



Experimental Music Archaeology

April 13–14, 2018

A symposium jointly organized by the Study Group on Music Archaeology of the ICTM & the International Study Group on Music Archaeology (ISgMA), hosted by the State Museum of Archaeology Brandenburg

State Museum of Archaeology
Brandenburg

Paulikloster, Brandenburg
an der Havel, Germany

Friday, April 13, 2018

State Museum of
Archealogy Brandenburg,
Lecture Hall

9:00–9:15 **Registration**

9:15–9:30 **Welcome Address**

Arnd Adje Both

CHAIR: Stef Conner

9:30–10:00 **Experiences in Experimental Music Archaeology**

Ricardo Eichmann & Susanna Schulz

10:00–10:30 **Medieval Lyre Instruments from Novgorod and Poland**

Thilo Viehrig

10:30–11:00 **Coffee Break**

CHAIR: Adje Both

11:00–11:30 **The Aerophone of Geißenklösterle: A „Protoclarinet“?**

Jean-Loup Ringot

11:30–12:00 **Playing Techniques of a Wind Instrument from the Geißenklösterle Cave, Swabian Jura: An Analytical Comparison of Playing Methods of GK1 with and without Reed**

Anna Friederike Potengowski

12:00–12:30 **The Music(s) of the European Palaeolithic**

Michael Praxmarer

12:30–13:00 **Palaeolithic Bone Flutes: The Maker vs. the Player – An Experimental Analysis of ‘Playability’**

Emely C. Watt (on skype)

13:00–14:30 **Lunch Break**

CHAIR: Michael Praxmarer

14:30–15:00 **The Clay Whistle from the Archaeological Site Ustie Na Drim – Struga, Macedonia: A Review of the Zoomorphic Form and Practical (Sound) Function of the Find**

Dragan Dautovski

15:00–15:30 **Archaeology and Experimental Reconstruction: A Panpipe from an Archaic Tomb in Ardea (Rome, Italy)?**

Sonia Modica & Alessandro Mazziotti

15:30-16:00 **Didactic Aspects of Experimental Music Archaeology with Reference to the „Holunderholzflöte von Hagnau“ (Elder Flute from Hagnau, Bronze Age)**
Thomas Olesch

16:00-16:30 **Coffee Break**

CHAIR: Dragan Dautovski

16:30-17:00 **Hurrian Hymn H.6: Democratising the 'Definitive' Edition**
Stef Conner

17:00-17:30 **Dancers in the Addaura Cave II**
Paola Budano

17:30-18:00 **Experimental Music Archaeology in the Andes: Comparative Acoustics of In-Situ Instrument Performance at Inca Huánuco Pampa**
Miriam A. Kolar (on skype)

State Museum of Archaeology Brandenburg, Nave of the Paulikloster

19:00 **Dragon Voices (Concert)**
(entrance 18:30) John Kenny, Patrick Kenny, Hendrik Mokry

Saturday, April 14, 2018

State Museum of Archaeology Brandenburg, Lecture Hall

CHAIR: Jean-Loup Ringot

9:30-10:00 **Sicilian Bossed Bone Bullroarers**
Paola Budano

10:00-10:30 **A Roar from the Past: Bullroarer and Buzzer Finds from the Berlin and Brandenburg Region**
Johanna Sorsakivi

10:30-11:00 **Reconstitution du carnyx de Tintignac**
Jean Boisserie (in French with translation)

11:00-11:30 **Coffee Break**

CHAIR: Adje Both

11:30-12:00 **Music Archaeology and Contemporary Creativity**
John Kenny

12:00-12:30 **The Freiberg Violin: New Insights into Renaissance Violins North of the Alps**
Thilo Viehrig

12:30-13:00 **Jew's-harp in Modern Russia: A Way to Reconstruction**
Vladimir Lisovoi & Angelina Alpatova

13:00-14:30 **Lunch Break**

14:30-15:30 **Workshop: How to Produce a Simple Clarinet**
Jean-Loup Ringot

14:30-15:30 **Workshop: How to Play any Object with a Cavity as a Flute**
Thomas Olesch

