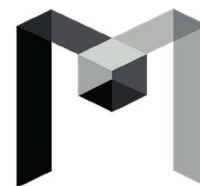




Südtiroler Archäologiemuseum
Museo Archeologico dell'Alto Adige
South Tyrol Museum of Archaeology

THE ICEMAN

The oldest glacier mummy



Museums Partner

About THE ICEMAN

Look - a dead body!

September 19, 1991 : Erika and Helmut Simon from Nuremberg (D) discovered a corpse on their descent from an Alpine summit. On the fourth day, the rescue succeeded. The dead body was transported to the valley by helicopter and from there to the Institute of Forensic Medicine in Innsbruck (A).

The discovery of the century

The Iceman, who today is on display at the South Tyrol Museum of Archaeology in Bolzano (I), is among one of the most well-known and oldest mummies in the world. On the day of the discovery, no one could have predicted the fame this find would achieve.

For the first time in history, details of Stone Age clothing customs and equipment can be studied - for the first time, anatomical studies can be carried out on an over 5,000-year-old body.

Where was Ötzi found?

Ötzi - as the glacier corpse would soon be called - was found at an altitude of 3,210 m above sea level in the middle of the Ötztal Alps near the Austrian-Italian border in a narrow rock gully some 2 to 3 metres deep. New measurements confirm: the find complex belongs to South Tyrol (I)

Excavations in snow and ice

Five days after Ötzi's discovery, an archaeologist was consulted for the first time: professor Konrad Spindler from Innsbruck. All of a sudden, the dead body was now believed to be "at least 4,000 years old" and an archaeological sensation.



©Picture Desk Gamma. Hanny

About THE ICEMAN

How do we know when Ötzi lived?

The period in which Ötzi lived was determined with the aid of radiocarbon dating, the measurement revealed that he lived between 3,350 and 3,100 BC.

How did Ötzi remain intact?

It was a chain of extraordinary coincidences: Ötzi died high above in the perpetually cold glacier region, where he remained lying in a protective rock gully.

The mummification process began and with the onset of winter, snow covered the dead body – now he lay deep-frozen as if in a freezer compartment.

What did Ötzi look like?

Ötzi is a modern human, a *Homo sapiens sapiens*. Dressed in modern-day clothing, he would not attract any attention. He was about 1.60 m tall, had size 38 feet and weighed around 50 kg – an average weight in the Copper Age. Today, however, the mummy weighs only 13 kg and has shrunk to 1.54 m.

Ötzi had brown eyes. He wore his dark brown hair shoulder-length and loose. The wide space between the upper incisors is conspicuous.



©Hospital of Bolzano, Penner

About THE ICEMAN

What was Ötzi's diet like?

About 12 hours before meeting his death, Ötzi had eaten meat and various plants consisting mainly of grains. Charcoal particles were also found in his intestines.

They showed that his meal had been cooked on an open fire. In Ötzi's time, grains were a staple food that were supplemented by other plants such as sloes, crab apples, mushrooms, berries or legumes.

Other objects from Ötzi's find complex included sinews, hides, horns and bones, providing evidence of animal husbandry and hunting at the time.

Stone Age stress

Ötzi was not in good health when he died: his joints were worn down, his blood vessels were hardened, his teeth were abraded, his intestines were infested with whipworm. One of his fingernails, which was found during a later excavation, showed that he suffered from a chronic illness. Furthermore: deep furrows across the nail revealed that Ötzi's immune system had been exposed to severe stress around 8, 13 and 16 weeks before his death. He also had well-healed rib fractures.

Stone Age therapy

Ötzi's body is covered with about 60 tattoos.

In contrast to modern tattoos, they were not made with pinpricks, but rather with fine cuts. They are located in exactly the areas where Ötzi showed signs of wear, presumably causing him great pain – the lumbar spine, the right knee, the calves and the ankle joints.

Severing fine neural fibres can help to relieve pain.

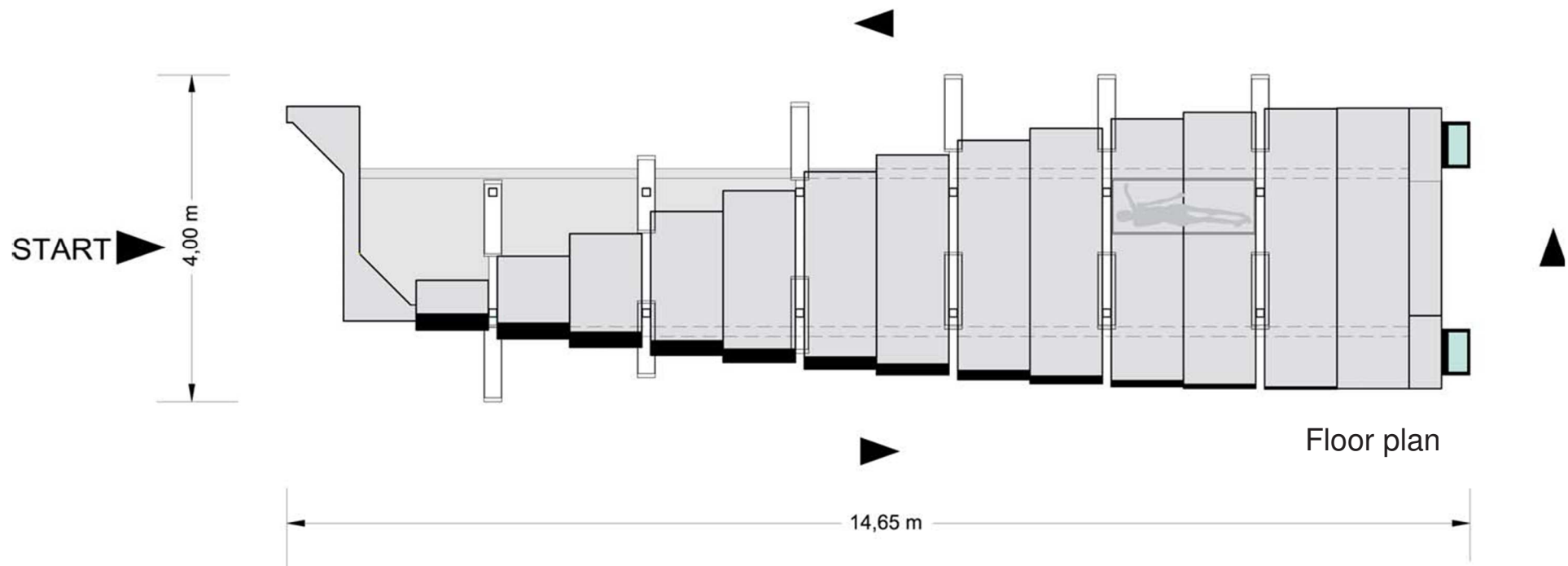
Ötzi's tattoos probably indicate a form of pain relief – another purpose, however, cannot be ruled out.



