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Abstracts

Friday October 4th 2013

Introduction

Jeroen Flamman,

The History of Experimental Archaeology in German Speaking Countries: a bird's-eye view

Experimental archaeology in the German-speaking countries has a long history. It can be classified in the history of the building of reconstructions and archaeological open-air museums and the performance of experiments. The first reconstructions and experiments date already from the 19th century. Very less are added during the first half of the 20th century. In the 1970's the attention is focussed on the scientific and technological research within archaeology. As a result of this also experimental archaeology gets more attention. Several archaeologists consider experimental archaeology as a valuable supplement on the existing research methods. Beside the scientific research there is also more attention to the public presentation of archaeological results, where also experimental archaeology plays an important and new role.

From 1980s an 'explosion' of archaeological reconstructions arises and even complete open-air museums dedicated to the reconstructed past are founded. This development continues in the following years. Particularly in Germany the more and more reconstructions are built as a result of local excavations. These initiatives originate from local findings but also continue in their local nature.

The scientific side of the experimental archaeology in both studies and also to universities stays behind during the last years in comparison with the public developments. At the end of the 1980s the "Landesmuseum für Natur und Mensch" in Oldenburg (Germany) organised a large exhibition concerning the "Experimental Archaeology in Germany". This exhibition travelled around over 15 years in Germany and her surrounding countries and reached over 500,000 visitors. In combination with this exhibition arose the annual congress of a working group concerning experimental archaeology. Both the individual experimental archaeologists and the colleagues of archaeological open-air museums joined their knowledge during these conferences and in annual publications. Since 2002 the German initiative has been internationalised to a European association: EXAR Association for the advancement of archaeology by experiment.

During the presentation an overview is given of the development of the experimental archaeology and the building of archaeological reconstructions and archaeological open-air museums in the German-speaking countries (Germany-Switzerland-Austria). It will demonstrate the unequal development of archaeological open-air museums versus experimental archaeology as a research method.

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Experiments, Attempts and Reconstructing Archaeology

Wolfgang Lobisser

Experimental archaeological questions concerning the rebuilding of an early Neolithic house model using remains of early Neolithic tools made of stone, bone and wood in the museum for prehistory in Asparn an der Zaya in Lower Austria

In 2012 the working group for experimental archaeology of VIAS - Vienna Institute for Archaeological Science – which is an interdisciplinary department of the University of Vienna was invited to rebuild a new early Neolithic house model in the museum for prehistory in Asparn an der Zaya in Lower Austria. The practical works on site were carried out in 2012 and 2013 following archaeological data from Schwechat near Vienna. The ground plan was well preserved and showed a length of 28,5 m and a width of 5,8 m. In some post holes rests of vertical construction elements were still recognized and prove that round logs have been used to erect this building more than 7000 years ago. Preparing the practical reconstruction works we did a lot of theoretical research concerning early Neolithic wood

working. From Neolithic settlements and graves grinded stone blades as well as bone implements have been recorded that might have been used to shape wood in all probability. Known rests of construction woods of this age stem without exception from well findings and show us an extraordinary high level of wood technology. On the basis of available archaeological data we created a house model with ground posts, purlins, rafters and lath woods that was arguable concerning the positions of the dug posts. Building up the house model we were able to carry out some practical archaeological experiments using remakes of early Neolithic tools made of stone, bone and wood. We suppose that we also found a kind of a destined module measurement that was used in Neolithic times. Using this measurement we managed to create the ground plan of the house on the ground of the building site corresponding to archaeological data.

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Bente Philippsen

Sherds in slices: X-ray and neutron tomography of experimental and archaeological pottery

Ceramic sherds contain valuable information about chronology, nutrition and cuisine of prehistoric cultures, and can be used to reconstruct life and economy of our ancestors. Scientific methods can obtain many of this information from the pottery. Radiocarbon dating can determine the time of production or use of the pottery.

Often, archaeological sherds have to be crushed to obtain material for radiocarbon dating and other analyses. This is the case when dating organic temper, or analysing the lipids which the clay absorbed during food preparation. The desired sample material may often not be present in the sherd in sufficient amounts, though. In those cases, the sherd was crushed in vain.