State Museum of Archaeology Brandenburg, Exhibition First Floor

15:30-17:30 **Guided Tour: Archaeomusica (only conference participants)**
Arnd Adje Both

Abstracts

Experiences in Experimental Music Archaeology

Ricardo Eichmann & Susanna Schulz

The reproduction of ancient artefacts is a venture which should follow a clear imagination about the aims to gain. There are several methods how a copy can be done. In this special case the lecture will deal the reproduction of musical instruments, to be clearer, stringed plucked instruments, which are copied from instruments of ancient Egypt (mainly New Kingdom of Egypt) as well as late Egyptian antiquity respectively the early Middle Ages. When preparing the reproduction as well as during the process of work one may discover a lot of details putting new questions as well as allowing very interesting conclusions concerning certain professions involved such as musicians and luthiers, but also conclusions concerning the standard of knowledge. These conclusions may not necessarily be gained by other sources. Some details and conclusions gained over years by reproducing artefacts will be presented here.

Medieval Lyre Instruments from Novgorod and Poland

Thilo Viehrig

Archaeological excavations in Novgorod, Russia have yielded an astounding number of musical instruments. Novgorod was built on an impervious layer of clay and the constant waterlogged condition of the soil preserved objects of wood, bone and leather. Among the wooden artefacts from the 10th - 15th centuries there are many stringed musical instruments and fragments thereof, consisting mainly of instruments resembling lyres, psalteries and rebecs. The lyre-like instruments are characterised by a "playing window" but are asymmetrical. The top of the instrument, which holds the tuning pegs, is

diagonal; the strings are of different lengths, as opposed to the Germanic and Anglo-Saxon lyres, which have symmetrical arms, indicating nearly equal string lengths. The diagonal construction suggests use of metal rather than organic string material (gut, horse hair, sinew). A 12th century instrument excavated in Danzig, Poland also appears to have a "playing window" and a similar construction to instruments from Novgorod. Reconstructions of these lyre instruments, built by me, help to facilitate comparison between instruments from Novgorod and Danzig, illustrating similarities and differences and providing insights into possible playing techniques.

The Aerophone of Geißenklösterle: A „Protoclarinet“?

Jean-Loup Ringot

Since the arriving of Homo sapiens in Europe during the late Paleolithic around 40.000 years ago we find beside of paintings and sculptures some objects which are without doubt parts of music instruments, some are made of bird bones, others of mammoth ivory. These instruments are still nowadays made in some parts of the world exactly like during the prehistory. These instruments are commonly described as "Flutes". But to be considered as a flute these instruments must have some characteristics as a labium or a sharp edge where the vibration of the air column is produced. The only prehistoric aerophone flute which without doubt can be called a flute is a beautiful instrument made of vulture bone which was found in Veyreau (France) and dated to the end of Neolithic. All others bones with holes (except perhaps one found in Isturitz in French bask country) are broken and incomplete. During the excavations in the cave of Hohles Fels an almost complete aerophone made of a vulture radius came to light, which can help to understand how these instruments could have been played when not like a flute. This bone shows four intact holes and one which is broken at the distal end. The most interesting part is situated at the proximal end. The bone is slantwise cut in a very precise way at the upper side (The bottom side is broken). This part looks like the blowing end of a clarinet. Could have been some of these "flutes" reed

instruments instead of flutes like a "proto clarinet"? If so, the main question is: "which material available during the ice age could have been used to make a good reed?" The reeds of actual clarinet are made of bamboo which in this part of the world and during this time was not available. Such a material has to be elastic, not subject to lose its properties when wet and without problem available. A very good candidate is birch bark. Birch bark is very commonly used by all sub arctic population to make a lot of items like boxes, bags and also shoes. Without doubt our ancestors did know the fantastic properties of this material and could have used it to make reeds for their aerophones.