Specifications

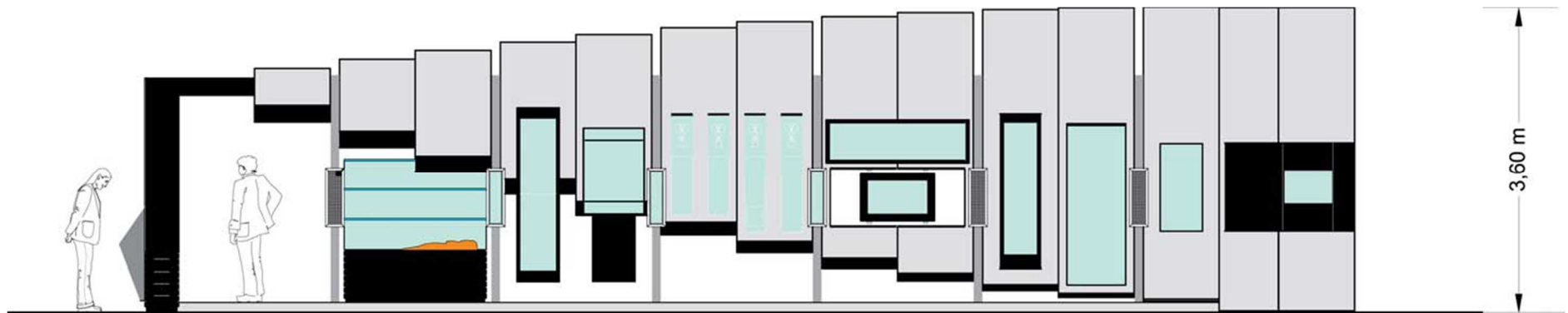


Front elevation

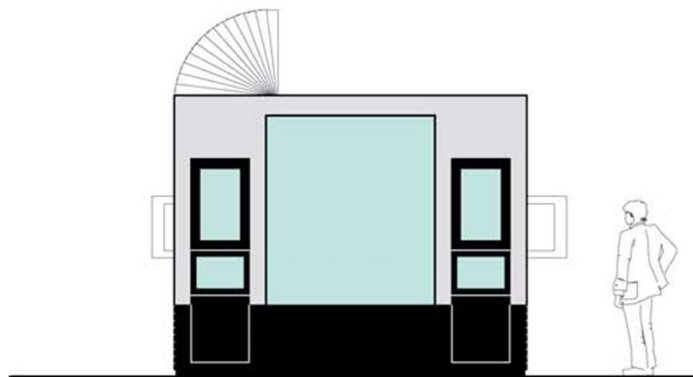


Floor plan

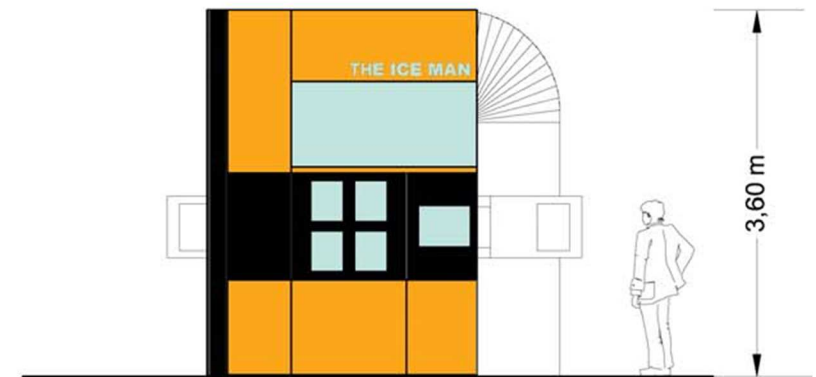
Specifications



Back view

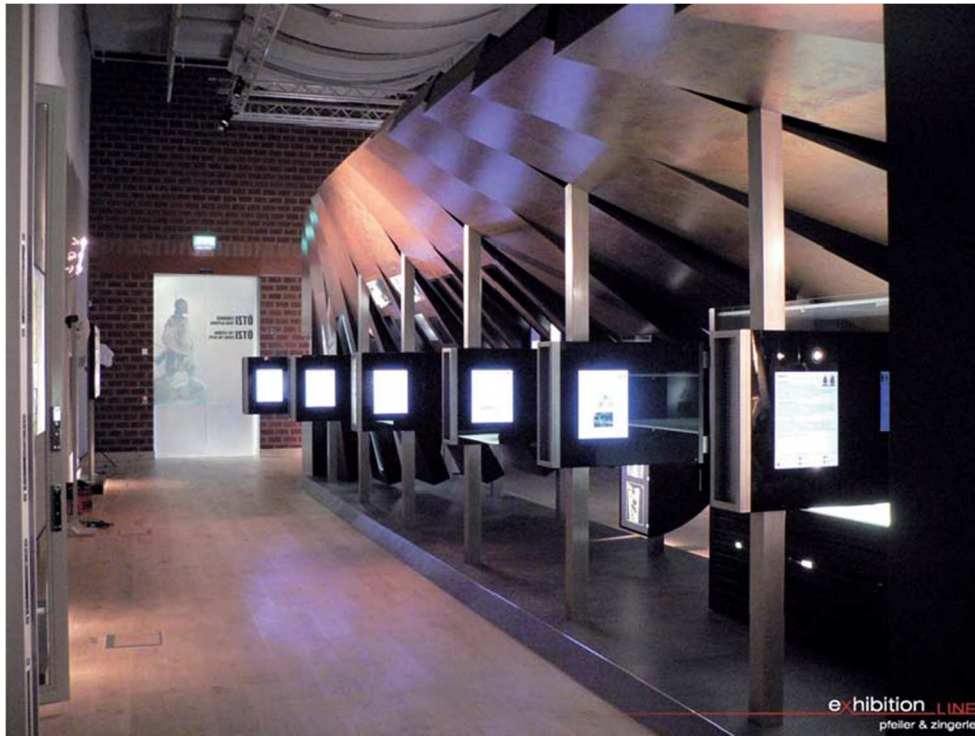


Elevation at the touch screens

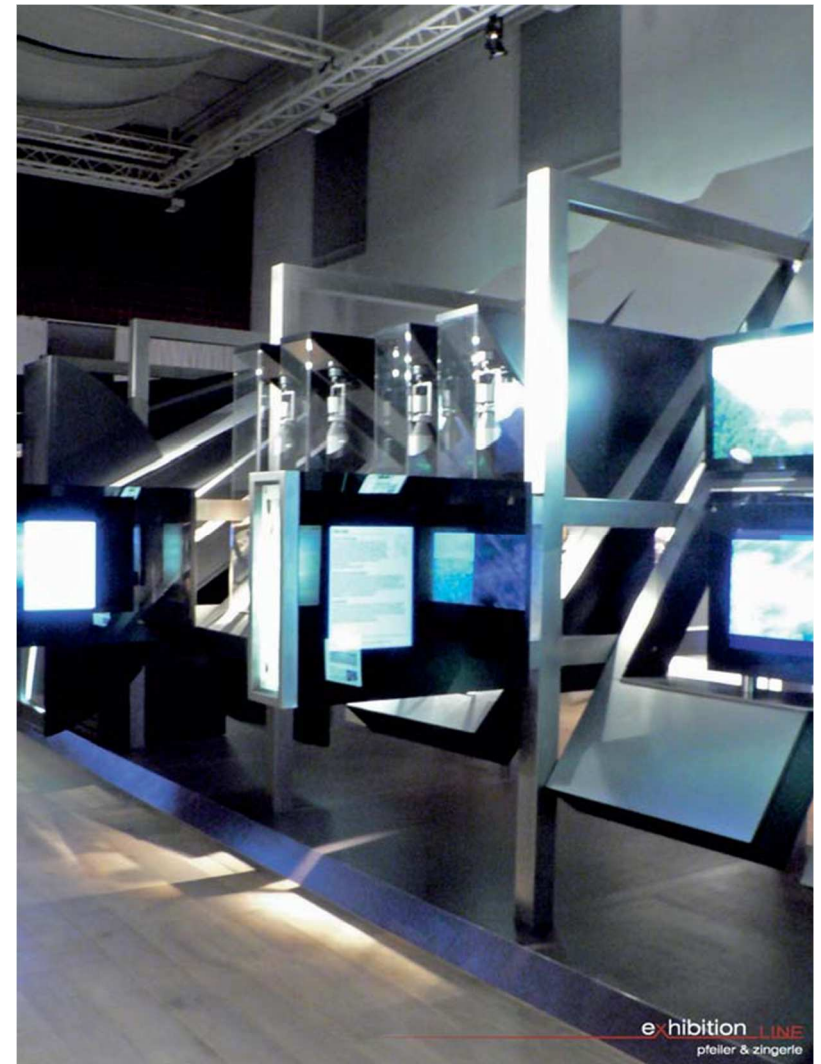


Elevation at the start









Specifications

- A sculpture-like construction of the exhibition

- **Length: 14.65 m, Width: 4.00 m, Height: 3.60 m**

- Copper Age and Ötztaler Alps:

This element of design consists of a **20 cm thick wall** turning 90° at a height of 2.50 m and then twisting around a horizontal axis along the whole length of 14.65 m. This wall is subdivided into single panels (**17 pieces, width 0.90 m, height 3.50 m, 0.20 m thick**) which are covered on one side with aeruginous **copper** (Copper Age) and on the other side with anodized **aluminium** (the mountains). These panel elements carry all the pictures of the exhibition as well as the showcases.

Through the horizontal twisting the wall rises at one end vertically, presenting the Copper Age, and at the other end forms a **covered space** in which the "ICEMAN"-mummy (as a reconstruction) is presented and his clothes are accommodated in a separated showcase.

- The Inside of the Iceman

Six load bearing frames constitute this design element, each consisting of two parallel running **square pipes** (with a **cross section of 100 by 100 mm**) made of **satín stainless steel**.

These arches stand for the "**Iceman's**" ribs and let us look into his inside, imparting a lot of new information and knowledge to us.

The arches carry both the whole wall unit and all explanations (text elements).

- Second Flooring:

To ensure a **statically admissible exhibition** a wooden **flooring** will be put in at a distance of **10 cm above the floor** of the exhibition hall.

