MICHAEL HERDICK

PROTAGONISTS AND LOCALISATIONS OF AUTHENTICITY IN MUSEUMS: A CASE STUDY OF THE EXPERIMENTAL ARCHAEOLOGY OF THE MAYEN POTTERY

In thinking about how the potential for learning offered by archaeology and its allure can be presented in the setting of a museum, ceramics are hardly the first thing that spring to mind. The pottery products of many cultures and eras appear to be too unsightly and unspectacular to be used as exhibits. However, their value as sources for archaeology and, by extension, their historical authenticity is undisputed. They are presented, for instance, as markers of economic exchange or in the context of their archaeological discovery, for example as burial objects. When presenting more exquisitely designed and colourful types of goods, it is their aesthetic impact that is emphasised (**fig. 1**). The materiality of the types of goods in question and their historical relevance, which is connected by the particularities of their production[1], by their specific functionality and by their integration in social practices[2], appears as a rule to be just as secondary in museum presentations as the associated research methodology and the influence of taphonomic processes[3] on their survival.

In this way, the opening up, preservation and conservation of the material culture and its contextualisation as a fundamental social accomplishment of a museum remains in the background. As a result, an opportunity to legitimate the demand for scarce resources, which is connected with this task, is squandered. The self-presentation as a guardian of historically authentic objects is no substitute for this.

The squandered opportunity is all the more remarkable when one keeps in mind the potential and the recent developments in the research of archaeological materials in areas such as experimental archaeology, archaeometry and restoration.

In recent decades, there have been several advances in science and technology studies[4], with fundamental works being written on the production of knowledge in the natural sciences from a sociological perspective. Names such as Bruno Latour, Steve Woolgar or Karin Knorr-Cetina are representative of this[5]. For

Fig. 1 **a-b** Traditional pottery presentations in the old permanent exhibition at the RGZM. – (Photos R. Müller / V. Iserhardt, RGZM).

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archaeology, as one of the humanities that integrates approaches from technological and natural sciences to a substantial degree, comparably weighty undertakings are lacking. The same can be said of the type of self-reflection by protagonists and from projects that are known on a large scale from ethnology[6].

At the same time, however, it can be observed that the technical and scientific elements play a preeminent role in the self-presentation of the discipline and its working methods. The archaeologist of the early 21st century is no Indiana Jones with a universal claim to be able to interpret history but rather a laboratory detective searching for clues, at least in terms of its public image. The rush of visitors on open days to the workshops and laboratories of large museums confirms the public's fascination with technical and scientific methods.

The challenge consists of building a bridge between the possibilities of presentation methods at major events and everyday operations in museums. The archaeological objects do not speak for themselves by virtue of their historical authenticity alone. The public, however, demonstrates exceptional interest in the methods with which historically relevant information can be deciphered. When looking for new incentives, it seems appropriate to rely upon the personal observations of those involved in museum research and their addressees, instead of just standing at the entrance with a questionnaire. Complex research projects in the area of experimental archaeology[7], in particular, offer themselves as an optimal observation field. Here especially it is often the case that protagonists with different professional backgrounds meet, interact at different levels and influence the addressees of the research. In our observations of an undertaking in the area of experimental archaeology of pottery, a differentiation is made between differing levels of authenticity. At these levels, actors and addressees make decisions about the validity and value of various aspects of a project.

At the level of resources and infrastructure, judgements are passed on whether the successful processing of a research problem appears realistic in light of the respective parameters. Here, evaluations are carried out on the suitability of infrastructures, resources, qualifications and people, all of which form the foundations on which research projects are developed. Scientific criteria constitute a central guideline in the genesis of project foundations. Beyond this, and at least equally influential, are aspects such as economic constraints, necessities of research policy, interpersonal factors, etc. The assessment and evaluation of the respective aspects can vary greatly according to the position of the viewers in or *vis-à-vis* the research project.

