of the Museum. The third floor is dedicated to regularly changing special exhibitions about archaeology in South Tyrol. Until the next exhibition in November 2025, the visitor area "The Loft" is located there.

A new museum location in Bolzano/Bozen for Ötzi and the permanent exhibition on the archaeology of South Tyrol is currently under discussion.

Reminder Ötzi the Iceman
More than 5,000 years ago, a man ascended the icy heights of the Schnals Valley glacier and died there. In 1991, his mortal remains – together with his clothing and equipment, mummified and frozen – were discovered by accident. This was an archaeological sensation providing a unique glimpse into the life of a man of the Chalcolithic Period who was travelling at high altitudes.
After many years of investigation by highly-specialized research teams, the mummy recovered from the glacier and the accompanying artifacts since 1998 are accessible to the public in the South Tyrol Museum of Archaeology. We are fascinated, astonished, but also strangely touched to meet a witness of our own past. The fate of an individual human being deprives the "story" of its anonymity – and it comes alive in our imaginations.

Opening hours

The South Tyrol Museum of Archaeology can be visited throughout the year, including public holidays (except 1 January, 1 May and 25 December). Opening hours: Tuesday – Sunday: 10 a.m. – 5.30 p.m. On 24 and 31 December the museum is open from 10 a.m. to 3 p.m. (last entry 2:30 p.m.).
The Museum is closed Mondays except in July, August and December. Further information about the Museum can be found on the Museum's homepage www.iceman.it.

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OetziTheIceman

Facts & figures

Ötzi terminology

The nickname Ötzi, coined by Viennese journalist Karl Wendl (after the Ötztal Alps in South Tyrol where the mummy was found), is frequently used in German-speaking countries, but the English term Iceman has caught on internationally.

Accessibility

The South Tyrol Museum of Archaeology is accessible to visitors with disabilities, and guided tours are available on request for groups with special needs (contact Fabia Stefani on 0039 0471 320121). For more information on accessibility you can also go to www.suedtirolfueralle.it/de/poi/suedtiroler_archaeologiemuseum (currently only available in Italian and German, but the layout of the museum can be seen from the photos).

Exhibition space

There is approximately 1200 m² of exhibition space on four floors. This does not include the service areas, the Shop, the Visitors' Room, the Education Room or the Family Room (which is only available in July and August).

Provenance of visitors

The South Tyrol Museum of Archaeology is not a major institution, but visitors come from all continents. In 2024, people from all 27 European countries visited the Museum: Germany: 41%; Italy not including South Tyrol: 26%; South Tyrol: 4%; Austria: 9%, rest of Europe: 15%; rest of the world: 5%.

Number of visitors

Since its opening on 28 march 1998, the museum has been visited by over 6.5 million people. Last year (2024) we had 310.744 visitors, so far record number of visitors.

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Why is Ötzi so famous?

Ötzi, the Iceman, is a man of superlatives. The mummy is invaluable for archaeology and archaeotechnology as well as for medical science, genetics, biology, anthropology, and many other disciplines.

Ötzi is **the world's oldest wet mummy** and the clothes he wore and equipment he carried are unique; no other organic material from the Copper Age has survived. The circumstances of his death are extraordinary and his state of preservation remarkable thanks to an incredible series of coincidences: a murder in the high mountains, favorable climatic factors leading to mummification and preservation, and the fortuitous discovery of the mummy just as the ice was beginning to melt.

Since the Iceman was found alone and was not the subject of a burial, important clues (e.g., ceramics) are missing to help us assign him to a particular cultural group. On the other hand, Ötzi's sudden death in the ice has preserved him virtually unchanged for thousands of years, giving us a snapshot of the routine life of a Copper Age hunter. This is an absolute first. Never before has such a well-preserved individual been discovered from the Stone Age.

Ötzi's chronometric age has moved the beginning of the Copper Age in the Alpine region back by about 1,000 years. Until Ötzi's discovery, we had no exact knowledge about technological skills of late Neolithic people and archaeologists have been surprised by their scope and precision.

Clothing in particular had never before been preserved. In this respect, too, the discovery of late Neolithic skills in the use of materials and the meticulous, even decorative, workmanship has been a boon to historical research. Ötzi's **shoes** are the only insulated shoes and the second oldest intact shoes ever found anywhere in the world.