Several **cable channels** lead under this wooden flooring, where all **power (230 voltage)** and **data cables** for the exhibition are enclosed and from where they will be lifted within the stainless steel arches.

This flooring works as a kind of "backbone" of "The Iceman's ribs" on the one hand and forms a small threshold on the other, which the visitors overcome if they want to have a close look at the mummy.

- Text elements:

The exhibition will be bilingual. As a standard equipment there will be **16 English text elements**, laid behind glass with back-lighting. The texts in the language of the respective country will be shown on **16 flat screens** and can be changed or corrected via internet. All the text-elements are placed in the load bearing frames (The Inside of the Iceman).

- Server station:

A server will be installed for the **monitors and their clients** which present the text. The server has a **connection** to the **internet**, to be able to easily take corrective action if necessary.

- Pictures:

All **pictures** about "The Iceman" are shown on the "**twisting wall**". According to the topic they are presenting, they are embedded "**in**", placed "**on**", or "**before**" the wall. All pictures are laid behind glass and **back-lighted**.

- Movies:

Three different **movies** (TFT 32 inch) about "The Iceman" are shown in the exhibition, starting with "**The Iceman's**" **discovery**, then a film about the **investigations** and finally a **flight over** "The Iceman's" presumable living spaces: the Eisack Valley (childhood) and the Etsch Valley (adulthood).

Accompanying to the exhibition and in connection to it **a movie** about "The Iceman" can be shown in an **extra room**, provided by the museum.

- Showcases:

A replica of "**The Iceman's**" mummy is shown in a **large showcase** in his "**original position**" of discovery. Only his head (face to the ground), the shoulders and a small part of his back rise from the ice (a back-lighted dulled glass plate). As a symbol of the **layers of ice** above him, **some thousand years old**, three structured **glass plates** are fixed horizontally in a distance of circa 30 cm above the mummy. Another **large showcase** presents "**The Iceman's**" **clothes**. They are fixed in the showcase by

Specifications

means of nylon threads and are highlighted.

"The Iceman's" **equipment and tools** (all reconstructions) will be presented in **six showcases**. These six showcases are partially **cut into** the "mountain range" (aluminum-rear of the sculpture-like construction of the exhibition) or **mounted** as additional "up-hill edges" in the shape of triangular showcases.

-Touchscreen:

On both sides of the large showcase for "The Iceman's" clothes **two touchscreen installations** will be placed: **one large screen** (TFT 32 inch) and **one touchscreen** (TFT 19 inch) on each side. By dint of this installation the visitors can experience **the diversity and multiplicity of the materials** "The Iceman" used for his clothes and tools in an interactive way. **By pressing a button** on the touchscreen, "Ötzi" will be **equipped** with the **garment or tool** on the monitor above it, which was made of the material chosen by pressing the button. The visitors can thus **dress and undress** "The Iceman" **virtually**.

- Interactive elements:

Behind the touchscreen and the six showcases for "The Iceman's" **equipment and tools** an approx. 3 m long and 2.2 m high **wall made of net of steel** carries all **raw materials** of his clothes and tools. The **visitors** can **touch and feel** the surfaces of the different furs, wood, grass, ...and can also **experience their weight**.

-Optional:

A **mobile cupboard** with reconstructions of several elements of "The Iceman's" **belongings** (his coat, cap, leggings, bow, axe, dagger, retoucher) in it could be planned and could be used for **guided tours for children and adults**.

-Live Cam:

Through another **flat screen** (TFT 32 inch) at the end of the exhibition the visitors can look **live** at "The Iceman" in his **last resting-place**, the cold storage room in the **South Tyrol Museum of Archaeology**.

The **web camera** will be positioned in such a way that the small window of

"The Iceman's" room can be seen. So the visitors of the travel exhibition are able to see **the mummy** and to catch the **shadows of the visitors in the Museum of Archaeology** in Bolzano. A clock with date display emphasizes the live situation.

- Additional elements:

Three additional, self standing **image-text-elements** (280 cm long, 220 cm high, 40 cm deep) support **three topics** (**discovery, death, living space**) and should be placed parallel to the main exhibition.

- Lighting:

The exhibition has a **self contained lighting system**.

Except:

-**Two self-standing lighting elements** illuminate the twisting wall from both sides and project the silhouettes of these twisting elements on the wall of the museum (needing **230 voltage power outlet each**).

-**The three additional elements** (picture-text-elements) need illumination (possibly ceiling lighting) by the museum.

-Feeding

The entire exhibition need an electric power supply of either **380 voltage or three of 230 voltage each**, by either power outlets on the floor, from the ceiling or by a cable channel under the floor.

The exhibition has an **internal power fallback system**.

The exhibition has its own earthing and will be connected with the earth lead of the museum.

The serverstation and the live-cam need an **internet connection** through an internet data cable (network cable).

-Timeline

A **timeline** (5 m long, 0.50 m deep) carries **symbolic illustrations from the Stone Age until today**. Visitors going along it will be accompanied by a **wave of light** of times ago.

The timeline should be placed in an extra room or foyer.

The timeline



The discovery



Look - a dead body!

Discovered by chance in 1991, recovered after 4 days

The discovery of the century

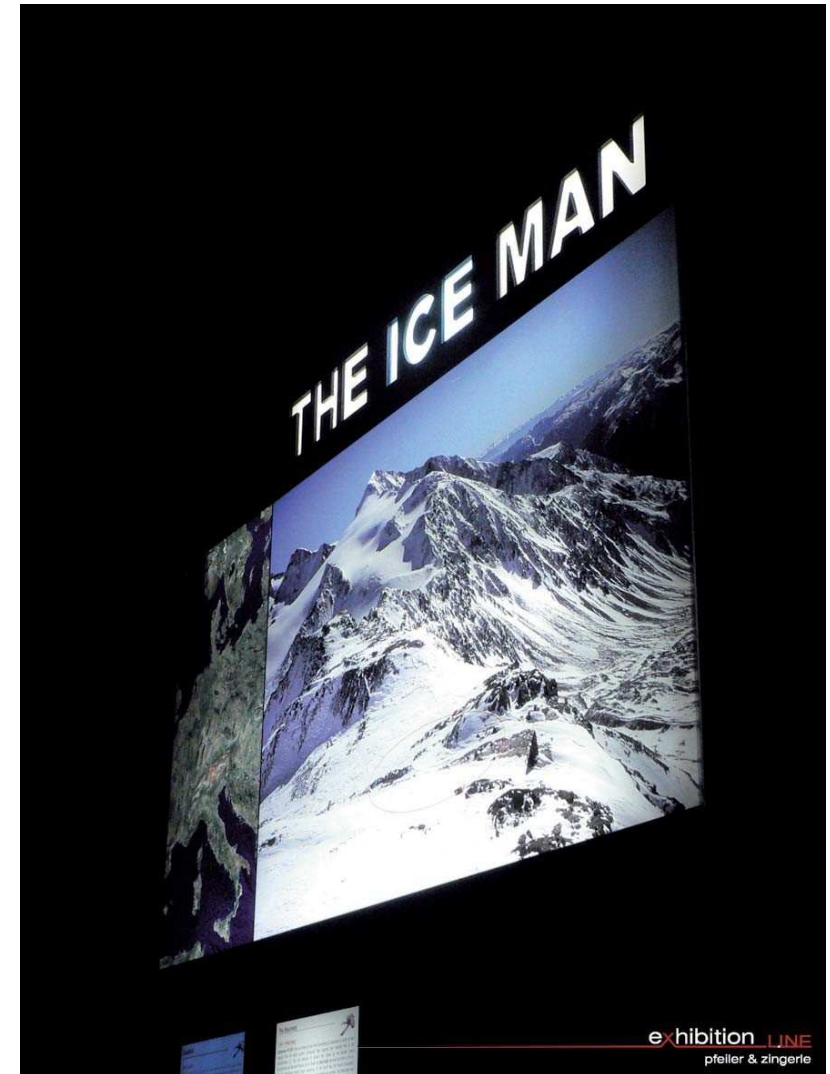
A great moment for archaeology

Where was Ötzi found?