The aim of our study is therefore to determine the presence of datable material, fat, etc., in a sherd without destroying it. X-rays can only show the mineral parts of the sherd. Neutrons, however, can show organic compounds, while the rest of the sherd is "invisible" for the neutrons. During a tomography, the object is being analysed "slice by slice". Finally, 3D-illustrations can be rendered. In this talk, I will present a pilot study, which explores the potential of neutron tomography on ceramic sherds. Reference material was obtained from experiments on pottery production and use, which I have presented at earlier EXAR conferences.

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Anja Probst

“Knochenjob” – use-wear analysis of bone tools from the Late Neolithic

Generally bone-, antler- and tooth tools are analyzed only typologically. Using such type of methods they are named like “chisel”, “awl” and “scraper”. These names are only given due to the shape of the artifacts without taking real or intended functions of the tool into account. Experimental archaeological analysis have shown that there are clear signs in the use-wears of bone tools potentially providing evidence of prospective use of the bone tool and of processed materials. The aim of my dissertation is to fill that missing link between the conventional method of descriptive typology and the experimental archaeological analysis. Therefore the results of the comparison between the use-wear of replicated and used bone tools and the use-wears on the bone artifacts are systematically evaluated and compared, aiming for a more objective classification of the artifacts and their function. Via such analyses the current predominately descriptive typology of the bone tools will be optimized to a more objective technological-morphological classification. Previous comparisons between the use-wear of the reproduced bone tools from wood, leather, pottery and bark and the use-wear of the artifacts have shown that it is possible to specify the use-wears of an artifact and along with that the function of it. Although it may be bound to specific conditions like preservation and polish of the artifact. Furthermore

the experiments indicate that the detailed evaluation of the use-wear clearly depends on the handling of the tool. Incidentally the experiments yield new interpretations concerning gathering activities and the workmanship of the raw materials, which is either needed for the bone tool itself (e. g. binders) or the production of other everyday life objects (e. g. baskets, strings, etc.). The combination of applied natural science and humanities opens new possibilities for a successful functional analysis of bone-, antler- and tooth artifacts. Through that it is incidental to new interpretation opportunities of the living of the people, the evolution of craftsmanship and the craftsmanship in general.

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Stoyan Bonev, Tsvetanka Boneva

3D Reconstruction and Digital Visualization of the South of the Royal Palace in Great Preslav

The report presents the film "10th century. The South of the Royal Palace in Great Preslav". It consists of two parts "10th century. The Royal Palace in Great Preslav. The Square with the Pinnacle" and "The Ruler's Lodgings". 3D and virtual reconstructions of an architectural ensemble – part of the Preslav Royal Court unearthed during archaeological researches are used in the film. 3D documentaries have already gained popularity around the world and are well received by both scholars and the public at large.

One of the distinguished tourist destinations in Bulgaria is Great Preslav – capital of the mediaeval Bulgarian state and a significant cultural center of the European Southeast in 9th-10th centuries, too.

The first part of the film is created with the financial support of America for Bulgaria Foundation and the second with the funding of Bulgarian National Science Fund at the Ministry of Education, Youth and Science. A team of almost 20 members worked on the film, including computer specialists, professional actors, translators in the four main European languages English, German, French and Russian, and Trima Sound Recording Studio.

In the first part of the 3D film are shown a segment of the Great Palace, the square with the water pinnacle and the adjacent buildings – an important structural element of the town-planning of the Ruler's residence in the 10th century.

In the second part the accent is the southwestern part of the Royal Palace in Great Preslav, where the personal residence and the office of the Preslav ruler's dynasty are situated.

The work on the virtual reconstruction was done by Virtual Archaeology club at the Mathematical School, Shumen. Due to the efforts of its members it is now clear how the south of the Royal Palace in Great Preslav looked like.