From the perspective of scientific management, one could note that the aforementioned »non-scientific« aspects have just as much influence on the realisation, perception and evaluation of scientific authenticity, if not more. It is worth asking whether these elements, therefore, ought to be viewed on one level. The consideration of an independent authenticity level of resources and infrastructure, however, receives its legitimation via our interest in knowledge. The role of »non-scientific« factors can thus be regarded not only as a methodological challenge or even as a disruptive incident but also as a zone of contact between science and society: always with the awareness of the fact that the separation of science and society takes place at a purely analytical level.

With regard to the archaeological actors, the scientific authenticity level offers little reason to expect fundamentally new methodological controversies; here the principle standards of the discipline provide the framework. There is greater tension when looking at the question as to whether the claim of the archaeologists to scientific authenticity is compelling for the craftspeople and technicians involved, or whether contradictions result from the differing ranges of knowledge and experience. At this level, the question is decisive as to whether, how and in what way visitors recognise in an object, an experiment or a research process with its different facets.

Archaeological experiments are particularly suited for observing the way visitors perceive and deal with historical authenticity[8]. As a rule, experiments are carried out using reconstructions, models or copies[9]. Here,

Fig. 2 Mayen, Siegfriedstraße 53, pottery kiln 26 from site 31. – (Photo Generaldirektion Kulturelles Erbe Rheinland-Pfalz, Koblenz).

the original object or discovery might even be available only in documentation. Can the visitors recognise the historical significance of the object as the starting point of the research or do they perhaps even assign the reconstruction its own historical authenticity? Is it also possible that the experiment as a research process can increase the appreciation of historical authenticity?

In the following paper, I would like to describe a research project[10] and provide an initial working hypothesis. After introducing the project, I would like to explain the framework and protagonists. By virtue of individual observations, the potential for learning on the basis of the actors' observations will be explained. The concluding remarks are intended to demonstrate what use can be made of these observations in the Römisch-Germanisches Zentralmuseum (RGZM) for the development of new formats of communication.

The technology of ceramics is a suitable field of research, for demonstrating the methodological potential of experimental archaeology. The established archaeological processing practices of pottery do not normally meet the requirements of its historical and archaeological significance. Statements in the literature on the quality of types of goods or the rise and demise of pottery centres are based almost without exception not on transparent reconstructions, material analyses and measured data, which can be scientifically validated, but rather on subjective estimates[11]. In spite of many attempts in Europe at reconstructing and firing ceramics, to this day no solid, proven technical data on the reconstruction of different types of kilns exist from a large classical or medieval pottery site in Central Europe. The complete experimental archaeological evaluation of a technical discovery, however, would be the basic prerequisite for the generation of a performance and impact balance.

Alongside the basalt and tuff industries of late antiquity and the Middle Ages, the Mayen potteries were of particular economic importance in the industrial landscape between Andernach and Mayen. The fundamental archaeological and archaeometric work[12] carried out in the Kompetenzbereich »Vulkanologie, Archäologie und Technikgeschichte (VAT)«, as well as, at the Konrad Weidemann Zentrum für mineralogische Archäometrie, which was operated by the RGZM and the Johannes Gutenberg-Universität Mainz, created the potential for a singular phenomenon: the experimental archaeological evaluation of kiln technology within a pottery district from a diachronic perspective. The starting point was the archaeological discovery of a pottery kiln from the late 5th century in Mayen (**fig. 2**)[13]. The documentation and the archaeological material were subjected to a technological re-evaluation from an archaeological and ceramic technological point of view. It was intended that the first firing experiment would provide fundamental insights into

Fig. 3 Unlike the original discovery, the test kiln was not embedded in an existing hillside. It was set up in a gabion in the open and then backfilled with sediment. In this way, the sample chambers for the thermocouples could also be erected next to the furnace wall. – (Photo RGZM).

Fig. 4 Arno Hastenteufel, master furnace operator at the Fachschule Keramik in Höhr-Grenzhausen, in front of the reconstructed Mayen shaft furnace during firing at night. – (Photo RGZM).

the effectiveness of the construction principle of a shaft furnace with spoked perforated floor from the Mayen pottery industry, which was documented by the archaeological discovery. The decisions in favour of the ceramic load for the experimental firing ensued from the problem of gaining information on the fundamental effectiveness of the kiln-construction principle documented in the archaeological discovery. Accordingly, industrial clays from clay pits in the region, whose properties and optimal scope of application are thoroughly researched and documented, were selected for the manufacture of the approximately 350 vessels for the load. The forms for the vessels were taken from the contemporary range of products in Mayen. The construction of the kiln (**fig. 3**) lasted five days; the actual experimental firing took eleven hours.

The objectives of »Ofen-Woche« [Furnace Week] 2015 were to gather performance data for the kiln type when loaded to capacity and to test the ceramic firing properties of the clays from selected Mayen deposits. To this end, a total of two tons of clay, which could be quarried at outcrops in Mayen, were processed. The result was that three different types of clay were available for initial studies on establishing the ceramic performance spectrum of local resources, which have not yet been completed. The long-term aim of this fundamental research is to uncover decision-making possibilities in the historical utilisation of resources and to present them in a comparative perspective. This involves, among other things, the utilisation

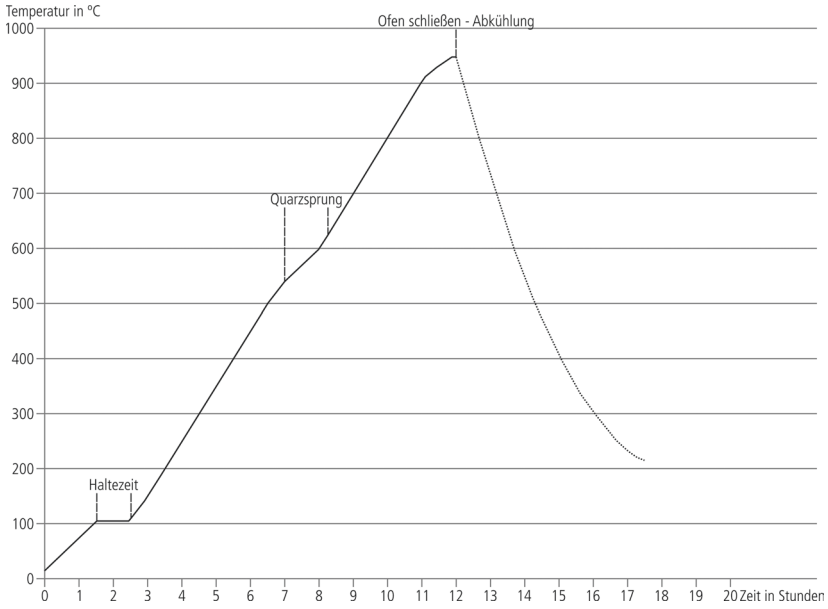

Fig. 5 The ideal curve for the firing process: depending on the type of kiln and goods involved, an ideal firing curve is generated before firing starts. This notes the increase in temperature per hour, as well as the planned pause times. In the case of this ideal curve, a pause time was factored in for the temperature range between 110° C and 120° C, in order to allow the residual water to escape from the burned material. As it was the first firing in this chamber, a pause time was not planned upon reaching the highest temperature. For the temperature range of the »quartz inversion« (573° C), the burning curve should get »flatter«, that is, the temperature increase per hour is reduced. – (Diagram B. Streubel, RGZM).

of ceramic specialist knowledge for the interpretation of archaeological remains. In this way answers can be provided about the following concerns when investigating craft-specific sites; for example what must be kept in mind when excavating a pottery district in order to show that there was a conscious mixture of clays and other additives in order to optimize the final product.

What must the excavation technique look like? How must the samples be selected for mineralogical analyses?

The following working hypothesis can be drawn from the results of the firing tests (**fig. 4**):

The shaft furnace with spoke flooring was a technological factor for the economic stability of the Mayen pottery industry at the turn of the 5th and 6th centuries, which was politically and militarily a rather unstable time period. This success was based on the use of a relatively user-friendly but high-performance technical installation in combination with a focus on high-quality, mass-produced goods that were not particularly challenging to manufacture. The kilns could be operated by workers for this purpose after a training period of a few months. This was made possible by the relatively simple firing process necessary for the production of the Mayen goods: a linear firing process that ended when the desired firing temperature was reached (**fig. 5**). The shaft furnaces built in accordance with the Mayen construction principle were also fundamentally suited to the production of fine ware and engobed goods. However, this involved making increased qualitative demands on the firing process.