Analysis of **flint tools** revealed a supply radius encompassing the area from Monti Lessini to the Lombard basin (distance: approx. 200km). The copper ore used to make Ötzi's axe, which was once assumed to come from local deposits, actually comes from Tuscany.

Ötzi's flanged axe is **the oldest and only fully preserved copper-blade axe from the Neolithic** (wooden haft and blade).

The state of preservation of his arrows is unparalleled and has revealed previously unknown information about the way they were made. The **fletching of the arrows is also unique**.

Not only is Ötzi's bowstring the first of its kind to be discovered, but it was also fully preserved. In addition, his entire **ensemble of tools and weapons represent the oldest complete set of hunting gear in the world.**

Ötzi's retoucheur is the only one in the world made of wood and an antler tip that looks like a pencil. Aside from a few Stone Age antler tips used for similar purposes, no other such tool is known.

All this unique, new information allowed experimental archaeology to make a quantum leap.

Ötzi's discovery was a stroke of luck for the study and **mediation** of prehistory. Now that we can picture a man of flesh and blood with a cultural background, countless finds from prehistory and ancient history have been re-evaluated. Ötzi, together with Stonehenge and the Egyptian pyramids, has become a universally recognized time marker.

Ötzi has the oldest known **tattoos** in the world. They were made for medical reasons to ease pain, not for decorative purposes. Since they are located along acupuncture lines, this therapeutic practice may have been discovered in Europe and not in – or at least not solely in – China.

Ötzi's **genome** (nuclear DNA) is the only completely decoded DNA from a *Homo sapiens sapiens* mummy. The oldest medical evidence of red blood cells, collagens, borreliosis (Lyme disease), the gastric bacterium *helicobacter pylori*, arteriosclerosis, and much more has been identified from tiny tissue samples taken from the mummy. This information is furthering our understanding of the genesis – and in future perhaps also the treatment – of diseases.

A unique **conservation system** ensures that the Iceman will be preserved for posterity. It simulates glacier conditions, and continuously controls the mummy's state of preservation by means of various parameters while at the same time allowing visitors to view the mummy.

Other records:

Visitor numbers: Since the South Tyrol Museum of Archaeology in Bolzano opened on March 28, 1998, the Iceman and his artefacts have been viewed by over 6.5 million visitors from all corners of the world. On average, around 300,000 people visit the museum every year. The Ötzi website at www.iceman.it is consulted annually by three times as many people as visit the museum (650,000).

Researchers: Well over 800 scientists from the world over have focused on the Ötzi phenomenon, whether from the point of view of archaeology, archaeotechnology, botany, anthropology, or the history of civilization. Many have examined him for forensic medicine purposes. Ötzi has also greatly stimulated the development of the field of bioarchaeology.

Findings: To date, research on the Iceman has led to the publication of about 800 peer-reviewed papers, which can be found in the "Iceman Database" on the museum's website (www.iceman.it/en/database/). Many questions on life in the Stone Age and the personal fate of the mummy have been answered. Other secrets will probably not be unlocked as quickly – or indeed ever.

Media response, renown: Even today, most of the media report on new revelations about Ötzi, because, for diverse reasons, countless people worldwide are intrigued by fresh details of the life of one of their ancestors from the Copper Age.

If you have questions on Ötzi the Iceman or the South Tyrol Museum of Archaeology, please contact:

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Ötzi the Iceman
The Importance of the Find and the Exhibition in the South Tyrol Museum of Archaeology

The South Tyrol Museum of Archaeology in Bolzano/Bozen, South Tyrol, Italy, was opened on the 28th of March, 1998. In its 1,200 square meters of exhibition rooms, it documents on three floors the chalcolithic mummy "Tyrolean Iceman" (nicknamed "Oetzi") and the artifacts found with him.