New measurements confirm: the find complex belongs to South Tyrol (I)

Excavations in snow and ice

Excavations in the ice yielded further sensational finds



The discovery



More information about the discovery



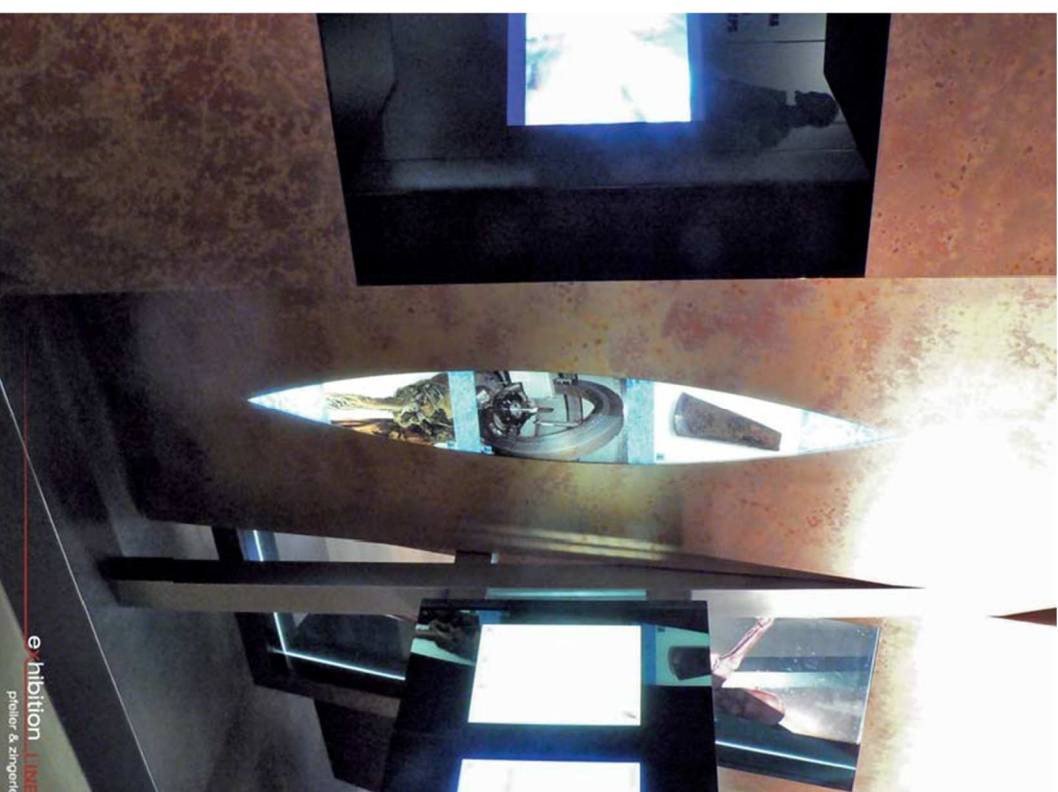
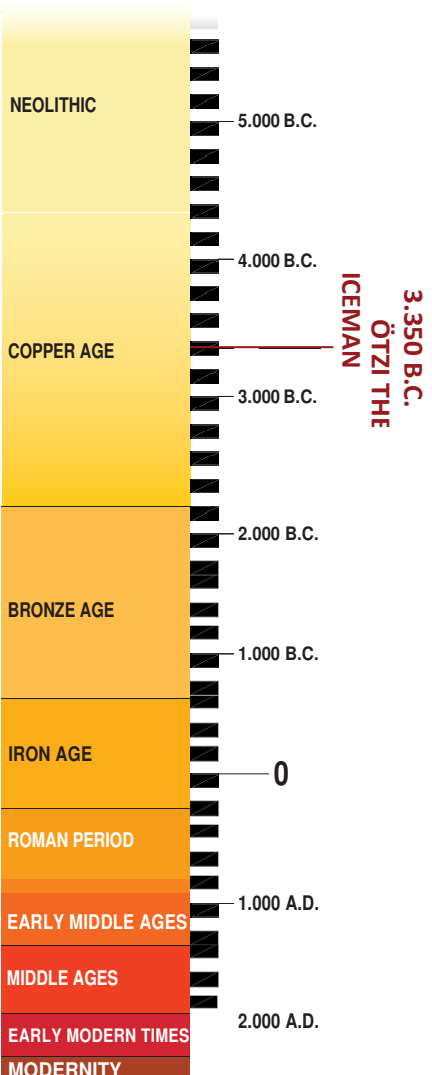
Dating

How do we know when Ötzi lived?

Carbon-14 dating confirms Ötzi lived over 5,000 years ago

How did Ötzi remain intact?

Preserved in a cool, moist state in a rock gully



The mummy

Why is Ötzi named "Ötzi"?

Ötzi is named after the Ötztal Alps

What is special about Ötzi?

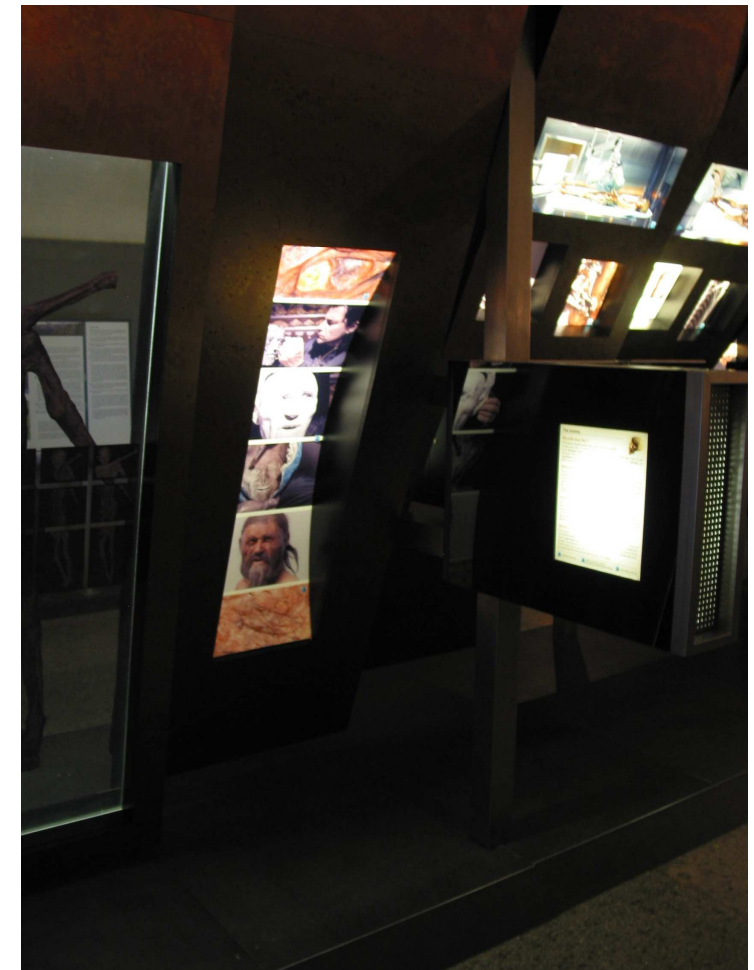
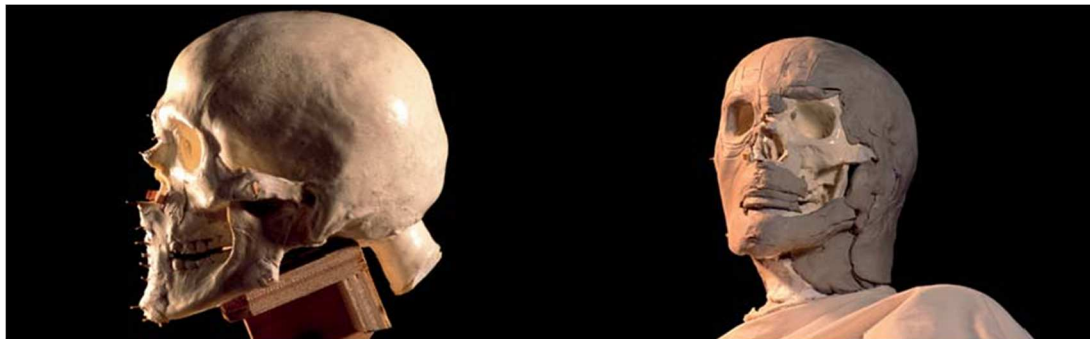
Textiles, organs, even clothing and equipment were preserved

What did Ötzi look like?

Brown eyes, dark hair, 1.60 m tall, 50 kg

Was Ötzi a grandpa?