I made a reconstruction of different aerophones as reed instruments like the ones of Hohle Fels and Geißenklösterle using birch bark as reed fixed on the bone with sinew. The results are astonishing good, the sound is clear and loud and the instrument is very easy to play contrarily to the way of playing as an edge blown flute. Another vantage is that it is possible to change the pitch of the instrument by changing the size of the binding making the reed longer or shorter.

Playing Techniques of a Wind Instrument from the Geißenklösterle Cave, Swabian Jura: An Analytical Comparison of Playing Methods of GK1 with and without Reed

Anna Friederike Potengowski

The oldest material evidence for musical tradition was found in the caves of the Swabian Jura. Remains of bird bone and ivory wind instruments have been found in layers of the Aurignacian culture, 40 - 35,000 years old. None of the finds has a preserved blowing end. So the original blowing method still remains a secret and with it the assured knowledge about "stone age music". But experimental musical analysis can show us the artistic potential of these instruments. In the last few years my work focused on playing these instruments under application of different flute embouchures. This lecture will concentrate on the analysis of "GK1" a Swan radius

instrument from the Geißenklösterle cave. I will compare the musical results of two similar reconstructions under application of playing method 1 (M1) on the edge and playing method 3 (M3) with a single reed. The last words of the presentation will have music itself.

The Music(s) of the European Palaeolithic

Michael Praxmarer

I will present new approaches regarding the so called „big bang of creativity“ in Upper Palaeolithic in Europe, especially drawing on genetic and ethnographic studies. This will provide the basis to understand the archaeological record regarding symbolic thinking that is mostly connected with the arrival of Homo sapiens. If we look closer into the genomes and to contemporary concepts of music we find a very colourful picture, and a multi-cultural society which forms the basis of the flourishing arts in Upper Palaeolithic Europe.

The analyses of the musical instruments of this era – particularly the aerophones – shows the many regional differences and communalities. It is eminent that we face different diameters of the tubes in correspondence to the material in use in the specific regions.

In this presentation the research on aerophones from archaeological contexts, which was done in cooperation with archaeologists, musicologists, specialists from medical technologies and 3D-printing in the Tyrol will be presented for the first time. Three test cycles were necessary to achieve good results in material and printing technology. We achieve „functionally identical“ replicas with this method, and furthermore facilitate reconstructing the instrument as a whole.

Further analysis tries to find answer to the following questions: Are the instruments better playable as reed or labial instrument? Are they built in such a way that certain riffs or musical motives can be played straightforwardly?

Palaeolithic Bone Flutes: The Maker vs. the Player – An Experimental Analysis of ‘Playability’

Emely C. Watt (on skype)

Bone flutes have been found at many Upper Palaeolithic sites, notably at Isturitz in France, which has an abundance of the instruments, and Geißenklösterle in Germany. Despite the debate in the literature over almost every facet of the production of these flutes, nobody has yet addressed the question of who played them? Was it the person who made them, or were they made by a specialist to be passed on to someone else? Did the prolonged handling of the flutes throughout their manufacture mean that they were more suited to being played by the maker rather than by someone else? Through experimental analysis of the chaîne opératoire and subsequent playing of two bone flutes, an attempt was made to address these questions. Two flutes were made from goose (*Branta canadensis*) radii; one notched and the other unmodified. Participants with different musical backgrounds were asked to create sounds on the flutes in front of a musical tuner. Notes that were ‘hit’ were defined as both where the tuner positively registered a tone, and also where the tuner oscillated between tones. While the latter would not be classed as ‘musical’ in the modern sense, we cannot assume that what constituted ‘music’ in the past was the same as it is in the present. In understanding Palaeolithic bone flutes, it is as important to consider how we define music as it is to understand how the flutes were played and manufactured.

Reconstitution du carnyx de Tintignac

Jean Boisserie (in French with translation)

With the help of photos I will try to explain the reproduction of the Carnyx of Tintignac. At the same time, I will emphasize the importance of this discovery, which reveals a perfection of objects still unmatched to date.

Music Archaeology and Contemporary Creativity

John Kenny

In this presentation I will discuss the trials and tribulations, the joys but also the challenges, one faces in the process of attempting to create meaningful contemporary art with instruments which challenge our historical, scientific and cultural preconceptions. Where are the boundaries between scientific veracity and creative freedom – how and why do we work together? What have we really achieved – and what is the future potential of this cross disciplinary activity?

