

1. Morgendunst im Lonetal, Morninghaze in the Lone Valley  
Flutes types Geißenklösterle 1, type Grubgraben, rattles, lithophone, water
2. Mammutfest, Mammoth Feast  
Flutes types Grubgraben, type Hohle Fels 1, small ivory flute, reedpipe, bovid horn, Pygmy bow, frame drum, scrapers, rib bones, rattles
3. Liria ruft Athiko, Liria Calls Athiko  
Flute type Hohle Fels 1, egg, lithophone, African hunting bow, rattles, frame drum, rib bones
4. Vogelherdhöhle The name of the Vogelherd Cave means „place of many birds“  
Birdsounds: Flutes type Geißenklösterle 1, type Hollow Fels1, type Isturitz, small ivory flute, eggs, snail shell; Melody: flute type Geißenklösterle 1; Frame drum, water
5. Von Tal zu Tal führt uns die Herde From Valley to Valley we follow the Herds  
Ivory flute type Geißenklösterle 3, deer flute, bullroarer, lithophone, Pygmy bell, frame drums, rainmaker, rattles
6. Zusammentreffen der Clans Meeting of the Clans Flute type Isturitz, reedpipe type Hohle Fels 1, Flute type Geißenklösterle 1, bovid horn, frame drums, Pygmy bell, hoof rattle, Pygmy bow, handclaps, scrapers
7. Salon Noir Salon in the prehistoric Cave of Niaux with amazing acoustics deer flute, water drops, water

Gabriele Dalferth is a music and art teacher. Over the the last years she has reconstructed different paleolithic aerophones. She works as a visitor's guide at the famous prehistoric site "Vogelherd Cave". During the tours through the site she plays some of these instruments for the visitors. All the aerophones (except one) which are to be heard on this CD were built by herself.

Samuel Dalferth, Dipl.-musician, studied composition for film and television at the Munich Music Academy. He works as a composer, producer and sound designer. In this present project he was highly interested in exploring the sound diversity of the instruments of the last glacial period.

Gabriele Dalferth: Composer  
All wind instruments  
Layout  
Samuel Dalferth: All other instruments  
Recording / Mixing / Mastering  
Production  
Kevin Dalferth: Photography  
Michael Dalferth: Layout

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### 1 Morning haze in the Lone Valley

After a long hard winter Ice Age people were longing for the warmth of the sun. The Lone River, now very small, was then a wide river in a narrow valley. In springtime there were lots of animals passing through the valley promising successful hunting.

### 2 Mammoth Festival

People were closely connected to animals. Ethnographic comparisons suggest that after a successful hunt people celebrated thanksgiving rituals of which music and dancing were a part.

### 3 Liria calls Athiko

The ice age children Liria and Athiko are the main figures in a book written by Gabriele Dalferth and Wolfgang Bausch. Liria uses a flute for communication and for expressing herself. The appearance of symbolic communication is typical for the Aurignacian, the early period of the Upper Palaeolithic and is considered a significant behavior of the “modern” Homo Sapiens, who reached the Swabian Jura replacing the Neanderthals.

### 4 Vogelherd Cave

The name of this archaeological site, where the world famous wild horse, the mammoth as well as many more other animal figurines had been found, indicates a place of many birds.

### 5 From Valley to Valley we Follow the Herds

People used to follow the animals because they lived on them. Long distances were covered on their journeys crossing hills and valleys.

### 6 Meeting of Clans

When several clans that usually lived widespread in the country had a meeting, music and dancing certainly were not to be missed.

### 7 Salon Noir

Unforgettable memory of the chance to play a prehistoric flute in complete darkness in the famous painted Cave of Niaux with its overwhelming acoustics.

## **Musical Approach**

No synthetic or electronic sounds were used on this CD. You can hear instruments that are attributed to the Upper Paleolithic period or that are considered to have always been a part of mankind. Every now and then natural objects or sounds that already existed in the last glacial period were added most carefully.

Listening closely to the possibilities of each instrument was the inspiration for the music. The melodies of the tunes came up while Gabriele Dalferth was playing the different flutes and aerophones trying to find out their possible tones and timbres. She played all the wind instruments of this project.

Samuel Dalferth played all the other instruments. Improvising and playing in a very experimental way in order to find out many ways of playing the prehistoric instruments made him create a really surprising variety of accompaniments.

So the musical approach was mainly discovering, inventing or reinventing, finding or re-finding sounds of the past.

Today there is a great choice of musical instruments; so there is no need for a musician to go out and search for sounds. The early musicians however had to do just that. They listened to the sounds in their environment: Be it flint knapping, carving, tensioning of tendons or skins etc. The awareness of all these sounds, no matter whether they were produced purposely or accidentally, resulted in the early instruments.

Many of these sounds are rarely heard nowadays.

While searching sounds both musicians acted in the same way as their early ancestors did: They were just trying out: How can the humming sound of a bullroarer be combined with other sounds? How do all these surrounding things sound? The limestones in the environment? The twisted leather cord? The tendon of the bow? The beaten rib bones?

As an output of all these experiments the bows were not played as formerly intended as mouth bows. Instead they were placed on a hollow tree trunk (resonator) and then played with another bow string that was made out of a twisted leather cord. When the two bow strings were rubbed against one another, really impressive surprising sounds like the snorting of animals were to be heard combined with unusually loud overtones. These sounds should not be missed on the CD.

These recordings enable the listener to have his ears really close to all these fascinating sounds: the rubbing and beating on limestones, the playing with the hunting bows, the scratching sound of the scraped bones or the humming of the whirling bullroarers.

## **Ice Age Flutes or Aerophones**

The oldest musical instruments known today are eight flutes which were found in caves of the Swabian Jura. They originate from the early period of the Upper Paleolithic, the Aurignacian, and are up to 40.000 years old. They were made out of wing bones of large birds or out of mammoth ivory.

In mammoth ivory there is no natural cavity like in a bird's bone, so making a flute out of ivory was a technical challenge for the Ice Age people. First they had to produce a round ivory rod. Because of the natural curving of ivory it was not possible to drill through

lengthwise. So it had to be split in two halves, hollowed out and then glued together again tightly.

Only three of the discovered flutes could be reconstructed by the archeologists, the others were too fragmented. Up to five finger holes were carved in thoroughly allowing the fingers soft sliding movements.

Both ends of the ivory flute (Geißenklösterle 3) as well as of the swan wing bone flute (Geißenklösterle 1) are missing (Geißenklösterle is a cave in the Ach Valley), so that the length is unknown. It can only be estimated based on the possible maximum length of the used material.

Unfortunately, the important question concerning the mouthpiece remains unanswered. Only one flute from Hohle Fels in Aichtal suggests a mouthpiece because of two deep v-shaped notches at one end on the front- and backside. But while blowing, due to air turbulences caused by these deep notches, a clear sound production is prevented. So it is reasonably possible that such a flute might have been provided with reeds like a reedpipe or clarinet. Therefore it would make sense to call the instruments aerophones instead of flutes.

The simplest mouthpiece, as it had been reconstructed by the pioneers Friedrich Seeberger and Wulf Hein, is just to cut off one end straight and play the instrument like a nay flute or just like a panpipe. Or one can carve a little angle and play it like a Peruvian notched flute. About 20 significantly younger flutes were found in Isturitz in the French Pyrenees. One straightly cut flute with four holes could be reconstructed.

In Grubgraben in Austria a 19.000 year-old flute was found which was made out of a reindeer bone. Again both ends were missing, so that the mouthpiece is unknown as well. The preserved piece has three holes. Bernadette Käfer has been the first to reconstruct and record this flute.

## **The Aerophones on the CD**

The instruments were reconstructed out of mammoth ivory, mute swan- and deer bones.

Reindeer, whooper swan or griffon vulture bones, which were used originally were not available. More important than the original material for a sound reconstruction is the size, the shape and the thickness of the bones which were factored in to approximate to a high extent to the original flutes..

Merely the bone diameters deviate minimally which would mainly have an effect on the volume.

## **The Instruments Reconstructed by Gabriele Dalferth**

A Hohle Fels 1 (Original: Griffon vulture radius)

Replica: Mute Swan radius, 5 holes, as reedpipe with double reed made out of reed with a pinfeather core

B Geißenklösterle 3

Replica: like the original out of mammoth ivory, 4 holes

C Geißenklösterle 1 (Original: Whooper swan radius)

Replica: Mute swan ulna, 3 holes

D Grubgraben (Original: Reindeer tibia)

2 replicas: Mute swan humerus and deer metapodia, 4 holes, the fragmented original piece has only three holes. A fourth hole is possible because of the length of the bone.

E Isturitz (Original: Ulna of a large bird)

Replica: Mute swan ulna

F In the caves of the Swabian Jura fragments of 5 other flutes were found. That was the inspiration to build another tiny flute out of smaller ivory pieces that is unproven but imaginable.

G This flute was built by the experimental archaeologist Rudolf Walter: Hohle Fels 1 (Original: Griffon vulture radius), Replica: Mute swan ulna, 5 holes.

On the CD this flute is heard with a wooden wedge in the mouthpiece built in by Dalferth which allows a better airflow. Without this wedge this type of flute sounds much less clear.

### **About the Tonality of the Aerophones**

The following simplified principle applies to all tubular aerophones: The length of the vibrating air column determines the pitch. The diameter determines the volume (also depending on the mouthpiece). Due to the irregular internal diameter of a bird bone, however, the pitch of two identically reconstructed flutes often differs up to a whole tone.

If the flutes are played like nay flutes, the variability increases even a lot more. The thinner the flute, the less defined is the pitch. Without moving any finger glissandi over several tones are possible. Using the nay technique with very thin flutes the pitch is controlled quite similar to whistling just by changing the size of the oral cavity.