It is conceivable that Ötzi was the oldest member of his village



The mummy

Medical investigations

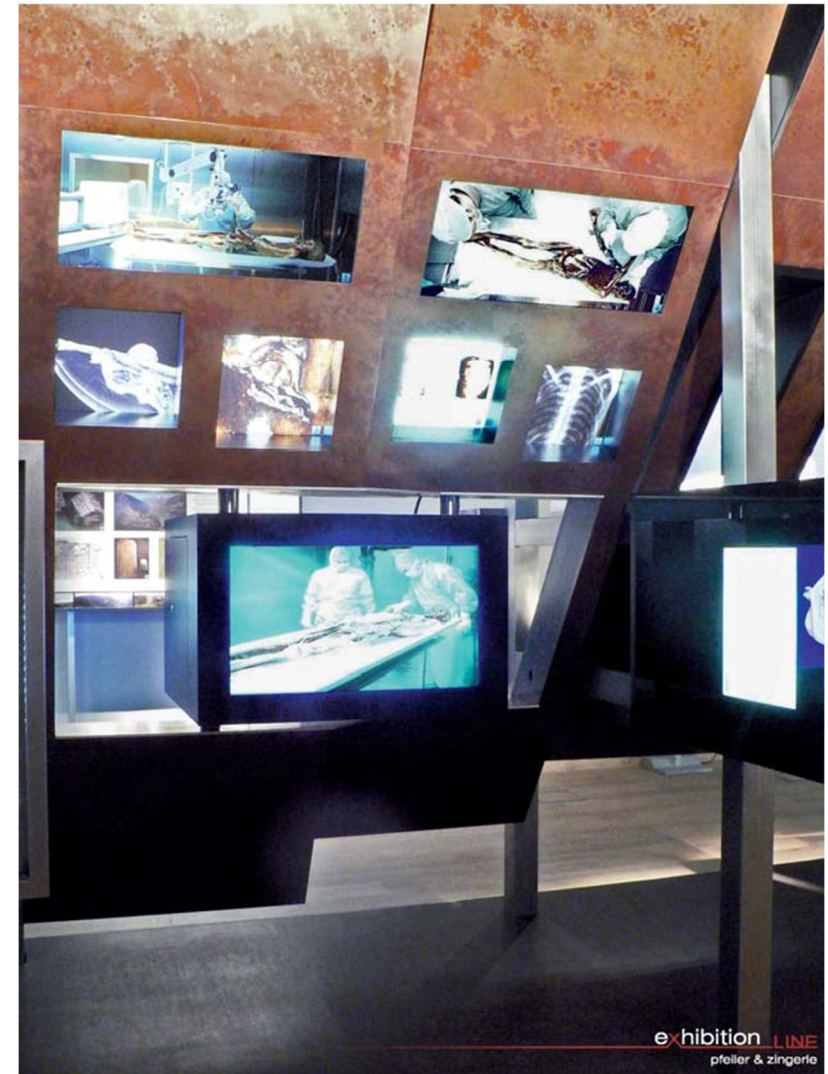
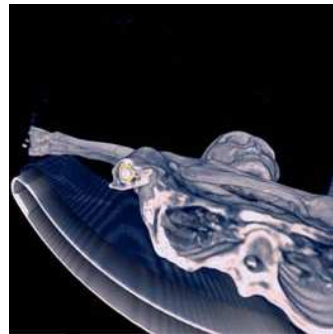
Medical investigations provided unique comparative data

What was Ötzi's diet like?

Ötzi still had grains, meat and plants in his intestines

Stone Age stress

Typical signs of aging and severe stress



The mummy

Stone Age therapy

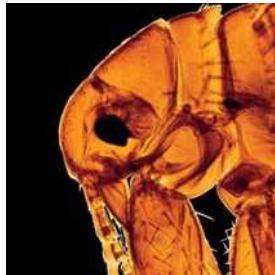
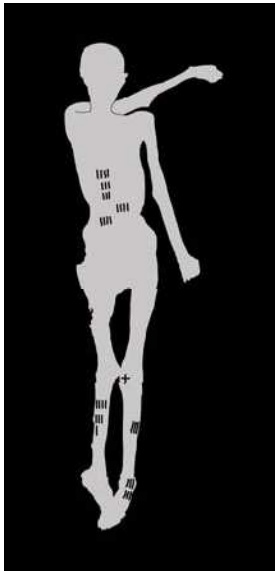
Tattoos for alleviating pain

What do Ötzi's teeth reveal?

Ötzi's teeth provide information about his homeland

Troublesome companions

Several small parasites were found



Ötzi's Deat

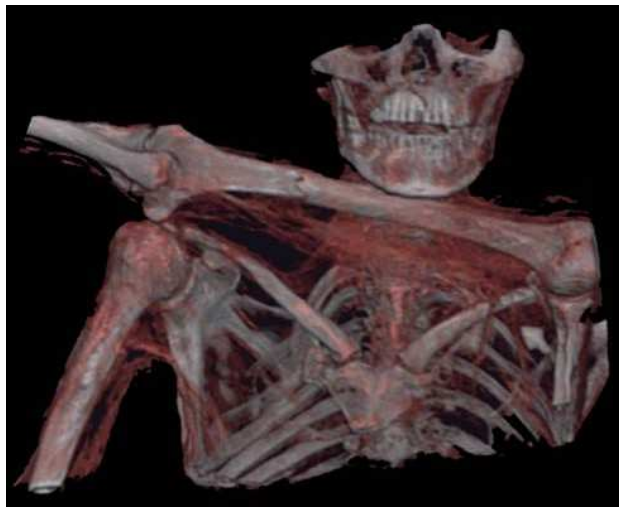
Ötzi's death – a crime?

Fatally wounded by an arrow in the back

New cause of death 2007: Lethal shot with arrow and cranial trauma.

Why wa Ötzi shot?

Ötzi was the victim of an altercation

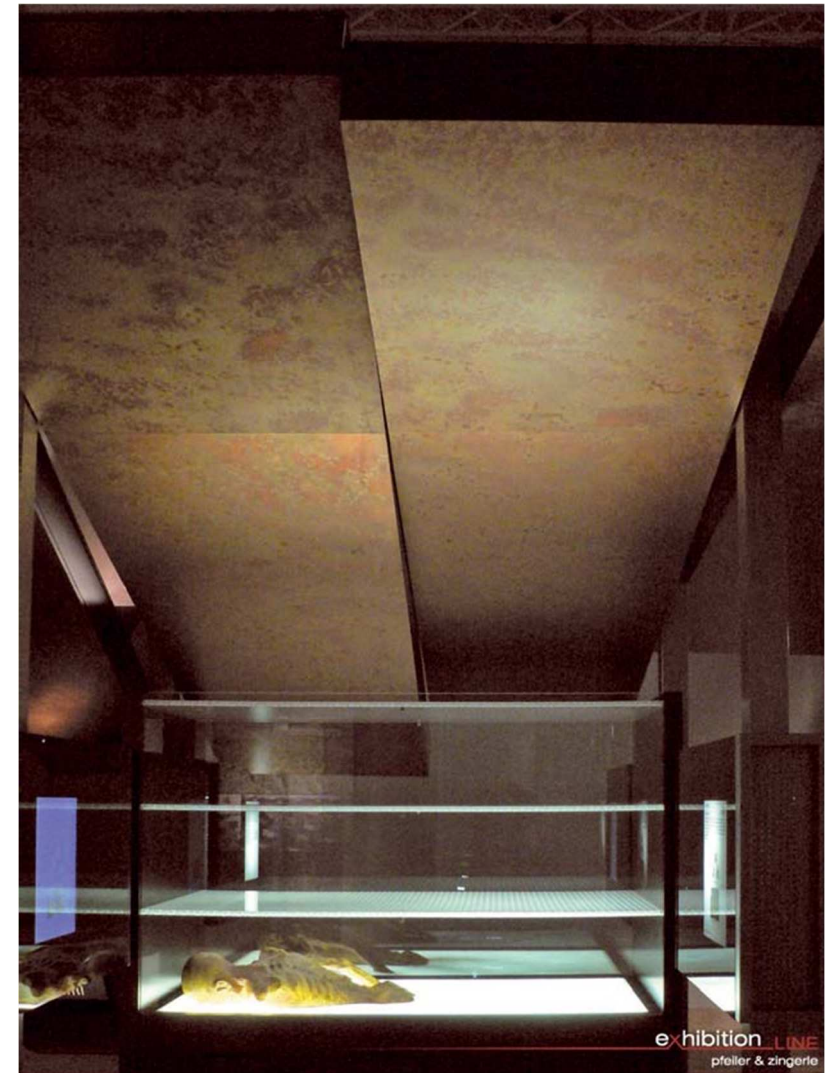


Ötzi's Death



When did Ötzi die?

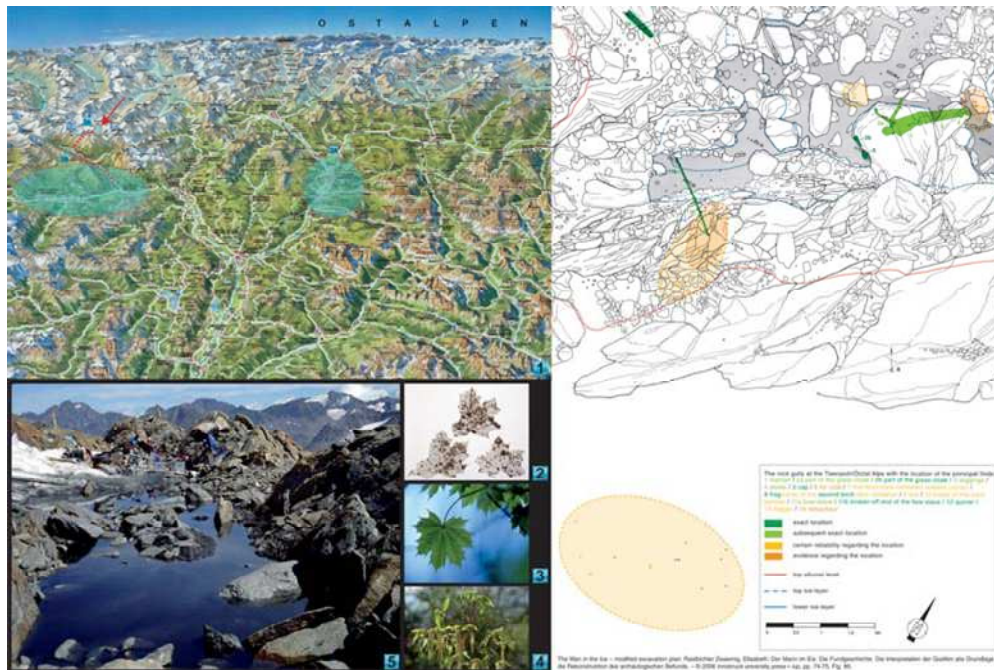
Pollen and plant parts prove: death in early summer



Ötzi's Death



Ötzi's „curriculum vitae“



The clothing

Stone Age fashion

Suitable clothes made from accurately sewn fur and leather parts

Grass coat or mat?

Grass and straw mats are highly water-repellent.

Ötzi in stripe look

Ötzi's hide coat is a testament to trendiness.

The leggings

Ötzi's leggings look like leather stockings without feet

Stone Age underwear

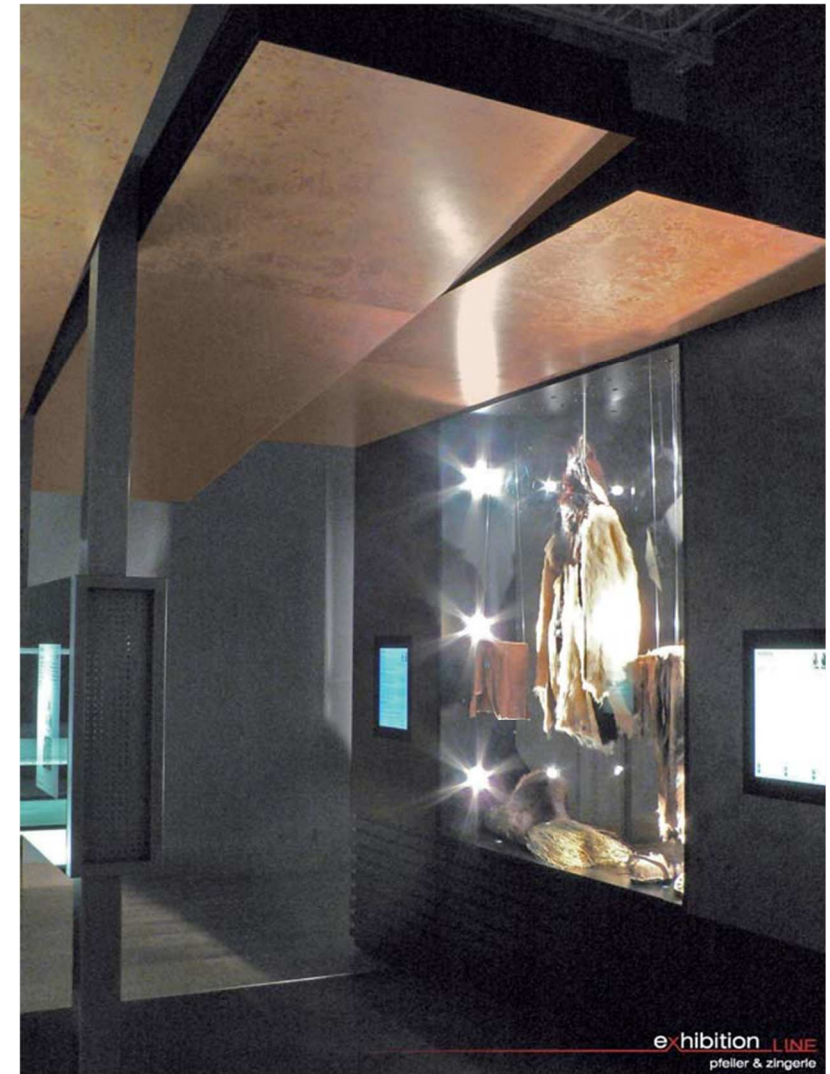
Ötzi's underwear is made out of especially fine leather

Was Ötzi travelling barefoot?

Ötzi's shoes are the oldest "real" shoes in the world

Bearskin cap

In the windy high mountain region, an effective head protection is especially important



The clothing and the equipment



Touchscreen: By dint of this installation the visitors can experience the diversity and multiplicity of the materials “The Iceman” used for his clothes and tools in an interactive way.



exhibition LINE
pfleider & zingler

The clothing and the equipment



Interactive elements



Ötzi's equipment

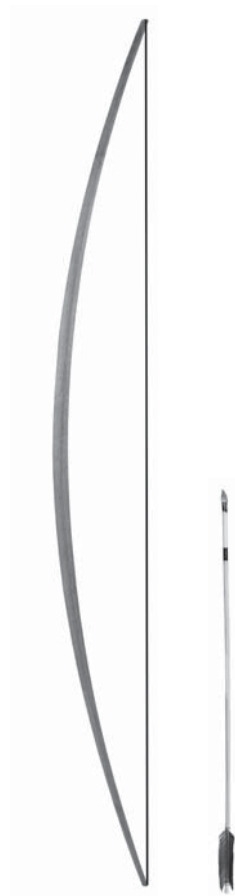


Perfect equipment

Suitable clothes made from accurately sewn fur and leather parts

An expert in special woods?

A set of equipment complete with tools and replacement material



The bow - a deadly weapon

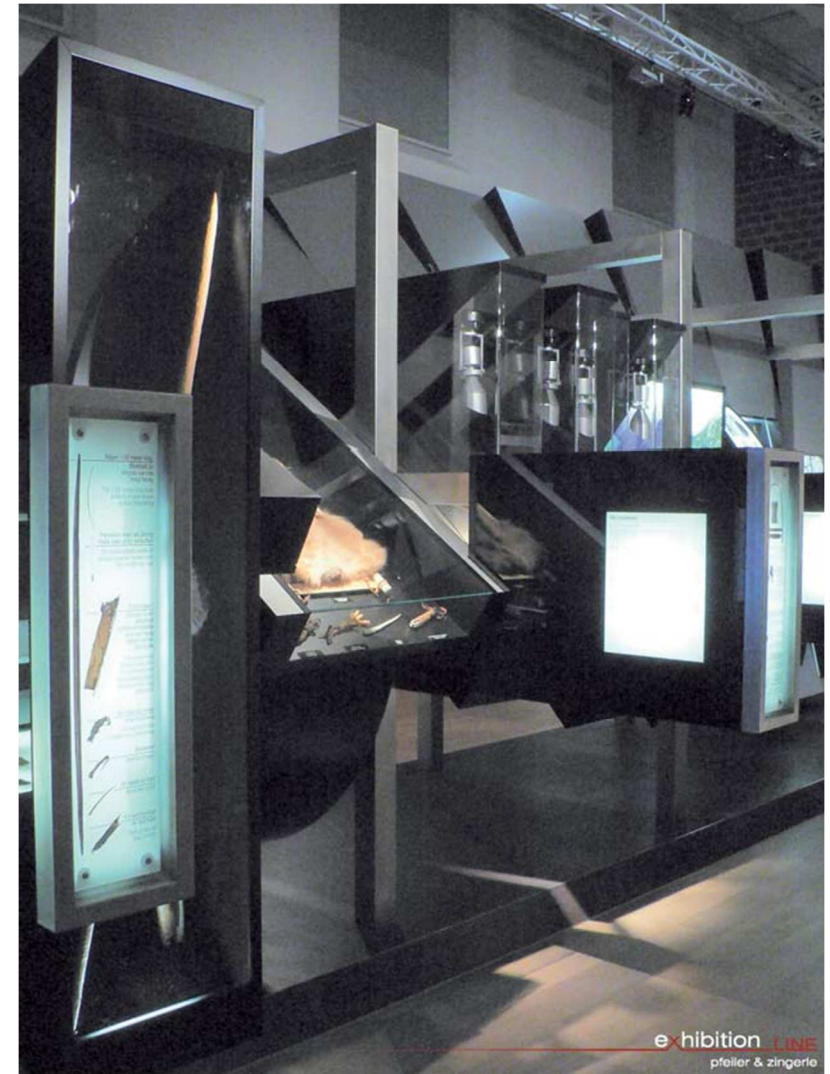
The unfinished bow made of yew wood: accurate and absolutely deadly

The quiver - protection for delicate arrows

The quiver had already been broken when Ötzi was alive

The arrows - differently wrapped

Ötzi's arrows were produced by two different people





The copper axe - weapon or symbol?

The copper-bladed axe: status symbol, weapon and tool

The dagger - astonishingly small

Ötzi's dagger scabbard is a small masterpiece

The retoucher - Ötzi's precision tool

Any desired form of blade or arrowhead can be produced with this tool



His world



The world 5,000 years ago

Europe: high civilization, sparsely populated, no cities

Why was Ötzi on the move in the high mountains?

Travelling from south to north into well-known terrain

Where did Ötzi live?

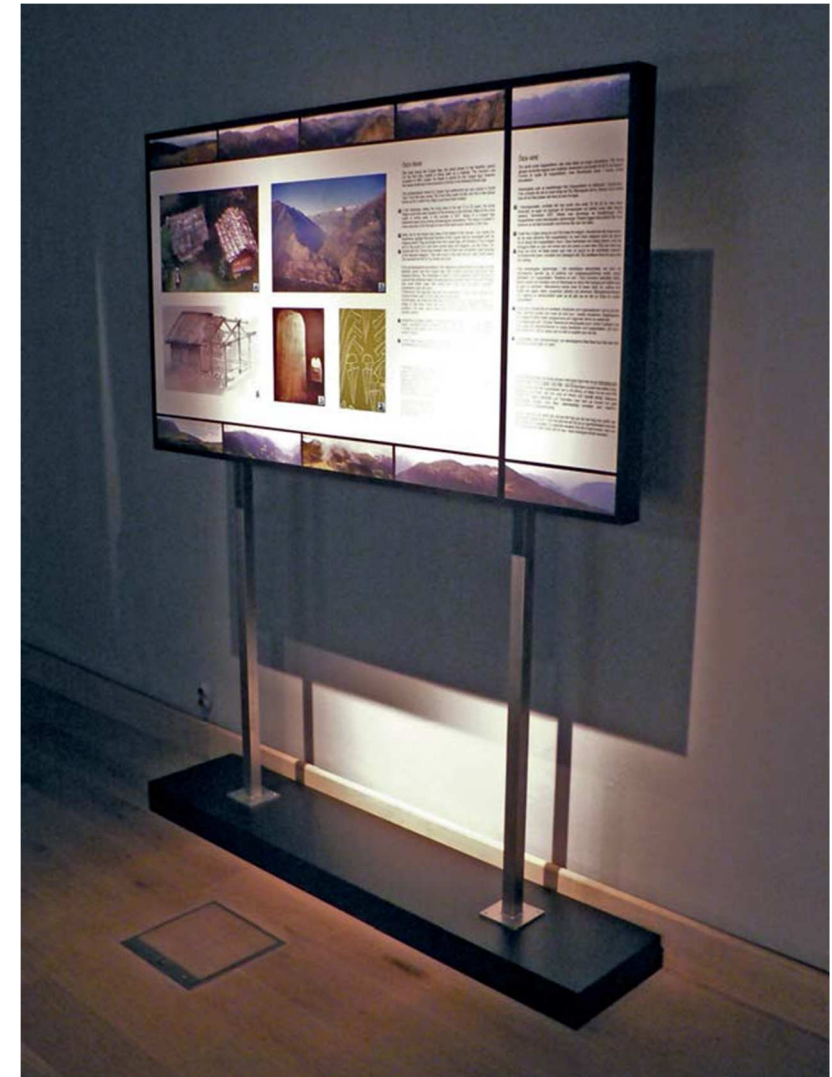
Was Ötzi a member of the first independent Alpine cultural group?



e hibition LINE
pfeiler & zingerte

His world

Cultures of the Copper Age



Ötzi's curse

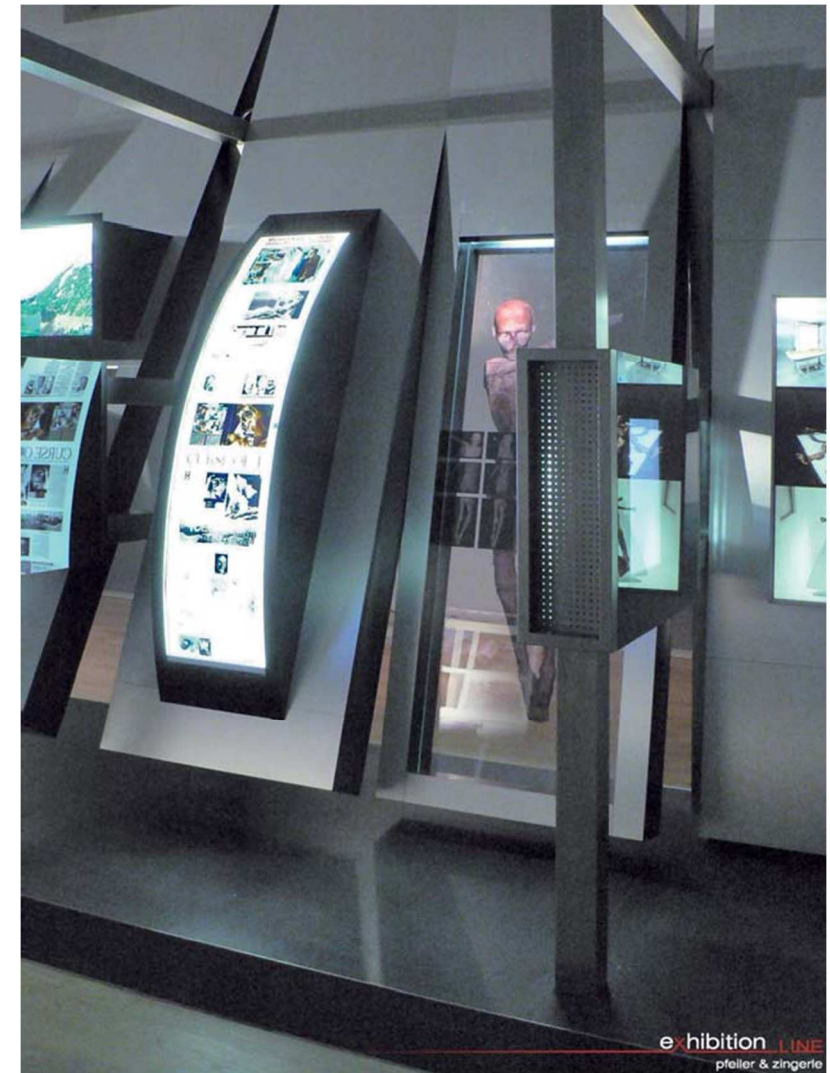


Is there Ötzi's curse?

Ötzi's curse fuelled by media hype

The curse of the Pharaohs

A mould fungus as a instrument of death



The Museum

Homeward to South Tyrol

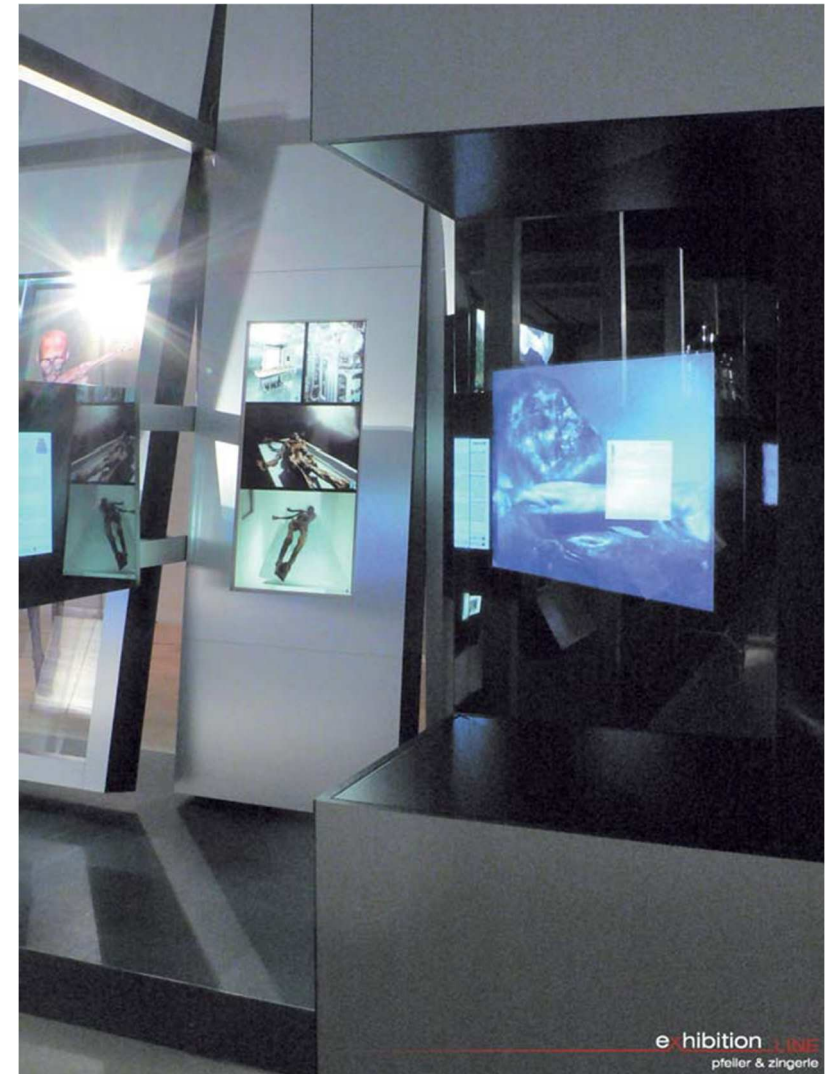
Housed and displayed at the South Tyrol Museum of Archeology

High-tech methods for a mummy

Preservation by reproducing conditions in the ice

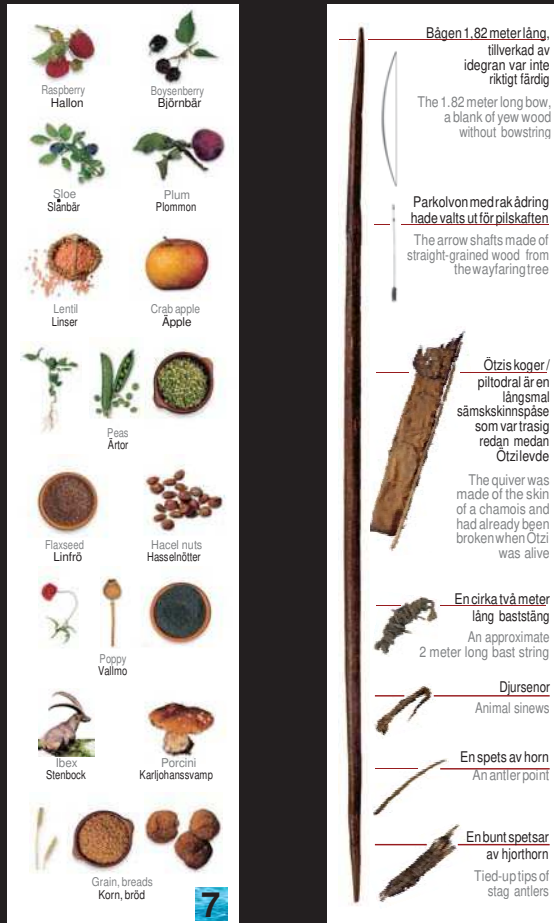
An igloo for Ötzi

Nitrogen prevents the development of harmful germs



The graphic

Example for graphics, layout and text



The Museum



Homeward to South Tyrol

For six years, Ötzi remained in the care of *Innsbruck University*. In **1998**, he returned to the country where he had set out on his final journey. Since then his last resting place has been the **South Tyrol Museum of Archaeology**—which has interactive multimedia stations, events and research all year round. Here Ötzi lies in semi-darkness and is closely monitored. Fascinated, astounded but also strangely moved, visitors from all over the world come to behold a **witness from their own past**.
Housed and displayed at the South Tyrol Museum of Archeology

High-tech methods for a mummy

So that Ötzi does not decay and scientific investigations can carry on, he must be **preserved under conditions similar to those of the glacier** in which he lay protected for over 5,000 years: **ice cold with high humidity**. These conditions must now be artificially reproduced. A **cooling system unique in the world** was developed that also permits the **mummy to be displayed to the public**. The visitors to the museum can observe the glacier mummy through a small armoured glass window.

Preservation by reproducing conditions in the ice

An igloo for Ötzi

To prevent the **mummy** from drying out, it must be sprayed with water so that a **fine layer of ice** is formed **on the surface**. In addition, the inner wall of the cold storage cell is covered with about **200 panels of ice**. Thus, the moisture in the air of the cold storage cell can be increased. So that no bacteria or other germs develop inside and on the surface of the body of the mummy, the cold storage **cell is filled with nitrogen**. Without oxygen, hardly any organisms can develop.

Nitrogen prevents the development of harmful germs

1 The mummy at the entrance
to the cold storage cell.

2 The mummy is covered with ice.

3 The mummy is sprayed with water.

4 -Ötzi's cold storage cell.

Optional add-on-modules for „The Iceman“

Landscape, climate and animal kingdom in the Alps 5,000 years ago

- For readiness before entering the actual exhibition, visitors should get an impression of the influences human beings were exposed to about 5,000 years ago, that is during the Copper Age, when Ötzi lived.

Mummification: artificial – natural; possibly with exhibits

- Egyptian mummies: e.g. mummified cats: artificial
- Scythian mummies: natural
- Dried mummies: desert or salt: natural

Dating methods in archaeology: two examples of dating methods

- Dendrochronology: also called tree-ring dating is based on the analysis of known tree-ring growth patterns; planned with interactive area
- Radio-carbon dating: one of the most widely used absolute dating techniques for materials containing organic remains which can be up to 50,000 years old.

Forensics - physical anthropology

- Forensic and physical anthropology, forensic archaeology
- Morphing: a special effect in motion pictures and animations that changes (or morphs) one image into another through a seamless transition; planned with interactive area
- Facial reconstructions
- Bone marker, possible with exhibits
- Abrasions of joints, possibly with exhibits
- Bone fractures, possible with exhibits
- Diseases which are identifiable on the skeleton, possibly with exhibits
-

Ötzi under the magnifying glass: medicine – botany – archaeobotany – archaeology – physical anthropology

- Archaeobotany: his last meal: interactive areas possible: for example pollen under the microscope; seeds, fruit pits - menu of the Copper Age - agriculture in the Copper Age
- Medicine/physical anthropology: cause(s) of Ötzi's death, health/disease

Tattoo

- Adornment – symbol – pain relief

Furrier's handicraft 5,000 years ago

- High quality of processing and preparation of Ötzi's leather and fur objects: examinations, experimental-archaeological insights and reconstructions (of exhibited objects?)

From ore to object

- High metallurgical knowledge in the Copper Age/Bronze Age: identifying copper ore, processing copper ore, casting objects.

Dwelling in the Alps during the Neolithic/Copper Age

- Archaeological finds of Neolithic and Copper Age settlements in Alpine areas.

„High-tech-glacier“ for Ötzi – artificial conservation beyond death

- The high technological expense for the preservation and maintenance of the natural mummy Ötzi.

Merchandising

Keyring pendant: South Tyrol Museum of Archaeology ▪

Keyring pendant: "The Iceman" punk ▪

Pin: "The Iceman" punk ▪

Pin: "The Iceman" arrowhead ▪

Tattoo: "The Iceman" punk ▪

Tattoo: "The Iceman" arrowhead ▪

Wax crayons ▪

Pencils ▪

Polo shirt adult, blue S / M / L / XL ▪

T-shirt children, orange S / M / L / XL ▪

Cap, orange ▪

The Glacier Mummy ▪

Postcards, 20 different subjects available ▪

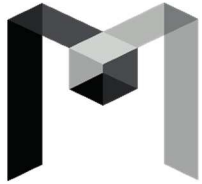
Note pads DIN A 6 ▪

Book: The Iceman/Fleckinger ▪

Book: The Chalcolithic Mummy ▪

Mini Memory game ▪

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