The most unique fact about the complex of archaeological finds which came to light in 1991 at the glacier's edge is the discovery of a fully-clothed, fully-equipped mummy, providing a glimpse of the clothes and technical abilities of the late Neolithic Age (3,300 to 3,100 B.C.). Prior to this, the only remnants we had of the apparel of those times were the relatively fragmentary remains found in the lake dwellings in the circum-alpine region; generally, these consisted of woven or knitted plant fibers. Animal-derived materials (furs, etc.) were absent there. Thus, the complex of "Ice Man" finds offer a snapshot of a man from Chalcolithic times who was underway in the Upper Alps. His clothing consists of a cap, a fur coat, a pair of trousers, a leather loin cloth, and a pair of lined shoes. His equipment included an unfinished bow stave, a quiver and arrow shafts, a copper hatchet, a dagger with a silex (flint) blade, a retoucheur, a birch bark container, a backpack, as well as various spare materials and bone tips. Many of the artefacts preserved in the ice are one of a kind in the world. In the absence of organic remains, it was not clear from previous finds how these objects were made and how they worked.

The Presentation of the Iceman in the Museum

In awareness of fact that this archaeological find was likely to trigger heated ethical discussions, great importance was attached to a very restrained form of presentation, when the Museum was established in 1998. The current exhibition format focuses on the mummy, the equipment and the story of the Iceman.

The area surrounding the mummy is deliberately stark: the white-painted walls evoke a wide-open and snow-covered landscape. The graphics and architecture do not in any way detract from the object. The discovery and recovery of the find are illustrated by video projections to complement the information panels. A discovery room at the end the floor gives visitors the chance to try a reconstruction of the coat worn by Ötzi.

By means of partitioning of the exhibition room, the museum visitor can decide for himself if he wants to view the mummy or not. The window through which one can look at the mummy has not been "shoved" into the middle point of the entire exhibition. Instead, it has been placed in a visually separated, tastefully designed room. The 38x40cm wall opening allows the museum visitor individually to take a look into the refrigeration chamber in which the mummy – lying on a precision scale – is conserved at a temperature of -6°C and nearly 100% relative air humidity: the same conditions found in a glacier.

Behind the metal wall visible in the exhibition room, there is the so-called "Iceman Box:" a complex installation consisting of two refrigeration chambers with independent systems, an

examination room, and a decontamination chamber. Sterile conditions and air filtration are guaranteed in all of the chambers. A small laboratory is available for further scientific investigations. A computer-controlled station registers the measurement values (pressure, temperature, relative humidity, weight of the mummy) which are transmitted by the sensors and probes mounted on the mummy's body or in the refrigeration chamber. They can automatically sound an alarm if any changes occur. This alarm and security system enables the technicians to react immediately in the event of an emergency.

In contrast to the other areas of the museum, the floor dedicated to the Iceman has dimmed lights. This is not done to create a particular atmosphere, but rather for conservatorial reasons, paying heed to the light-sensitive nature of the objects. The accompanying finds are kept in acclimatized showcases. The finds are displayed under 50 Lux strong lamps.

The fascination exerted by the world's oldest ice mummy is undiminished even now, more than 30 years after its discovery. But according to the museum visitors, it isn't just the chance for a "face-to-face" meeting with an ancient ancestor from the Chalcolithic Period which stamps itself in their memory. More than anything else, it is the equipment – preserved for the first time – of a Chalcolithic man which they find so enthralling: Frozen together with the man, his clothes, tools, and personal effects have withstood the millennia. Carefully restored and reconstructed by the Roman-Germanic Central Museum in Mainz (Germany), his "thermal shoes," "backpack," and the dagger and sheath make it apparent how expediently equipped the Iceman was. It is amazing to note how little difference there is between the Neolithic implements and the standard equipment of a modern mountaineer. Only the materials have undergone a fundamental modernization. Archaeo-technicians from all over Europe have repeatedly created and tested replicas of the finds discovered along with the Iceman. They were astonished at how functional the bow and arrows were, the hatchet (which could also be used to fell trees), and the tinder polypore from Oetzi's belt, with which he could (together with pyrite nodules) start a fire.

Research

The initial findings showed that Ötzi – at 46 a relatively old man for his time – must have suffered from arthritis. In an attempt to treat it, he had tattoos applied at specific neuralgic points. He also suffered from intestinal whipworms.

In 2001, X-ray images and a CAT scan revealed the presence of an arrowhead in Ötzi’s left shoulder. Since the entry wound didn’t have time to heal while Ötzi was still alive and the arrowhead pierced a vital artery, scientists assume that Ötzi was fatally wounded by an arrow and bled to death within a short time. In addition, new insights were gained into an unhealed laceration on his right hand, indicating that he had engaged in hand-to-hand combat some hours or days before his death. These discoveries have shed light on Ötzi’s personal tragedy but at the same time raise more questions about the cause of his violent death.