The setting for the firing tests was at the Labor für Experimentelle Archäologie (LEA) of the RGZM (**fig. 6**)[14] near the Mayen basalt quarries, a site in the Vulkanpark [Vulkano Park] in the eastern Eifel Mountains, which is maintained by the RGZM, together with the authorities of the Mayen-Koblenz district[15]. The members of staff within the Kompetenzbereiche LEA, as well as VAT, carry out fundamental research and conceptional work for the cultural and touristic valorisation of the technical and geological monuments in the region. There are around 200,000 visitors every year to the facilities of this geopark[16]. Alongside archaeologists, specialists from the Fachschule Keramik in Höhr-Grenzhausen in the Westerwald and self-employed potters were also involved in the technological analysis of the findings and the resulting reconstruction, as well as the firing tests. The technical colleges are part of a network of training and research institutions in the pottery sector that is unique in Central Europe[17]. All protagonists from the field of pottery

Fig. 6 The Labor für Experimentelle Archäologie of the RGZM in the Mayen mining area. – (Photo B. Streubel, RGZM).

disposed of a specific process routine in employing their craft and, in some cases, experiences of experiments on ceramic technology and in development aid projects.

Which observations from the concert of actors in this project could be suited to providing an impetus for the presentation of research methods on the valorisation of archaeological collections to the wider public? The studies on Mayen ceramic technology were conceived from the outset as a joint research project between archaeologists, archaeometrists, geoinformatics specialists, potters and technicians. This means that reconstructions, experimental designs and tests were carried out with the involvement of all protagonists. For the most part, this approach was met with great approval among peers, but there was also considerable scepticism. And it is worth enquiring after the doubters' motives and reasons. Their scepticism generally fed on a lack of awareness of the knowledge gaps on pottery within research of archaeological materials. As a result, fundamental doubts were articulated regarding the potential scientific benefit to be gained from a close collaboration with craftspeople. Within this group, craftspeople were regarded fundamentally as an unknown quantity when it came to answering research questions. To our surprise, this scepticism even extended to the Fachschule Keramik in Höhr-Grenzhausen. In response to concrete enquiries, a picture then emerged that can be roughly described as follows: in a classroom, the students sit behind potter's wheels and construct whatever the teacher at the front demonstrates to them. The best response to such a caricature of modern pottery training is, of course, a systematic information campaign. A key role was played here in the presentation practice by images of laboratories, preparation halls and oven batteries. In this way, the key stimuli for decisionmakers and multipliers – use of technology and laboratory equipment – were evidently provided as symbols of modern science.

Experiences with non-specialist visitors to the Mayen quarries and the firing tests were the exact opposite. Representatives of these groups repeatedly emphasised independently of one another that it was precisely this visual, very close collaboration between scientists and craftspeople that conveyed the impression that they were directly involved in particularly professional, scientific research. For non-specialists, therefore, it seems almost a matter of course that archaeologists do not merely dispose of research-related knowledge but are also dependent on collaboration beyond the world of archaeology. Craftspeople can also lower the access threshold for problems of a research project by their own involvement in the same. From our perspective, this became particularly clear from the dialogue with non-academics, but also in the discussion with academics. A positive impression was made in this context by the express invitation to the craftspeople to make their own experiences in the research project the basis of discussions. Clear language rules were agreed only in reference to the project's research aims and the tasks of the institutions involved. Remarkable discourses between archaeologists and artisanal practitioners developed when reaching an agreement on the standards of academic documentation. An example: there was a consensus among the archaeologists that the location of every ceramic vessel during the initial experiments in the firing chamber ought to be measured on a three-dimensional basis. Most of the practitioners were of the opinion that the shifts that could be realistically expected after the firing process would be within the range of centimetres, and that it was therefore not worth the effort. The three-dimensional calculation is practised to this day, because it is regarded as necessary from the archaeological perspective to be able to draw on a foundation

of stable data for purposes of legitimation if, in the future, there is a desire to reduce or vary the volume of documentation in certain areas.

It would be wrong to conclude from this observation that craftspeople and technicians had an underdeveloped feel for the scientific relevance of technical details and the need to document them. The opposite is the case: as a result of their specialist background, they are much more easily able to recognise alternative technical courses of action and to introduce into the project their selection or rejection as a research question.

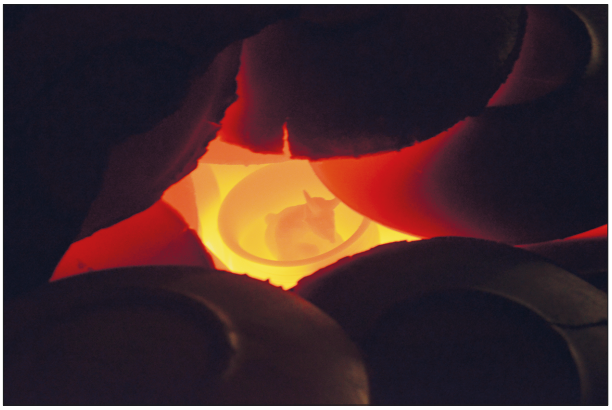

Fig. 7 The use of a fire demon in modern pottery firing follows folkloric and apotropaic traditions from the modern period. In communication, however, it can also be a vehicle for stimulating discourses on the link between technical processes and supernatural beliefs. – (Photo RGZM).

Non-specialist visitors of the experiment likewise paid particular attention when dealing with technical details and the methods of scientific documentation indicated by measuring instruments. The special nature of this observation can only be understood if one compares it to the observations of archaeological digs. Here is a standard question: »Have you found anything yet?« When it comes to tests, the question is: »What are you doing now?« In the first case, the question relates to the results, while in the second it focuses on the working methods.

It is only by focussing on the scientific working methods that the requirements can be created for the visitors to develop a position on the significance and problem of historical authenticity. It seems that many classical museum presentations regard it as unreasonable to expect this work from the visitor. On the basis of our subjective and certainly not representative observations, however, it is precisely here, in the context of archaeological experiments, that excitement and attraction develop for the receptive visitor.

A particular idiosyncrasy of the German research scene is a demonstrative rigour when it comes to the question of scientific and historical authenticity in academic self-portrayal. The fact that a playful easiness can also provide stimuli for research and communication is demonstrated by the deployment of a fire demon (**fig. 7**) in the kiln load of Furnace Week 2015. It cannot lay claim to exact historical authenticity, even if magical and apotropaic practices in the pottery craft are archaeologically documented[18]. The fire demon, however, was for archaeologists, potters and non-specialist visitors alike both the trigger and the vehicle for discourses on economic risks and existential fears on the part of producers, though questions of the quantifiability of risks were also formulated by non-specialist visitors.

We draw the following personal conclusion from our experiences with archaeological experiments: by means of interaction between the most varied protagonists on the basis of varied professional foundations of experience and knowledge, a creative tension emerges that can provide an impetus for both communication and research. The academic and educational challenge lies in the transfer of the functions and roles of various actors for the research project to repeatable formats of communication.

The observations provided above on the basis of a few examples comprise a starting point for the development of new formats of research transfer at the RGZM. For the »World of Ancient Technology« at the Meurin Roman mine in Volcano Park, an archaeo-technical park with models of ancient machines, a programme is scheduled for development in which visitors are supposed to establish in an open and impartial way the historical, scientific and social relevance of ancient technologies in light of research-related experimental tasks[19]. In parallel with this, experiments in communication are to be developed and tested, with which a bridge is supposed to be built between classical presentations in museum display cabinets and

experimental archaeological spaces of communication. Alongside protagonists of research on archaeological materials, craftspeople, archaeo-technicians, living history actors and theatre people are also due to be invited.

Translation: A. Kay

Notes

1) For example: Böttcher/Böttcher 1994. – Daszkiewicz/Maritan 2016. – Harry 2010. – Kahn/Wissinger 2008. – Thér 2004. – Winter/Thomas/Greiner 2010.

2) In particular the role of ceramics in nutritional and culinary culture lends itself to this. See, for instance, Barnard et al. 2007. – Barnard/Eerkens 2016. – Beck 2010. – Biddulph 2008. – Carvajal/Day 2013. – Charters et al. 1993. – Heron/Evershed 1993. – Salque 2012. – Spataro/Villing 2015. – Yang et al. 2014. – On the functional interpretation of ceramics in general: Naschinski 2001. – Skibo 2013. – Mortars constitute an example of how a single ceramic mould can be suitable for the depiction of a research topic. Their production until the Early Medieval Period was associated not only with the acceptance of Roman culinary culture but also – methodically problematic – with the surviving romanised population: Baatz 1977. – Dušek 1989. – Gross/Prien 2014. On the material properties, see Müller 2016.

3) For example: Wolfram 2013.

4) Amelang 2012. – Bammé 2008; 2009. – Beck/Niewöhner/Sørensen 2012. – Passoth 2014.

5) Latour 2015. – Latour/Woolgar 1986. – Knorr-Cetina 2002; 2012.

6) Herdick 2013, 4-5 note 16 with additional literature.

7) On the special possibilities of experimental archaeology for contributing to the understanding of human beings as a historically significant *Homo faber* and on the specific research culture of experimental archaeology, see Herdick 2015b; 2015c.

8) Essential reading on a modern understanding of science and communication in experimental archaeology: Schöbel 2013.

9) Although numerous publications address the possibilities (and limits) of archaeological experiments in general and for certain sub-fields, methodological reflections on the specific potential of reconstructions, models and copies in experimental archaeology constitute a desideratum. Examples regarding experimental archaeological methods: Foulds 2013. – Richter 1991. – Vorlauf 2011. – Andraschko 1991. – Lüning 1991.

10) For the current publication status see Döhner/Herdick/Axtmann 2018.

11) On the desiderata in the archaeology of pottery when it comes to the history of technology, see the detailed Herdick 2015a.

12) Grunwald 2012a; 2012b; 2016. – Xu/Hofmeister 2012.

13) On the firing tests in 2014, see Hanning et al. 2016.

14) On the concept, see Herdick 2010.

15) Schaaff 2006.

16) Vulkanpark GmbH 2016, 21.

17) www.fs-keramik.de (01.04.2019).

18) Examples of evidence for religiosity in the pottery craft in ancient Greece can be found in: Bentz/Geominy/Müller 2010, 120-122 cat. nos 79-86; from a comparative perspective, see furthermore the depiction of the votive tablets in the melt furnace on the cup of the Foundry Painter: Bentz/Geominy/Müller 2010, 116 fig. 32.

19) https://www.roemerbergwerk.de/en/die-ausstellung/antike-technikwelt/# (23.04.2019).

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Zusammenfassung / Summary

Akteure und Verortungen der Authentizität im Museum: Eine Fallstudie zur Experimentellen Archäologie der Mayener Keramik

Die museale Präsentation von Keramik ist in der Regel kaum geeignet, die Erkenntnismöglichkeiten der Archäologie und die eingesetzten Arbeitsmethoden darzustellen und zu vermitteln. Ein Erfahrungsbericht aus einem experimentalarchäologischen Forschungsprojekt zu den Mayener Großtöpfereien soll demonstrieren, wie auf unterschiedlichen Ebenen von den beteiligten Akteuren Entscheidungen und Wahrnehmungen getroffen werden, mit denen wissenschaftliche Authenzität erzeugt bzw. bewertet wird. Das besondere Vermittlungspotenzial durch das Zusammenwirken akademischer und nicht-akademischer Akteure in der Experimentellen Archäologie wird abschließend thematisiert.

Protagonists and Localisations of Authenticity in Museums: A Case Study of the Experimental Archaeology of the Mayen Pottery

As a rule, the presentation of ceramics in museums is ill-suited to illustrating and conveying the cognitive possibilities of archaeology and the working methods employed. A report on experiences gathered from a research project on experimental archaeology addressing the major Mayen pottery centres is designed to demonstrate how the protagonists involved form decisions and perceptions at different levels, with which scientific authenticity is produced and evaluated. Finally, the particular potential for communication resulting from the collaboration of academic and non-academic actors in experimental archaeology will be considered.