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Masterarbeit

Sounds in the museum.

The example of the Ruhr Museum in Essen

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Zusammenfassung

Diese im Wesentlichen unveränderte Masterarbeit von 2023 behandelt das Thema Klänge im Museum am Beispiel des kultur- und naturhistorischen Ruhr Museums in Essen. Ich lege ein umfassendes Verständnis von Klängen zugrunde, d.h. klangliche Phänomene aus Ausstellungen werden ebenso einbezogen wie solche, die über den eigentlichen Museumsraum hinausgehen; letzterer findet hinsichtlich seiner akustisch-klanglichen Eigenschaften Beachtung. Daher besteht das begutachtete Material aus Videos, Musik, Sounddateien, Aufnahmen von Veranstaltungen, geschriebenen Texten, Interviewaussagen, Praktiken und persönlichen Eindrücken, die in einem sog. Soundwalk gesammelt wurden. Klänge machen einen gewichtigen Anteil an einer multisensorischen oder erfahrungsbezogenen Wende in Museumspraxis und Museologie aus. Daher dreht sich der Theorieteil um die Rolle und die Potenziale von Klängen im Museum, wobei Einflüsse aus Sound und Sensory Studies, der Museologie, den Neurowissenschaften sowie praktische Überlegungen verarbeitet werden. Von zentraler Bedeutung sind Überlegungen zum Objektstatus von Klängen sowie die Diskussion einer Systematik klanglicher Funktionen im Museum von Alcina Cortez, welche im Fallbeispiel als Referenzpunkt fungiert. Die Ausstellungen *Eine Klasse für sich* und *Klang der Steine* sowie das Projekt *Stone Techno* des Ruhr Museums bilden die Untersuchungsgrundlage. Der wesentliche Grund für diese Auswahl besteht darin, dass ich selbst bei der Vorbereitung der erstgenannten Ausstellung mitgewirkt habe und damit Erfahrungen sammeln und Kontakte knüpfen konnte, welche diese Untersuchung begünstigten. Damit soll eine beispielhafte Bestandsaufnahme der Arbeitsweisen und Voraussetzungen eines modernen, europäischen Museums hinsichtlich Klängen geliefert werden. Gleichzeitig kann es sich nur um eine perspektivische wie zeitliche Momentaufnahme handeln. Insgesamt macht das Ruhr Museum von vielgestalten Methoden und Herangehensweisen Gebrauch, um unterschiedliche Erwartungen zu erfüllen. Entscheidenden Einfluss nehmen neben den jeweiligen Themen auch die Hintergründe der Verantwortlichen.

Abstract

This largely unedited Master's thesis from 2023 deals with the topic of sounds in the museum. It is based on the example of the Ruhr Museum in Essen which exhibits both cultural and natural history. I employ a comprehensive understanding of sounds, meaning sound phenomena from exhibitions will be included alongside those from beyond the actual museum space; the latter will be included with regard to its properties of acoustics and sounds. Hence, the examined material comprises videos, music, sound files, recordings of events, written texts, interview statements, practices, and personal impressions which were gathered on a so-called soundwalk. Sounds constitute a substantial part of a larger multisensorial or experiential turn within museum practice and studies. That is why the theory part revolves around the role and the potentials of sounds in museum, processing influences from sound, sensory, and museum studies, as well as neurosciences and practical concerns. Two elements are of pivotal significance here: firstly, considerations regarding the status of sounds as objects and secondly, a discussion of Cortez' classification of sound functions in the museum which also acts as a reference point in the case study. The exhibitions *Eine Klasse für sich* (A class of its own) and *Klang der Steine* (Sound of stones) as well as the project *Stone Techno* constitute the basis of examination. The essential reason for this choice is the fact that I was involved in the preparation of the first-named exhibition. In this process, I could make experiences and establish contacts that benefited the scrutiny. The goal is to provide an exemplary evaluation of a modern European museum's workflows and prerequisites regarding sound. At the same time, it can only be a snapshot of conditions in terms of perspective and time. In total, the Ruhr Museum makes use of varied methods and approaches in order to meet different expectations. Both the individual topics and the backgrounds of those in charge play a decisive role.

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1. Acknowledgements

2. Introduction

ὀφθαλμοὶ γὰρ τῶν ὤτων ἀκριβέστεροι μάρτυρες.

'The eyes are more exact witnesses than the ears.' Heraclitus[1]

What is the point of sounds in a museum when understanding the world appears to rely on vision? From an early age, children are taught to read and write, schoolbooks contain what they need to learn. To progress through life, you take tests and exams, very often written ones. Only when someone's eyes do not work do they learn to use touch. Language appears to reflect this condition. Sure, you can grasp an idea. But to do so, you need to first have a look, take a peek, get a glimpse. When the idea is visualised or illustrated it can be easier to gain insight, see the light. But you need it in some way to be depicted, portrayed, displayed. And then you imagine, picture, envision what might be. You see? McLuhan criticised this condition. He explains that ever since ancient Greece visuality had dominated Western perception. Other cultures did not share a linear world view but considered it to be multi-centred and reverberating, more like sound.[2] Museums have long been governed by visual approaches, too. Artefacts, tucked away behind glass, were meant to be beheld, information about them was provided by labels. However, intellectual debates, public pressure, and technological progress have left their mark on the institution which have opened up and introduced new approaches, including different senses. Sounds are no longer limited to tours and audio guides but cherished for their qualities.

This development impacted academia and led to the research of sounds in museums. In this text, I dare try my hand at this rather novel approach based on my experiences at the Ruhr Museum in Essen, Germany. There, I had the pleasure to get acquainted with the workings of a modern European museum and its efforts regarding exhibitions, events, and other projects. Doing so, I clearly reveal personal selection and interest, analogue to pioneers of the field like Bennett.[3] Specifically, I will examine the sounds related to the exhibition I helped organise, *Eine Klasse für sich. Adel an Rhein und Ruhr*, as well as the new visible storage, and the *Stone Techno* project alongside its predecessor *Der Klang der Steine*.[4] This basis will be supplemented by impressions I got elsewhere, e.g. a workshop about acoustic design in exhibitions held in Bern in April 2022.[5] I comprehend sound in a wide sense, as reflected by

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[1] Chitwood 2004, 70.
[2] McLuhan 2004, 68.
[3] Explicitly without aspiring to equal them in any way, Bennett 1995, 12.
[4] The museum is regarded as an institution, not strictly a site which means that the sounds to be examined are bound to the endeavours backed by the museum instead of being limited to its space.
[5] *Das Museum als Soundscape. Möglichkeiten akustischer Ausstellungsgestaltung*, *Universalmuseum Joanneum*, https://www.museum-joanneum.at/museumsakademie/programm/veranstaltungen/events/event/10067/das-museum-als-soundscape (accessed 20 April 2023).

the material which includes videos, music, sound files, recordings of events, written text, statements from interviews, practices, and personal impressions.[6] Even the noises emitted by people will be taken into account. They are by definition sounds in a museum and can have an impact on how people perceive the space and their visit therein. The sounds will then be linked to the general museum experience that includes other sensations, mostly visual practices currently employed.[7] Sounds in the museum are after all part of a larger multisensorial or experiential turn, backed by neuroscience, within museum studies and practice. Similar to Cortez, this text is not about '*signifying opportunities*' or '*listening practices*' but first and foremost about how sounds have been used by museums.[8] Whilst Cortez bases her findings on 69 multimodal exhibitions, this endeavour might be insightful as it strives to provide a glimpse behind the scenes without this obvious link to sound-based phenomena.[9] It is intended to be an exemplary evaluation of a museum's situation. At the same time, I am aware that it is a snapshot of conditions, both in terms of perspective and time. As a result, many fluid factors, internal ones like changing responsibilities or programmes and external ones like transforming societies including identities, cannot be taken into consideration. In general, a more quantitative assessment of the visitors' situation was not feasible. Despite the museum being located in Germany and interviews having been conducted in German, I decided to write this text in English because it is the language generally used in the discourse on museums and sound.[10]

Undertaking this assessment requires a more in-depth elaboration of theoretical fundamentals. Firstly, a brief overview of the state of research will be provided. After that, I will present and eventually apply a useful framework by Cortez to classify functions of sounds in museums. The following section will address sound both in terms of researching it in Sound Studies as well as sounds being objects in museums. The next chapter is about sound's general potential which draws on neuroscience suggesting multisensory approaches. Additional facets are music, sound versus the visual primacy, accessibility, the visitors, and criticisms of these novel impulses. A historical sketch of sounds in museums will be the last step before the actual examination. Basic information about the Ruhr Museum precedes the first chapter about the visible storage including integration. The chapter about the exhibition at hand involves the soundwalk, i.e. a report of personal impressions, as well as internal and external sound sources. *Stone Techno*

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[6] Not all sources used are publicly available. Some videos, sound files, and recordings were generously provided by the Ruhr Museum for which I am immensely grateful.

[7] I do not mean to criticise these for being visual or imply they could or should be replaced by non-visual means.

[8] Orig. emphasis, Cortez 2022, 2.

[9] This juxtaposition is not meant competitively but to point out different bases of material, see Cortez 2022, 2-3.

[10] In German I used the closest equivalent to sounds or sound, i.e. 'Klänge' or 'Klang', which is line with Schulze, see Schulze 2012, 244.

and its predecessor *Der Klang der Steine* will then be examined. A last brief juxtaposition of structural conditions and individual decisions of those in charge will conclude this thesis.

3. State of research: 3.1. Sound Studies

The sounds of a given time, often in the form of noise, have historically sparked intellectual debates that eventually resulted in Sound Studies, an interdisciplinary field of research.[11] Sterne elaborates that between the 1950s and 1970s, most thought regarding sound had revolved around philosophy, aestheticism, and design. Since the 1990s, significant cultural and technological changes have led to a variety of writing as well as initiatives and programmes on sound surrounding human life. Work in several languages implied international interest.[12] Schulze mentions the early 2000s to have been the onset of an academic examination of sound and sound culture. The discipline was established at universities for the first time, often as a part of sensorial studies, and two influential edited volumes were published.[13]

For Schulze, the most striking feature of sound studies is its conjunction of research and art. Its pioneers had been active in both fields, e.g. composer John Cage as well as Truax and Schafer at Vancouver's Simon Fraser University. By conceptualising so called soundscapes as spatially or culturally defined sonic surroundings in the 1960s,[14] Schafer enabled research to shift attention to everyday public sound phenomena and their effects. Schulze also points out the influence of the *Centre for Contemporary Cultural Studies* in Birmingham, UK.[15] Subsequently, the discipline is noticeably centred around the West, in particular the Anglosphere, which is also palpable in the studies and examples used here. Sterne explains the Western focus in scope and origin of texts with his personal experience and knowledge, available publications as well as publishing practices.[16] The research on sounds however is not limited to cultural implications and meanings. Neuroscience is involved, too. Arnott and Alain stress that research on hearing and sound perception had already advanced substantially since the 1990s. They discerned that the auditory system had been designed to process sounds that influence behaviour with corresponding brain areas being interlinked.[17]

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[11] Sterne mentions Plato's repudiation of flautists or 19th century quarrels about tunings, see Sterne 2012, 1.
[12] Ibid., 1-3.
[13] Bull/Beck: *Auditory Cultural Reader* (2003) & Cox/Warner: *Audio Culture* (2004), Schulze 2012, 253 & 256.
[14] *First (in)definition. Sound is an object*, *Objects of Sound*, 18 March 2017, https://objectsofsound.com/category/indefinitions/ (accessed 7 June 2023).
[15] Schulze 2012, 243-246.
[16] Sterne 2012, 12.
[17] Arnott/Alain 2014, 86.

3.2. Sensory Studies

Neuroscientific findings crucially revealed that human perception is multisensory, meaning humans simultaneously combined different sensory impressions to form a bigger picture.[18] According to Classen, studying all the senses already dated back to the historiographic Annales School. She refers to Bloch and Febrve who in 1929 brought the eponymous journal into being. Whilst Bloch had examined 'medieval structures of corporeal behavior', Febrve had suggested working on sensorial history. The first full-fledged history of senses however had been Corbin's *The Foul and the Fragrant* from 1986. Also Howes' anthropology of the senses had been an inspiration.[19] Levent and McRainey continue to elaborate that sensory discourse had only been re-established after 2000 by anthropologists and historians, particularly due to the Sensory Studies programme at Concordia University.[20] Levent and Pascual-Leone however already pinpoint the beginning of sensory studies in the mid-90s, conducted by humanities and social sciences. They specify that anthropologist Howes, historian Classen, and sociologist Synnott together formed the Concordia Sensoria Research Team in 1988.[21] Ever since its inception, the new discipline has been on the rise. Classen describes it as 'flourishing' in 2012, citing works like Jütte's *A History of the Senses* (2005) or Smith's *Sensing the Past* (2007). Vision and hearing had received impactful studies, the other senses smell, taste, and touch less so.[22]

3.3. Museum Studies

According to Message and Witcomb, museums have been studied in three phases. The first one, represented by works from the mid and late 1990s, had drawn on history, art history, sociology, and cultural studies to assess 19th century public museums. During that time, museums had been concerned with nation building and helped shape visitors into democratic citizens. The second phase had been new or critical museology, influenced by postcolonial theory, identity politics as well as an increased interest in the public sphere. It had been born out of the concern that museums helped maintain Europe-centric structures of power but could eventually conclude the opposite. New museology had gained in popularity because it claimed that museums could link marginalised groups, e.g. indigenous people, with the majority of society.[23] Witcomb specifies that since the 2000s, this phase had refocussed on museum practice and the relation

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[18] Levent/Pascual-Leone 2014, XIV & XX
[19] Classen 2012, XV-XVI.
[20] Levent/McRainey 2014, 61.
[21] Levent/Pascual-Leone 2014, XVI.
[22] Classen 2012, XV-XVI; Classen however worked on rectifying the situation for touch.
[23] Message/Witcomb 2015, XXXVII-XXXVIII.

between visitor and exhibition narrative.[24] The last phase Message and Witcomb describe is the one of their present, i.e. 2015, which had still drawn on 'social justice and community building, as well as public policy-oriented approaches.' A new focus had been the conflictual research of museum relations to society and politics.[25] The current understanding of identity had led to a more performative understanding of citizenship. Hence, the formation of citizens in museums was increasingly about affect, memory, and senses which the influence of sensory studies had turned into a tool for socio-political matters. Witcomb refers to this as 'pedagogy of feeling', meaning exhibitions were employing sensory stimuli to trigger emotional responses and thus reflection in visitors.[26]

In general, studies on museums had seen a significant rise since the 1980s, culminating in works establishing museology by the end of the decade. Macdonald points to Canada and Australia as two particularly prolific countries in this regard due to their identity stemming from European colonisers and their respective native populations. In the 1990s, research continued on both European and eventually non-Western museums as well as different museum types.[27] McCarthy asserts that outside of the UK, the US, and Canada a closer bond between practical research and museum professionals was necessary because many museum professionals were not trained in actual museology. In addition, a considerable amount of academic work on museums was little practical and often not targeting professionals or visitors alike. To complicate matters, a lot of research was not conducted by museum practitioners due to lack of time and funding.[28]

3.4. Sounds in the museum

In 1994, Pearce argued that objects and collecting should be investigated in cultural studies. A main concern was the overrepresentation of humanmade artefacts compared to natural ones. In the corresponding compendium she and others employ a materialistic understanding that for a long time had been indicative of museum practice.[29] In the meantime, also intangible heritage including sound has found its way into the museum. Ground-breaking for this change was the UNESCO *Convention for the Safeguarding of the Intangible Cultural Heritage* from 2003 that was adopted for implementation by the International Council of Museums (ICOM) a year

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[24] Witcomb 2015, 321.
[25] Message/Witcomb 2015, XXXVIII.
[26] Witcomb 2015, 322.
[27] Macdonald 1996, 13-14.
[28] McCarthy 2015, XXXVIII & XLVII.
[29] Pearce 1994a, 1.

later.[30] Since then, research on sounds in museums has been sparse, notable exceptions being several publications and initiatives conceived of by Cortez, a curator and musicologist from Portugal. She is responsible for *Objects of Sound*, a project rooted in ethnomusicology, sound studies, museum studies, phenomenology, performance studies, and non-representational studies that 'aims to research and broaden the different ways in which the exhibition of sound and music can render particularly meaningful in both onsite and online museums and the heritage sector.' Two assumptions were therefore fundamental: firstly, that sound and music were heritage, and secondly that sounds were exceedingly useful for today's museum practices because they fostered 'active processes, movements, non-fixed meanings and "becoming".'[31] In her PhD thesis about sound-based multimodal museum practices, Cortez still declares that professionals and researchers had only recently developed interest in these questions, so a theoretical basis was lacking. For this reason, she strived to both categorise these sound-related practices and examine sound potentials.[32]

Another important scholar regarding sounds in museums is Kannenberg. He redefined the term sound object to facilitate the use of sounds and related practices in museums. Albeit older than Cortez' thesis, it is telling that before him the term sound object had not been defined in museum studies.[33] Mortensen clarifies that since their inception, audio and visual media had drawn controversial reactions. The disputes had been focussed on media for the purpose of presenting or interpreting. Mortensen interposes that media should be considered artefacts themselves since they have become part of collective cultural heritage.[34] Another issue is that a lot of research has been conducted with visuality in mind. Tian et al. for example remark that most studies on scene understanding, a crucial aspect of perception, revolved around vision. They want to contribute to closing that gap by examining how humans perceive audio signals without visual correspondences, using almost 12.000 *YouTube*-videos.[35]

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[30] Stottrop 2012, 139.

[31] *About. Research & Development in Sound Design for Museums and the Cultural Sector*, *Objects of Sound*, https://objectsofsound.com/about/ (accessed 2 May 2023).

[32] Cortez 2021, 5.

[33] Kannenberg 2017, I 2; Kannenberg's article lacks page numbers, making referencing and finding certain passages somewhat arduous. Hoping to make matters easier, I decided to use the numbering of the PDF available. Additionally, the Roman numerals indicate the chapter with the *Introduction* being I etc.

[34] Mortensen 2012, 22.

[35] Tian et al. 2020, 436-438.

4. Cortez' framework

Considering such a sparse theoretical basis, Cortez' framework of 'sound-based multimodal museum practices' is a milestone in researching sounds in museums. Her work builds on a multitude of literature as well as 59 physical and 10 online exhibitions, many about music and all explicitly multisensory. In several cases she conducted additional interviews with the professionals in charge.[36] She conceptualised five different ways how sounds have been used in exhibitions that were not strict but fluid and ambiguous.

1. Sound as lecturing
2. Sound as artefact
3. Sound as ambiance/soundtrack
4. Sound as art
5. Sound as crowd curation

The most dominant form was 'sound as lecturing' even though it dated back to the late 18th century. It rests on two contrasting attitudes towards sounds which are firstly meant as a substitute for live lectures. Alternatively, they are seen as useless or as disruptive to the learning process which resulted in promoting silence. In either case, this form was closely tied to visual conceptions. The second part of her classification is 'sound as artefact', so used in exhibitions to represent cultural aspects to visitors. Gaining the representational potential depended on recording technology, so sounds had pioneered in exhibitions about popular music.[37] A third form was 'sounds as ambiance/ soundtrack', i.e. underlaying an exhibition with a topical or affective soundscape. This practice greatly benefitted from multisensory research findings and resembled film soundtracks in that both emotions and narrative were impacted. As such, it incorporated the body.[38] Schulze even declares sound-related matters to often be an expression of corporeality, meaning constant but habitually unnoticed.[39] Cortez classifies 'sound as art' as another possibility to employ sounds, mostly to induce resonance and establish relations. These aim at encouraging participation and invoking awareness. The last subitem in Cortez' system is 'sound as crowd-curation' which relied on the internet. Museums appear either as content providers by exhibiting objects in online museum spaces or engage in cultural production by incorporating visitors.[40] Mortensen concludes that sounds in museums give life to seemingly lifeless objects, create an atmosphere, or narrate the exhibition like a witness or a narrator. Despite usually not being used as artefacts, he advocates for treating sounds as such.[41] In doing

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[36] Cortez 2022, 2-3; a table of all exhibitions factored in can be found on pages 4-6.
[37] Ibid., 8 & 12-13; sounds as artefacts are discussed in detail in chapter 6.
[38] Ibid., 17-18.
[39] Orig. 'Sonisches' and 'Körperlichkeit', Schulze 2008, 9.
[40] Cortez 2022, 19-21.
[41] Mortensen 2012, 25-26.

so, his ideas only correspond to Cortez' first three points, indicating that her system is quite comprehensive. Besides Cortez' descriptive classification, there is literature available about practically implementing sounds into museum spaces. Arnott and Alain for instance provide a list of sound illusions that could easily be used to establish a dedicated sound gallery.[42]

As useful and pathbreaking Cortez' classification might be, it is determined by her assumptions and material foundation, i.e. multimodal exhibitions that were often explicitly about music.[43] Since sounds form central parts of the exhibition concepts, her system only includes sound practices that were deliberately implemented. Whilst this forms the most vital viewpoint for curators like Cortez and is of considerable practical use, it is a limited perspective insofar as the visitor experience is constituted by more than curator-sided practices. Zisch et al. outlined that the experience was constructed before, during, and after the visit. Before the visit, expectations and imaginations shaped the stay. At the museum the actual perception occurred. After the visit the actual processing and memory happened. Especially transferring the impressions to long-term memory was a time-consuming process that was critical for creating a lasting effect.[44] Visitors also have considerable impact on the soundscape of exhibition spaces. The guards I interviewed agreed that the audience was the major source of sounds. Considering their task to regulate behaviour though, the guards were obviously invested in reducing any sort of disturbance or noise for unimpeded contemplation. Sounds in general, climate, smell, and light had great impact on preservation and atmosphere, so most museums paid much attention to them.[45] Biehl-Missal and Lehn explicitly engage with atmosphere which worked affectively, evoking bodily reactions. It could also help visitors experience aesthetics to spark curiosity. Inspired by Benjamin's aura of artefacts, they regard it as a central concept in this context.[46] Even echoes can be impactful because they contained meaningful information about the environment.[47] Subsequently, architecture is also of interest because it was understood through all bodily senses, including sound and proprioception, i.e. perceiving our bodies in their surroundings.[48] From this circumstance, Biehl-Missal and Lehn infer that museum sites were part of the aesthetic experience.[49] Architecture will be a marginal aspect of these considerations. Full examination as in acoustic ecology would require a dedicated project.[50]

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[42] Arnott/Alain 2014, 92.
[43] Kannenberg avoided music in his conceptions because of its many biases, see Kannenberg 2017, I 4.
[44] Zisch et al. 2015, 220-221 & 223-225.
[45] Light was particularly powerful due to its subconscious effect, Henning 2015, XLV.
[46] Biehl-Missal/Lehn 2015, 238 & 242.
[47] Blind people even used echolocation for orientation, Arnott/Alain 2014, 98-100.
[48] Zisch et al. establish a connection between architecture and neuroscience, Zisch et al. 2014, 215-216.
[49] Biehl-Missal/Lehn 2015, 243 & 248.
[50] See Schulze 2012, 254-255 for examples.

5. Sound Studies: researching sounds

Whilst preparing and writing this text, I found myself somewhat regularly in situations in which people, quite naturally, would ask me about the topic I was working on. And often enough, the answer *Sounds in the museum* was met with what I perceived to be a sense of confusion. If people happened to dig deeper, their questions were usually related to media in exhibitions. I take two lessons from these encounters: firstly, it is essential to deliver an insightful outline of what sounds can be and mean. Secondly, many people appear to have a narrow notion of what sounds are. By that I mean that aural phenomena are identified as sounds when these were placed on purpose, e.g. as a part of a media experience. Other kinds of sounds were often not associated with the term but required more specific appellations like noise.

Since sounds are the research interest of this scrutiny, it is a part of Sound Studies. Sterne defines this academic discipline to be an interdisciplinary field within the humanities that assessed sound in terms of practices, discourses, and institutions. That means the goal was to understand both how sounds affect people and how people interact with sounds. Parallel to Visual Studies, Sterne outlines Sound Studies as a result of several fields synergising. Previous, one-sided approaches would not do sound justice. Correspondingly, the discipline and its implementations can be comprehensive and diverse.[51] Even though this study's perspective, i.e. that of the museum, is rather novel, the procedure is going to just as multiperspectival in order to cover the issue at hand as thoroughly as possible. As a consequence, methods will be picked eclectically instead of imposing them from the outset, just like Sterne attributes it to Cultural Studies.[52] Schulze confirms a more open approach to methodology.[53]

A first fundamental consideration regarding sounds comes from Schulze who declares hearing to be the method of choice to examine sounds. Whilst recordings using microphones captured physical conditions, human hearing was highly selective, interpretive, and even creative. Acknowledging these cultural influences entails a performative understanding that needs to include cultural context.[54] By naming hearing a constitutive method in this context, I intent to shift the focus to sounds in relation to humans. After all, a reciprocal relational assessment of people and sounds is what Sterne outlined for Sound Studies. Additionally, seeing aural

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[51] Sterne 2012, 2-3.
[52] Ibid., 6-7.
[53] Schulze regards Cultural Studies as a countermovement to conventional academia, orig. 'Wissenschaft', with the former being about heterogeneity and the latter highly systematic and positivist, see Schulze 2012, 242-243.
[54] Ibid., 247-248; Grimshaw and Garner tie this thought to industrial needs for standardised mass production and thus to recordings, see Grimshaw/Garner 2015, 22-23.

phenomena in a vacuum would not do the museum context justice.[55] As a result, this approach contrasts with Kannenberg's who explicitly relies on recordings.[56]

Hearing or rather listening has been classified in several ways. In his work on sound ecology, i.e. aural perception of surroundings regarding patterns and origins, Gaver distinguished between everyday listening, meaning a focus on sound events or sources, and musical listening which is about actual sound qualities.[57] In this context, Gaver's distinction is mostly of interest because of what it implies for how differently people perceive sounds depending on their awareness, experience, and training. During my research for this study, I was met with one reaction that goes beyond his findings. When talking to one of the museum guards, I asked them in a straightforward and open way (maybe too straightforward and open?) what experiences they had had with sounds at the museum. After moments of confusion, they finally answered 'It's colder near the mammoth'[58]. Not only was there a difference in how they perceived or described sounds, but they even mixed up two senses. This intriguing encounter reveals two things: firstly, when conducting interviews, especially informal, impromptu ones, it would be naïve to assume that people can relate to the research topic right away. Adapting interview questions, e.g. by narrowing them down, might be helpful. Secondly, the guard's reaction is a powerful indication, albeit not proof, of how humans perceive the world with all their senses combined, as discussed by neuroscience.[59]

Gaver's classification is rather limited since it only includes focussed but not passive modes. These are included in another well-known system by Chion who adapted a corresponding model by Schaeffer. In *Guide des objets sonores*, an edit of the latter's impactful *Traité des objets musicaux* (1966/1977), Chion describes four listening modes that are grouped along the contrastive pairs abstract/concrete and objective/subjective. Listening (écouter) was about determining a cause or source of sound whilst perceiving (ouïr) was just passive without further involvement. Hearing (entendre) revolved around intention to describe sound. Finally, comprehending (comprendre) meant trying to understand meaning behind language or a code.[60] Tuuri and Eerola estimate this model of listening modes to still be acceptable, not least because it helped understand e.g. how one sound can be perceived and interpreted differently. Still, they

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[55] It is rather telling for Western thought to occasionally end up with semantically paradoxical wordings like 'seeing [sounds]', also see (this time for real) chapter 7.3.
[56] Kannenberg 2017, II 6.
[57] Gaver 1993, 285-286; he illustrates his statements by imagining an exchange between a participant in an experiment and a researcher. The former would describe sounds concretely, e.g. as an aeroplane, whilst the latter expected a description of sound qualities regarding pitch, volume, duration, tonality.
[58] Orig. ‚Beim Mammut ist's kälter'.
[59] See chapter 7.1.
[60] Chion 2009, 19-20; orig. 'Les quatre écoutes', see Chion 1983, 25-26.

criticise the basic classification to rely on a hazy understanding of listening and to poorly cover how meaning is evoked and ascribed in individuals. Thus, Tuuri and Eerola propose a modified model rooted in embodied cognition that now encompasses nine listening modes.[61] Kannenberg on the other hand points out that the assumption of different, hierarchical listening modes existing was problematic and has been criticised.[62] Rice for instance declares that sophisticated listening modes were counterproductive because they did not build on one another.[63] Since this study will not closely engage with how meanings of sounds are ascribed, Chion's fourfold model will suffice to approximate what people aurally perceive in museums.

After introductory thoughts about Sound Studies as the academic frame and listening modes as a methodological approach, it now needs to be determined what is meant by sound or sounds since they form the basis of the material.[64] Schulze outlines sound to encompass different kinds, ranging from noise to euphony.[65] Such an everyday conception of sounds might appear self-evident but can be helpful for this very reason. After all, the relation between humans and sounds, for most just a natural phenomenon in the world, is of interest here.[66] Schulze considers Helmholtz, a 19th century scholar, to have facilitated academic research on sound by conceptualising it as sonic, a physical phenomenon related to perception. Before that, discourse on sound had been aesthetic and philosophical.[67] Accordingly, Grimshaw and Garner declare that in the West sound had had many definitions in philosophy but only one in science, as sound waves, which coincides with common perception.[68] Schulze criticises Helmholtz' approach to have been a result of 19th century requirements to adhere to laboratory models and measurements. Subsequently, a complex interplay of physical, bodily, and cognitive events was reduced to transferring and processing objectifiable data.[69] Grimshaw and Garner acknowledge the physical definition's desire for 'tidy, finite, discrete, and portable digital artefacts' meant an omission of more blurred aspects of reality. Most importantly, they consider an understanding of sound based on physical waves to be too incoherent.[70] They reference Pasnau who shows

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[61] Tuuri/Eerola 2012, 138-139 & 144; see p. 147 for an overview of all nine modes and p. 148 for a grid.

[62] Kannenberg 2017, 14.

[63] Rice 2015, 104.

[64] I chose the title *Sounds in the museum* to express that this text cannot aspire to fully examine sound in a museum context. By using the plural, I intended to align myself with tendencies in the vein of cultural relativism which have also led to understanding music more pluralistically in the shape of varying musics, i.e. traditions and practices resembling a Western notion of music. Still, the distinction between the general phenomenon sound and individual manifestations as sounds is not always clear which is why the two terms are on occasion used interchangeably, not least to avoid redundancies.

[65] Schulze 2012, 244.

[66] As indicated by my interviews with people, particularly those who were unprepared. Memento mammoth.

[67] Schulze 2008, 2.

[68] Grimshaw/Garner 2015, 20 & 22.

[69] Schulze references Blesser's work from the 1970s in his verdict, see Schulze 2008, 3-4.

[70] Grimshaw/Garner 2015, 20-21.

that our perception of sounds being located at their respective sources is not compatible with the idea that sounds only originated from waves.[71]

Rooted in their interest in music technology, video games, and the concept of virtuality, Grimshaw and Garner instead define sound as 'an emergent perception arising primarily in the auditory cortex and that is formed through spatio-temporal processes in an embodied system'. By emergent perception, their concept's centrepiece, they mean a continuous and current act in the mind that does not rely on sensing but on perceiving.[72] Consequently, to them also imagining and hallucinating count as sounds. Acoustic waves are only one potential impulse, alongside those from within the ear or the brain. These impulses are then processed in the secondary auditory cortex where meaning is ascribed with respect to 'memory, expectation, belief, and emotion', resulting in sounds to be very individually perceived. Since Grimshaw and Garner consider sounds to be in the mind, they can only be located outside of the body in the physical world if mind is defined accordingly. From embodied cognition they adopt a concept of the mind as an embodied system, comprising brain, body, and environment.[73]

As radical as Grimshaw and Garner might appear, similar ideas had been voiced much earlier. Already in 1913, Gariel declared that sound is a sensation that does not exist outside of us but in our consciousness. Consequently, it would be incorrect to label impulses triggering this sensation using the same term.[74] In general, Steintrager gives a mixed review of Grimshaw and Garner due to contradictions and lacking explanations. Still, he judges their work to be thought-provoking and even necessary in broader discussions of sound.[75] Strikingly, Steintrager reviews them more favourably when collaborating with Chow a couple of years later. These two are of the opinion that it is crucial to take both inside and outside perspectives into account since them being intertwined is what renders sound to be so 'elusive and inexhaustible'.[76]

For one thing, it is valuable to be aware that the perception of sounds works in such a multi-faceted, individualised manner. On the other hand, if sounds are not always a result of externally determinable phenomena but can simply be a product of the mind, they become notoriously difficult to examine. And even sound waves could be perceived differently by two persons,

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[71] Pasnau 1999, 310-312.

[72] Grimshaw/Garner 2015, 1-3; Steintrager characterises this approach to describe sound as being solely perceptive as one of the two extremes in Western thought. The other side of the spectrum would be to say that sound only exists independent of the perceiver, see Steintrager 2017, 74.

[73] Grimshaw/Garner 2015, 3-4, 30-34 & 37.

[74] Orig. 'le son est une *sensation*, phénomène subjectif, personnel; il appartient au domaine de la conscience' and 'le son, la sensation sonore n'existe pas en dehors de nous'; he later declares that incorrect labelling only becomes an issue when context is not properly given, not by employing the same term, see Gariel 1913, 405.

[75] Steintrager 2017, 74-75.

[76] Steintrager/Chow 2019, 12.

according to Grimshaw and Garner.[77] However, Zisch et al. 'unlike the radical constructivists' highlight the similarities between visitors. They build on the notion that individuals were after all 'exposed to an external physical reality that is more or less the same as the reality experienced by other visitors at the same time',[78] so they can make more universal points. Since only single interviews could be conducted, it will have to suffice to treat the issues implicated by primarily subjective perception with all due awareness and care.

6. Sounds as objects in museums

Another concept that requires elaboration is that of sound as an object. It has a threefold meaning in this context: first of all, sound is the object of study here which requires no further clarification.[79] Secondly, sound objects have been conceptualised with regard to recording technology. In common perception the idea of a sound object might appear paradoxical, but *Objects of Sound* describe how allegedly material objects and fleeting sounds had grown together. Medieval notation could be seen as a first attempt to reify sound. The connection of objects and sound has become highly influential due to recording technology which allowed sound moments to be repeated at will. Schaeffer developed the 'objet sonore' or sound object with regard to these technologies.[80] Their impact on production and transmission led to sounds being perceived independently of their sources. Schaeffer calls this 'acousmatic', a term that in ancient Greece described how Pythagoras' pupils listened to him whilst he was obscured behind a curtain.[81] Schafer refers to the separation of sound and source as 'schizophonia', derived from the Greek 'schizo' meaning split. Schafer argues that due to recording and transmission technology sounds were no longer by default unique and tied to their respective contexts.[82] He also highlighted that sounds could impart information which was another reason to treat them like objects.[83] In this regard, Cortez stresses Schafer's impact which she also sees as a basis for the academic study of sounds.[84] Chion concludes that recordings made it possible for sounds,

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[77] Grimshaw/Garner 2015, 33.
[78] Zisch et al. 2014, 221.
[79] At best I could point towards a latent tension between this schematic separation (the topic as object of study and the researcher as subject) and the inherently relational perspective of this study regarding sounds.
[80] *First (in)definition. Sound is an object*, *Objects of Sound*, 18 March 2017, https://objectsofsound.com/category/indefinitions/ (accessed 7 June 2023).
[81] Schaeffer 2004, 76-77.
[82] *Objects of Sound* claim Schafer 'enthusiastically highlights its advantages', even though he is more careful. Not only does he create a link to schizophrenia with the 'same sense of aberration and drama', but he also stresses the impact of technology for the oversaturation of the world soundscape, see Schafer 2004, 34-35.
[83] *First (in)definition. Sound is an object*, *Objects of Sound*, 18 March 2017, https://objectsofsound.com/category/indefinitions/ (accessed 7 June 2023).
[84] Cortez 2022, 13.

despite their fleeting quality, to be treated as objects. In accordance with Schaeffer, he considers temporal outlines to be the prerequisite for sound objects to be observed and modified.[85]

Chion lists two limitations of Schaeffer's sound object that were intentionally included. Firstly, it was reserved for certain graspable forms of sound. Secondly, the sound object remained in a paradoxical position between its naturalist definition and technical requirements.[86] Kannenberg also criticises the sound object for lacking consistency. Still, he concludes that it is widely accepted as a 'malleable, manipulated object', even in digital form. This is particularly the case in musical contexts where the sound object is closely connected to sampling.[87] Turino names another aspect that influences the way people engage with sounds. Nowadays, music is insofar an object as it is seen to be proprietary and, in the words of the record industry, a product. This idea had caused recordings to no longer be representations but themselves the music. As a result, listening is entwined with consumption and consumerism.[88]

Lastly, sounds can be part of museums as objects in their exhibitions and collections. Most of this discussion is based on a materialistic understanding. It is telling that Pearce claims objects had had a long history of being studied in material culture theory.[89] Even in the following, a material basis is pivotal since museums have traditionally been composed of material objects since evolving from previous collections in the late 18th and early 19th century.[90] Until now however, there have been considerable shifts in how museums approach their tasks and collections. For the longest time, handling the objects was reserved for a certain elite, notably curators. During the 1970s and 1980s, the contradiction between museums being public institutions and the limited accessibility sparked a debate on how to balance education and conservation.[91] Therefore, museums had tried to encourage visitor participation and to shift to more experience-based exhibitions and programmes which included a departure from mostly visual to multisensory approaches. Kannenberg highlights that sounds improved engagement with people as well as education. He furthermore states sound had an additional, figurative layer as museums now listened to the demands, suggestions, and needs of their visitors.[92]

Another crucial shift was institutionalised by the UNESCO which in 2003 adopted the *Convention for the Safeguarding of the Intangible Cultural Heritage*. This convention provides

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[85] Chion 2016, 169 & 172-173.
[86] Ibid., 186.
[87] Kannenberg 2017, VI 14.
[88] Turino 2009, 109-110.
[89] Pearce 1994a, 2.
[90] Bennett 1995, 19.
[91] Howes 2014, 289; this debate remained controversial, Levent/Pascual-Leone 2014, XVII.
[92] Kannenberg 2017, II 4-5.

a basis for protecting intangible cultural heritage which in turn is recognised to play a vital role for cultural diversity and sustainable development. This heritage is defined to encompass oral traditions including language, performing arts, social practices like rituals, knowledge about nature, and craft.[93] The UNESCO declaration has had considerable impact on museums. Already in 2004, the International Council of Museums (ICOM) declared that museums ought to include intangible cultural heritage into their work.[94] The German Museums Association adopts ICOM's guideline and defines museums to be concerned with researching, collecting, conserving, interpreting, and exhibiting both tangible and intangible heritage.[95] This shift has caused sounds to play an increasingly important role in museums since corresponding phenomena like language or music are explicitly named. Mortensen points out that the UNESCO convention did not mention sound artefacts which he proposes to be included in intangible heritage though. He mentions the dropping prices of sound-related technology, particularly for reproduction in exhibitions, as a pragmatic factor for more widespread use.[96]

Instead of using sounds for context or atmosphere in museums, Mortensen suggests treating them as artefacts with context given by labels or objects. Doing so contested the visual primacy but would also require educational effort. The audience needed to move away from seeing to active listening.[97] With this proposition, Mortensen stands in the tradition of media theorist McLuhan who was critical of how visuality for centuries dominated Western perception. New technologies reversed this trend so sounds gained importance as opposed to vision and text.[98] Henning points out that his ideas were valuable for museums as these communicate a sense of meaning and reality which affects people emotionally, behaviourally, and socially.[99]

In this vein, Kannenberg employs his curatorial experience to argue compellingly in favour of using sound artefacts by redefining the term sound object for use in museums.[100] He stresses how useful it was to treat sounds analogue to conventional, object-centred museum practices. His definition of a sound object is a 'listenable sonic event generated by a physical object,

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[93] UNESCO 2022, 3-6; Bennett describes heritage as 'canonical representations of custom, tradition and place that are presented as an integral part of collective identity' with regards to context, Bennett 2015b, 18.
[94] The experience with tangible heritage provides the procedural framework, Stottrop 2012, 139.
[95] See *Museumsdefinition*, German Museums Association/*Deutscher Museumsbund*, 10 March 2017, https://www.museumsbund.de/museumsdefinition/ (accessed 13 June 2023) and *Museumsstandards*, German Museums Association/*Deutscher Museumsbund*, 30 March 2017, https://www.museumsbund.de/museumsstandards-2/ (accessed 13 June 2023).
[96] Mortensen 2012, 22 & 24.
[97] Ibid., 23; a more exhaustive involvement with listening modes can be found in chapter 5.
[98] McLuhan 2004, 68-69 & 72.
[99] Henning 2015, XXXVI.
[100] Cortez goes so far as to call his work in this regard a 'milestone', see Cortez 2022, 13.

animal, human, or force of nature, *independent of its source*.'[101] Drawing on both Cox and O'Callaghan, Kannenberg proceeds from the assumption that sound was an event with object-like qualities.[102] This understanding is shared by Mortensen[103] and integrates with Grimshaw's and Garner's notion of sounds as an 'emergent perception'.[104] Event for Kannenberg means that sounds have a crucial temporal aspect to them that relates to perception. This event of perceiving is object-like in that it is not bound to one source, i.e its origin or a recording. As such, the sound event is independent and can be treated as a museum artefact.[105] Kannenberg references Nagel to explain how a sound can be both event and object. The latter claims that in the 15th century the idea of unique or original artworks, so unrepeatable events, had emerged alongside forgery and art history. Both these disciplines had no place in the previous copy culture that just regarded images as translations from one medium to another.[106] According to Kannenberg, the notion of objects being events and vice-versa is at the core of museums as they rely on authenticity. Sounds in this regard were unseen events, meaning they integrated seamlessly into existing structures, i.e. museum workflows and theoretical frameworks. That is why reproducibility was the primary requirement for sounds in exhibitions. In this regard, Kannenberg created a system for practical implementation. A cuckoo clock making a certain sound would be the object (A). The sound was a sound object (B) and a recording of said sound was a digital recording (C). The original sound would be preferable, but the recording prevented wear.[107] This procedure aligned with the 'demand for conservation' that generally competed with implementing senses.[108]

Kannenberg's concept is largely convincing but has a few issues in this context. He himself admits lacking acceptance of sounds as collectable artefacts which he hopes could be changed by standardised procurance measures.[109] Mortensen lists several issues, too. Firstly, acquiring metadata was time-consuming and language-based, so some sound parameters could not be expressed appropriately. Moreover, exhibitions could struggle with conveying the purpose and atmosphere of most modern media because these were to be experienced momentarily. The duration of some media, such as Mortensen's example of radio shows, poses problems on its own. For example, should a show be treated like one artefact, or could it be separated into

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[101] Orig. emphasis, Kannenberg 2017, I 2 & VIII 16.
[102] Ibid., IV 12-13 & VI 14-15.
[103] He proceeds from a different basis of literature, Mortensen 2012, 25.
[104] Their concept is reliant on momentary processing in the brain, Grimshaw/Garner 2015, 1-3.
[105] Kannenberg 2017, VIII 16.
[106] Nagel 2004, 3, 7, 10 & 12.
[107] Metadata links the recording to both object and sound object, Kannenberg 2017, VIII 16 & IX 17.
[108] Levent/Pascual-Leone 2014, XVII.
[109] Kannenberg 2017, V 13.

individual segments for the sake of visitor attention?[110] Mortensen does not seem concerned about how to split up programmes even though selection can have a huge impact on perception and results, at worst resulting in cherry picking. Mortensen brings up another source of concern, copyright, which required artefacts to be limited to a duration of 2 minutes. He acknowledges benefits in terms of attention but does not create a link to the question of segmenting artefacts.[111]

Lastly, Kannenberg's adaptation of the term object can be confusing due to its already threefold meaning. For that reason, sounds as pieces in exhibitions and collections can be subsumed as sound artefacts. These, being one of 5 cornerstones in Cortez' classification, relied on sounds representing culture and forming relations to people.[112] Based on a material understanding, Pearce considers artefacts to have been made by hand or skill.[113] Mortensen delivers the missing link to think of sounds as artefacts. To him, museums were institutions that transformed 'things into artefacts' through collection, description, cataloguing, and exhibition. By the end of that process, the artefact was no longer part of its original context but a symbol for its origin in a collection.[114] This way, sounds are rendered a result of skilful dealings which is the prerequisite for artefacts according to Pearce.

7. The potential of sound

After so much theory about sound and sound objects or artefacts, what actual merits do sounds offer, especially when employed in museums? An observation by Kannenberg ties the previous chapter to sound potentials, thus acting as a basis of understanding. He refers to Greenblatt's 'resonance' and 'wonder' as well as Benjamin's 'aura' to explain how museum artefacts are seen as authentic representations that allow for evoking attention and emotional reactions, in particular a sense of relating to the experiences on display.[115] Greenblatt aims at understanding the production, reception, and exhibition behind objects and artefacts which could help induce resonance in visitors, meaning they did not simply absorb preconceived information but started questioning and reflecting.[116] Kannenberg explains that although these concepts were derived

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[110] Mortensen 2012, 25-26.
[111] Ibid., 26 & 32.
[112] Cortez 2022, 12-13.
[113] Pearce drafted a helpful distinction between terms including goods, objects, and thing. Pearce 1994b, 9-11.
[114] Mortensen 2012, 23-24.
[115] Kannenberg 2017, III 7-8.
[116] Greenblatt 1991, 42-43 & 45.

from visual contexts, sounds could also generate corresponding experiences and relations.[117] Pearce labels this 'the power of the real thing' and adds nostalgia as a factor to consider.[118]

7.1. Neuroscience and multisensory perception

Findings in neuroscience provide ample evidence endorsing the potential of multisensory approaches, sounds in particular, in museums and related contexts. Levent and Pascual-Leone argue that the brain processed experiences in a multisensory way and could dynamically adapt to exterior impulses, implying that museums can shape their visitors' brains.[119] They draw on a previous article by Pascual-Leone and Hamilton in which these two argue that humans perceived the world by combining unimodal senses, indicating that the standard of perception is multimodal and multisensory.[120] They argue that the brain consisted of metamodal operators, i.e. 'local neural networks defined by a given computation that is applied regardless of the sensory input received'. These networks retained preferred sensory inputs which had given the impression of unimodal channels.[121] Lacey and Sathian observed that touching something also activated primarily visual brain areas because one simultaneously imagined the look of said objects which again indicates multisensory perception.[122] Ward confirms these findings by stating that learning and memory were undertaken by the entire brain. Two cognitive patterns even indicated benefits from combining senses. Firstly, repetition priming meant that recently encountered sounds or objects were responded to faster next time. Secondly, sounds could improve performance on a purely visual detection test. Ward refers to this as associative priming which is a bond between a sound and an object occurring together.[123] Arnott and Alain reconceptualise this as aided action understanding, i.e. sounds helping with comprehension.[124] Additionally, sounds can trigger memories. Mortensen instances the modem dialup sound which reminded many people of having to wait in front of their PCs.[125] Ward specifies that after they had been processed in specialised brain regions, complex memories were then reassembled in hubs, mostly the hippocampus, using different senses. That is why remembering was

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[117] Kannenberg 2017, III 7-8.
[118] She also refers to Benjamin's aura, see Pearce 1994c, 20.
[119] Levent/Pascual-Leone 2014, XIV & XX; the authors acknowledge the paradox that their plea for multisensory approaches is unisensory, just as this text will forgo the sounds it is about.
[120] Pascual-Leone/Hamilton 2001, 427; referenced in Levent/Pascual-Leone 2014, XV-XVI.
[121] Ibid., 441.
[122] Lacey/Sathian 2014, 3-4 & 6.
[123] Ward 2014, 273-274 & 279.
[124] Arnott/Alain 2014, 90.
[125] Mortensen 2012, 24-25.

significantly facilitated when several sensorial stimuli are at play. Also, pre-existing or learnt associations could help with remembrance.[126]

Cox remarks that a core issue lies with sounds being based on context. Consequently, including them could be seen as distracting, subjective, and emotional, thus undermining the museum's authority and purpose as sites of objective knowledge. On the other hand, the ambiguity of sounds could illuminate intercultural matters.[127] For example, Howes points out that the cultures of the Shipibo-Conibo and the Navajo used aesthetic and multisensory aspects differently, i.e. to fulfil specific functions in everyday life.[128] After all, new understandings of museums do not consider them to be merely places of learning, but also community, sociality, and even contemplation and healing. According to Levent and Pascual-Leone, their purpose was not solely to convey their curators' message but to provide 'a multilayered journey that is proprioceptive, sensory, intellectual, aesthetic, and social' for a variety of effects. As reported by neuroscientific findings, these new conceptions consider museum experiences to be multisensory by default which is why designs were correspondingly important.[129] Levent and McRainey define strategies for introducing another sense, namely touch, to museums. History museums in particular would benefit from more interactive and engaging spaces, e.g. due to multisensory components, to make the past more relevant, meaningful, and believable to their visitors.[130] According to Witcomb, this shift was a result of two factors: firstly, museums had become just another way of spending free time, so they had to compete with other forms of entertainment. Secondly, traditional transfer of knowledge did not stimulate imagining and feeling which in turn were deemed to be more suitable for both representing cultural diversity and addressing social matters.[131]

Complimentarily, Black advocates for experience, meaning actively doing and learning instead of being passively told and taught. He suggests interpretation as a method that for once could be a powerful means of inclusion since it encouraged participation, exchange, and involvement. On top of that, interpreting meant visitors applied and furthered their skills to gain deepened understanding which resulted in meaningful, thought-provoking engagement and learning whilst simultaneously being pleasurable. Lastly, this approach could help bridge the gap between visitors and curators as well as create a connection with peoples' experiences and thus

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[126] Ward 2014, 275-276 & 278-280; based on these insights, he outlines guidelines for museums, ibid., 281.
[127] Cox 2015, 219-220 & 225.
[128] Howes 2014, 289-293.
[129] Based on examples from New York City, the authors also ascribe the popularity of shops and restaurants in museums to them catering to multiple senses, see Levent/Pascual-Leone 2014, XIII & XVIII-XIX.
[130] Levent/McRainey 2014, 62.
[131] Witcomb 2010, 246-247.

lives, making the topics more relevant to them.[132] Similarly, Witcomb describes the 'powerful impact' the Dennis Severs' House in London had had on her. Unlike usual museums, it was designed around sensory experiences and imagination to which Witcomb attributes a notably deepened understanding of the history at hand. She concludes that less literary exhibitions might enable people to feel the periods in question and to better engage with different groups.[133]

7.2. Music

Turino argues that music, a specific form of sound, makes people whole, meaning a feeling of integration with oneself, other people, and the world. Hence, music both contributed to personal pleasure and facilitated survival thanks to enhanced group cohesion. Additionally, he specifies that music had great impact on emotions, imagination, experience, and memory as well as economic and reputational dimensions.[134] According to Frith, people used music to exercise control over their lives and emotions, so it was important for people's 'sense of themselves'. As music can invade spaces and is deeply ingrained in identities, it enabled better insight into social life and could even be a powerful public tool, making it highly political.[135] McCrary et al. conducted a meta-analysis of 26 studies involving almost 800 participants to find out if music had a positive impact on health-related quality of life. Despite advising caution due to potentially considerable differences on an individual level and only little effect on physical health, they confirmed that music offers significant benefits for mental health when compared to conventional therapy.[136] Similarly, Depledge et al. suggest that nature sounds, alongside views and smells, can have considerable benefits for health and wellbeing.[137]

7.3. Sounds versus the visual primacy

A lot of neuroscientific research antagonises the visual dominance that for the longest time was a mark of museal practice. That is why a juxtaposition of visuals and sounds in museums and academia is of particular significance to grasp the implications of the changes taking place. Bull for instance references Attali's notion that the world should not be understood by vision but by hearing or noise. Consequently, Bull expresses that this shift could unveil perspectives that

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[132] Black 2005, 132, 184-185, 187, 192 & 195.
[133] Witcomb 2010, 245-246 & 249.
[134] Turino 2008, 1-3 & 5-7.
[135] Frith 2012, 154-156; in his last statement he references DeNora 2000, 163.
[136] They took into consideration both making and listening to music, McCrary et al. 2022, 2-4, 8 & 11.
[137] They also highlight a multisensory link, Depledge et al. 2011, 4660-4662.

sight so far had left unconsidered.[138] Also Voegelin conceptualised her soundwalks to critically explore and reimagine museums. Their design, architecture, and curation had after all been shaped to accommodate for vision, not all the senses.[139] Cortez differentiates between two etymologies in museum practice. The first one is visual, so about materiality and objectivity. Visitors are supposed to be taught in silence. The second one is aural/oral, meaning that knowledge was experienced instead of learnt, which is why multisensory approaches were pivotal. Based on Shepherd, she pinpoints the 'rise of visual rationales' to the shift from oral to literate societies. This meant that phenomena were perceived to be bound to visual signs and thus separate from their representations. This division was constitutive for objectivity as objects and signs do not hold subjective, meaning disputable notions. As a result, museum practice was centred around material collections.[140]

Objectivity being based on materiality and visuality brings with it problematic implications for approaches that are increasingly multisensory or aural. For once, the authority of museums is at stake since it is derived from the notion that the institution was an arbiter of truth and knowledge. Thus, museums ought to tread a thin line between facts and opinions, authority and expertise, or advocacy and neutrality.[141] Moreover, debates about opinion versus facts have haunted the public sphere for years. Already for their *Word of the Year* 2016, the *Oxford Dictionaries* picked ‚post-truth‘, i.e. a condition in which beliefs and emotions outweigh a factual, objective truth.[142] Harjuniemi summarises that in the West, this concept was widely regarded as a threat to fundamental values of the society like liberal democracy, the economic system, and public debate culture.[143] On the other hand, Serrell sees a general shift in museums and academia away from positivist knowledge to contrasting beliefs and acknowledging uncertainties, largely due to educational sensitivities.[144] Cameron generally estimates museums to be political and to express, often very subtly, corresponding views. Universal, abstract as well as largely consensual ways of presentation would only contribute to misunderstandings.[145]

Cameron's understanding is based on McLuhan who traces the advent of Western visual-focussed perception to Aristotle and ancient Greek literacy. Since then, visual overstimulation had transpired at the expense of other senses, resulting in a preponderance of the left cerebral

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[138] E.g. in studies on urban experience, Bull 2000, 1-3.
[139] Voegelin 2014, 120.
[140] Cortez blames this visual focus for the dominance of linear, cause-effect explanations, Cortez 2022, 3 & 7.
[141] Cameron 2010, 3.
[142] *Word of the Year 2016*, *OxfordLanguages*, https://languages.oup.com/word-of-the-year/2016/ (accessed 26 April 2023).
[143] Harjuniemi 2022, 270.
[144] Serrell 2015, 60.
[145] Cameron 2003, 36-37; see also Cameron 2010, 2.

hemisphere.[146] Arnott and Alain make this sensory imbalance become apparent by referencing Hull, a blind man who explains how rain helped him navigate his surroundings.[147] Such reports reveal the untapped potential of the non-visual senses. Schafer however points out that the primacy of the eye was a Western concept. Only since the Renaissance, people had started imagining God visually, not as a sound or vibration. This notion still holds true in Islam where the word of God is broadcast.[148]

According to McLuhan, recent technological advances had caused aurality to become viable alongside vision and text.[149] Cox and Warner also claim that the past few decades had spawned a new audio culture. It was characterised by sound recordings as well as involvement with sound materiality and the process of listening, as evidenced by the rise of sound art, avantgarde musicians, and research. Referencing authors such as Schaeffer, Cutler, or Schafer, they point out two major reasons for this change. The first one was modern sound technologies, most of all recordings. The second reason involved digital media since these are widely available, replicable, malleable, provide high quality, and foster new networks.[150] Steintrager and Chow add that the last two decades had seen the emergence of Sound Studies, so critical engagement was more about finding distinct approaches for sound matters in particular.[151] According to a writeup by the *Objects of Sound* project, there were three reasons for sounds to then have entered museums: firstly, sound had been more and more considered as an object or artefact. Secondly, the discursive sensorial and affective turns had meant for sounds to be re-evaluated for their impact on emotions and identity. Finally, technological advancements had facilitated implementing sound in exhibition spaces.[152] Arnott and Alain conclude that choosing sound or vision for an approach should only depend on what fits best because both excelled at different things. Whilst auditory inputs were more important in temporal processing, the visual system remained more reliable in spatial mapping.[153]

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[146] McLuhan admits his hypothesis to be controversial, McLuhan 2004, 68-69 & 71-72.
[147] Arnott/Alain 2014, 85-86.
[148] Schafer 2004, 31.
[149] McLuhan 2004, 72.
[150] Cox/Warner 2004, XIII-XIV.
[151] Steintrager/Chow 2019, 13.
[152] *First (in)definition. Sound is an object*, *Objects of Sound*, 18 March 2017, https://objectsofsound.com/category/indefinitions/ (accessed 7 June 2023).
[153] Arnott/Alain 2014, 96.

<u>**7.4. Accessibility**</u>

Sound can be a means to make exhibitions or events accessible. For instance, the initiative *Art Beyond Sight* strives to enable blind or visually impaired people to experience museums, mostly those presenting visual art. In this endeavour they employ tools of sound as well as touch.[154] *Art Beyond Sight* was established as *Arts Education for the Blind* in 1987 by Elizabeth Axel who managed to overcome contemporary prejudices and lacking implementation of cognitive research into education.[155] In an article covering *Art Beyond Sight* as one of the pioneers of the *New York City Disability Rights Movement*, Shaw explains that Axel's first workshop about the accessibility of visual art for blind people incorporated methods of touch, such as 3D models and tactile paint, as well as sound imagery. In addition, Axel worked together with Lou Giansante who is known for his sound versions of paintings.[156] Conceptually, he uses 'words to help people who are blind or have low vision participate in visual culture'.[157] Methodically, he outlines 'Writing with Sound' which is about adding sounds, ranging from dialogue and effects to music and ambiance, to verbal explanations. This blend of sounds gives contextual information and impressions and can convey visual features which lead to a more corporeal, emotional, and mnemonic experience. The enhanced perspective aims to deepen understanding, particularly for visually impaired people.[158]

Amongst several examples of Giansante's sound descriptions, Shaw points out the elucidation of the painting *Nude Descending a Staircase* (1912) by Marcel Duchamp.[159] The description starts out by providing details about the painting as well as contemporary critical reactions, both for contextualisation. Between 0:30 and 1:34 Giansante gives basic information about the actual look of the painting, including measurements. The motif was an 'abstracted human figure' (0:43) that had led to incomprehension during first exhibitions. Due to this abstract nature, also people today could benefit from receiving plainly descriptive information. Giansante skilfully divides his description into two parts, achieving a very convincing representation of the work, especially because of the sound he employs. Firstly, he explains that the painting was meant to

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[154] Levent/Pascual-Leone 2014, XIV-XV. The focus in their educational handbook *Art Beyond Sight* (2003) is clear: more than 100 pages are dedicated to touch and vision whilst sound and drama are dealt with in a short, practical chapter of not even 15 pages. Also, the introduction (Axel 2003) only ever mentions touch as a means.
[155] Axel 2003, 15.
[156] Shaw 2021.
[157] *Writing Audio Description. Access to Visual Culture for All*, *Lou Giansante*, https://www.lougiansante.org/writing.html (accessed 28 April 2023).
[158] *Writing with Sound. Adding Sound to Audio Description*, *Lou Giansante*, https://www.lougiansante.org/writing-with-sound.html (accessed 28 April 2023).
[159] Shaw 2021; the link on Giansante's website redirects incorrectly but the file remains available on his *Soundcloud* profile, Lou Giansante: *Nude Descending A Staircase*, *Soundcloud*, 4 April 2021, https://soundcloud.com/lou-giansante/nude-descending-a-staircase (accessed 28 April 2023).

show a human figure moving down the stairs, according to its title. This is illustrated by the sound of footsteps down a wooden staircase (0:53-0:55). Then Giansante goes on to elaborate that the figure is not realistic but in fact consists of lightly coloured shapes separated by black lines. Most of the confusion stemmed from there not being just one figure but several overlapping iterations. Consequently, the author takes the single recording of footsteps from earlier, multiplies it and overlaps the copies with some delay (1:30-1:34), creating a very plausible audio rendering of the painting. This short sequence encapsulates the core meaning of the work, as evidenced by Duchamp himself. His idea was to show both 'multiple points of view and multiple points in time within one painting' (2:08-2:13). The result being so convincing is not least due to the nature of this abstract painting which, as the critical reactions indicate, takes a lot of its potential from duplicating and distorting shapes that are meant to constitute a nude person. The recording can be heard again at the very end of the description.

In a similar vein, Shaw's article has also been made available in a version that is read out. Remarkably, the file opens with descriptions of pictures embedded in the article. Doing so puts the emphasis on the context of using alternative means to make the visual accessible.[160] This way of imparting art or knowledge actually means access in two senses. Not only does it make contents experienceable that otherwise would be reserved for sighted people, but by making them available online, also people unable to leave their residences could participate. Whilst approaches like Giansante's can be crucial for access, artworks are not perceptible immediately. Instead, one is limited to mediations and thus interpretations. From a puristic perspective this might seem unsatisfactory but the success of initiatives such as *Art Beyond Sight* proves the approach right. However, adapting innovative practices means a necessary deviation from established workflows. In particular, these innovations can be seen to bring along higher risks, additional work, also due to adjustment, and increased costs. Black concludes that conventional exhibitions still prevailed because of convenience and the training that curators had received.[161]

7.5. Visitors

Ever since they became public institutions, museums aspired to serving as educators, collectors, and preservers as well as to maintaining sites and collections. According to Black however, pressure from multiple sides had initiated change in favour of visitors. He states that driving

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[160] Only a select few of the audio tracks appear to describe their visualisations in such a way, Disability History: *ART BEYOND SIGHT – Disability History New York City*, *YouTube*, 2 February 2022, https://youtu.be/fcHgNn-mURs (accessed 10 June 2023).
[161] Black 2005, 130.

forces for this change on the side of politics and funding parties had been social integration, improved education, and economical factors. The visitors themselves demanded integration of new groups as well as open competition with other sources of entertainment and information. Lastly, museum professionals strived to meet the expectations brought forward and wanted to engage with heritage as well as their personal passions.[162] Sandell confirms that these tendencies aligned with updated models of education. These revolved around individual perception of visitors who constructed meaning within their lives and social networks.[163]

Black argues that the institution had to remain relevant to people and correspondingly reach them. Methodically, individual experiences and interactivity could provide that. In the first place, museums needed to ensure a visit was seen as worthwhile. Additionally, visitors could be prepared before arriving, so they felt more engaged.[164] This idea, expanding the museum space beyond its physical borders, was also brought forward during the final discussion of the Bern workshop. Thanks to tying in with experiences and memory, the visit was speculated to be both more anticipated and lasting. The Ruhr Museum actually produced a video to promote their exhibition *Eine Klasse für sich.*[165] Interview A clarifies that it had been ordered because of pandemic-related uncertainty. Still, A praises it for having captured the appealing aesthetics of the exhibition and thus convinced people to visit.[166]

Another potential source of appeal is interactivity and audio-visuality. In a study by Ross, one of the most common answers to what would encourage museum visits was 'more audio-visual and inter-active displays', although the study is almost 30 years of age.[167] Recent impressions indicate similar demands. During my visit to the National Museum of Scotland in Edinburgh in April 2023, the busiest and noisiest section was *Explore* and *Making It* about technology. Alongside a few imposing artefacts, the area featured a variety of interactive installations to demonstrate the topics at hand. The soundscape was pervaded by the use of these displays and the corresponding sounds of people, mostly children and youths, communicating and moving. The segment right next door about the Kingdom of the Scots was both conventionally designed and used, meaning reduced in terms of sound and movement. Aside from being a subjective, punctual impression this anecdote is not fully compelling because the section about technology was closer to the entrance and because the two topics could just pique different interests. A

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[162] Black 2005, 1-3.
[163] Sandell 2002, 15, referring to Hooper-Greenhill 2000, 133 & 139.
[164] Black 2005, 77-78 & 131.
[165] Ruhr Museum: *Sonderausstellung 'Eine Klasse für sich. Adel an Rhein und Ruhr'. Der Film*, *Vimeo*, 13 December 2021, https://vimeo.com/656043851 (accessed 25 May 2023).
[166] Interview A, 52:16-52:52.
[167] Given by 10%, behind opportunities for children at 14% and cheaper admission at 11%, see Black 2005, 24.

considerable share of the soundscape came from children who tend to be louder than adults, especially in spaces that instil a certain code of conduct. And yet, the momentary difference in volume, liveliness and, at least exteriorly, engagement was staggering.

Similar to this case, Serrell describes children to be more investigative and unhinged, favouring touching to reading. In general, she estimates that there was no typical museum visitor although some overlaps could be found. Commonly, visits were seen as social occasions, often with children. Considerable differences were apparent with regard to age but not gender. Popular artefacts tended to work with everyone, but people preferred short labels, concrete to abstract parts, and would easily lose interest if they could not connect to aspects of the exhibition.[168] According to Black, the majority of visitors were informal, meaning they expected an enjoyable visit with good facilities suitable for everyone, especially children. The desire for thought-provoking and didactic engagement would motivate many people.[169] Serrell argues that although visitor experiences will be unique, humans were generally controlled by many equal factors. Amongst these were needs for comfort and safety, feelings of hunger and fatigue, as well as desires for self-actualisation, competence, and confidence. On top came the ability to see patterns and appreciation of both stories and what Serrell labels 'natural spirituality'. She concludes that museums needed to be aware of these conditions in order to integrate diverse audiences.[170] However, visitors did not just impact museums by imposing their needs and wants but were reciprocally influenced aesthetically, educationally, and politically by them which he bases on Duncan.[171]

Audience development was however not just about expanding numbers but about attracting underrepresented groups. Such a course of action involved risks because these new audiences needed to be retained without alienating core audiences. Apart from requiring priority from the top level of administration, this was also very costly in terms of finances and work.[172] Not attempting to incorporate a more complete range of people could prove fatal as in the case of the nobility themed exhibition at the Ruhr Museum. A significant portion of its success had been owed to the benevolence of local members of noble families.[173] Interview A states that

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[168] Serrell 2015, 49-52.
[169] Black 2005, 25 & 80.
[170] Serrell 2015, 53-54.
[171] O'Neill 2002, 24-25; based on Duncan who examines art museums as ritual sites. She considers them pseudo-sacred spaces that represent the public belief of a rational and verifiable truth. Visitors were the ones to perform the rituals, i.e. narrative structures giving meaning, by contemplating and learning, