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Part of interpretive panel at Pfahlbauten Unteruhldingen showing "the end of the pile dwellings" (photo: K. Rüegger).

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1 Introduction

In the summer of 2022, I visited Nordiska museet in Stockholm. A major exhibition held there, *The Arctic – While the Ice is melting*, looked at "the history and future of the ice" (Nordiska Museet, 2023a) and of the people who live in the Arctic. The exhibition combined immersive media and moving stories to encourage visitors to relate the impacts of the changing climate to their own lives. From there I travelled on to Finland, where I spent some time as a volunteer in an agricultural open-air museum near Turku, involved in a project restoring historical buildings. These two experiences in quick succession left a lasting impression and sparked my interest in the ways open-air museums could be involved in the discourse around climate change.

Later, I came across the following paragraph in Swain (2007), *An Introduction to Museum Archaeology*:

> *"Despite our loud, vehement, and prolonged assertations to the contrary, it is tempting to conclude that most living people do not consider what happened in the distant past to be, in any way, relevant to the present and future. […] Knowing that there has been dramatic climate change in the past will not help solve global warming."* (Swain, 2007, p. 293)

This thinking has changed somewhat amongst museum archaeologists, as will be discussed in chapter 3. But Swain's statement led me to search for literature around archaeological museums, open-air museums and climate change, which quickly led to a conference which had taken place online in 2022: EXARC's *A Sustainable Revolution for Open-Air Museums.*

EXARC is an international organisation based in the Netherlands which aims to make the archaeological past widely accessible. They do this through a focus on ancient technology, experimental archaeology, interpretation and education, and museum practice, especially aiming to be a "bridge between open-air museums and science" (EXARC, 2020). Presentations held at the 2022 conference addressed the importance of building partnerships, internal change, and how open-air museums can be re-imagined for the future. Most relevant for this study, they asked the question: "How can open-air museums become leaders in sustainable solutions?" (EXARC, 2022).

This conference is an exception in this study area. A survey of the literature around climate change communication, museums and archaeology shows that research has focussed on museums and climate change, or archaeology and climate change. The intersection of museums, archaeology and climate change is rarely discussed, but most recently by Collins (2019). Within this, archaeological open-air museums do not feature at all as separate entities in the discourse. Academic research on archaeological open-air museums in general is sparse, as will be discussed in chapter 2.

What is still lacking is a survey on archaeological open-air museums and how they can engage with climate change communication. The messaging around climate change is often (rightfully) framed as urgent, using terms like crisis and emergency, and presenting it on a global level. This can lead to the conclusion that individual and local action is ineffective. Archaeology shows that individual, local action has been successful in the past, as will be discussed in chapter 3.1. More people can be reached through hopeful messaging which presents achievable solutions. Looking at how archaeological open-air museums (AOAMs) can play a role in this is therefore timely and important. Lacking further literature, an analysis of some AOAMs through the framework developed in this study is the first step towards a broader understanding of this topic.

This research aims to answer two questions: first, **how can AOAMs encourage awareness and action around climate change?** What are the themes, strategies and possibilities available to AOAMs around this issue? Second, **to what extent are my chosen case studies doing this?** For this research I visited the museums preHistorisch Dorp in Eindhoven, the Netherlands, Pfahlbauten Unteruhldingen and Archäologisches Freilichtmuseum Oerlinghausen, both in Germany, and carried out an analysis of their displays and interpretation styles.

This study begins with a historical overview of the development of archaeological open-air museums in chapter 2. This is followed by a discussion of the theoretical background of AOAMs and climate change communication, including a definition of climate change communication, in chapter 3. Chapter 4 outlines the framework used to analyse the case study museums, and in chapters 5-7 this analysis framework is applied to the museums in detail, based on site visits. Chapter 8 discusses the themes and strategies of climate change engagement found at the museums and discusses some examples in detail. Finally, chapter 9 concludes with a summary of the findings and suggestions for further research.

A note on language: The museums in this study are in Germany and the Netherlands. While I am fluent in German, my knowledge of Dutch is limited. I relied on the English translations of texts given in the Dutch museum. In the German museums, if the museum has provided English translations, I use these. In some cases, the museum texts are only in German. For these, I use my own translation and supply the German original in parentheses for clarity.

2 Development of Archaeological Open-Air Museums

2.1 Introduction

This chapter looks at archaeological open-air museums as both *archaeological* museums and *open-air* museums. It discusses the reconstructive display type used at traditional museums, the development of open-air museums, and situates archaeological open-air museums within these developments. It concludes with a discussion of a critique often levelled at (A)OAMs – that they are inauthentic – and asks whether this critique is useful for the future of open-air museums.

2.2 Archaeological museums

Museums that display archaeology are among the oldest types of museums. Swain (2007, p. 11) defines an archaeological museum at its most basic as an institution that collects (archaeological) material culture, manages it, and interprets it for the public.

The way the material culture is interpreted and presented to the public can differ vastly between museums, from traditional glass case displays to entire reconstructed scenes within the museum. Swain (2007, p. 212) delineates three display types:

- decorative/fine art type
- didactic contextualized social history type
- emotive reconstruction type

The choice of display is determined by various factors, which can include "the type of material, the type of institution, the perceived or target audience, and the views of the group or individual within the museum making the decisions." (Swain, 2007, p. 212)

Decorative/fine art type displays show archaeology as art objects with little to no contextual aids. A good example of this is the Museum Rietberg in Zurich (Figure 1), which chooses to display its collection of non-European objects as art, regardless of the age and original context of the artefacts (Museum Rietberg, 2023).

Historically, classical European archaeology has also been displayed as art. While aesthetically pleasing, this display type can leave artefacts disconnected from their original social and cultural contexts (Swain, 2007, p. 218), presenting for example a ceramic vessel as an object to be appreciated purely for its artistic value.

Most museums work with some form of didactic, contextualized social history display type, which uses the arrangement of the objects themselves, along with text, audio-visual aids, and other factors of the museum (see Moser, 2010), to communicate concepts.

Figure 1 Displays of East Asian objects at Museum Rietberg (Museum Rietberg, 2023).

They differ from the fine art display type in that they present objects in some form of context, be it through text explanations or by assemblage. Here, a ceramic vessel is not simply an art object, but can also say something about the craftsmanship, social practices and beliefs of the people who made it. Swain (2007, p. 212) points out that this display type must strike a balance between explaining too much, and explaining so little that the displays are rendered boring and ultimately meaningless for the visitor.

Emotive reconstruction type displays attempt to address this problem of balance by reconstructing entire rooms or scenes, allowing the visitor to feel that they are stepping into the past. Shanks and Tilley refer to these types of displays, particularly rooms furnished to represent a certain period and social class, as “situational displays” (2017, p. 321), that do not encourage focus on a singular artefact. In a situational display, the artefacts create a space that encourages the visitor to discover meaning through association. At the same time, because of the number of artefacts on display, no one artefact asks for the kind of close attention a traditional glass case display might demand, allowing the visitor to “examine the past, but absent-mindedly.” (Shanks & Tilley, 2017, p. 321)

Jorvik Viking Centre is a popular example of a reconstructed scene working in tandem with the more traditional contextualized social history approach. Visitors to the Centre can take a tour of a reconstructed street scene depicting Viking Age York, seeing the sights from within cars suspended from the ceiling (Figure 2).

Figure 2 Part of the reconstructed street at Jorvik Viking Centre (Jorvik Viking Centre, 2023).

Sounds (including recordings of conversations in different historical languages) and even smells are used to immerse the visitor in the scene (Jorvik Viking Centre, 2023). The museum area is accessed after the ride. Here, visitors can see the real artefacts they may have noticed in the street scene, as well as learn about the excavation of the site on which the reconstruction is based (Swain, 2007, p. 256). This combination of reconstruction and traditional display works well to focus the visitors' attention on single objects. While they may observe the street scene "absent-mindedly" because there are so many sights, sounds and even smells to take in, when they reach the traditional museum display, they have enough context to understand why the artefacts on display might be meaningful.

These three display types are very simplified, and the museum landscape has changed since they were suggested in 2007. However, what is interesting is that reconstructions are classed as a separate type.

2.3 Folklife and Agricultural Open-Air Museums

Swain (2007, p. 256) suggests that reconstructions, taken to the extreme, have resulted in entire Living History villages. He cites the examples of Colonial Williamsburg and Historic Jamestown in the US, where reconstructed historical buildings and costumed interpreters recreate a living past. From this perspective, open-air museums could be seen as the logical conclusion of this kind of display type. However, open-air museums are not a later development out of reconstructive displays, but in fact developed alongside them from the beginning.

As with many historic origin stories, the creation of the world's first open-air museum can be tidily traced back to one man: Arthur Hazelius. Originally a teacher in Sweden in the mid-19th century, in 1873 he founded the Nordiska Museet in Stockholm. This is considered "the world's first major folklife museum" (Rentzhog, 2007, p. 4), meaning it was the first museum to collect objects related to rural life and Sweden's cultural development across all social strata. (It is still Sweden's largest museum of cultural history today (Nordiska Museet, 2023b.)) This was contrary to the collecting conventions of the time, which saw colonial powers amass objects from colonized countries.

From the beginning, the intention was to make the Nordiska Museet accessible to not just the educated public, but a broader audience. To make the museum displays more understandable, objects were not displayed in rows of glass cases, but in "realistic looking scenes from folklife" (Rentzhog, 2007, p. 5), in reconstructed furnished rooms with life-sized models in traditional clothing. Longer opening hours than other museums allowed a larger public to access the exhibition, which was evidently very successful (Rentzhog, 2007, p. 5).

Some years after the founding of the Nordiska Museet, Hazelius purchased land in the centre of Stockholm with the intention of moving historic buildings from across Sweden to the area. This became Skansen, the first open-air museum, which was inaugurated in 1891 (Rentzhog, 2007, p. 5). The method of displaying folk objects in context that had been tested in the Nordiska Museet could now be implemented to much greater effect in historical buildings. Farmhouses, traditional crafts workshops, and crofts from different provinces of the country were among the buildings collected for Skansen. They were furnished and decorated with original objects, with the intention being that visitors would feel that they were stepping into an inhabited house, and that "the poor inhabitants of the stone cottage were only away for the moment doing a hard day's work." (Rentzhog, 2007, p. 7) Today, Skansen showcases relocated buildings, as well as a wildlife park and the Baltic Sea Science Center (Skansen, n.d. a).

The difference between a reconstruction or situational display as discussed above is the use of original buildings. Not only the furniture and objects inside the buildings were historic artefacts, but the buildings themselves were seen as authentic and worth collecting. Thus, a definition of an open-air (folk or agricultural) museum could be given as an assemblage of historic, *relocated* buildings. The creation of the open-air museum did not only involve relocating historic buildings, however. People wearing the traditional dress of their home provinces were on site from the beginning, welcoming visitors and enlivening the scenes. Some houses had gardens with plants local to their particular regions, and regional breeds of farm animals were also kept. All of this had the effect of creating what was called a "Sweden in miniature" (Rentzhog, 2007, p. 6).

Figure 3 View from an engraver's workshop at Skansen (photo: K. Rüegger).

In the decades that followed, many open-air museums inspired by Skansen – displaying relocated historic buildings, enlivening them with farm animals and sometimes reenactors – were opened, first in the Nordic countries, then further afield, both within and outside of Europe (Rentzhog, 2007, p. 33). From the very beginning, the draw of open-air museums was that they are *outside.* This allowed new possibilities to be explored and expanded the idea of what could be done in a museum, such as enlivening spaces with farm animals and cultivating gardens. As mentioned above, Swain discusses Living Museums as "full-scale" (2007, p. 256) reconstructions in a North American context, looking at museums such as Colonial Williamsburg and Historic Yorktown. But far from being a later development out of traditional museums, open-air museums developed alongside traditional museums from the moment it became interesting to collect objects from one's own country.

2.4 Archaeological Open-Air Museums

The difference between *archaeological* open-air museums and the type of open-air museum discussed above is that AOAMs do not display historic, relocated buildings, but reconstructions of prehistoric buildings. This means that the buildings on display are interpretations of archaeological data. Paardekooper uses the term *(re)construction* to emphasize this,[1] pointing out that "in most cases only the ground plan of a building can be known for certain, whilst the rest is conjecture." (2012, p. 28) Archaeological open-air museums differ greatly amongst themselves, but they have a main objective in common: interpreting and presenting archaeological data to a general public (Paardekooper, 2012, p. 23).

AOAMs did not develop from the practice of collecting historic buildings in order to display historic items, and they are altogether more difficult to categorize. Paardekooper notes that a study of AOAMs on the scale of Rentzhog's *Open Air Museums: the history and future of a visionary idea,* which is international in scope, would be very difficult (2012, p. 24), and indeed Rentzhog does not include AOAMs in his overview. However, Ahrens' *Wiederaufgebaute Vorzeit: Archäologische Freilichtmuseen in Europa* allows an overview of the development of these museums in Europe until 1990, beginning with the question of why people began attempting reconstructions of prehistoric buildings in the first place.

In the winter of 1853-1854, the historically low water levels in Lake Zurich, Switzerland, revealed wooden piles driven into the lakebed, along with stone tools, bones and pottery. Following the discovery of these remains, searches in other lakes around the Alps yielded masses of prehistoric finds (Altorfer, 2010). This was the first time that wood, and thus hints towards prehistoric building techniques, had been discovered at this scale. These discoveries led to experimental reconstructions based on archaeological evidence and ethnographic comparisons. The understanding at the time was that prehistoric people had constructed platforms in the lakes and built houses atop them.

Considering the first pile dwellings were discovered in Switzerland, it is no surprise that the first reconstructions were attempted there as well. In 1888, the shoe manufacturer C. F. Bally added prehistoric lake dwellings to his English Garden style park in Schönenwerd (Figure 4). The park was primarily a recreational space for the workers at the nearby factory. The reconstructions were therefore both decorative, influencing the mood of the viewer (Paardekooper, 2012, p. 39) and didactic, as they were based on the most recent state of research of the time (Blank, 2011).

[1] In this study, however, I will use *reconstruction* without parentheses for the sake of readability.

Bally's addition of a prehistoric lake settlement in his park was very much a fashionable decision, as the idea of prehistoric people living on secure, self-sufficient platforms surrounded by water had become important to the identity of the Swiss state, which at the time was only a few decades old (Altorfer, 2010). According to Ahrens, the reconstructions at Schönenwerd are the earliest examples of reconstructions based on archaeological evidence and not just conjecture (1990, p. 12).

Figure 4 Reconstructions at Schönenwerd (Blank, 2011).

The reconstructions at Schönenwerd were not built with a museum-going public in mind. The first reconstructions built specifically for a museum audience are at Pfahlbauten Unteruhldingen on Lake Constance, Germany, which was founded in 1922. It began as a passion project for a local interest group (*Verein für Pfahlbau- und Heimatkunde),* who constructed two buildings with the support of archaeologists from the University of Tübingen (Pfahlbauten Unteruhldingen, 2020a). The idea of reconstructing prehistoric buildings soon spread inland, leading to the Archäologisches Freilichtmuseum Oerlinghausen, which opened a "Germanic settlement" to visitors in 1936 (Banghard, 2018, p. 5).

While in the 1920s AOAMs were characterized by experimentation, especially in Germany during the 1930s and 1940s they were instrumentalized by the National Socialist party. Prehistorians, who until then had felt themselves overshadowed by the focus on classical and Near Eastern archaeology, were convinced by the attention given to them by the Nazi regime to use archaeology to "justify the Third Reich's view on the world." (Paardekooper, 2012, p. 41) Prehistoric museums were planned all over Germany in order to effectively communicate the "guiding cultural achievements of the prehistoric ancestors" ["*wegweisende Kulturleistungen der prähistorischen Vorfahren*"] (Ahrens, 1990, p. 17). The role prehistoric archaeology played in the Third Reich has been discussed by Arnold (1992), Miera (2019) and Schöbel (2011). Going into further detail about this here is beyond the scope of this study.

Unsurprisingly, AOAMs fell out of fashion in Germany after the Second World War, and no new ones were established until the 1980s. These were both in the then German Democratic Republic and also had nationalistic connotations. The museums of Groß Raden and Tilleda both focused on an early Medieval dynasty that had held power in their respective areas, aiming to create a sense of a common past for the DDR (Paardekooper, 2012, p. 44). Elsewhere, however, AOAMs remained popular (Figure 5). An experimental archaeology approach was adopted, for example in Denmark in the museums Hjerl Hede and Lejre (Schöbel, 2011, p. 27). The amount of AOAMs rose rapidly in the decades between 1970-1990 and does not seem to have slowed in the three decades since then (Smith, 2006, p. 199). This fits well with the 'new museology' paradigm shift in the 1990s, which saw "museums transformed from 'collection-driven' organizations to 'visitor-centred' organizations." (Stevenson, 2022, p. 2) This rise in popularity has inevitably led to criticism. The critique most frequently levelled at AOAMs revolves around questions of authenticity.

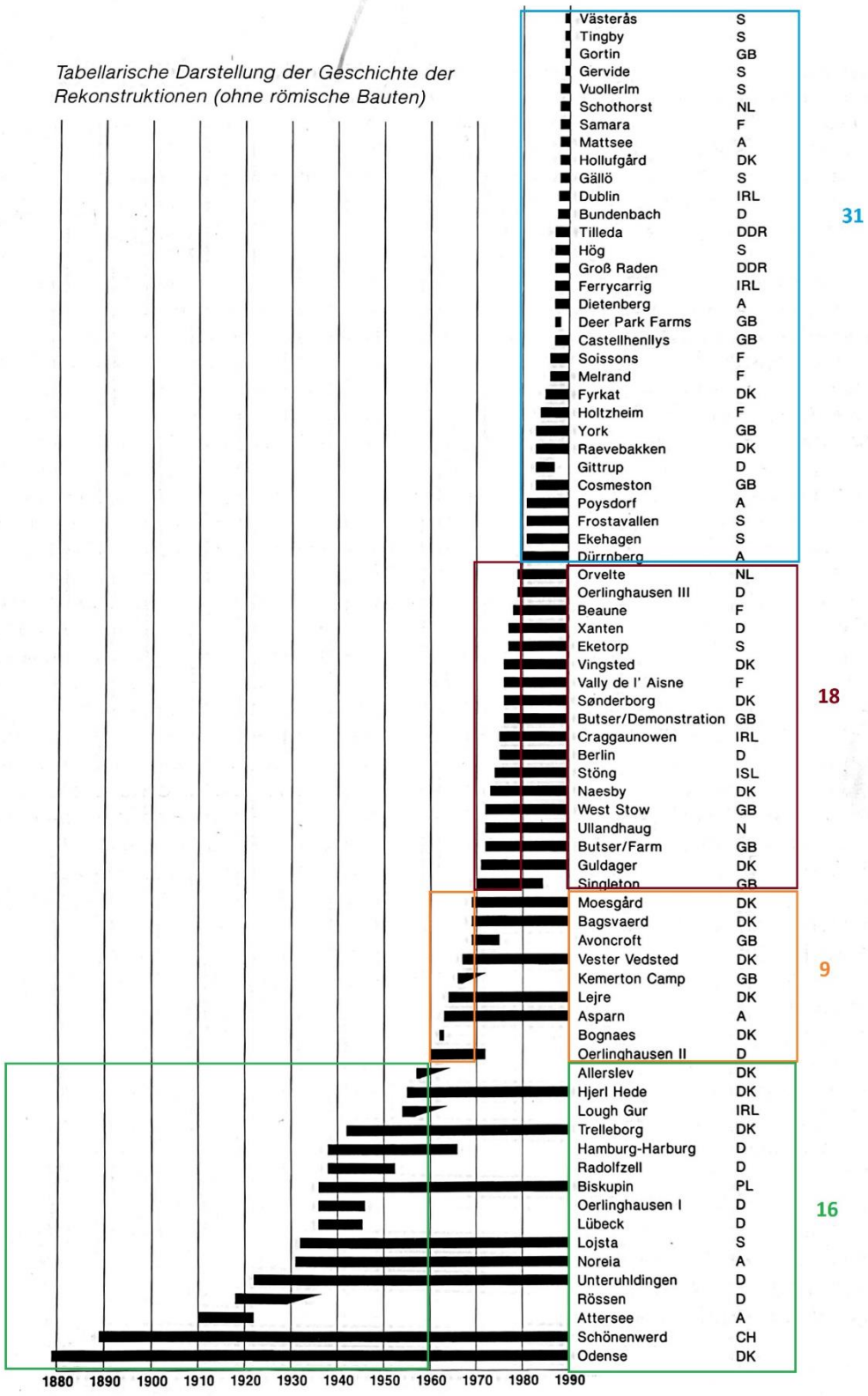


Figure 5 AOAMs in Europe until 1990 (Ahrens, 1990, p. 23. Edited by K. Rüegger)

2.5 AOAMs and authenticity

Smith points out that the rise in the number of open-air museums, places that centre regional heritage and culture, have presented a challenge to the "traditional ideas of state-sanctioned and national museums." (2006, p. 199) Open-air museums draw from a wider range of interpretive methods. Particularly the use of costumed interpreters (which, as discussed above, is not necessarily a new idea in open-air museums) has become widespread and popular. An issue can also be found in the fact that AOAMs display reconstructed buildings and replica artefacts. These reconstructions and artefacts are products of interpretation and reflect the state of research at the time they were made, meaning that there will always be some 'mistakes' which will only present themselves over time, as new insights become available (Ahrens, 1990, p. 12). While agricultural OAMs have ample historical evidence on which to base their displays, and often even historic objects to furnish the buildings, AOAMs do not have this, which has led to various ways of furnishing the reconstructions. Pfahlbauten Unteruhldingen for example furnishes some buildings with life-size dioramas, while other buildings depict prehistoric workshops and still others are used as exhibition spaces. Swain notes that museum visitors expect to see "authentic things" and "to be told the truth" (2007, p. 214), but how authentic and truthful can reconstructions based on archaeological data, which will always be incomplete to some extent, really be? This line of questioning has led to the perception of (A)OAMs as an inauthentic presentation of a sanitized past, "at best 'infotainment' and, at worst, 'Disneyfication'." (Smith, 2006, p. 195) Disneyfication here meaning to present the past in a "knowable, self-enclosed little world" that can easily be taken in in a day (Bennett, 1995, p. 158).

Using reconstructions and costumed interpreters or reenactors as methods of interpretation draws audiences. As demonstrated above, the idea behind open-air museums, beginning with Skansen, has always been to involve a ‘wider public’. Smith speculates that some of the contemporary backlash towards open-air museums may be based on exactly that – knowledge being made accessible to a broader group of people, not the traditional museum-going public, but people who draw on different “types of cultural capital” to understand what they are seeing (Smith, 2006, p. 199):

> "*While [the critique of inauthenticity] may not have been a new issue in museums, it was a critique that came to be specifically directed at attempts to incorporate diversity of viewpoints and other innovations into museum practice.” (*Smith, 2006, p. 195)

This raises the question of whether museum audiences give the same importance to the concept of authenticity as the academic literature does.

Holtorf and Schadla-Hall question whether authenticity should be seen as crucial in archaeology in every case, and conclude that it is not given the same value by the public as it is by archaeologists; even in 1999, the public as "consumers of the past" (1999, p. 229) held a more relaxed outlook on authenticity. Hearne discusses historical accuracy in the context of the usefulness of archaeology in mental health recovery, suggesting that in some contexts, archaeology can be of great value to individuals regardless of authenticity:

> *"Historical accuracy and archaeological technicality are less important than the meaning derived from the imaginative experience, especially since so much of the past is utterly unknowable and therefore open to creative interpretation."* (Hearne, 2019, p. 157)

The idea of authenticity in itself is a product of western cultural history (Holtorf & Schadla-Hall, 1999, p. 231) which is difficult to define, and I will not try to do so here. It is sufficient to say that, no matter how much effort goes into making something "as authentic as possible" (Holtorf & Schadla-Hall, 1999, p. 235), there will always be some aspect that cannot be replicated in the present. Holtorf and Schadla-Hall point out that the Globe Theatre in London, although reconstructed to be as authentic as possible, lacks authenticity in that there is no Elizabethan population to view the plays there and no Elizabethan environment to surround it (1999, p. 235). While that may seem pedantic, it is demonstrative of the point I want to make: discussing the details of authenticity prevents asking other questions about the uses of AOAMs in the present and the future. I will return to this point in chapter 3.

In the present day, the number of AOAMs seems uncountable. A look at EXARC's map of AOAMs worldwide shows a huge amount, most of them in Europe and North America. But despite the increase in AOAMs from the 1970s onwards, they still have not found their way into the broader field of museum archaeology. In *An Introduction to Museum Archaeology,* Swain ignores both agricultural and archaeological open-air museums in Europe, instead using the example of Colonial Williamsburg, USA, as a reconstruction in "their most extreme form" (2007, p. 256). There is no discussion of what Swain terms "Living Museums" (2007, p. 256) as a separate genre, but rather they are seen as an 'extreme' continuation of the idea of recreating streets scenes within museums that also contain traditional displays. Considering the authoritative work on open-air museums (Rentzhog's *Open Air Museums: The History and Future of a Visionary Idea*) was published the same year, 2007, it is not surprising that Swain dedicates only a few short paragraphs to the phenomenon. It is surprising however that in a book about museum *archaeology*, the open-air museums that are mentioned are historical ones, despite the fact that museums containing reconstructions of buildings based on archaeological data were already well-established in both the United Kingdom, which is the geographic focus area of *An Introduction to Museum Archaeology,* and mainland Europe by 2007.

It is perhaps telling that Swain did not consider these worth discussing in 2007. Schöbel refers to AOAMs as the "adult child of the archaeological museum landscape" [*"dieses inzwischen erwachsene Kind ihrer Museumslandschaft"*] (2011, p. 29), pointing out that AOAMs are still not taken seriously by the wider (museum) archaeological community, and this despite the fact that they needn't be rivals to traditional museums, but can in fact complement them. A search for the terms 'open-air museum' and 'AOAM' in the recently published *Oxford Handbook of Museum Archaeology* (2022) reveals that these are only discussed as part of a chapter about site museums – museums which are "firmly connected with […] an archaeological or historical site" (Papaioannou, 2022, p. 176), thus a different type of museum. No separate chapter is dedicated to open-air museums. Despite this lack, at least some AOAMs are seeing a shift in their perception among museum colleagues. Some agricultural open-air museums are turning to AOAMs for advice on reaching audiences, as fewer and fewer people remember the ways of life that agricultural open-air museums portray (K. Banghard, personal communication, March 7, 2023).

Regardless of their status within academic museum archaeology, AOAMs today are hugely popular with museum audiences and are centres of education and entertainment equally. This position as outdoor spaces that show life-sized reconstructions, and often include costumed interpreters who invite visitors to explore and ask questions, allows AOAMs to be more than just places that 'talk about the past'. Moving away from issues of authenticity allows the question: how can AOAMs engage with the past in a way that is relevant in the present, and for the future?

3 AOAMs and climate change engagement

3.1 Traditional museums and climate change communication

Arguably the most pressing issue of the present and the future is climate change and its long-term effects on the environment and the habitability of the planet. In the media, however, the topic is often framed in a way that leaves people with the feeling that there is nothing that can be done in the face of it. Pinto et al. point out the importance of language to the reception of ideas around climate change. They discuss the decision of The Guardian, a UK news outlet, to replace the term 'climate change' with the terms 'climate emergency, crisis or breakdown' (2019, p. 1). While this decision rightly emphasized the urgency of the issue, it also raised questions about the way climate change is communicated to the public. Climate change is often presented on a global level in a scientific or political context, which facilitates its framing as scientifically controversial or as a divisive political issue, rather than encouraging discourse around ways for communities to build resiliency locally (Pinto et al., 2019, p. 1). Effective climate change communication does not only show *how* the climate is changing, but why; it shows long-term effects on environment and people, and crucially, the positive effects of individual and collective action. Climate change engagement is a part of this, making use of strategies that encourage individual action in an accessible way.

Museums are perceived by the public as "safe" (Cameron et al., 2013, p. 9) and "friendly" (Collins, 2019, p. 13) spaces and are thus important locations for communicating climate change awareness and action in ways that do not centre fear or helplessness. Cameron et al. argue that museums can play a role in effective climate change communication, a kind of communication which aims to “equip citizens with tactical knowledge that enables participation in actions and debates on climate change” (Cameron et al., 2013, p. 9). In *Nine Principles for Museums and Science Centres as Agents to promote Understanding and Action on Climate Change*, Cameron et al. demonstrate different aspects of climate change communication that museums can draw upon, beginning with the principle: "Climate change is too important to deny, too complex to reduce to a single analysis or problem" (2013, p. 11). This principle illustrates that there are many problems linked to climate change, but also a myriad of solutions which can be implemented on many levels.

Several of the *Nine Principles* relate to communicating climate change on a local, even personal, level. This pertains on the one hand to museums themselves. The museum field is heterogeneous, each institution has its own history, resources and connections that allows it to engage in climate communication in a unique way (Cameron et al., 2013, p. 11). There is no 'one size fits all' method for museums to engage in climate change communication.

On the other hand, it pertains to the museum audience. Effective climate change communication means more, for example, than pointing out the facts about greenhouse gas emissions: it involves recognising that it is a complex system linked with diverse ideologies, views, and values (Cameron et al., 2013, p. 12). Considering that much information accessible in the media covers the issue at a global level, engagement at a local level is paramount. Understanding the consequences of climate change at a local level makes it easier for people to "connect the phenomenon with their own lives." (Cameron et al., 2013, p. 16) In order to enable people to engage in climate change actions and debates, the topic should be "presented as a story based on experiences worth listening to, not just as disembodied information […]." (Cameron et al., 2013, p. 17) This involves evoking emotions and intuition and connecting them with "larger social, historical and ecological contexts." (Cameron et al., 2013, p. 17) Another key point of the *Nine Principles* involves addressing the scale of climate change in time and space. A crucial aspect of being moved to act on climate change is an understanding of different time scales, in order to "be able to put past, present, and future together, and connect personal circumstances" with neighbourhoods, countries and the planet (Cameron et al., 2013, p. 13).

Archaeology comes into play here because it has local, personal stories and an understanding of deep time at its core. The line of thinking behind Swain's statement "knowing that there has been dramatic climate change in the past will not help solve global warming" (2007, p. 293) has changed to some extent since *An Introduction to Museum Archaeology* was published in 2007. Although some archaeologists still underestimate the connection between archaeology and climate change (Boivin & Crowther, 2021, p. 7) the field of research is growing: both in terms of how climate change affects archaeological sites (see Dawson, 2017) and in terms of how archaeological data can contribute to an understanding of and solutions to climate change.

Boivin and Crowther point out that the past is both key to "assessing the nature and scale of our impacts today", and a source of solutions, both cultural and technological, to those impacts (2021, p. 1). They assess how archaeological data can be used to provide insights into environmental factors such as biodiversity and conservation, sustainable agriculture, reviving ancient crops and soil sustainability, among others. Disciplines that study the past, like archaeology, play a critical role in shaping the future, providing solutions that do not require fossil fuels, and can be locally, sustainably, and often cheaply organized and managed (Boivin & Crowther, 2021, p. 7).

Far from concluding that archaeology has no useful place in the current discourse around climate change, Boivin and Crowther state that:

> *"Archaeology, with its vast and growing store of knowledge about the past, has a responsibility to help humanity draw on all available data to create a better, greener, more sustainable and more equal future."* (2021, p. 8)

In the museum field, archaeological museums can draw upon their collections and resources to present local, personal stories, and demonstrate time depth. In the study *Archaeology, Museums and the Communication of Climate Change,* Collins states that archaeology "has a unique role to play by emphasizing the human element in climate narratives and by linking the past with present and future stories," (2019, p. 295) and refers to archaeological museums in particular as places which give "a human face to 'difficult' science", linking "narratives of past changes with the future." (Collins, 2019, p. 13)

3.2 The role of AOAMs

A discussion of how open-air museums, both agricultural and archaeological, can engage in climate change communication took place online in 2022. EXARC held the conference *A Sustainable Revolution for Open-Air Museums*, which featured several presentations showing how (archaeological) open-air museums around the world are engaging with questions of sustainability. The presentations address questions around biodiversity, sustainable agriculture and ancient crop use, factors which also appear in Boivin & Crowther (2021), from a practical, experimental viewpoint.

Two presentations from this conference are particularly relevant here: Shear's *A broader understanding of sustainability for museums* and Heeb's *Crafting a sustainable future*.