Hurrian Hymn H.6: Democratising the ‘Definitive’ Edition

Stef Conner

As exemplified by its pervasive presence on Youtube, there is a widespread hunger to engage with the so-called ‘oldest song in the world’ – ‘Hurrian Hymn’ h.6, the most complete composite cuneiform tablet in a collection of fragments excavated from the ancient city of Ugarit (approx. 1400 BC), which is indeed generally agreed to provide the earliest known example of musical notation. However, the expertise required to read the symbols on this tablet and the dense and still inescapable web of methodological problems confronting would-be interpreters of those symbols confine meaningful scholarly engagement to a small circle of highly specialized individuals and limit the possible impact of those individuals’ work outside of that circle. In this field, the discussion has reached something of a stalemate because, as this paper will argue, too much attention has been focused on the production of a definitive decipherment of the notation, even though there is a general consensus that such a decipherment cannot be achieved on the strength of the current evidence. In this paper I will introduce a new and more open, heuristic approach – a digital ‘edition’ of h.6, which presents the document not as a sequence of solutions to the problems of decipherment, but as a cluster of problems to be solved by

each individual interpreter in his or her own way. Harnessing the power of new technologies to ensure wide dissemination, this resource will be freely available to as many musicians as possible and therefore has the potential to facilitate new ethnographic insights into the subject through statistical and comparative analysis of those musicians' decisions.

Dancers in the Addaura Cave

Paola Budano

The Addaura cave is a complex of three natural grottoes located on the northeast side of Mount Pellegrino in Palermo, Sicily. It was discovered just after the Second World War, following the accidental detonation of wartime munitions stored in other caves, nearby. The importance of the complex is due to the presence of cave-wall engravings dated to the late Epigravettian and the Mesolithic. In one of the grottoes was found a vast and rich complex of carvings depicting men and animals. Amid a large group of bovines, wild horses and deer, there is a scene dominated by the presence of human figures: a group of characters, arranged in a circle, surrounding two central figures with their heads covered and their bodies strongly arched back. The most conflicting hypotheses have been put forward on the question of the identity of these two characters and the significance of their position inside the group. The humans in circle seem to dance: on the basis of their legs position and their arms position we can understand the dance choreography and we can make hypothesis about the rhythm. There are some elements that tell us about dance and about the social life like ornaments or movement direction. The Addaura cave is important because is the only case of prehistoric musical practice in Sicily and because is an example of the antiquity of a strong relation between music and rite.

Experimental Music Archaeology in the Andes: Comparative Acoustics of In-Situ Instrument Performance at Inca Huánuco Pampa

Miriam A. Kolar (on skype)

Archaeological reconstructions of musical instruments are ideally performed, experienced, and considered in culturally relevant places. Beyond humanistic engagement with instruments through experimental performance, acoustical methodologies allow music archaeologists to characterize the sonic features and sound-making potential of instruments with respect to known or estimated performance settings. Use-context dynamics influence performance practice as well as sound transmission and its reception; therefore, the experimental testing of instruments in associated settings can reveal important details of their sounding. In such research, acoustical and musicological methodologies are interdependent, blurring distinctions between the often separated fields of music archaeology and archaeoacoustics. Acoustical science can be of use in characterizing both instrument sonics and the physical ways in which performance settings influence players and listeners. In the Andes, we pioneered acoustics-based instrument and architectural interaction studies through integrative archaeoacoustics research at 3,000-year-old Chavín de Huántar, Perú. In recent fieldwork at the Inca administrative center Huánuco Pampa, we piloted a comparative methodology for acoustical field survey based on human performance of a sequence of archaeologically appropriate sound-making instruments having contrasting frequency profiles. Similar to fieldwork at Chavín, this new method demonstrates how site features influence performance practice; additionally, it enables systematic comparison of different classes of archaeologically appropriate instruments with respect to site architecture and landscape. Comparative acoustical analyses of these human-performed instrument auralizations provide physical data that corroborates and contrasts with anecdotal evidence and human intuition regarding instrument use in the ancient Andes.

The Clay Whistle from the Archaeological Site Ustie Na Drim – Struga, Macedonia: A Review of the Zoomorphic Form and Practical (Sound) Function of the Find

Dragan Dautovski

Struga is located in an open valley on Lake Ohrid. The Black Drim river starts at the lake and divides the city. "Ustie na Drim" (The mouth on the Drim river) is one of the several discovered stilt-house settlements from the Neolithic period in the area of Struga. The old name of the city is Enchalon – the ancient Hellenic word for eel, a kind of fish that lives in the 3-4 million years old Lake. The zoomorphic form and the practical function of the finding, the sound object (instrument), is directly related to the cult of Ohrid eel. At present, this cult is exceptionally identifiable and takes place in all spheres of the traditional life of people living on the Ohrid Lake shores, covering stories and myths (especially in the Neolithic period) as well as culinary specialties of eel. By using and manipulating the clay as material and the art of modeling, our distant ancestors, which were influenced by its cult relation to the eel, designed a zoomorphic practical prop (instrument) that will feature high and pervasive frequencies being heard over long distances. The clay whistle, which is practically used for sound signaling, plays almost twice louder in comparison with other similar whistles.

Didactic Aspects of Experimental Music Archaeology with Reference to the „Holunderholzflöte von Hagnau“ (Elder Flute from Hagnau, Bronze Age)

Thomas Olesch

Based on a reconstruction of the „Holunderholzflöte von Hagnau“ different hypotheses of playing as a musical instrument are discussed and illustrated by practical demonstrations with emphasis on the different techniques of blowing as flute or

other kinds of aerophones. We report our experience from a public event in the course of "ArchaeX Tage 2010" in "Pfahlbaumuseum Unteruhldingen"

Archaeology and Experimental Reconstruction: A Panpipe from an Archaic Tomb in Ardea (Rome, Italy)?

Sonia Modica & Alessandro Mazziotti

The reconstruction of the archaic soundscape in the ancient region of the ‚Latium Vetus‘, has barely begun, despite the importance of music in Latin and Roman culture evidenced by the ancient authors. This contribution regards a preliminary analysis of the sources of information for the history of the archaic music in the ‚Latium Vetus‘ with examples with direct finds, iconography and text sources. Some handcrafts, discovered by the Swedish researcher Arvid Andrén, who investigated a protohistoric village on the Ardea’s Acropolis, give us the opportunity to reconstruct a Pan pipe made out of bone, with a bone mouthpiece. A brief discussion on the available documentation and on how to use the multi-pipe wind instrument, especially in archaic times, will be followed by showing a set of several types of reconstructions. If diverse sources of evidence can be combined with the ethnographic record, then it is possible to reconstruct a pattern. The evidence suggests that archaeologists may not be identifying fragments of instruments in their excavations and the combination of ethnography and other types of sources allows us to explore a much wider range of rich cultural history than usually recognised.

Sicilian Bossed Bone Bullroarers

Paola Budano

Ancient Bronze Age in Sicily is characterized by unusual bone objects known as "Bossed bone plaques". We found them in burials or in domestic contexts and not only in Sicily. Other similar examples come from Apulia, Malta, Lerna in Greece and Troy but in Sicily we have the greatest number of bossed bone plaques that show a peculiar decoration, different from the others. In Sicily were found 22 specimens whereas in the other sites only Troy stand out with 4 bossed bones. Up to 16 cm long, though mostly incomplete, they present a row of bosses that were sometimes well polished and finely incised with alternating circular, volute, stellar and geometric motifs, flanked by reticulation. Some archaeologists think they are amulets or prestige objects, proof of commercial relationship with people operating in the Mediterranean Sea. After the comparison with well-known prehistoric bullroarers is possible a new hypothesis for the Sicilian bossed bone plaques: they could be the Sicilian version of the European and non-European bullroarers. An experimental study including reproduction of the whole specimen from Castelluccio and study of frequencies given off, could show the real possibility of a musical use of the Sicilian bossed bone plaques as bullroarers.

A Roar from the Past: Bullroarer and Buzzer Finds from the Berlin and Brandenburg Region

Johanna Sorsakivi

Found in Berlin and Brandenburg, eleven possible sound tools dating from the Neolithic to the Middle Ages have been examined. Four of them are classified as bullroarers, six as buzzers and one as a special type. To find out whether this interpretation is correct, one of each type and one additional bullroarer were selected for experimental use and replicated using bone and wood. Three of the replicas produced a distinct sound. We can conclude that eight of the eleven objects examined are indeed sound tools. This highlights the widespread use

of bullroarers and buzzers as sound tools throughout (pre) history in northeast Germany.

Jew’s-harp in Modern Russia: A Way to Reconstruction

Vladimir Lisovoi & Angelina Alpatova

Jew’s-harp is one of the oldest instruments in the world, many of its varieties became an integral part of traditional music, mass culture. In Russia Jew’s-harp’s (vargan’s) festivals have been held since 1991. The instrument is used in amateur music, usually young, middle-aged and older people have personal ones. In 1960-1980s special interest in vargan was part of interest in world and national ethnic music, especially traditions of Siberian and Far Eastern peoples. Famous Yakut master S.I. Gogolev made more than 2,000 khomuses. His experience was adopted by V.P. Potkin (Mountain Altai), who in 1993 changed manufacturing technology (mountain-altaic komuses could be adjusted). By 2000-s Jew’s-harp was not only a cult (Siberian, Far Eastern shamanism) and everyday (mountain-altaic women’s home music) but a concert instrument. In 1985 folklorists discovered a unique tradition of wooden kubyz in Volga region (Mrs. Kafia-abi, Duvan-Mechetlino, Bashkortostan).

For a long time Jew’s-harp was known as an archaeological museum artifact (zubanka in Tver, Pskov, Veliky Novgorod regions). Copper and iron Jew’s-harps from Mangazeya city (Northern Siberia, XVII century) were excavated in 2001-2004. Iron Jew’s-harp from Veliky Novgorod (XIV century, excavations were in 2014) and ancient bone Jew’s-harp (Mountain Altai, 2017) were added to the collections. Their experimental reconstruction was the main aim of modern masters. In 2017 Internet Forum «Russian Vargan» were held (organizers were musician, master V. Markov, his pupils and followers). It included both competition of masters of experimental reconstruction of vargans of X-XVII centuries and experimental playing.

The Freiberg Violin: New Insights into Renaissance Violins North of the Alps

Thilo Viehrig

In the late 1970s the musical instrument restorer Peter Liersch and the musicologist Herbert Heyde made a sensational discovery. The 30 instruments in the hands of angels standing in a gallery 12 meters above the floor of the burial chapel in the Freiberg Cathedral not only look real but are actual late 16th century instruments, some of them with labels from a workshop in Randeck, south of Freiberg, Germany. Not until the year 2002 was it possible to take the instruments from the hands, which had held them for 400 years. Under the direction of Dr. Veit Heller, the Musical Instrument Museum of the University in Leipzig, Germany initiated a project to examine the instruments using all possible modern scientific means and to make exact reconstructions using only the methods possible at the time they were originally built. As part of this project, I examined and built reconstructions of the violins and harps. The original violins were built by a family of professional musical instrument builders, yet they appear to be simple musical instruments that would have been played by folk or itinerant musicians. They were placed in the hands of angels in the extravagant burial chapel of the princes of Saxony. Here is a unique example of the interrelations between traditional music, professional instrument builders and religious art. The Freiberg violins are the only extant examples of violins built north of the Alps from this period and are completely different in sound and construction from the Italian violins, which superseded them in the early 17th century. This leads to serious ramifications for performance practice of pre-17th century music north of the Alps. Reconstructions of the Freiberg harp and violin built by me will be demonstrated.

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40.000 Jahre Musikgeschichte Europas
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18. Januar –
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