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Michael Konrad

Reconstruction of a work environment – new insights in casting series of the late Bronze Age

During the work on a late Bronze Age casting shop appeared several questions about the assembling or the amount of place used for the oven inside the shop. As well it was an interesting question about the use of space and the possible arrangement of tools for the different steps during the casting process in such a little room. To gain some knowledge to this matter I made a small serial production for casting in lost wax forms.

The almost 50 casts were divided into smaller bunches for detailed questions on different possibilities for building up a form or use of different sorts of clay.

With this work I could reassure some results of the experiments from other people/groups as well as define the most interesting measurable parameters for my casting experiment. During my presentation I would give a preliminary-report on these matters. The metallurgical analysis can't be made in time for the presentation, so they will be presented later.

The reconstruction of the oven is mostly based on findings around Salzburg (see M. Hell). The aim was to reconstruct a shop for very different types of use in the matter of bronze casting and forging, as well as for some work on smelting the ore. I couldn't make my experiment with the original reconstruction because it was done before the final building to present the results in the reconstruction build for the museum.

I think with this casting series are given some interesting answers to the matter of organizing the late Bronze age casting.

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Stoychev Ruslan, Petia Penkova, Margarita Grozeva

Practical Challenges of smelting Gold from the Thracian Mine at Ada Tepe, Southeast Bulgaria: Preliminary research and experimental reconstructions

The main objective of this paper is to explain the results of an experimental smelting of gold concentrate extracted from the ore body of the Late Bronze / Early Iron Age mine at Ada Tepe in Southeast Bulgaria that has been excavated in recent years.

Ancient sources like Diodorus, Pliny and Agricola were used for the reconstruction of smelting methods, tools and techniques, as well as scenes on Greek red-figure vases and Hellenistic frescoes in Egyptian tombs.

This paper will give detailed information about all preliminary stages of the experiment starting with the making of necessary tools and equipment: crucibles, snouts, and a thermal installation. Attention is paid to the physics of this process. The element composition of the experimentally smelted gold has been compared to material from a Late Bronze Age feature in one of the excavated areas at Ada Tepe.

All results of the chemical analyses of Late Bronze Age gold, experimentally smelted gold, a biconical gold bead, found at the Ada Tepe, etc., will be shown in comparative tables.

Some key issues of experimental archeology will be discussed: research on and reconstruction of ancient miners' and metallurgists' knowledge and technologies.

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The use of firesetting for ore extraction from gold-bearing quartz veins in the Late Bronze Age mine at Ada Tepe, South Bulgaria

Khan Krum gold deposit (*epithermal to low-sulfide (adularia-sericite) type gold deposit*) is located on Ada Tepe hill near present-day Krumovgrad in the Eastern Rhodope Mountains, South Bulgaria. In the last few years, after a mining concession was granted to the international concern *Dundee Precious Metals*, large-scale rescue archaeological investigations were undertaken at Ada Tepe. It was established that the deposit was mined in the second half of the 2nd millennium BC and that in the same time parts of the hill were inhabited.

Along with field work in 2011 and 2012, the archaeological team organized an experimental sideline of the research project that was carried out in several successive stages. The main tasks were to obtain more information about the different technological stages and to verify the large amount of data that was accumulated in the course of the conventional archaeological work and the interdisciplinary studies. The goal was to create a plausible reconstruction of the *chaîne opératoire* of the prehistoric gold mining at Ada Tepe.

One of the major problems that were examined in the course of the archaeological experiment was the use of fire for working the gold-bearing quartz veins. During excavations, it was established that much of rock debris in the numerous ancient waste dumps are of altered colour. The sedimentary rock assemblage (*breccia, breccia-conglomerates, and sandstones*) in the upper part of Ada Tepe is normally light yellow or yellowish-brown. The rock debris in the waste dumps was often of darker, red or reddish-brown colour. The latter cannot be related to weathering processes.

In the autumn of 2011, for the purposes of the archaeological experiment, ore was extracted from a preselected rich gold-bearing quartz vein. The field work was organized in several stages: 1. Exposing the vein by means of replicas of ancient wooden and stone tools; 2. Sustained heating of the vein by fire at a temperature of over 500°C; 3. Cooling; 4. Extraction; 5. Selecting rich ore material for the successive technological stages.

After the firesetting, the changes in the state of the sedimentary rock were observed. The samples were compared to materials from actual Late Bronze Age waste dumps. Important information was obtained regarding the changes in the sedimentary rocks during the mining. During the oxidation-reduction processes, the iron components in the sediments alter. The Fe²⁺-Phases (*limonite*) convert to Fe³⁺-form.

The phase transformation in the rock waste at Ada Tepe is directly related to ancient human activities there. The attested colour alterations provide important indications about the use of fire for ore extraction.

Some interdisciplinary methods were also applied for further elucidation of the changes that occur in the sedimentary rocks in result of high temperatures. Thermochemical methods were of particular importance for this part of the study. Important regularities were established by means of DTA-TG-analyses (*Differentialthermale Analysen*) for the correlation of the actual rock waste with the obtained during the experiment.

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Georg Rösel

Cooking with Hallstatt pottery

As part of the project "Prunkwagen und Hirsebrei" it was possible to perform long-term tests in ceramic cooking pots. For the third time two weeks each food was cooked in ceramic replicas from the Iron Age cemetery Mitterkirchen/Austria for a 11-member group at a fireplace. These cooking experiments were conducted in the summers of 2011, 2012 and 2013. Stews and soups with legumes, grains and vegetables were cooked. The presentation comprises the handling of the pots, the entire workflow and duration of the preparation up to the washing and the occurring use and wear marks on the replicas.

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Helga Rösel-Mautendorfer

Possibilities in the reconstruction of Iron Age woman dress using two or three fibulas

The basis for reconstructions of prehistoric garments are finds of clothes, the position of the jewelry (like pins, fibulas, belt plates and buckles) in graves, pictures of clothed people, and, if available, written sources. For the Iron Age female dress often a peplos, a tube dress fixed with fibulas on the shoulders, is reconstructed, based on the find of Huldremose (a tubular textile object) and the occurrence of paired brooches at the shoulders. On Iron Age figures, however, there are no concrete

representations of this type of clothing and the ancient authors just describe trousers, shirts, jacket-like robes and cloaks and give information about the fabric designs. The use of fibulas in conjunction with other types of clothing or headgear has rarely been discussed. Also in the presence of three fibulas in a zone from the shoulders to the chest often the peplos is the assumed type of clothing. In this presentation alternative garments for the Iron Age will be discussed, which can be fixed by two or three brooches on the body.

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Thomas Flügen, Thomas Lessig-Weller

The archer's equipment of the Celtic prince of the Glauberg: a new interpretation

Based on a new examination of the components interpreted as archer's equipment in the burial of the prince of the Glauberg recovered in 1994 a new option of interpretation is introduced. Against a former interpretation as model or a child's bow the decorated wooden object nearby the quiver could be well taken as a functional hunting weapon. After introducing and interpreting the features in a new manner, the way of reconstruction using indicators is presented. The new cultural and historical evaluation of the archer's equipment reveals a significant influence by ancient world, as seen in a lot of examples dated to early Latène-period.

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Hannes Lehar

Solving problems with reconstructing ancient technology through modern techno-logy? A visit in Carnuntum (10. November 2013)

From February to November 2011 the reconstructed thermae in Carnuntum have been heated. Because I had examined the at that time only planed thermae for my research project about the Roman Hypokaust Heating System, I was interested in their practical function and whether problems with earlier constructions had been avoided this time. These are only my personal impressions.

Dr. A. Konecny showed me the site and told me about experiences when heating. I spoke with the stokers and measured temperatures. Important were room temperatures, their distribution in the room, the consequences of the temperature induced expansion of the Suspensura, the impermeability of the floor and whether sooting of the flues had been avoided this time.

Due to time restraints the lecture focuses only on the expansion of the Suspensura and its consequences: terrazzo-like material was installed, cracks with height offset as well as traces of soot, thus leaks, were detectable. This is common with reconstructed Hypokaust Heating Systems and arises from the expansion of the Suspensura during its warming for which (similar to roman original findings) there is no room.