Using a double reed, the tones vary considerably depending on the degree of the hardness of the reed material (soft bird feather, grass, wood, reed..). Depending on the length of the mouthpiece the pitch changes as well.

Over and above that the various pitches cannot be definitively determined if the exact length of the aerophone is not known such being the case of the fragments discovered. Therefore here precise data about the pitches of any instrument has been omitted here as those would be valid only for just that one reconstruction.

However, the intact parts of the instruments found allow conclusions on interval structures. They are mostly tones of the overtone scale and surprisingly often result in one of the various possible pentatonic scales.

Even though the tones of the original flutes cannot be determined exactly it is very impressive that our ancestors in the Swabian Jura used flutes or other aerophones

40.000 years ago which offered the possibility to play a variety of complex melodies. The sounds and the timbres of these instruments however can be demonstrated very well with these reconstructions.

### **Ice Age Music**

Many questions about what kind of music people played in those days will remain unanswered.

Did they prefer to play the instruments on their own or did they play music together? Did they play different tones simultaneously? Was there a particular style? Were there pulsing rhythms or free timings? Was there music for cult and spiritual reasons only? Or was music part of every day life? Unfortunately all this unknown.

Therefore with this CD, the musicians do not claim to know which music had been played at that time. They just offer a small selection of possibilities of what can be played on these prehistoric instruments, carefully supplemented by some natural sounds and by clapping, stomping, drumming or rattling - as music archeologists assume that mankind did this from its beginning.

But should the early musicians have played music in the same manner as they had carved their first three-dimensional figurines, of which the complexity and perfection exceeded every expectation of how first human art might have looked like to such a high degree, that some scientists doubted their authenticity, we would certainly be highly amazed by the results concerning the musical form, execution and expression.

Whether the music, relating to our present Central European listening habits, was played in pitch or not, is incapable of proof. Depending on the bone structure, the chosen length and the way of playing the instrument, the pitch sounds sometimes more, sometimes less than what we are used to. These recordings intentionally present both possibilities.

### **More Ice Age Instruments**

Flutes are the oldest documented instruments. The existence of scrapers and bullroarers is attested for the Upper Paleolithic period as well. Drumsticks give a hint that drums were most likely. A cave painting in the cave of "Les Trois Freres" shows a human-animal hybrid sorcerer playing an instrument assumed to be a mouthbow.

### **Other Instruments Used on the CD**

A mouth bow is basically a variation of a hunting bow which is used for musical purposes. On this CD two bows were used which Gabriele Dalferth brought back from traveling through Africa. But contrary to the first intention they were not played as mouth bows. Instead they were picked or played like a bowed string instrument (see also Musical Approach). Both bows are from Equatorial Africa; the smaller one is a Pygmy bow.

As clapping, stamping, beating and rattling are considered to be a primeval behaviour of humanity, percussion instruments like rib bones, animal hoofs, snail shells and a wooden bell of Pygmies were used in addition.

There is evidence in French caves that stalactites and flowstones were hit to produce sounds. To imitate such sounds, a lithophone of limestones, which were collected on the Swabian Jura, was used.

A bovid horn is to be heard as well. Some of the birds' sounds were produced by blowing an egg and a snail shell.

### **About the Function of Music in the Upper Palaeolithic Period**

The Swabian Jura is known as the cradle of art and music. From the very beginning since our anatomically modern ancestor, the Homo Sapiens, reached this area, there is evidence for art and music and many other innovations.

Archaeologists refer to this as the "modernity" of the people. Modernity means the coming up of symbolic communication through art, music, jewelry and hybrid creatures as the lion man. Music is one of the most advanced forms of symbolic communication.

Why was there music? The context of the oldest flute (40.000 years), which was found in 2008 by Professor Nicholas Conard in the Ach Valley in the "Hohle Fels" shows the wide range of how it might have been used. On the one hand it was not situated in any exposed position, but within all kinds of everyday artifacts and waste.

On the other hand it was only 70 cm away from the oldest figurine of a woman, the "Venus from Hohle Fels". This figurine has a strong symbolic charisma caused by the opulence of its female attributes and an eyed loop instead of a head. This could suggest a cult use.

So everything within the wide range between everyday use or cultic use of the flute might be possible.

The fact that eight flutes were found proves they were not a rarity, but common and widespread..

Conard emphasizes that playing music was a significant evolutionary and demographic advantage as it contributed to the networking of our ancestors in a remarkable way. So playing music and producing art had a benefit for them and was not just luxury.

Genetically our ancestors were the same people as we are today including the same repertoire of behaviour. Therefore we can assume that music for them just like nowadays had various functions, such as:

Music for spiritual or cult reasons in order to create a superior common sense, music for sharing the same emotions in order to connect members of a group in a special way, music as part of festivals, music for dancing, music as an individual experience, as a creative process, music for establishing an individual or a group identity, music as an extended language (as in lullabies or love songs). This list of functions is far from being complete.

There is no definite evidence for the exact function. The big number of music finds, however, proves that music was well established and important in Ice Age life.