In November 2010, twenty years after the mummy’s discovery, Ötzi was briefly thawed out under controlled conditions by a team of researchers in Bolzano, the aim being to obtain tissue samples for further scientific analysis. Some of these samples were passed on to independent institutes for analysis, while others were stored and will be distributed later to vetted institutions.
In 2010, red blood cells (erythrocytes) were identified in the supposedly bloodless body. They are indistinguishable from modern-day fresh red blood cells in size and shape. The identification of fibrin around the arrow wound, which breaks down rapidly after clotting, confirmed that Ötzi did not survive long after being wounded.

What the DNA reveals

Several years ago it was believed to be impossible to decode the fragmented nuclear DNA of a 5,300-year-old mummy. It was therefore a worldwide sensation when in 2011 Ötzi’s nuclear genome was isolated by the Ancient DNA Laboratory at the Eurac Institute for Mummies Studies in Bolzano in cooperation with an international research team. Analysis provided detailed information on Ötzi’s appearance and bodily functions, new insights into his origins and ancestry

and evidence of medical conditions and predispositions to disease. Genetic analysis revealed that Ötzi had brown eyes and that his blood type was 0 positive.

Genetic predispositions / Diseases
A surprising find was that Ötzi was genetically predisposed to several diseases. In particular, he had a very high risk of cardiovascular disease, which would have made him susceptible to a heart attack or stroke if he hadn't been prematurely killed by an arrow. His genes also show that he was lactose intolerant, meaning that he was unable to digest lactose in milk – a trait he probably shared with the majority of his contemporaries.

Ötzi's genome also revealed traces of Borrelia, tick-borne bacteria that are the cause of infectious Lyme disease. This discovery is the oldest evidence ever of borreliosis and proves that ticks already posed a danger to man and beast 5000 years ago.

In 2016, researchers found evidence of the bacterium Helicobacter pylori in Ötzi's stomach. The bacterium is present in half of all people and can lead to stomach ulcers. It is the oldest evidence of the bacterium ever found. However, to the astonishment of the research team, it didn't resemble the bacterial strain found in Europe but a strain found in Central and South Asia. The mixture of African and Asian bacterial strains that characterizes the European bacterium therefore probably developed after Ötzi's lifetime and suggests that settlement of the European continent was more complex than was previously supposed.

Ötzi's ancestry
Analysis of the genome revealed information about both his mother's ancestors and the lineage of his father. Through his father's line, Ötzi belonged to a subgroup of haplogroup G2a2b (G2a-L91), which has meanwhile become very rare on the European mainland (<1%). Ötzi's haplogroup is relatively common only on the islands of Sardinia and Corsica. This suggests that Ötzi and the populations in Sardinia and Corsica had common ancestors who migrated from the east to Europe during the Neolithic period. In the course of time, this group was displaced by, or mingled with, other population groups across large swathes of Europe. The descendants of the original population have only survived in significant numbers on the isolated Mediterranean islands.
Through his mother's side, Ötzi belongs to haplogroup K1f, a subgroup of K1 that was only found in the central Alps and has since died out.

Ötzi's last meal
One of the most exciting questions that a 5,000 year old ice mummy can hold for us today is what they ate as their last meal. It is as if we can peer back in time directly into the Iceman's provisions pack. His stomach contents were analyzed in 2018 and show us that Ötzi had strengthened himself with an extensive snack consisting of dried deer meat and ibex fat. Grains of einkorn were also found in his stomach (did he consume a piece of bread with meat?). In addition, bracken ferns were found but these are actually poisonous. This begs the question of whether Ötzi had eaten it unintentionally out of hunger if his provisions had been wrapped up in it or if he had knowingly taken it as "medicine" with his last meal.

Many of these findings would have been unthinkable two decades ago, showing that scientific research into Ötzi is far from over. Technical advances will raise new questions and provide us with an even more detailed insight into the life of this man. Ötzi's secrets have not all been revealed by any means, inviting museum visitors and researchers alike to contribute their ideas.