A broader understanding of sustainability for museums begins with a discussion of the "dominant social paradigm" which includes the "belief in a 'natural' social and environmental hierarchy" (Shear, 2022), which leads to exploitative systems and institutions and exploitation of people, the environment, and natural resources. To create lasting change, these systems of exploitation need to be changed from the top down, through a shift of the dominant social paradigm. Two approaches are suggested which could contribute to this change: "fostering feelings of inclusion and empathy with people and nature" and "helping people to see nature as part of their identity." (Shear, 2022) Shear argues that (A)OAMs are ideal places for this. They provide sensory, immersive experiences that allow shared experience not just with other visitors, but also with people from the past. (Asking yourself "is this how people in the past lived?" is a kind of shared experience.)

Shear also goes into some detail about how (A)OAMs “stimulate the medial prefrontal cortex in numerous ways, leading to the creation of lasting memories and empathic thinking.” (Shear, 2022) (A)OAMs are especially important as places to encourage a sense of connection with nature, as some visitors may not otherwise have access to nature, and it may be an unfamiliar concept to them to see nature as part of their identity. Experiencing nature in an immersive, sensory way helps strengthen the connection more than, for example, learning 'facts' at a traditional museum. Shear concludes by pointing out that (A)OAMs already provide these experiences and suggests that they could be developed to a fuller potential. “We need to see more of what open-air museums do as sustainability” (Shear, 2022), because the work (A)OAMs are doing with people, in facilitating different ways of thinking about nature, is just as important as working with the environment itself (Shear, 2022).

The presentation *Crafting a sustainable future*, subtitled *How (Archaeological) Open-Air Museums are predestined to lead the way to a green future,* can be seen as complementary to Shear’s. Where Shear discusses how (A)OAMs can engage with sustainability on a psychological (and even neurological) level, Heeb gives concrete examples. It is pointed out that AOAMs are *green* places, which include different themes of sustainability within the stories they present of the past. These themes include natural biodiversity, preserving variety in crops and livestock, natural building materials, crafts and resources (drawing attention to the value of things made by hand). The themes presented in (A)OAMs are not theoretical, but are communicated through a multisensory learning experience, including interactions with people, animals and plants. These interactions also include an emotional depth. This leads Heeb to conclude that “it is fair to say that Open Air Museums are indeed predestined to lead the way to a sustainable revolution." (Heeb, 2022)

Both presentations mention emotional depth as an important factor in AOAM experiences, and as discussed above, a personal, affective approach to climate change engagement is also suggested by Boivin and Crowther (2021). The value of emotional connections created through interaction with archaeology has also been discussed by Hearne (2019). Hearne discusses the 'archaeological imagination', a way of thinking that allows forward projection as well as an understanding of the past. This is applied to the context of mental well-being, but in this case can equally be applied to thinking about the effects of climate change: “Projecting forward through time (i.e. ‘I’ll never see so-and-so in the same way again’) allows individuals to imagine their future, and relearn living in a different way.” (Hearne 2019, p. 157) The role of emotions in climate change engagement is further emphasized by Salama and Aboukoura (2018). Emotion encompasses, among other factors, behavioural components, and can have an impact on judgement and choice. "Emotions serve as affective prompts for engagement with an issue and lead to forming predispositions for action when a relevant situation arises." (Salama & Aboukoura, 2018, p. 137)

Positive emotions have been shown to aid in developing skills, networks and resources, which are in turn linked to wellbeing and a sense of fulfilment. Active cultivation of positive emotions can "expand individual awareness of […] connections to Earth's living systems," (Salama & Aboukoura, 2018, p. 137) which leads to more creative and effective ways to address climate issues. An awareness of the connection between the self and other living systems can help recognition that "wellbeing and environmental health go hand in hand." (Salama & Aboukoura, 2018, p. 138)

Returning to AOAMs, it becomes clear that they are uniquely placed within museum archaeology to address all the aspects of climate change engagement discussed here. As museum spaces, they are "friendly" (Collins, 2019) places to learn about complex issues. As places of archaeological interpretation, they can demonstrate time depth and tell local, personal stories with an affective component. As outdoor spaces, they offer immersive experiences and can facilitate a sense of connection with nature. They can engage visitors with themes of sustainability, biodiversity, and ancient plants, animals, and crafts, and show how these relate to the present. Through museum interpreters and other visitors, as well as narratives and interpretation, they can foster a sense of connection to other people both in the present and in the past. AOAMs can go further than just teaching 'facts' about climate change: they can be places that encourage awareness and reflection, and ultimately action, around climate change.

In order to discuss to what extent AOAMs are engaging with the disparate factors introduced here, chapter 4 lays out a framework of analysis. This is applied to the case studies in chapters 5, 6 and 7.

4 Analytical framework

To understand how museum exhibitions create knowledge, an understanding of the interplay between the components that make up exhibitions is necessary. A range of factors "work together to create an environment within which visitors gain understandings of culture, history, and science, as well as concepts such as "civilization", "progress", "race" and "gender"." (Moser, 2010, p. 23) It stands to reason that the concepts around sustainability, biodiversity, and ancient crafts, plants and animals, which are introduced above, are communicated the same way. Moser provides a framework with which to analyse "the complex mechanisms according to which displays generate ideas" (2010, p. 23), discussing factors that cover architecture, exhibition design and the museum audience. The factors suggested by Moser that are relevant to this study of AOAMs are **setting, space and layout, display types,** and **subject and text**. These factors represent what visitors might see on an 'average day' at the museum. Mentioned, but not further discussed by Moser, are **activities** and **educational programmes** (2010, p. 23). These will also be included in the analysis.

Setting pertains to how the AOAMs are set in the landscape and how they relate to their wider surroundings. Moser notes that the visitor experience begins at the approach to the museum, "with the physical reality of the site" (2010, p. 24). How noticeable the museums are in the landscape, and the buildings visitors pass through before reaching the museum grounds, are factors that give an initial impression about the importance of the site, and therefore also the importance of its messages.

Space and layout here relates to the physical space of the museum grounds and how visitor movement is guided through the exhibitions. Relevant questions, developed from Moser (2010), are:

- What are the physical parameters of the AOAM, do they feel enclosed?
- How is the landscape used? What is visible from different points?
- How is visitor movement directed, is there a set path or can visitors move freely around the grounds?
- How are the reconstructions separated (chronologically), is there a sense of difference between time periods?
- How is the space used as it pertains to the subject matter?

Moser's use of the term **display types** differs to Swain's (2007), discussed in chapter 2.2. Here, they mean the physical forms that displays can take, not the style in which information is presented. Moser's suggested display types range from original artefacts to reconstructions, from graphics and audio-visual aids to storytelling by reenactors (2010, p. 28).

Some questions relevant to an analysis of display types at AOAMs are:

- What display types are used at the museum?
- What are the relationships between the display types?
- How do the display types function as interpretive aids?
- What is the role of images in relation to other display types?

Subject pertains to the themes of the displays, what is highlighted (and what is left out). These become evident through the **texts**, which can be analysed on the level of tone, register, and style, as well as content. Relevant questions are:

- In what tone/register/style are visitors addressed?
- How much text is used in the exhibition? Is it descriptive or does it offer room for interpretation or differing opinions?
- Do the texts encourage visitors to take an active role in interpreting what they are seeing, or to reflect on how they relate to the subject matter?

Finally, the factors **activities** and **educational programmes**, which are listed on the museum websites, can supply information about what themes the museums aims to emphasize, and about their target audiences.

These factors are used as a framework of analysis for the AOAMs in this study. Chapter 8 will discuss how these factors work together to engage visitors with the concepts introduced in chapter 3.2. In the following chapters, each case study is introduced briefly with an overview of the museum's history, current situation, and planned future developments. Following this, the analysis framework is applied to the museums based on visits undertaken in April 2023.

5 Archäologisches Freilichtmuseum Oerlinghausen

Figure 6 Bronze Age reconstructions at AFM Oerlinghausen (photo: K. Rüegger).

5.1 Background

AFM Oerlinghausen opened to the public in 1936 as part of the festivities around the 900-year anniversary of the town of Oerlinghausen. The planned open-air museum had gone through many changes before its final iteration was decided upon; the plan to show reconstructions from several points in history eventually became a museum that showcased a "Germanic farmstead" [*"Germanengehöft"*] with a residential longhouse and workshops. The museum's target audience was young people, and it became a popular destination for National Socialist youth organisations (Banghard, 2018, pp. 5-6).

Between 1933 and 1945, National Socialist propaganda used prehistoric archaeology to spread the idea of a superior Germanic culture which had directly influenced the important intellectual and technological advancements of the West (Miera, 2019, p. 10). The Germanengehöft played a significant role in this. One way to achieve this was the museum's use of furnishings inside the reconstructions: they ranged from replica based on Bronze Age finds to furniture inspired by modern ethnographic comparison.

The furnishings gave the interiors a timeless feel, suggesting continuity from prehistory to the present, and served to reassure visitors that the "current social model was also the correct model." [*"dass das aktuelle gesellschaftliche Modell auch das richtige Modell war."*] (Banghard, 2018, p. 6) (Banghard (2018) goes into more detail on AFM Oerlinghausen's role as a place of propaganda for the National Socialist party, and Schmidt (1999) discusses the consequences this had on choices around reconstruction styles in later phases of the museum). After WWII, the buildings and museum park fell into a state of disrepair and in 1946, the structures were sold and demolished, echoing the fate of many reconstructions from this period that were destroyed or left to decay (Ahrens, 1990, p. 21).

The second iteration of the museum was built in 1961, funded by private investments and supervised by the same archaeologists who had been involved in the 1930s. The reconstructions were based on archaeological finds from the Barkhauser Berg, the hill upon which the museum is located. The AOAM saw some success, but was destroyed by a fire in 1973 (Banghard, 2018, p. 10).

The museum reopened for a third time in 1979, now named Archäologisches Freilichtmuseum rather than Germanengehöft. From the beginning, the focus was put on modern settlement archaeology, a deliberate shift away from the earlier propagandistic messaging. Reconstructions range through time from a Palaeolithic reindeer hunters' tent to an early Medieval longhouse (Banghard, 2018, p. 12). Groups still constitute a large part of the museum's audience, and many activities and programmes cater to groups of all ages (Banghard, 2018, p. 25). It is open from April to October.

Recently, the museum has shifted its focus towards environmental education. Plans in this direction have been in discussion since at least 2018, based on the idea that environmental politics can only be successfully communicated to an audience that understands the development of the modern cultural landscape [*"Es geht auch darum, dass Umweltpolitik nur vermittelbar ist, wenn man erklärt, wie es zu unserer heutigen Kulturlandschaft gekommen ist.*"] (Banghard, 2018, p. 26). The UrLand project aims to communicate environmental issues through a collaboration between the AOAM, the nearby nature reserves Senne and Teutoburger Wald, and a climate communication centre which, at time of writing, is under construction. This climate communication centre, Klimaerlebniswelt, is receiving national and regional funding and aims to address the "pressing questions of adapting to climate change" ["*die drängenden Fragen der Anpassung an den Klimawandel"*] (Kreis Lippe, 2023) in the areas ranging from architecture to urban planning and consumerism to biodiversity.

AFM Oerlinghausen plans to relocate its entrance to the other side of the Barkhauser Berg, which will bring it into closer proximity with the climate centre and the hiking trails that lead to the nearby nature reserve (K. Banghard, personal communication, April 3, 2023). In this way, climate education, archaeology and nature will be closely linked to one another in the visitor experience.

5.2 Site visit

Figure 7 Map of Archäologisches Freilichtmuseum Oerlinghausen (Archäologisches Freilichtmuseum Oerlinghausen, n.d. a).

SETTING

The reconstructions are built on the north-facing side of Barkhauser Berg in Oerlinghausen. The museum building (tickets, small shop and staff offices) and visitor car park are located at the foot of the hill, at the beginning of a hiking trail that leads to a protected natural area. The museum is also linked with the Tönsberg, a nearby hill. There are several archaeological sites on this hill, including Medieval trenches and the remains of late Iron Age palisade. Information panels on the Tönsberg explain the sites themselves and invite readers to visit the nearby AOAM to learn more.

A flight of stairs leads up the Barkhauser Berg to the museum grounds. To give visitors a sense of going 'back in time', illustrations line the staircase on both sides, showing technological and architectural advancements as well as influential historical figures, beginning in the present (2016) and ending, at the top of the staircase, with the year 10,000 BC. The reconstructions are hidden from view by trees, giving them a pleasant element of surprise when visitors reach the top of the staircase. Here, the visitor can choose to follow the path through the museum in chronological order, beginning with an Ice Age reindeer hunters' camp, or reverse chronological order, which begins with the Early Middle Ages.

SPACE, LAYOUT

The museum grounds are limited by the natural steepness of the hill and by fences, both reconstructions of prehistoric fences and modern ones. Although the boundaries of the museum area are clearly defined, it does not feel limiting, as the view continues naturally into the forest. There is a sense of being part of a wider landscape. At the beginning of the museum path, an introductory panel invites visitors to contemplate and explore: "Enjoy the meditative peace on a misty morning. Explore the area on your own path." [*"Geniessen Sie die meditative Ruhe an einem diesigen Morgen. Streifen Sie auf eigenen Wegen durch das Gelände […]."*] Wooden benches throughout the museum, as well as a dedicated picnic area, further encourage visitors to take in the museum at a slower pace.

The reconstructions are grouped by archaeological period:

Palaeolithic reindeer hunters' tent	12,500-11,850 BC
Mesolithic huts	6500-6000 BC
A neolithic longhouse	4500-4400 BC
The "Germanengehöft"	no specific date
A group of Bronze Age buildings	1550-1200 BC
Iron Age ramparts	250 BC
A group of Early Medieval buildings	8th century AD

The time periods are clearly separated from one another, either visually by vegetation and reconstructed walls, or spatially, for example by the walking distance between the Bronze Age buildings and the early Medieval buildings. Beginning with the earliest time period, the path leads past an Ice Age reindeer hunters' tent, Mesolithic huts set amongst hazel trees, a Neolithic longhouse surrounded by a wooden fence, the Germanengehöft which also includes a garden area, a group of Bronze Age reconstructions which includes a storage building, a wooden causeway, a pig pen and a burial chamber. (The Bronze Age longhouse visible on the map had recently been deconstructed to make way for a new reconstruction.) From here, the path leads down the hill, past an activity area where school groups can practice prehistoric archery and spear throwing, a reconstruction of the Iron Age ramparts found on Tönsberg, and an area for goats on the slope. The circuit ends in the early Middle Ages at an assemblage of buildings including a smithy, a pit house, and a longhouse. There is a small garden opposite the longhouse. The map of the museum shows fields for prehistoric agriculture, but as I visited the museum in early April, these were not yet visible. The reconstructions are based on archaeological finds from the region of East Westphalia.

The reconstructions differ vastly in size, from tents and huts to longhouses and features in the landscape. They do not only depict residential and trade buildings. The presence of religious or spiritual beliefs in the past is hinted at with the inclusion of the Bronze Age burial chamber and wooden figures in differing styles that are found in several places along the path. Reconstructed fences and walls indicate the need for defense (against people and wild animals) as well as property protection. The gardens, fields and animal enclosures give insight into farming practices in prehistory.

Attention is drawn to the landscape through demonstrations of its prehistoric uses. A steep slope is used for a goat enclosure, a partial reconstruction of an Iron Age palisade is situated at the top edge of the slope, and a wooden causeway leads across a small pond outside the Bronze Age buildings. These features give a sense that the landscape is part of the museum, not just incidental to it. All these factors come together to give the impression of a dynamic, constantly changing historical landscape.

DISPLAY TYPES

Some of the reconstructions are furnished with historical objects, but most of them are left empty or furnished for activities. Some of them are used for school groups and contain benches and hearths, as well as mill stones for children to learn how to grind grain, but are otherwise unfurnished. Others, like the early Medieval pit house and the smithy, are furnished with historical objects to demonstrate what the buildings might have looked like in use. At the time of my visit, some reconstructions were being used to store building materials for a planned new reconstruction. Two of the Germanengehöft buildings are currently being used as exhibition spaces. In one of these buildings, there is a small exhibition about drugs and alcohol in prehistory, and in the other an exhibition about prehistoric clothing and textiles.

The sparse furnishing of the reconstructions makes it difficult to imagine how life might have been lived in and around them. However, the interpretive panels supply some context. They contain a good deal of text, informative illustrations and in some cases photographs relating to the subject matter. They give contextualizing information about the reconstructions and the animals and plants in the museum in a straightforward way: the panels are all located close to the reconstructions they relate to, usually at a point on the path before the structure itself (if following the path in a chronological order).

The images used on the interpretive panels are all of a scientific nature. They rarely include illustrations of people in the past, the only exceptions are the silhouette of a hunter-gatherer throwing a spear, and a female figure operating a weighted loom. Figure 8 demonstrates this: it includes an illustrated reconstruction of the burial chamber, a photograph documenting the excavation, and a photograph of a burial mound in the modern landscape.

Figure 8 Interpretive panel explaining Bronze Age burial chamber (photo: K. Rüegger).

SUBJECT, TEXT

The introductory panel at the beginning of the museum path broadly states the subjects of the museum: changing lifeways, settlement patterns and economies from the Palaeolithic to the Early Middle Ages. Within this subject, the focus is on agriculture, resource use, domesticated plants and animals, construction techniques, and the environment, including the climate.

The interpretive panels can be grouped by theme. Panels focusing on the *archaeological period* give the name and year ('Palaeolithic, 9600 BC'), information about the archaeological evidence the reconstructions are based on, and general background information on key points and developments that happened within these periods. Some panels go into greater detail about specific *buildings,* for example for the Neolithic longhouse and the Bronze Age burial chamber. Panels about *plants* give more information on developments in farming and gardens through time, and those about *animals* supply information about both domesticated animals in the past, and historical animal breeds in the present. Finally, some panels go into more detail about historic *crafts*, such as iron smelting, smithing, and charcoal burning. Within these themes, there is a clear development through time from living in the environment (Palaeolithic, Mesolithic) to keeping nature out (Neolithic), to the developing importance of crafts and trade (Bronze Age onwards). The panel for the Medieval longhouse, the youngest archaeological period depicted, emphasizes the extension of trade networks for spices, wine, metals and even slaves, and the existence of specialized crafts such as gold- and silversmithing.

The introductory panel states that the museum is a place for visitors to experience the relationship of people to the environment of their time [*"Die Vegetation im Umfeld der Siedlungen macht das Verhältnis der Menschen zur Umwelt ihrer Zeit erfahrbar."*]. This is apparent in more than just the small hazel forest around the Mesolithic huts, and the prehistoric fields. A theme that emerges from the interpretive panels is the growing number of domesticated plants available to people through time: beginning with emmer, einkorn, lentils and peas in the Neolithic, the Bronze Age saw the addition of barley, wheat, spelt and millet, alongside vegetables and legumes like broad beans, cabbage and carrots. Poppy was used for oil and flax for linen. Finally, the panel for the Medieval herb and medicinal plants garden describes the origin of modern European garden culture and lists several familiar herbs, like coriander, parsley, dill and cumin.

The tone of the interpretive panels is quite technical, and, when on the rare occasions where the visitor is addressed directly, in a formal register. The texts contain specialist terminology (for example 'dendrochronology') and names of archaeological cultures (the Neolithic longhouse is attributed to the *Rössener Kultur*) without further explanation. In general, there is a lot of text in this museum, which could be an attempt to counterbalance the uneven furnishing of the reconstructions.

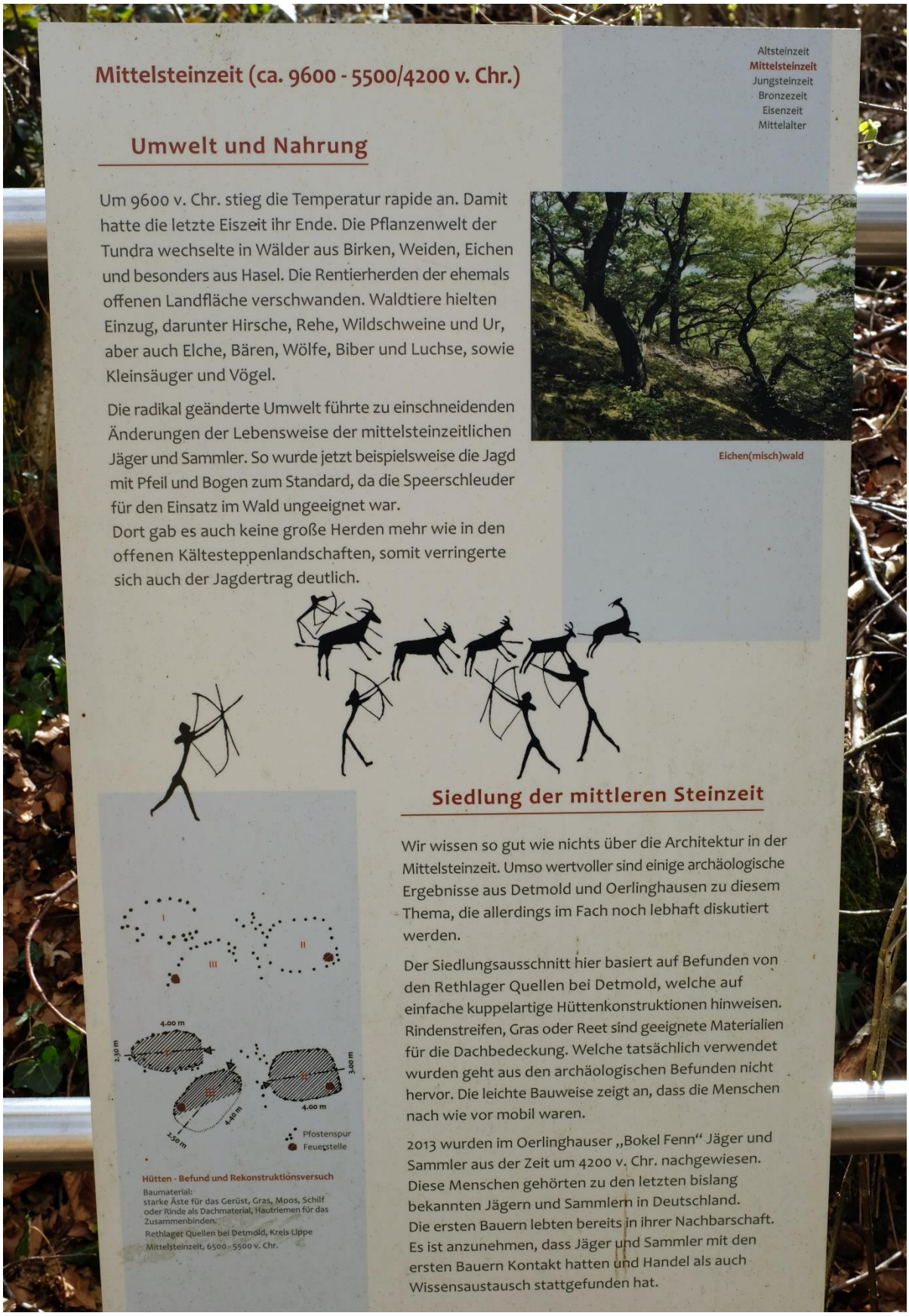


Figure 9 Mesolithic panel at AFM Oerlinghausen (photo: K. Rüegger)

Especially the two exhibition buildings of the Germanengehöft have extensive text panels on the walls, as well as books of bound laminated pages with more information on selected topics.

The texts are presented in a factual manner. A few examples demonstrate uncertainty or different possible interpretations, for example the panel for the Mesolithic (Figure 9) states that "it is likely that hunter-gatherers would have had contact with the first farmers" [*"Es ist anzunehmen, dass Jäger und Sammler mit den ersten Bauern Kontakt hatten"*], and explains that the archaeological record is unclear on the materials that would have been used for the huts [*"Welche [Materialien] tatsächlich verwendet wurden geht aus den archäologischen Befunden nicht hervor."*]

ACTIVITIES, EDUCATIONAL PROGRAMMES

AFM Oerlinghausen offers a varied selection of activities and events aimed at school groups, children, families, and adult groups. Their online events calendar for 2023 shows activities for children such as stone age speer throwing and historic archery, crafts for older children and adults like making a copper bracelet or tin casting, and programmes for adults like an 'after work' tour of the museum and a model-building workshop. Family activities include a 'family Sunday' and a guided walk to the archaeological sites on the nearby Tönsberg. They also collaborate with Living History groups. Some programmes take place outside of the usual museum opening hours, allowing the museum to be experienced at different times of day. The activities on offer change throughout the season, making the museum an attractive place to visit frequently.

6 PreHistorisch Dorp Eindhoven

6.1 Background

Figure 10 Reconstructions at preHistorisch Dorp with a fireplace and activity space (Photo: K. Rüegger).

PreHistorisch Dorp Eindhoven was founded in 1982 by a group of teachers who had previous experience constructing prehistoric buildings. It was the first AOAM in the Netherlands (Paardekooper, 2012, p. 127). The first buildings were prehistoric reconstructions – a shed and an Iron Age farmhouse. Medieval buildings were added in the early 2000s (Paardekooper, 2012, p. 127). Originally called Historisch OpenLucht Museum Eindhoven (HOME), it merged with the Museum Kempenland in 2012 to become part of the Eindhoven Museum. The name was changed to preHistorisch Dorp in 2016 to emphasize its historical range from prehistory (the Palaeolithic) to the 80 Years' War (Eindhoven Museum, 2021a, p. 6).

Since its conception, the target audience of the museum has been children, school groups and families. Until recently, the museum programmes were aimed more at experiences than the communication of specific knowledge about the past (Paardekooper, 2012, p. 127). In 2021, preHistorisch Dorp's programme focused on experiencing the past by actively engaging in activities, offering more activities for adults, and on expanding themes for a broader target audience (Eindhoven Museum, 2021a, p. 6).

While children and school groups remain a target demographic, the museum aims to attract visitors who would not usually seek out cultural experiences, while also remaining attractive to "experienced cultural visitors" [*"ervaren cultuurbezoeker"*] (Eindhoven Museum, 2021a, p. 6). The museum also aims to make visits more accessible to an international audience, and in 2021, the interpretive panels were updated and made bilingual (Dutch and English) (Eindhoven Museum, 2021, 13). It is open from April to early November.

The museum's mission is to relate contemporary phenomena to historical origins (Eindhoven Museum, 2021a, p. 9). PreHistorisch Dorp aims to present different perspectives on the past, including the 'uncomfortable', providing insight into the origins of "our current pluralistic society" [*"onze huidige pluriforme samenleving"*] (Eindhoven Museum, 2021a, p. 8). Within this mission, the focus is on connecting crafts and the environment through the ages in an accessible, interactive, and meaningful way (Eindhoven Museum, 2021a, p. 9). Costumed interpreters are a core component of the visitor experience at preHistorisch Dorp. Called villagers [*"bewoners"*], they are not reenactors, as they do not portray people living in a particular period of the past, but instead are on site to give tours of the entire museum and answer visitor questions.

The museum is gaining recognition in the scientific community for its role in visualizing the past and as a source for insights into traditional crafts. The museum also positions itself as a knowledge centre and "partner in science" [*"gesprekspartner in de wetenschap"*] (Eindhoven Museum, 2021a, p. 13). This position as a knowledge centre was strengthened by the opening of ArcheoFactory in 2022, which is an interactive exhibition aimed at older children and adults presenting recent "innovations in archaeological research" (PreHistorisch Dorp, n.d. a).

Currently, a project is underway to merge preHistorisch Dorp and Museum door de Stadt, a wandering exhibition in Eindhoven which showcases the city's modern history. The planned new museum concept, VONK, builds upon and expands the current preHistorisch Dorp museum park, adding a historical collection, a workspace where designers and students can collaborate on installations with museum visitors, and installations placed around the museum park which depict moments of transformation in Eindhoven's history [*"momenten van transformatie in de Eindhovendse geschiedenis"*] (Eindhoven Museum, 2021b, p. 6). The aim of *VONK* is to make the prehistory and history of Eindhoven and the region accessible in one place.

6.2 Site visit

Figure 11 Map of preHistorisch Dorp, Eindhoven (preHistorisch Dorp, n.d. b).

SETTING

PreHistorisch Dorp is located within a large park in the city of Eindhoven. The entrance lies on a path that continues further into the park. Visitors reach the entrance on foot from the car park, following a path which is lined on the museum side by a high wooden fence, which looks 'historical' and evokes curiosity even before entering the museum. The entrance building, where visitors purchase tickets, is a reconstruction of a 16th century tollhouse.

SPACE, LAYOUT

Exiting the tollhouse, the visitor is in an open square which features a 16th century inn with tables and benches outside. The majority of the reconstructions are to the right of this square. The museum park is bordered on one side by a small body of water and on the other by a wooden fence. Although preHistorisch Dorp is very close to the city, it feels quite removed from it.

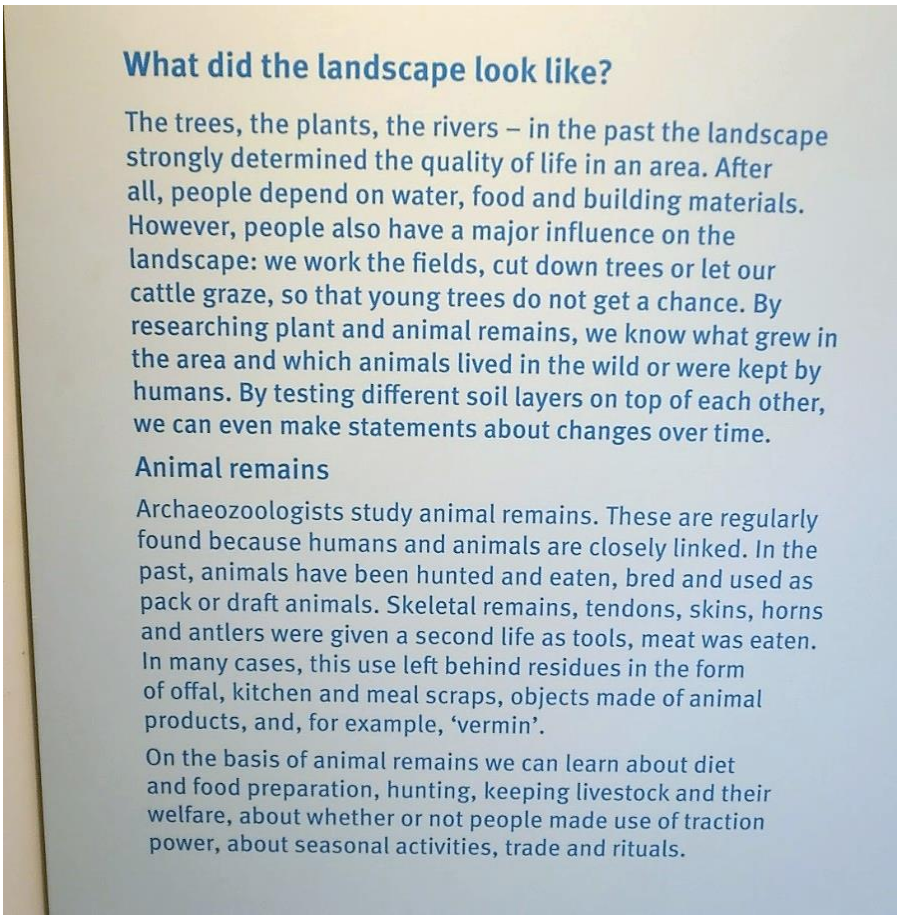
The museum depicts six time periods which align roughly with traditional archaeological divisions:

Age of Hunter-Gatherers	25000-5300 BC	Stone Age
Age of First Farmers	5300-50 BC	Stone Age-Iron Age
Native-Roman Era	50 BC-500 AD	Roman Age
Age of Franks and Vikings	500-1000 AD	Early Middle Ages
Age of Trade and Cities	1000-1568 AD	Late Middle Ages
Eighty Years' War	1568-1648 AD	Early Modern Age

On the map, the "hunter's camp", a hunter-gatherer's tent, is marked with the number 1, but there are no signs pointing out a chronological circuit of the museum. The park is a relatively open space that can be explored along different paths. This means that there is no real sense of difference between the buildings that depict the "age of first farmers" (Neolithic through Iron Age) and the "native-Roman era". The structures depicting the period following the Roman Era chronologically, the "age of Franks and Vikings" (early Middles Ages) are on the opposite side of the park, while the "age of trade and cities" (late Middle Ages) and the "80 Years War" (early Modern Age) are adjacent to the Roman Age. Free guided tours take place regularly throughout the day and follow a chronology, beginning at the hunter-gatherer tent and ending outside the 16th century inn. The prehistoric reconstructions are based on evidence from across the Netherlands, while the reconstructions from the Middle Ages onwards are based on evidence from Eindhoven.

An effort has been made to create variation within the landscape. The "time of hunter-gatherers" is a forested area separated by a wall from the "first farmers" area, which gives an idea of the differences in prehistoric landscapes. A short 'hidden' path runs along the water near the Inn, which is not necessarily historical but creates a moment of 'adventure'. In the main part of the museum park, space around the reconstructions is limited, but it is used for small gardens and activity areas. There is also a small pig pen, and large oak tree named the 'Holy Oak', which stands between the Hunter-Gatherer and first farmers area. The result is less a feeling of moving through different periods of time and cultural expression, and more simply moving through different areas of the museum.

DISPLAY TYPES



What did the landscape look like?

The trees, the plants, the rivers – in the past the landscape strongly determined the quality of life in an area. After all, people depend on water, food and building materials. However, people also have a major influence on the landscape: we work the fields, cut down trees or let our cattle graze, so that young trees do not get a chance. By researching plant and animal remains, we know what grew in the area and which animals lived in the wild or were kept by humans. By testing different soil layers on top of each other, we can even make statements about changes over time.

Animal remains

Archaeozoologists study animal remains. These are regularly found because humans and animals are closely linked. In the past, animals have been hunted and eaten, bred and used as pack or draft animals. Skeletal remains, tendons, skins, horns and antlers were given a second life as tools, meat was eaten. In many cases, this use left behind residues in the form of offal, kitchen and meal scraps, objects made of animal products, and, for example, 'vermin'.

On the basis of animal remains we can learn about diet and food preparation, hunting, keeping livestock and their welfare, about whether or not people made use of traction power, about seasonal activities, trade and rituals.

Figure 12 Excerpt from a panel about the prehistoric landscape in ArcheoFactory (photo: K. Rüegger).

An interactive exhibition, named ArcheoFactory, allows visitors to learn about current archaeological research methods. It focuses on the changes in archaeological science since the opening of preHistorisch Dorp (PreHistorisch Dorp, n.d. a), explaining how data is gathered and interpreted (Figure 12). There are several stations in the ArcheoFactory where visitors can conduct their own 'experiments' based on the information given in the panels. Due to the subject matter of the ArcheoFactory, and the fact that its opening hours differ from those of the main museum, I have omitted the ArcheoFactory from further analysis.

The reconstructions spanning the periods from Hunter-Gatherers to the Native-Roman Era are not furnished to give an impression of historical accuracy. Most of the structures depicting these time periods are used for activities, for example a reconstruction with a sitting area on one side and beds on the other, for school groups to stay overnight.

The buildings spanning the Middle Ages are furnished with a mix of activity areas and historical objects, for example the late medieval "artisan's house" features a bed in the corner, a hearth, and other objects of daily life, as well as a table where visitors can try writing with a quill and ink. The Frankish long house is also half furnished to depict life at the time, and half caters towards overnight stays for school children. Finally, the inn and tollhouse from the 80 years' war are used as the museum restaurant and entrance building.

Within the museum park, there are two main interpretive panel types related to each time period: *story* panels, where characters from the time period 'talk' about their experiences, and panels asking *How did we write this story?* These explain what kind of archaeological and historical data were used to write the *story* panel, and encourage visitors to learn more in the ArcheoFactory. In the activity areas, there are panels titled *Doe mee!* which encourage visitors to try different activities, and *thematic* panels relating to more specific topics like (pre)historic gardens and ancient crafts are placed in relevant areas.

Costumed interpreters, called “villagers” in the English language museum guide, are onsite all day excepting a brief break over lunch time. They answer visitor questions and ‘enliven’ the space by tending fires and cooking, or showing how to carry out some of the activities. During my visit, it was also possible to try archery with a longbow, under the supervision of a “villager”.

Most of the images used on the interpretive panels are photographs. They show costumed interpreters carrying out activities, as well as reconstructions, gardens, and historic objects. The *story* panels are designed to look like a sheet of parchment, and the characters introducing their time periods are shown in silhouette (Figure 13).

SUBJECT, TEXT

The preHistorisch Dorp begins with the "age of hunter-gatherers", but aside from this it presents settled life from the "first farmers" to the 80 Years War (17th century), moving from rural to urban living and drawing from finds from the region and the Netherlands more broadly. In the later time periods is focuses specifically on the city of Eindhoven. The emphasis is on agriculture, trade and resource use through time.

The texts are written in a conversational tone. The reader is sometimes addressed directly, usually through a question like "Do you want to know what our lives were like?" (Figure 13). This does not subtract from their informative quality. Each panel contains concise archaeological and historical information presented through evocative descriptions (such as "travelling merchants from faraway

lands" and the walled Iron Age fields looking "like a honeycomb" from above) (Figure 13). As explained above, the panels are grouped thematically.

The *story* panels are written from the perspective of an inhabitant of the time period. These fictional characters introduce themselves by name, for example "Lau" is a hunter-gatherer, "Bente" belongs to the first farmers of the region. The characters address the readers directly, sometimes greeting them as "time travellers", which encourages the idea that visitors have gone back in time to speak to people in the past and are seeing their lived reality in the buildings and environment.

The panels asking *How did we write this story?* addresses the readers in the present, again in a direct way: "What you see in our museum…" (Figure 14). The themes here are archaeological data and interpretation. They point out where archaeology can still be found in the landscape in the present (for example in burial mounds) and address the fact that people in the past experienced different lived realities, meaning there is not only 'one story' of the past.

The panels titled *Doe mee!* – translated to "Join us!" in the museum guide (PreHistorisch Dorp, 2023, p. 24) – encourage visitors to participate in various activities around the museum, from making music with sticks to grinding barley to making wooden pegs. These panels all show adults (costumed interpreters) carrying out the activities, perhaps to underline the idea that these are not only aimed at children.

Finally, *thematic* panels go into detail about other aspects of (pre)historic life. The themes range from historic animal breeds to gardens (Roman herb garden, Celtic fields in the Iron Age, medieval dye and vegetable garden) to textile and metal production.

The amount of text panels used in the museum park feels balanced: one or two panels for each time period and one explaining how the 'story' was written. The *Doe mee!* panels are kept deliberately short, and the ones containing further information are set in the park in such a way that makes them feel 'optional', without giving visitors the feeling they are missing something if they do not read them. The presence of costumed interpreters means that visitors looking for more information can ask questions directly.

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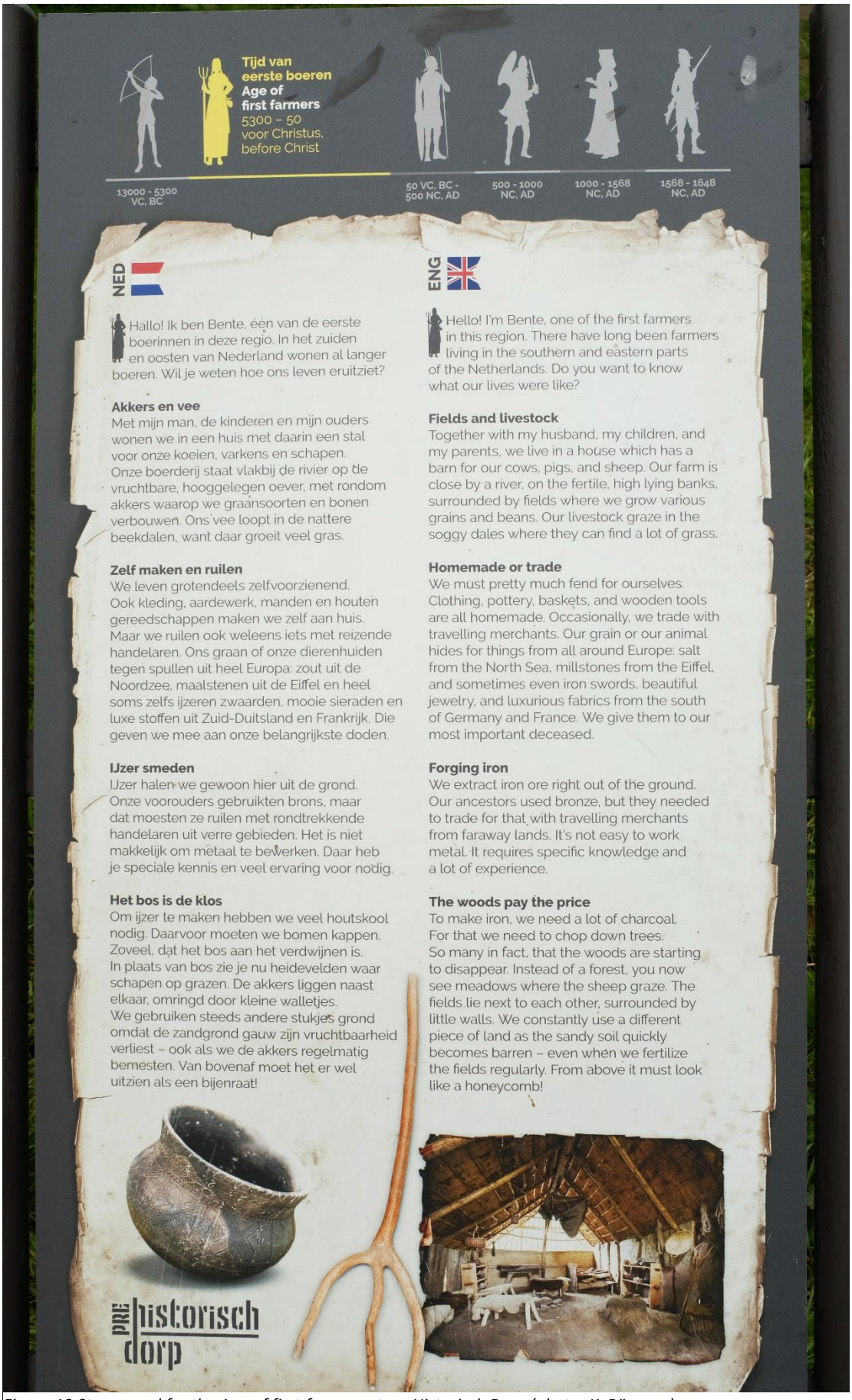

Figure 13 Story panel for the Age of first farmers at preHistorisch Dorp (photo: K. Rüegger).

ACTIVITIES, EDUCATIONAL PROGRAMMES

There are many activities at the museum that visitors can independently participate in. These range from grinding barley, to making wooden pegs, to writing with a quill and ink. For organized events, the offer ranges from school excursions to overnight stays, to business events and birthday parties. The school programmes, aimed at primary, elementary and high school students, match the Dutch history curriculum and are individually prepared considering the needs of each group. The business event offer, billed as a “team building event or corporate gathering”, involves activities like making fire, casting tin, and learning archery (PreHistorisch Dorp, n.d. c).

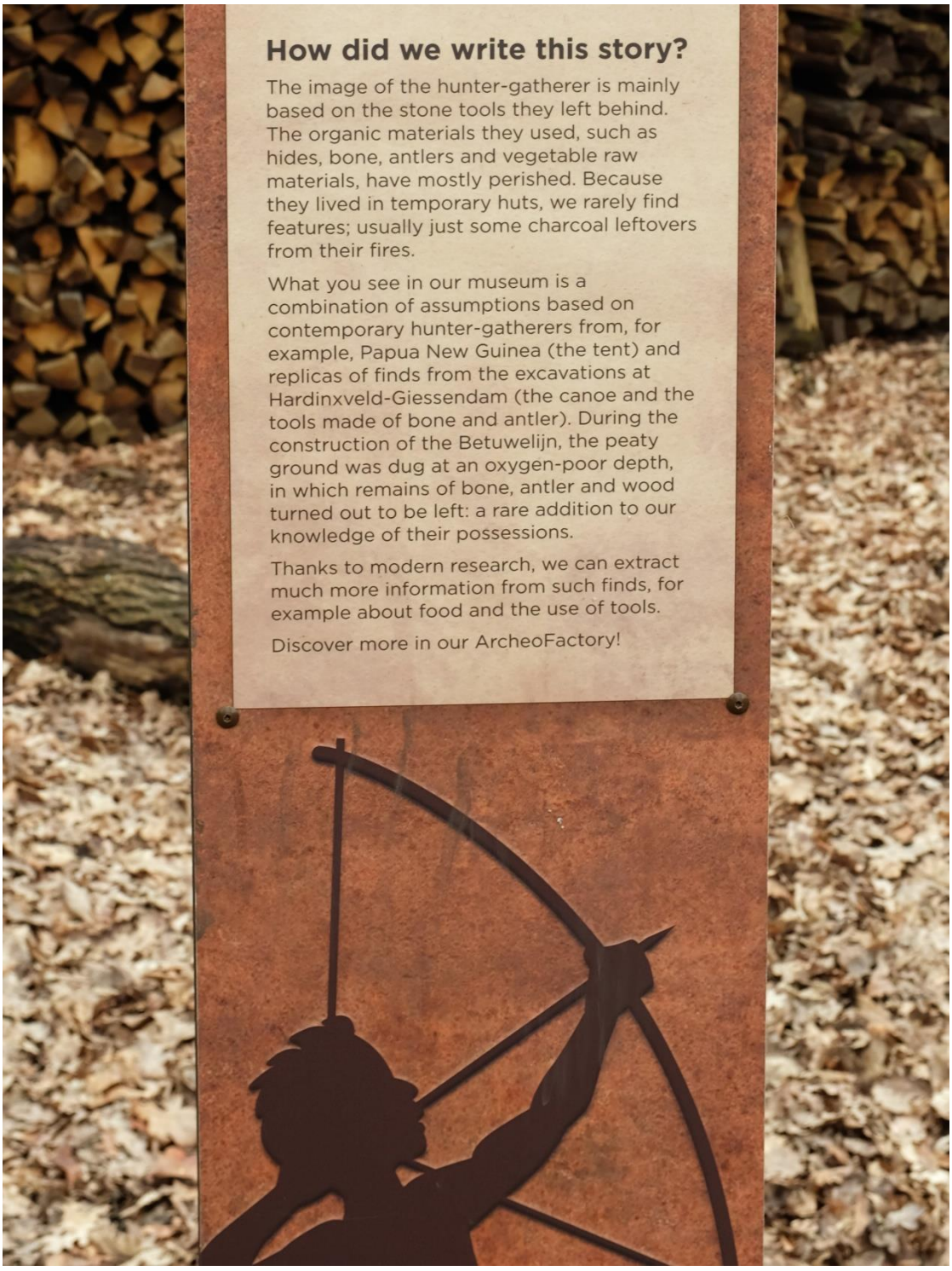

Figure 14 Excerpt from How did we write this story? panel for the Age of hunter-gatherers (photo: K. Rüegger).

7 Pfahlbauten Unteruhldingen

Figure 15 Bronze Age reconstructions at Pfahlbauten Unteruhldingen (photo: K. Rüegger).

7.1 Background

As mentioned in chapter 2.4, Pfahlbauten Unteruhldingen opened in 1922, as the first reconstructed prehistoric buildings aimed at a museum audience. The project was privately funded, with the members of the founding committee raising 200,000 Deutsche Mark from donors within just a few months. The first two reconstructions were based on excavations carried out on Lake Constance and Federsee, and built according to the archaeological theories of the time with the help of the University of Tübingen. 6000 people visited the museum in its first year, over half the visitors were school children. A short film made at the museum in 1926 brought the reconstructions to a national audience (Schöbel, 2023, p. 44). For the first few years, the reconstructions presented a general, romanticized view of the past, but in the early 1930s the museum was used by the National Socialist party to present a particular interpretation of prehistory. *Gleichschaltung* meant that institutions were coordinated to adhere to party policy and messaging, and in the case of the reconstructions at Unteruhldingen, this meant for example that a building previously named *Herrenhaus* ('chief's house') became the *Führerhaus* (Schöbel, 2023, p. 44). The buildings were furnished to give the impression they were inhabited; the imagined inhabitants were presented as lake-dwelling soldiers ready to defend their homes.

This was in line with the idea of 'heroic thought' encouraged by the National Socialists (Paardekooper, 2012, p. 41). Also like AFM Oerlinghausen, Pfahlbauten Unteruhldingen became a popular destination for state-operated excursions (Schöbel, 2023, p. 44). The museum joined the Reichsbund für Vorgeschichte (society for prehistory), which allowed it to build more reconstructions with state funding (Schöbel, 2023, p. 45).

Unlike other AOAMs, Pfahlbauten Unteruhldingen remained open after 1945, excepting a few months where it was occupied by soldiers. It was given permission to reopen due to its cultural significance (Schöbel, 2023, p. 45). Visitor numbers suffered, but rose again rapidly in the following years. The exhibitions were updated, and the founding committee was once again running the museum independently in 1950 (Schöbel, 2023, p. 45). In 1954, 100 years after the first discoveries of the remains of pile dwellings in Lake Zurich, a research centre for prehistory was founded (Forschungsinstitut für Vor- und Frühgeschichte). This allowed the museum's collection to be collated and stored appropriately. The institute included a library and equipment for excavations on land and under water. The museum has been publishing its own journal, *Plattform,* since 1992 (Pfahlbauten Unteruhldingen, 2020a).

Pile-dwelling reconstructions once again gained popularity among a wider public in 2006, when the experimental living history documentary *Steinzeit, das Experiment – Leben wie vor 5000 Jahren* (‘Stone Age, the experiment – living like 5000 years ago’) aired on German television (Schöbel, 2023, p. 47). The show sparked a rise in demand for more educational activities at the museum, which led to the addition of a park area, the *Steinzeitparcours* ('Stone Age trail'), in 2011. The reconstructions used in the documentary were later moved to Unteruhldingen (Schöbel, 2023, p. 47).

In 2011, Pfahlbauten Unteruhldingen played an important role in securing joint UNESCO World Heritage status for 111 pile dwelling sites in the Alpine region, collectively given the title Prehistoric Pile Dwellings around the Alps (Paardekooper, 2012, p. 142). In 2013, it opened the exhibition "The Lake Dwellers' Heritage", which displays artefacts from some of these sites. In 2022, the museum celebrated its 100-year anniversary. A small exhibition in the houses built in 1922 commemorates the occasion (Pfahlbauten Unteruhldingen, 2020a).

Today, the museum and research centre have partnerships with the University of Tübingen's institutes of prehistory and medieval archaeology, the Württemberg State Museum, EXARC and several historical societies and museums. They are involved in local archaeological surveys and watching briefs (Pfahlbauten Unteruhldingen, 2020a). The museum is open from April to early November.

Since early 2023, the construction of new museum buildings at Pfahlbauten Unteruhldingen has been underway. The project is receiving state funding, which the museum sees as a step towards the broader recognition of the importance of regional, privately managed museums (Schöbel, 2023, p. 47). A sign at Pfahlbauten Unteruhldingen informs visitors about the construction site, stating that the new buildings will be a place for "old finds, new ideas, local (hi)stories, workshops" [*"alte Fundstücke, neue Ideen, Heimatgeschichte(n), Workshops"*].

7.2 Site visit

Figure 16 Map of Pfahlbauten Unteruhldingen (Pfahlbauten Unteruhldingen, 2020b).

SETTING

The reconstructions are built in the lake or directly on the shore of Lake Constance in the village of Unteruhldingen. Visitors reach the museum on foot as there is no visitor parking directly at the museum. The museum borders on one side on a nature reserve.

It is tied into its surroundings by the Zeitweg ('time path'), a series of routes visitors can take through Unteruhldingen, which include a stop at the AOAM alongside other historical and archaeological features in the area. The UNESCO world heritage site Stollenwiesen is one of the points on the Zeitweg.

Here, a modern reimagining of a pile dwelling stands at the end of a pier and faces onto the lake where the remains of the Bronze Age settlement Stollenwiesen are still preserved under water. Reconstructions of the Stollenwiesen settlement can be found in the museum.

During my visit, the main entrance was closed due to construction work, and the museum grounds are reached through a side entrance. This does not detract from the first impression of the reconstructions, whose setting in the lake is undeniably impressive.

SPACE, LAYOUT

The museum space is divided into three distinct areas: a small exhibition named The Lake Dwellers' Heritage which displays objects from pile dwelling sites in Germany and Switzerland, the reconstructions, and the Steinzeitparcours ('Stone Age trail'), a garden and park area which looks at prehistoric and contemporary relationships with the natural environment.

Visitor movement is clearly directed around the museum, as indicated by the arrows on the map (Figure 16). At the time of my visit, some parts of the museum were closed due to construction work, so this circuit may change after the opening of the new museum buildings. A short introductory tour takes visitors to the first group of reconstructions (Wasserburg Buchau). From here, visitors can explore the reconstructions freely.

The five groups of reconstructions are based on Neolithic and Bronze Age finds. Four of them are named for their archaeological sites of origin.

Wasserburg Buchau (Bronze Age)	1058-850 BC
The reconstructions from 1922	4000-3900 BC
Unteruhldingen-Stollenwiesen (Bronze Age)	2900-850 BC
Sipplingen (Neolithic)	3800-2800 BC
Hornstaad and Arbon (Neolithic)	3384 BC (Arbon), 3917 BC (Hornstaad)

The circuit moves backwards in time from the late Bronze Age to the Neolithic and the *Steinzeitparcours,* passing two buildings based on the Neolithic sites Hornstaad and Arbon on the way to the exit. Because the reconstructions on display are all based on a particular kind of building style, they look similar at first glance. They all depict either residential buildings or 'workshops'. The *Sipplingen* group is surrounded by a reconstructed palisade. However, the buildings differ both in construction technique and in the way they are furnished, as will be discussed below. The reconstructions are built on platforms which are connected by wooden walkways.

A palisade hides the Sipplingen group from view, but the rest of the reconstructions are visible from every point in the museum.

DISPLAY TYPES

Figure 17 Part of The Lake Dwellers' Heritage exhibition at Pfahlbauten Unteruhldingen (photo: K. Rüegger).

The museum is comprised of three distinct areas: *The Lake Dwellers' Heritage* exhibition, the reconstructions and the Steinzeitparcours.

A small, but detailed exhibition called The Lake Dwellers' Heritage is located in one room opposite the ticket booth at the entrance to the museum. It displays artefacts from excavations of lake dwelling settlements. The exhibition asks the question: why are the lake dwellers still relevant today, what is their heritage? Key words above a display case against the far wall supply answers to this question: *"Handwerkstechniken – Handicraft technology, Erfindergeist – Inventive talent, kulturelle Vielfalt – cultural diversity, Fähigkeiten – skills, Wissen – knowledge, Lernfähigkeit – learning aptitude, Anpassungsfähigkeit – Adaptability, Nachhaltige Wirtschaftsformen – sustainable economy"* (Figure 17).

These themes are expanded upon in several texts accompanying smaller display cases along the walls. Images are kept to a minimum so as not to distract from the objects. The photographs show the state of the submerged wood piles today.

A free introductory tour is offered by the museum at regular intervals. Visitors can wait at the entrance and are then led to the first group of reconstructions, Wasserburg Buchau, and given information about the history of the museum and of pile dwelling research more broadly.

Each group of reconstructions is furnished in a distinct style. The oldest buildings, built in 1922, currently house a small exhibition commemorating the 100-year anniversary of the museum. The group Wasserburg Buchau has a large reconstruction furnished with replica of Bronze Age objects such as bronze weapons, delicate pottery and an intricately carved wooden chair. The smaller buildings in this group hold representative items that illustrate the themes of pottery and bronze casting. Three buildings in the group Uhldingen-Stollenwiesen contain reconstructed scenes with life-sized models. The scenes depict a ceremony, with a deceased figure laid out on a wagon, mourners and a spiritual figure standing over the body; a furnished room showing everyday activities (Figure 18); and a stable with animals and a young girl drawing on the wall. In the same group of buildings, another reconstruction is set up as an information centre where a museum employee answers questions and talks about aspects of the past. During my visit, the topic was prehistoric woodworking techniques. The fifth building in this group is the Haus der Fragen ('house of questions'), where an installation answers 50 frequently asked questions about lakeside settlements and their inhabitants (Schöbel, 2006, p. 32). The reconstructions in the Sipplingen group are furnished like inhabited buildings, with artefacts relating to the themes of pottery, stone tool production and nutrition in the Neolithic.

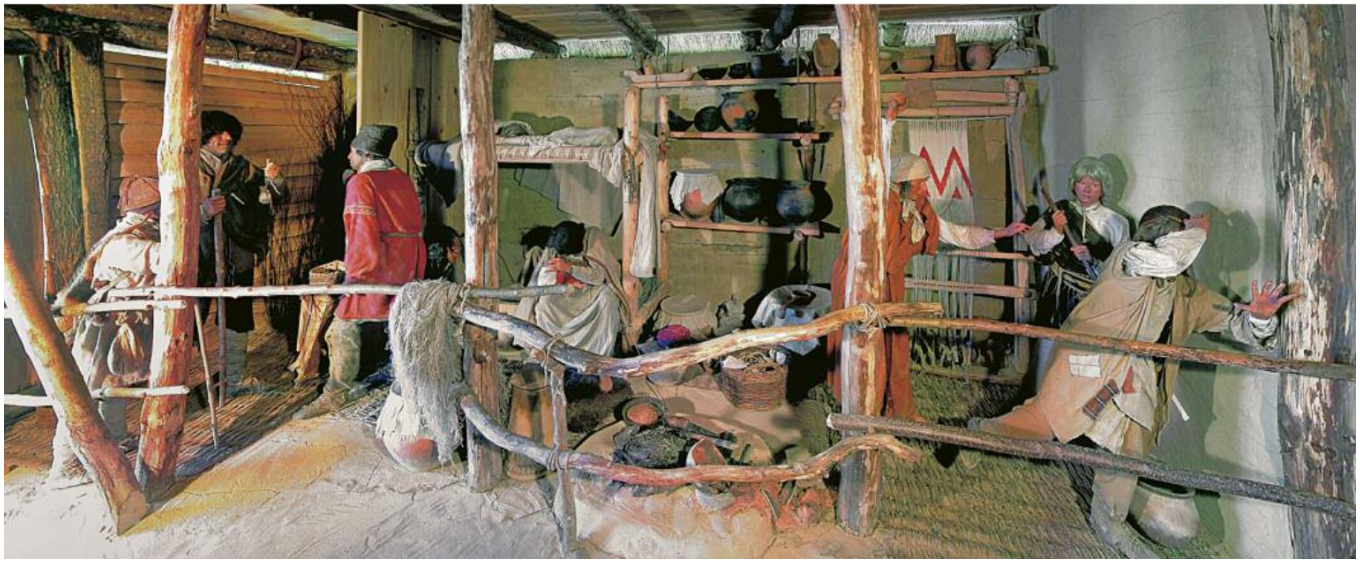

Figure 18 Reconstructed life scene at Pfahlbauten Unteruhldingen (Schöbel, 2023, p. 46)

Interpretive panels are affixed to the outer walls of the reconstructions, so visitors can read the panel before looking inside to see more. Two interpretive panel styles can be found around the reconstructions: red panels with one illustration and a short text in German, English and French, and panels in the same design as those on the Zeitweg, which include longer texts only in German, as well as photographs and illustrations. The Uhldingen-Stollenwiesen group, which contains the life scenes, uses fewer panels, allowing the recreated scenes to speak for themselves. The position of the information centre and the Haus der Fragen on the same platform allows visitors to easily find answers to questions that the scenes may raise. The Haus der Fragen was installed in 2005 (Schöbel, 2006, p. 31) but the questions and answers given are still very relevant.

The images used around the reconstructions do a lot to enliven the space. Each red panel shows an illustration of people in the past carrying out an activity, for example the panel for the Wasserburg Buchau storage room shows two people gathering berries in the foreground, while two others plough a field in the background (Figure 22). While perhaps the depictions would not be so stereotypical if they were made today[2], they do help remind visitors that these reconstructions represent buildings that were inhabited in the past, and aid in imagining what the inhabitants may have looked like. Around the Sipplingen reconstruction group, banners with a short text and illustrations of people also help the visitor imagine everyday life in the past (Figure 19).

The Steinzeitparcours is a park area with trees, gardens and activity areas. Informative panels focus on the trees and plants on 'display', as well as neolithic construction techniques. The texts are in German and English, and a French version can be accessed through a QR code on each panel. Images range from photographs to illustrations of life scenes to scientific illustrations.

SUBJECT, TEXT

Throughout the museum, the register is formal (*Sie* in German), and mainly kept in the passive form (avoiding addressing the visitor directly), but the tone of the interpretive panels is accessible and engaging. The use of specialist terminology is kept to a minimum.

The museum in general uses a lot of text, although here too, the way text is used to relate to the visitor differs between the three areas. Each area has a different focus, but the broad subjects of the museum as a whole are prehistoric crafts, diversity in material culture, connection with the environment (both in the past and the present) and connections between regions and cultures in the past.

[2] All the figures in the Wasserburg Buchau "social life" panel are male, and male figures carry out most of the active work depicted in the illustrations. Women are rarely featured and are shown carrying out less physically demanding activities. Children also rarely feature, and there are no elderly people.

Around the reconstructions, panels are used sparingly. The texts around the reconstructions are descriptive, they contain information about the excavations that the reconstructions are based on and when the reconstructions themselves were built. Each panel focuses on a theme relevant to the time period, usually related to crafts or food and food storage, although one panel addresses "social life" in the Bronze Age, which in this context means the expression of status through material goods. Some signs leave room for interpretation, for example the "Pottery" panel for the Wasserburg Buchau group reads: "The clay stamps with different patterns may have been used for removable tattoos on the skin – or could they have been bread stamps?" Some texts draw direct comparisons to the modern day, the "Storage room" panel for Wasserburg Buchau begins "Before the invention of the refrigerator and canned food, storage of food was a major challenge."

Figure 19 Banner depicting people at Pfahlbauten Unteruhldingen (photo: K. Rüegger)

In one of the reconstructions, two very small dioramas are accompanied by a short text addressing the fact that the interpretation of archaeological data is influenced by many factors, of which scientific research is only one. The two dioramas demonstrate how reconstructions based on the same data and artefacts can differ, by showing two interiors that use the same architecture and artefacts, but that are staged in very different ways. However, these dioramas are set in a corner of the reconstruction and so they, and the important point they make, are easy to miss.

The Lake Dwellers' Heritage exhibition points out that there are still many open questions around the pile dwellings, most explicitly with a panel titled "Mysteries… There are still many open questions". The texts here also evoke the emotions of past people. The panel "Valuable Goods… Used and repaired" for example evokes the frustration of working on an object only for it to break: "How annoyed must the craftsman have been, when after hours of drilling a shaft hole for an axe, he suddenly held two halves in his hands!" On the same panel, the concepts of sustainability and reuse are emphasized, pointing out that although sustainability is a modern term, the concept was unavoidable in prehistory (Figure 20).

In the Steinzeitparcours, the subjects are trees and plants, and prehistoric construction techniques. The texts here address visitors directly and encourage reflection and action around our relationship with nature. The introductory panel "The forest of the pile dwellers" briefly explains the many uses of the forest 6000 years ago, and ends with the question "Would you recognise the trees?". Throughout the Steinzeitparcours, nine panels focus on trees and their various uses as food, medicine and building materials, one side showing a photograph and the question "Do you know this tree?". The other side shows the name of the tree and how different parts of it can be used (Figure 23). Panels about the plants used in arable farming and plants that were gathered for various uses also ask the question "Which plants would we still recognize today?" This panel encourages visitors to use a plant identification app (and provides a QR code for direct download) on their next walk in the woods.

Figure 20 Panel from The Pile Dwellers' Heritage at Pfahlbauten Unteruhldingen (photo: K. Rüegger)

The panels about prehistoric construction techniques also encourage activity. One panel for example demonstrates how to make a type of cord made of tree bast, which was used to secure wood without nails. Another panel explains how Neolithic buildings were insulated to preserve heat. Each of these panels asks a question relating to the topic and supplies multiple possible answers, with the correct answer found on the other side of the panel. This encourages visitors to actively engage with the topic.

The Steinzeitparcours also brings up topics that might be unexpected, which provide a point of recognition. The panel about arable farming points out that grain was used to make beer, as well as bread and porridge. A large game of memory has matching pairs which show the prehistoric and modern versions of everyday items, such as a flint knife and a pocketknife, or birch tar and chewing gum.

Both the Lake Dwellers' Heritage exhibition and the Steinzeitparcours heavily emphasize the relevance of the subjects they present to the present day by drawing attention to similarities in concepts and culture.

ACTIVITIES/EDUCATIONAL PROGRAMMES

Notably, none of the reconstructions are used for group activities. Educational programmes and activities take place in the Steinzeitparcours and the relocated reconstructions from the 2006 documentary (labelled *"SWR"-Dorf* on the map). The online agenda for August to November 2023 showed that the museum focuses mainly on demonstrations – prehistoric crafts such as bronze casting, woodworking and textile production are demonstrated by experts. For children, the Archeo-Kids Kinderclub periodically offers activities like baking and learning fire-making techniques, as well as a 'grandparents' day' which includes a tour of a reconstruction and crafting small wooden objects in the Steinzeitparcours. The museum's target audience is children and families (Pfahlbauten Unteruhldingen, 2020a).

8 Themes and strategies of climate change engagement

Following the discussion in chapter 4 of how setting, space and layout, display types, subject and text, and activities and educational programmes intersect to create meaning and knowledge, and a closer look at each of these categories in the case study museums in chapters 5-7, this chapter discusses how the categories of analysis are used in the AOAMs in terms of climate change engagement, specifically using the concepts summarized in the final paragraph of chapter 3.2:

*As places of archaeological interpretation, they can **demonstrate time depth** and **tell local, personal stories** with an **affective component**. As outdoor spaces, they **offer immersive experiences** and can facilitate a **sense of connection with nature**. They can engage visitors with **themes of sustainability, biodiversity, and ancient plants, animals, and crafts**, and show how these **relate to the present**. Through museum interpreters and other visitors, as well as narratives and interpretation, they can foster a **sense of connection to other people** both in the present and in the past.*

This shows that climate change engagement at AOAMs can contain the broad themes of sustainability, biodiversity, ancient plants, animals, and crafts, and the strategies of telling local, personal stories, creating immersive experiences, affectivity ("fostering feelings of inclusion and empathy between people and nature" (Shear, 2022)), demonstrating time depth by relating the past to the present and the future, and fostering a sense of connection with nature and between people. These themes and strategies overlap and can be combined in a myriad of ways to facilitate audience engagement. Some examples of this from each museum will be discussed below.

PreHistorisch Dorp relies heavily on interpretive panels to engage visitors, using several strategies to do this. The main, most immediately obvious strategy is the use of local, personal stories. These are presented through fictional characters, who introduce themselves by name, address the visitor directly, and talk about their experiences in the time period they represent. The characters often remind the visitor of the temporal distance between then and now with phrases like "Greetings, time traveller" or "Welcome in my time." This creates a moment of connection and a sense of time depth, linking the past to the present. The choice to portray the fictional characters only in silhouette is interesting. On the one hand, it communicates to the visitor that we do not know exactly how people in the past would have looked, and allowed the museum to avoid making possibly contentious choices about eye, hair or skin colour. On the other, the silhouettes leave much open to the imagination of the visitor, which might encourage more direct identification with the characters, as no two people will imagine them in quite the same way.

Themes of sustainability and biodiversity are also evoked through the perspective of the fictional characters. On the panel for the Age of Hunter-Gatherers, the character, "Lau", asks "Do you treat your

prey as sparingly as we do?". The character representing the Age of First Farmers, "Bente", talks about how the forests are beginning to disappear because of the high demand for charcoal needed for iron production. (Pre)historic resource use and the labour intensity of different types of crafts is a main theme at preHistorisch Dorp, and it feels particularly relevant when the characters draw attention to it.

Another main strategy at preHistorisch Dorp is the use of immersive experiences to introduce ancient crafts. There are many activity spaces around the museum which engage the senses. They vary from making music near the "Holy Oak" to grinding barley, hammering wooden pegs, making a fibula, to creating a coat of arms or writing with a quill and ink. During my visit, it was also possible to try archery under the supervision of one of preHistorisch Dorp's "villagers". Aside from the archery, all the activities can be done independently by visitors, and because the panels describing each activity show adults, it is implied that these activities are not only aimed at children. The activity areas create a sense of spontaneity and exploration, which ties in with the feeling of connection already created through the fictional characters. As some of the activities take place inside, they also help to give the reconstructions are more 'lived in' feel.

The descriptions of the museum experience found on the museum's website also highlight the immersive aspect of the visit, using phrases like "Experience history up close!" and "Doing it yourself", and stating "At the preHistorisch Dorp you experience the past with all of your senses: from getting straw in your hair and smelling smoke in your clothes up to trampling through mud." (preHistorisch Dorp, n.d. b). While these might seem mundane things to do, the fact that they are emphasized like this makes it clear that this is not an everyday experience for (younger) visitors of the museum, and can be valuable in encouraging a different relationship to the landscape and nature.

To summarize, preHistorisch Dorp succeeds in presenting themes of sustainability, biodiversity, and ancient plants and crafts using the strategies of telling personal stories, creating connection between people in the past and present, therefore also evoking time depth and emotional connections. Attention is also brought to ancient crafts through the activity areas, which engage visitors through sensory immersion and emotional connection.

Archäologisches Freilichtmuseum Oerlinghausen, in contrast, does not use interpretive panels to communicate directly with visitors. While the introductory panel does greet visitors with the words "We are happy to welcome you on a journey through time" [*"Wir freuen uns, Sie zu einer Zeitreise begrüssen zu dürfen"*], this does not continue into the rest of the museum. The relevant themes of sustainability and ancient crafts, plants and animals are all present in the texts, for example the emphasis on the growing number of domesticated plants through time.

This through line of edible plants emphasizes the long history of 'ordinary' foods and could encourage reflection on modern day food habits. However, the information is presented in a distanced, academic way.

The layout of the museum grounds, the use of the landscape and the variation in building styles and sizes all encourage a sense of exploration and immersion. The pig pen in the Bronze Age area, which at the time of my visit held two adult pigs, is also a highlight. But most of the buildings are sparsely furnished, and this, combined with the lack of images of people on the text panels, contributes to the museum seeming 'uninhabited' by people.

However, the museum comes to life through its focus on organized activities and educational programmes. Oerlinghausen's programme is the most extensive of the case study museums by far, offering not only events for school groups, which are in accordance with the regional curriculum, but also a wide selection of public events, activities, interactive tours, and demonstrations. The agenda for the 2023 season shows events aimed at individuals and groups of all ages, family weekends, and reenactment events. Figure 21 shows the agenda for August 2023, as a representative excerpt of the museum's offers. With the exception of two weeks in July, there were events, activities or tours on every weekend of the 2023 season. As I was not able to take part in any activities, my analysis is limited to the information given by AFM Oerlinghausen on their online agenda (Archäologisches Freilichtmuseum Oerlinghauen, n.d. b).

There are some demonstrations which do not include audience participation. They include bronze casting, birch tar and bone tool production. Aside from these demonstrations, most of the activities and tours actively involve visitors: the activities categorized as "Mitmachangebot" (participatory events) include creating jewellery with different materials (clay, copper, tin), learning how to make fire, dancing, and making flint knives and leather bags. Tours of the museum highlight different themes, including a tour which teaches about medicinal plants and allows visitors to collect plants from the gardens; a tour which focuses on the influence of (pre)history on modern fantasy, and 'family Sundays in the Stone Age' which include a tour which focuses on the Stone Age, followed by archery.

There are more involved workshops aimed at adults which include building a traditional bow or drum, or making miniature models, as well as various events which allow early morning or late night visits to the museum. Guided tours take visitors to archaeological sites on the nearby Tönsberg. The museum also collaborates with reenactment groups, and in 2023 hosted a tabletop gaming event and a professional tattoo artist specialized in prehistoric tattoo motifs and techniques. Most of the activities and events are included in the price of entry and do not need to be reserved in advance. For local visitors, there is something new to do at the museum almost every weekend.

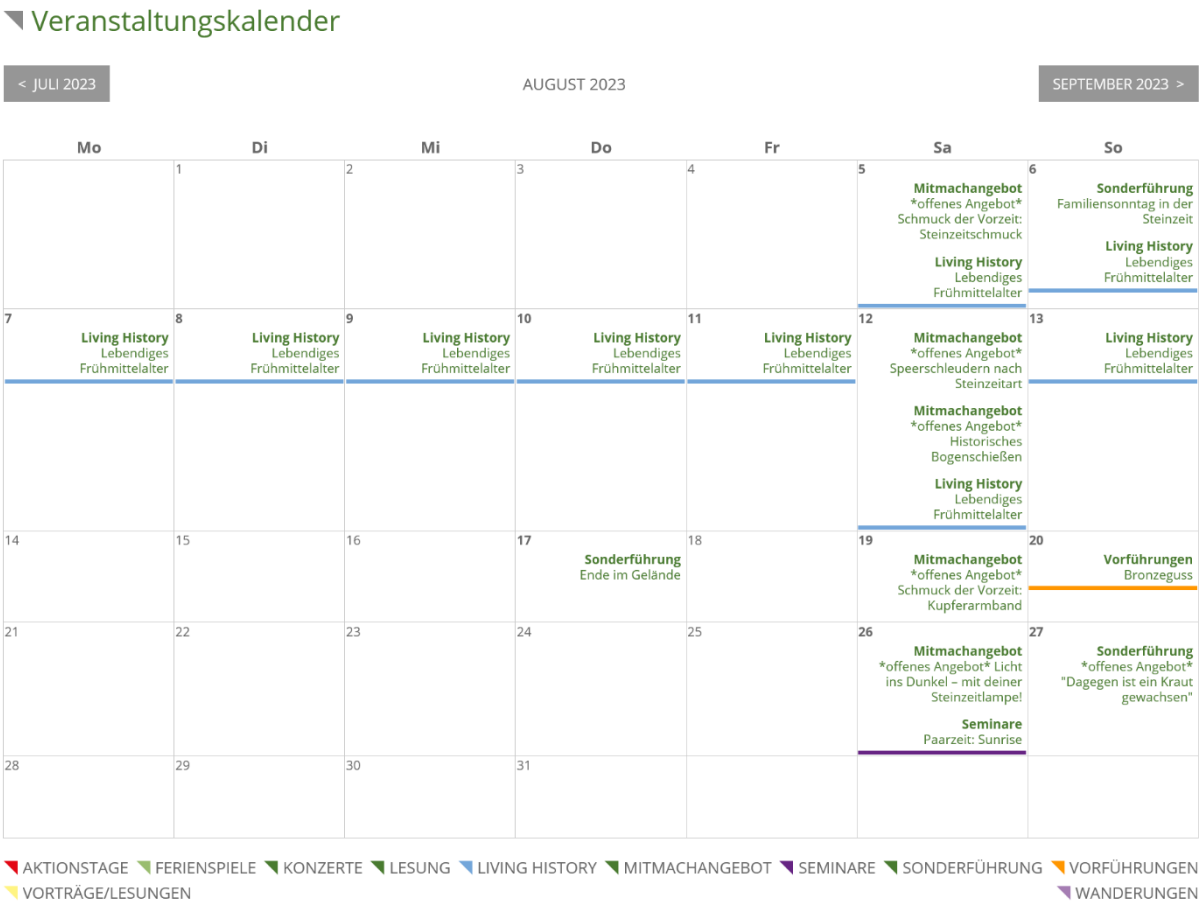

Figure 21 Screenshot of agenda for August 2023, AFM Oerlinghausen (Archäologisches Freilichtmuseum Oerlinghauen, n.d. b)

These varied offers use immersive experiences to highlight ancient crafts, demonstrate the link between the past and the present through different themed tours, and encourage connections between people and their environment through the guided tours to Tönsberg, as well as the tours of the museum. While most of the events contain an affective component due to their participatory nature, some events highlight the emotional component, like the “Paarzeit” (couple’s time) offer, private events which are organised in advance in collaboration with a local expert.

Pfahlbauten Unteruhldingen is more complex, because of its three distinct museum areas. The main strategy around the reconstructions is creating a sense of connection to people in the past by demonstrating ancient crafts and lifeways. They do this with life-size dioramas in the Uhldingen-Stollenwiesen group, and illustrations on interpretive panels around the reconstructions. The dioramas are impactful as they bring visitors ‘face to face’ with past people. Especially the scene showing the inside of a residential building (Figure 18) allows the visitor to discover a lot of material details about life in the past.

The illustrations on the interpretive panels show people gathering food, demonstrating ancient crafts like pottery, bronze casting, working flint and wood, and in social scenes like men standing on palisades with weapons, or children swimming in the lake. Both the dioramas and the illustrations give the sense that the reconstructions are telling personal stories, and while the figures do not interact with the visitor in the same way as the characters at preHistorisch Dorp, they are often depicted interacting with one another, giving the scenes a lively aspect.

The strategy of time depth, linking the past with the present, can be found in the texts on the interpretive panels, often when addressing the themes of sustainability and ancient crafts. An example of this is the "Storage room" panel for the Wasserburg Buchau group (Figure 22), which says: "Before the invention of the refrigerator and canned food, storage of food was a major challenge." It then goes into detail about different types of foods and the various ways they could be preserved and stored, also pointing out the different considerations that go into food storage, from insects to rats to mold and moisture.

Figure 22 Panel from Wasserburg Buchau reconstruction group (photo: K. Rüegger)

The **Erbe der Pfahlbauer** exhibition also uses the strategy of demonstrating time depth very overtly by addressing how present-day concepts can be linked to the past. The key words *handicraft technology, cultural diversity, inventive talent, skills, knowledge, learning aptitude, adaptability,* and *sustainable economy* are written along the wall opposite the entrance to the exhibition, immediately drawing attention to the themes. The introductory panel titled “Das Erbe der Pfahlbauer – The lake dwellers’ heritage” discusses our ‘inheritance’ from the people who lived on the lake shores between 4000-800 BC, and points out that “Everyday utensils like axes or cooking pots, needles or fishing hooks have – compared to today’s commodities and aside from the material – not really changed.” Not only have everyday utensils not changed, but, as the Valuable Goods panel (Figure 20) addresses, ideas around resource use can be traced back to prehistory as well: “Sustainability and reuse, known as modern key words, are an invention of prehistoric times.” A sense of empathy towards people in the past is evoked on the same panel, when describing an axe head which broke during production: "How annoyed must the craftsman have been, when after hours of drilling a shaft hole for an axe, he suddenly held two halves in his hands!"

Finally, the **Steinzeitparcours** uses the main strategies of creating immersive experiences, fostering a sense of connection with nature and evoking time depth to demonstrate the themes sustainability, biodiversity, ancient plants, and crafts. The introductory panel here describes the importance of the forest for many different uses, and states “The first pile dwellers knew how to make use of the diversity of the trees for the building of houses, as food or as medicinal plants.” It includes photographs of nine trees native to the region and asks: “Would you recognize the trees?”.

Throughout the Steinzeitparcours, panels introduce each of the trees in turn, with the front of the panel asking again “Do you know this tree?”. Sustainable resource use is demonstrated through the examples given of the uses of different parts of the trees. The panel for the willow tree (Figure 23), for example, explains the use of willow rods for construction and crafts, the leaves for animal fodder and the bark as a pain killer. The oak tree panel shows how different components of the oak were used for buildings and furniture, the bark was used for tanning leather and dyeing wool, as well as having medicinal use, and the acorns could be processed into flour. The mention of leather tanning and wool dyeing in particular highlights how interconnected processes were (and are), as ancient crafts relied on several resources.

A panel about ‘field plants’ and ‘gathering plants’ is dedicated to showing the wide variety of edible plants that were available to people in the past, and encourages visitors to download a plant identification app for their next walk in the woods, once again linking past plant knowledge to the present, as well as encouraging immersive experiences through paying close attention to surroundings

and using modern technology to facilitate a reconnection with nature. Neolithic building methods are also addressed through a few panels, which introduce the subject, for example building without nails, and encourage reflection by asking questions about the topic and supplying the answers on the other side of the panel.

Throughout the Steinzeitparcours, the focus is on immersive experiences, a sense of connection with nature, but also local stories because it focuses on the pile dwellers around Lake Constance.

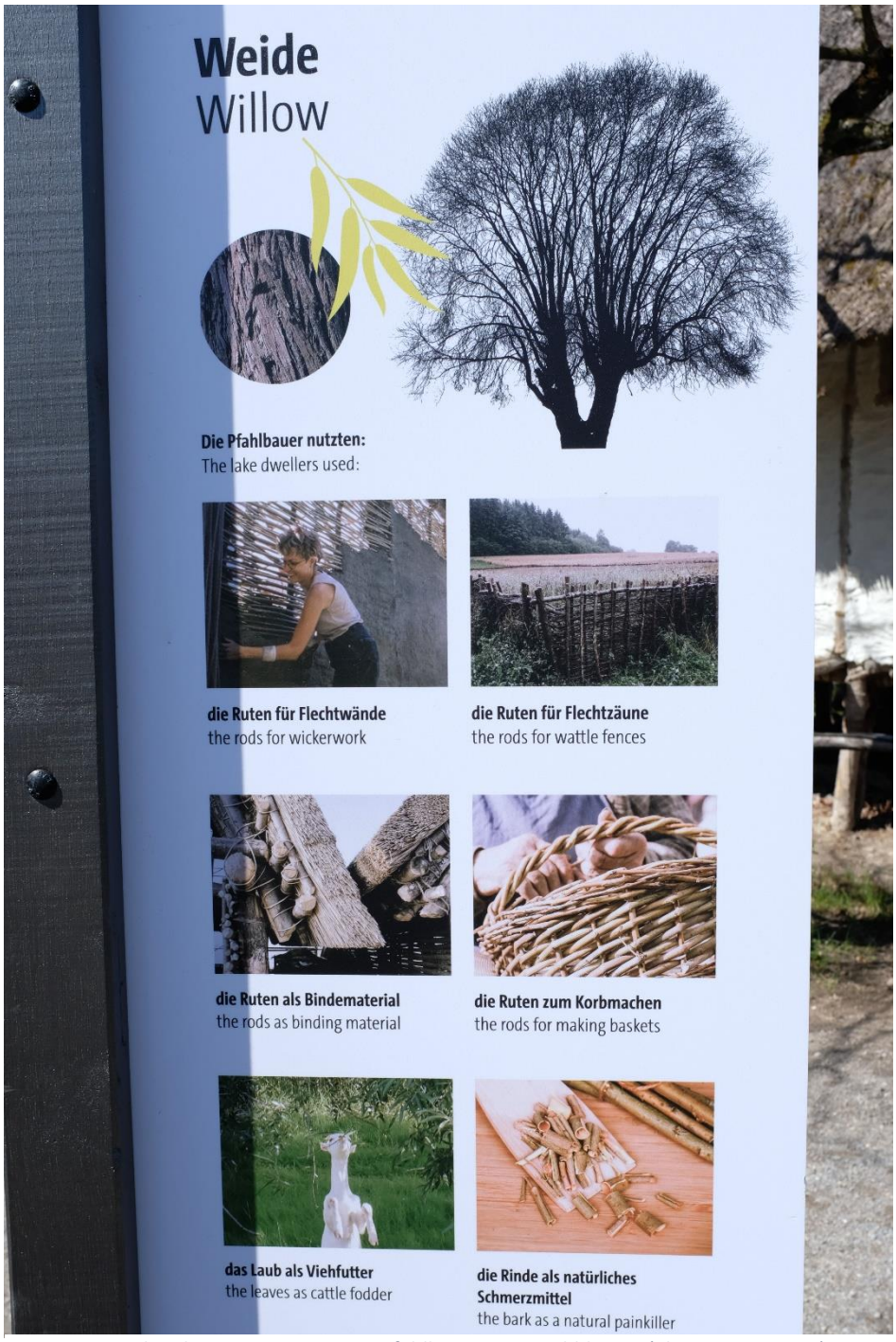

Figure 23 Panel in the Steinzeitparcours, Pfahlbauten Unteruhldingen (photo: K. Rüegger)

Time depth is demonstrated through linking plant use and knowledge to the present, and through a game of 'memory' where the matching pairs are a prehistoric and a modern example of everyday items, such as flint blades and a pocket knife or birch tar and chewing gum.

When it comes to the strategies of affectivity (creating feelings of empathy) and fostering a sense of connection to people in the past, the significant variations in the use of images of people and fictional characters at the case study museums become particularly interesting. PreHistorisch Dorp uses fictional characters to create a personal connection between visitors and the past, giving the characters names and backstories but depicting them only in silhouette. Pfahlbauten Unteruhldingen uses illustrated scenes to supplement their texts. While the characters do not address the visitor directly as they do in preHistorisch Dorp, the presence of these illustrations, along with the life-size dioramas, creates a sense of connection in seeing people doing everyday activities like crafting or gathering food. Finally, AFM Oerlinghausen avoids using images of people almost altogether. The lack of any kind of emotionally relatable depictions of people at AFM Oerlinghausen makes it difficult to imagine life within the reconstructions, thus difficult to establish a sense of connection to the past on this level.

Regarding the use of fictional characters as a way to tell local, personal stories**,** it is interesting that while preHistorisch Dorp uses named fictional characters, the museums in Germany do not. This may have a cultural explanation, because the use of fictional characters could be considered 'unscientific'. Considering the misuse of prehistoric archaeology in Germany for propaganda during WWII, it is unsurprising that the decades afterwards were marked by a wariness towards "over-interpretation" (Miera, 2019, p. 11). However, using (fictional) characters to make messages more accessible is not necessarily unscientific, if the line between historical or archaeological data and fiction is clearly shown. PreHistorisch Dorp makes this distinction clear with the "How did we write this story?" panels. The technique of using fictional or real, historical characters is a widespread practice at agricultural open-air museums, such as Skansen in Stockholm (Skansen, n.d. b), Árbær in Reykjavík (Arbaejarsafn, n.d.) and Luostarinmäki in Turku (Turku, n.d.). These museums reference both real and fictional inhabitants, telling stories based on historical records. This kind of display aids in conveying empathy and connection with past people and their ways of life, and could be a powerful tool in climate change engagement.

Chapter 3.2 raised the point that AOAMs as outdoor spaces offer immersive experiences and can facilitate a connection with nature: they invite exploration of museum grounds and reconstructions, encourage movement and exposure to all types of weather.

While all AOAMs have this in common, this discussion has shown that each museum can also create immersive experiences in more targeted ways through activities. The levels of interaction differ between the museums, from activity spaces amongst the reconstructions at preHistorisch Dorp, to a separate interactive space in the Steinzeitparcours at Pfahlbauten Unteruhldingen, to no independent activity spaces but an extensive event agenda at AFM Oerlinghausen. The Steinzeitparcours at Pfahlbauten Unteruhldingen is unique among the case study museums because it centres active engagement with the natural environment, while a large proportion of the events and activities at AFM Oerlinghausen and preHistorisch Dorp focus on ancient crafts.

While this study has mainly looked at strategies of encouraging engagement around climate change, it is pertinent to briefly discuss the use of the term 'climate change' or even 'climate' itself in the museums.

At AFM Oerlinghausen, the term appears in connection with the Palaeolithic and Mesolithic reconstructions. The panel for the Palaeolithic draws a comparison with today with the sentence "our current climate is much more humid than in the past." [*"Unser heutiges Klima ist viel feuchter als damals."*] It also draws attention to a changing climate with "At the end of the last ice age, it once again got very cold." [*"Am Ende der letzten Eiszeit wurde es noch einmal richtig kalt."*] On the next panel along the path, for the Mesolithic (Figure 9), the climate is addressed again: "Temperatures rose again around 9600 BC. This marked the end of the Ice Age." [*"Um 9600 v. Chr. Stieg die Temperatur rapide an. Damit hatte die Eiszeit ihr Ende."*] The panel also goes into detail about the adaptations that were necessary as the changing climate influenced the environment:

> "The radical changes to the environment led to far-reaching changes to the lifeways of the Mesolithic hunters and gatherers. So, for example, hunting with bow and arrow became the norm, because speers were unsuitable for use in the forest." [*"Die radikal geänderte Umwelt führte zu einschneidenden Änderungen der Lebensweise der mittelsteinzeitlichen Jäger und Sammler. So wurde jetzt beispielsweise die Jagd mit Pfeil und Bogen zum Standard, da die Speerschleuder für den Einsatz im Wald ungeeignet war."*]

None of the following panels mention the climate or climate change.

At Pfahlbauten Unteruhldingen, the worsening climatic conditions in the 9th century BC in Europe are addressed on an interpretive panel found at the end of the circuit, near the Sipplingen group (Figure 24). Titled "Das Ende der Pfahlbauten" (The End of the Pile Dwellings), the panel text goes into detail about the effect that the changing climate had on plant life around the lake, and describes how, after the lake shore became uninhabitable, people moved inland and went through societal and economic changes.

It is accompanied by a rather dramatic illustration of a man in a dugout canoe rowing to safety at just the moment the palisades break, and waves rush towards him. The focal point of the image is the bronze armour in the front of the canoe, while the woman and children sitting in the back with a large storage pot between them almost disappear into the background. The implications of these interpretational choices aside, the drama of this moment is further emphasized by the sentence “A deluge of biblical proportions caused living conditions around the shore to deteriorate.” [*“Eine Sintflut biblischen Ausmasses verschlechterte die Lebensbedingungen im unmittelbaren Uferbereich.”*] The illustration is reminiscent of the kind of media messaging discussed in chapter 3.1, which propagates the idea of helplessness in the face of catastrophic climate events, rather than highlighting adaptation and survival strategies, as the text does.

In both museums, the way climate change is currently addressed places it firmly in the past. As Collins points out, effective climate change engagement links "narratives of past changes with the future." (2019, p. 13) The museums link the past with the present in other areas, but not here.

Figure 24 Panel showing "The end of the pile dwellings", Pfahlbauten Unteruhldingen (photo: K. Rüegger)

9 Conclusion

On a theoretical level, as shown by the literature survey and the presentations given at the EXARC's *A Sustainable Revolution for Open-Air Museums* conference (chapter 3), AOAMs are well placed to take part in climate change communication. They can encourage engagement with the themes of sustainability, biodiversity, ancient plants, animals and crafts, through the strategies of telling local, personal stories, creating immersive experiences, affectivity, demonstrating time depth by relating the past to the present and the future, and fostering a sense of connection with nature and between people. Relating to these themes on a personal level can encourage awareness, reflection and ultimately action around climate change.

In practice, the research shows that the case study museums emphasize different themes and strategies. PreHistorisch Dorp focuses on creating immersive experiences through independent activity areas and telling personal stories of life in the past with fictional characters. AFM Oerlinghausen offers many organized events, activities and programmes, which focus mainly on ancient crafts and the connection between people and their environment. Pfahlbauten Unteruhldingen dedicates the Steinzeitparcours to encouraging a connection to nature through learning about the uses for various trees in the past.

In their current forms, none of the case study museums go so far as to explicitly link their interpretation with climate change engagement. As discussed in their respective chapters, each museum is in a transitional phase – AFM Oerlinghausen with its cooperation with Klimaerlebniswelt, PreHistorisch Dorp with its rebranding to VONK, and Pfahlbauten Unteruhldingen with the current construction of a prestigious new museum building. The museums discuss many themes besides the ones looked at here. The ArcheoFactory at PreHistorisch Dorp aims to communicate the importance of the archaeological method and data, and both Pfahlbauten Unteruhldingen and AFM Oerlinghausen dedicate some panels to their history. It remains to be seen if climate change engagement will become a focus at the museums in the future – as I hope to have shown, many themes and strategies are already in place and could be developed to fuller potential.

Further research into this topic is warranted, considering this study is meant as foundational overview. A next step could include surveys of AOAMs to determine to what extent visitors perceive what they see at the museums as climate change communication, or if their visits to the museum changed their views on the topics discussed here.

On a practical level, in inquiry into the uses of different display types and their uses in climate change communication would be interesting. All three museums analysed here communicate mainly through interpretive panels, which are quite text-heavy and may not be accessible to all visitors. In what way, for example, could audio-visual aids be integrated into the AOAM experience?

Finally, climate justice, as with any activist movement, needs to be intersectional to be really useful. Therefore, a look at gender representation in connection with the themes discussed here might be of interest. A brief look at the people depicted in illustrations at the case study museums shows that men and women are represented carrying out gendered tasks. At Pfahlbauten Unteruhldingen, men are shown 'in action', crafting, socializing, or fishing with a spear, while women are shown gathering berries with a child, or tending a fire. There are no representations of ambiguously gendered individuals. At preHistorisch Dorp, the hunter-gatherer is a child named "Lau" and no indication is given of their gender. They carry a bow and arrow. The other characters are two women (one holding a pitchfork and one with what might be a vessel filled with food) and three men. All three men – a Roman, a Frank/Viking and a soldier in the 80 Years' War – are depicted holding weapons. Considering the "dominant social hierarchy" addressed by Shear (2022), a look at how AOAMs portray people, the environment, and wider systems seems significant.

Part of this thesis was written during the hottest summer ever recorded. Beside the heat itself making it difficult to work, the reporting around it had exactly the paralyzing effect addressed in chapter 3, with terms like "uncharted territory", "out of control", and the expectation that it will continue to get worse (The Guardian, 2023) causing me to doubt the usefulness of the research presented in this study. However, a sentence in *Underland, a deep time journey*, helped to put things into perspective. In his visit to a Finnish nuclear waste storage facility, nature writer Robert Macfarlane observed:

> *"Here the hard labour of collective decision-taking and world-making is being carried out, imperfectly but necessarily, and with a care that extends not only for a decade or a generation but far forwards into a post-human future."* (Macfarlane, 2019, p. 419)

Like with nuclear waste storage, thinking about climate change, and climate action, needs to take place across millennia. Collins points out that climate change does indeed, like archaeology and museum collections, inhabit centuries and millennia (2019, p. 290). Of course, AOAMs will not 'solve' climate change. The climate has already changed to such an extent that the question is no longer how to prevent change, but how to mitigate damage and adapt to new realities. AOAMs can be places that encourage a change in thinking, which, through combined effort, might make a difference. When it comes to making a better future, trying imperfectly is better than not trying at all.

Abstract

Agricultural open-air museums date back to the late 19th century, as it became fashionable to collect examples of local folklife. They collected historic, relocated buildings, furnished them with original objects, and often enlivened the museum and building with plants, animals, and costumed interpreters. Archaeological open-air museums (AOAMs) were born out of an interest in reconstructing the archaeological past. The first AOAMs were based on pile dwellings discovered in Swiss and German lakes in the late 19th century. AOAMs are popular cultural destinations, but both AOAMs and agricultural open-air museums have faced the critique of inauthenticity. This study discusses how a concern over 'authenticity' could prevent different questions about AOAMs from being asked. For example, how can AOAMs engage with the past in a way that is relevant in the present, and for the future? One way to do this is to participate in climate change communication. Current media messaging is often overwhelming, or it presents climate change as contentious. Museums can be important locations for communicating climate change awareness and action in ways that do not centre fear or helplessness.

A survey of the literature around climate change communication in museums shows that AOAMs are uniquely placed within museum archaeology to address many aspects of climate change engagement, using various themes and strategies. As museum spaces, they are friendly places to learn about complex issues. As places of archaeological interpretation, they can demonstrate time depth and tell local, personal stories with an affective component. As outdoor spaces, they offer immersive experiences and can facilitate a sense of connection with nature. They can engage visitors with themes of sustainability, biodiversity, and ancient plants, animals, and crafts, and show how these relate to the present. Through museum interpreters and other visitors, as well as narratives and interpretation, they can foster a sense of connection to other people both in the present and in the past.

Using the case studies preHistorisch Dorp Eindhoven, Archäologisches Freilichtmuseum Oerlinghausen, and Pfahlbauten Unteruhldingen, this study discusses to what extent the museums are engaging in these themes and strategies, using an analytical framework that pays close attention to the use of various components of the museum – setting, space and layout, display types, subject and text, activities and educational programmes.

The research shows that each museum emphasizes different themes and strategies. PreHistorisch Dorp focuses on creating immersive experiences by creating independent activity areas and telling personal stories of life in the past with fictional characters. Archäologisches Freilichtmuseum Oerlinghausen offers many organised events, activities and programmes, which focus mainly on ancient crafts and the connection between people and their environment. Pfahlbauten

Unteruhldingen has the Steinzeitparcours, a park/garden area dedicated to encouraging a connection to nature through learning about the uses for various trees in the past.

This research shows that there is room for AOAMs in the broader discussion around archaeological museums and climate change, and that they can bring a unique element of direct connection to the visitor experience.

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