This time it was attempted – to no avail – to prevent cracks with modern methods. These methods are not verifiable for the roman times, the necessary materials didn't exist then.

Guide were obviously the stipulations of ÖNORM B 2242 about the execution of heated floor screeds of modern floor heating. However modern floor heating and Roman Hypokaust Heating Systems are completely different.

It was well intentioned but, as shown in the lecture, did not have the desired success. Even if it had worked in this individual case, it would not have general validity because the Romans did not know this technics. How they did actually handle this problem is unexplained to this day.

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Experiments, Attempts and Reconstructive Archaeology

Rüdiger Schwarz

Roman brick production at the Saalburg tested in the field

The archaeological evidence at the Saalburg Roman Fort clearly indicates brick production carried out by the military unit deployed here, the second Raetian cohort. In addition to different types of the unit's brick stamps even a brick kiln near the fort is known, which was discovered during road construction work and excavated in 1908.

Based on the sparse documentation of this early excavation and comparable archaeological features from other places a brick kiln with a wooden roof was (re)constructed in spring 2012 and erected in the archaeological park adjacent to the original find spot. On several occasions during the summer clay was prepared and bricks produced together with the museum visitors. On a weekend in autumn the burning of the bricks took place as a public event with many visitors present and involved in the work. So the whole process of Roman brick production was made come alive within one year.

The arrangement was primarily meant as an educational project using the methods of archaeological reconstruction and ancient production methods. This approach offers specific opportunities but does necessarily have certain limitations and requires a number of compromises.

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L. Jacobi, Saalburg. Homburg vor der Höhe 1897. Saalburg-Jahrbuch 6, 1927.

Rüdiger Schwarz, Römerkastell Saalburg Archäologischer Park, Bad Homburg, Deutschland, schwarz.r (at) saalburgmuseum.de

Alexandra und Tobias Schubert

Functional thoughts on women's clothing in the Merovingian period

Though not laid out as a classical experiment, this lecture will deal with the reconstruction of women's clothes in the Merovingian period focusing on practical aspects. More recent research is showing clearly, that brooches are not only a decorative functional accessory. Keeping in mind clothes have to be suitable for everyday use existing reconstructions should be refined.

Literature:

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Alexandra und Tobias Schubert, Köln, Deutschland, alex.richt (at) gmx.de und Tschubert (at) gmx.de

Hans Reschreiter, Felix Köstelbauer, Gerald Raab, Christian Seisenbacher, Christopher Vadeanu
Ventilation, Winding and Lighting- Investigating the Prehistoric Hallstatt Saltmines with Experimental Archaeology

Already at the first targeted excavation in the salt mine of Hallstatt in 1846, the excellent preservation of found objects from prehistoric organic material fell on. Investigations of the Prehistoric Department of the Natural History Museum since 1960 brought hundreds of pimple stems, some shoes, caps and carrying bags and hundreds of textile fragments, cords and ropes of bast, wood vessels and light chips, human excrement, broken pimple tips, unusual pig bones ensembles and much more to light.

The majority of the finds and findings from the Hallstatt Salt Mine have survived the millennia, only in this environment. Many finds have no comparison to other excavations and consequently difficult to make models about functionality and use thereof.

To overcome this unsatisfactory situation, Fritz Eckart Barth elected already in the 60s, the method of experimental archeology. The first degradation experiments were done by copies of mining tools followed by patterns for shoes, goats bag replicas and the reconstruction of the diet of Hallstatt miners as well as studies on Bronze Age ham production. The bandwidth of the trials was constantly expanding and will be held today by the presence of two workshops in the excavation quarters of Hallstatt appropriate conditions. In addition, the replica tools are also used in the context of public events.

Ventilation: One of the most important questions from the research in Hallstatt is how to get fresh air into the mine. This so called ventilation could not be answered till now, especially because of the unknown knowledge of the dimension of the shafts and the mine galleries. With a model of the Bronze Age mine, should give more precise answer to this question.

Winding and Conveying: We don't know much about the process of the transport in the huge shafts of the Bronze Age mines. The finding of a 4 cm thick rope of lime bast in the Christian von Tuschwerk, with a break strength in excess of one tonne is the only proof for transportation. Because of the winch of the Bronze age copper mine from Mitterberg, Salzburg, there's a possibility that this technology is also known in Hallstatt. With experiments with a reconstructed winch we gained first experiences.

Typology and quantification of burning traces of tapers from the Bronze Age and Hallstatt Period: Since the Neolithic, tapers were most likely used for lightning methods. Tapers are thin wooden strips made out of pine. Although in Hallstatt, inside the so called Heidengebirge, the garbage of the prehistoric miners, we mainly find tapers made out of hardly inflammable fir wood. In addition these tapers are always found in single pieces and never connected to each other. One method to answer the questions in regards of the proper usage of these tapers is to look at the burning traces.

Burningtests with tapers – coaling the shape: Inside fir wood there is no resin integrated, so the burning process of tapers is not so stabil and good. But 95% of original founds are out of fir. There were tests with gaschromatographs and also archaeological experiments. But there was nothing on the shape of the tapers (like oil, fat, resin,...)

By coincidence I recognized, if you burn only the shapes of tapers the flame is more stable as like it is when you do nothing with the tampers. In this talk lecture I present the first results of the experiments.

Literature:

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H. Reschreiter, R. Totschnig, M. Grabner, Timber! – Bäume fällen in der Bronzezeit. Archäologie Österreichs, 21/1, 2010, 32-34.

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C. Vadeanu, Bewetterung in prähistorischen Bergwerken. Bachelorarbeit Universität Wien, 2012.

Johann Reschreiter, Krems, Österreich, hans.reschreiter (at) NHM-Wien.ac.at

Gunter Schöbel

Experimental Archaeology and the Dialogue with the visitors

Thomas Lessig-Weller

Among fact and fiction – reflections on reconstructional archaeology

The content of the lecture approaches in a first part the substance of reconstructional archaeology. RA pursues the goal to reconstruct objects and processes in a plausible manner based on archaeological features. An attempt to determine the term is based on several analysed reconstruction projects. The second part of the lecture examines the great signification of reconstructional archaeology in education. Hereby the problem is exposed that reconstructions may be interpreted as bygone reality. As basis for discussion a procedure to reconstruct archaeological features is suggested. In this context transparency and plausibility in realization is pointed out as a real challenge. At the ending of the lecture some possibilities to realize verbalized demands are introduced.

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C. Merthen, Gut angezogen? Wesentliche Punkte zur Rekonstruktion jungpaläolithischer Kleidung. Experimentelle Archäologie in Europa 11, Bilanz 2012, 210-225.

K. Schäppi, Messerscharf analysiert – Technologische Untersuchungen zur Herstellung spätbronzezeitlicher Messer. Experimentelle Archäologie 11, Bilanz 2012, 100-111.

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Fabian Brenker

Living History and Science. Some thoughts about their respective methods, their limitation and chances for complementing each other

In literature Living History and Reenactment are treated as methods of mediation. The fact that actors are doing wide-range research has not been mentioned and led frequently to tensions between professional scientists and amateurs. The presentation tries to point out the motivation and methods used by actors compared to those of the scholars. It specially focuses on how questions arise. It also shows and discusses possible chances and problems of the respective approach. With regard to the respective facilities it should be possible to work in profitable cooperation and tide over reservations. The presentation should be an impulse to an eligible discussion.

Literature:

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U. Brand-Schwarz, „Living History“ als Beitrag zur musealen Vermittlung – Möglichkeiten, Grenzen und Risiken. Experimentelle Archäologie in Europa, Bilanz 2010, 23-26.

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Fabian Brenker, Kernen, Deutschland, fabian.brenker (at) gmx.de

Cyril Dworsky

Places, People, Patrimony – The significance of open-air museums in an identification process with the UNESCO World Heritage Pile Dwellings

In the attempt of a "visualization" of an outwardly invisible archaeological World Heritage experimental archeology provides important basics for the communication of history. Arising from this activities "archäotechnische" workshops and other offers facilitate an intensive participation in history. Museum villages as venues provide – increasingly also as places for living history – an adequate environment to further deepen this adventure. In the immediate experience of the visitors open-air museums increase the appearance of authenticity and facilitate the understanding of life images. However, to enable a holistic perspective on the idea of world heritage and in favor of a contemporary interpretation of cultural heritage, further aspects of the reconstruction of history must be included. A European, or even global dimension of cultural heritage, but also a long-term identification of local residents with the world heritage sites includes current issues (e. g. migration, Lifelong Learning). Proposals are to be made in this paper for discussion.

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Ch. Young, A. Chadburn, I. Bedu (English Heritage), Stonehenge World Heritage Management Plan 2009. (2009)

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Sylvia Crumbach

By loom to prehistoric times! Textile research and reconstruction of textile techniques in the 1st half of the 20th century with a preview on the impact, taking tablet weaving as an example

Visitors of open-air museums are especially haunted by tablet weaving across all eras of human history – perhaps only surpassed by the felting of little woolen balls as entertainment for children. Frequently, modern patterns as the so-called "ram's horn" originating from the Anatolian highlands are presented. The purpose of this lecture is to illustrate the way from reconstruction of this technique, via the publication of archeological finds up to the demonstration within the frame of public relations.

In 1901 the publication "Über Brettchenweberei" (author: M. Lehmann-Filhés) was issued, contemporarily referred to as "special work" on this textile technique. The author describes the reconstruction of the technique by means of ethnographic methods. This publication serves as basis for textile-related oeuvres that shall be presented in this lecture. It does not only deal with incorporation into the interpretation context but also with adjustment of the practical constructions to the underlying questions.

In the context of public relations of pre- and early history the practical constructions illustrate the archeological finds and transport the paradigm of "advanced civilization". This shall be demonstrated using the example of K. Schlabow's oeuvre which is also mentioned in the two publications examined. It shall be tried to create a connection to the presentations of today's museum public relations via the technique itself: illustration of a textile technique constructed by means of ethnographic studies and archeological finds with a sample catalogue from the early 20th century.

Primary literature:

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Claudia Merthen

From Thread to Clothing. Some Notes on Mediation of Archaeological Textiles

Textiles are a special kind of archaeological artifacts. In dry or wet places as well as in contact with metal objects they can be preserved. Being usually small and discoloured fragments they are not so spectacular to see for visitors in exhibitions, and it seems to be not possible to outline a drawing of the past with them. But sometimes we have a lot of possibilities to present our knowledge about textile remains, especially in combination with archaeological objects like parts of the clothing or weapons. We can set several focuses to emphasize different aspects of textile finds – not only concerning their presentation in exhibitions but also for a general approach.

The paper intends to prompt to include archaeological textiles in Archaeological Education, and it was prepared due to enquiries and discussions on the last conference of Exar at Brugg-Windisch, Switzerland, in 2012.

Literature:

A. Seiler-Baldinger, Systematik der textilen Techniken. Basel 1991.

K. Grömer, R. Hofmann-de Keijzer, H. Rösel-Mautendorfer, Prähistorische Textilkunst in Mitteleuropa: Geschichte des Handwerkes und der Kleidung vor den Römern. Wien 2010.

J. Banck-Burgess, Mittel der Macht. Textilien der Kelten: Instruments of Power. Celtic Textiles. Stuttgart 2012.

M. Gleba, Textiles and Textile Production in Europe. Oxford 2012.

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Poster

Simone Melato, Elisa Lerco, Manuel Grobberio

A study case in Italy: From a Scientific Dig to an Educational Approach

This poster wants to present an experience of archaeological dig in Italy (Nogara near Verona), seen through the results of experimental archaeology and through the parallel with Haithabu reconstruction. The dig results have been in recent years presented to a young audience, in an educational project in which the experimental archaeology results have had ample space. We also want to present in preview a project of "experimental landscape archaeology" that wants to recover a residual edge of the medieval Padana marsh. In it the reconstruction of a medieval house of IX century will take place to understand the relationship between man and environment.

Literature:

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Elisa Lerco, Università di Verona, Italy, elisa.lerco (at) gmail.com

Carlo Dietl, Astrid Röpke

The vitrified fort of Bernstorf (Bavaria, Germany) – Experiments of different burning conditions

The burnt Bernstorf fortification (Bernstorf, Germany) from the Middle Bronze Age is one of numerous "vitrified forts" (Kersten 1998) in Europe. Vitrified forts were either burned by purpose from the builders, by accident or due to warfare. We have studied the burning conditions and thermal zone of the fortification and carried out experiments with original, unburned loam from the Bernstorf site at 1000° (oxygen atmosphere, 24 h heating), 1200° (oxygen atmosphere, 24 h heating) and 1400°C (oxygen atmosphere, 3 h heating). Thin sections were studied with a polarizing microscope with magnifications ranging from 25 to 400. Additionally, all samples were investigated for their mineral content by x-ray diffraction (XRD) and their chemical composition (scanning electron microscopy and related energy dispersive x-ray analysis plus magnetic susceptibility analyses).

Literature:

P. Kersten, Analyse des Schlackenwalls von Bernstorf, Bayern (GERO 15), Projekt „Vitrified Hill-Forts“. GAL Forschungsbericht RO03-19, 1998.

H. Unger: Durch Brandeinwirkung veränderte Lockersedimente des bronzezeitlichen Walls bei Bernstorf. Documenta naturae 134, 2001, 11-39.

Carlo Dietl, Astrid Röpke

The vitrified Bronze Age fortification of Bernstorf (Bavaria, Germany) – an integrated geoarchaeological approach

“Vitrified forts” are phenomenons which appear throughout Europe during prehistoric times. The vitrified Bronze Age fortification of Bernstorf is one of the largest north of the Alps. The possible importance of the Bernstorf site is exemplified by gold and amber finding, which may imply that it was part of an important trading route connecting the Baltic Sea with the Mediterranean. The burned wall is an invaluable example for studying burning temperatures, because it displays a temperature zoning with various heating features. This zoning of structurally altered sediments are recognizable in thin section and suitable for the development of micromorphological criteria to identify burning processes such as reddening, vitrification and melting. Information which can be used to reconstruct past human fire activities. We base and reassure our results on semiquantitative mineral analytical methods namely XRD, EDS and magnetic susceptibility. Moreover, we compare our results with those of Kersten (1998), whose samples stem from a different part of the wall. Based on all these data we get a broader picture of the burning conditions and are able to relate micromorphological burning features to temperature regimes

Literature:

P. Kersten, Analyse des Schlackenwalls von Bernstorf, Bayern (GERO 15), Projekt „Vitrified Hill-Forts“. GAL Forschungsbericht RO03-19, 1998.

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Carlo Dietl, Gesteinslabor Dr. Eberhard Jahns, Heiligenstadt, Deutschland.

Claus-Stephan Holdermann, Frank Trommer

“Gezähe“ from the mining district at the Schneeberg/Moos in the Passeier Valley/South Tyrol – Aspects of the production of mining tools at the transition from the Middle Ages to the early modern era

The SOUTH TYROLEAN MINING MUSEUM (<http://www.bergbaumuseum.it>) has been carrying out archaeological research into the Schneeberg mining complex around Moos in the Passeier valley since 2009. The mining district, which is situated between the Passeier and Ridnaun valleys, is not only one of the oldest and longest-running districts of the Tyrol, but can also be counted among the most spacious of its kind and boasts the most extensive tunnel system of South Tyrol. In the course of these investigations an old forge, the so called "Alte Schmiede im Himmelreich" (15th century-16th century), was examined in 2012 and 2013. Against the background of the archaeological findings, several questions around the tool manufacturing in this early phase of capitalistic mining were formulated. The poster outlines the archaeological findings of the small mining-forge and deals with aspects of manufacturing “Bergeisen”, the main tool of the manual mining in those days.

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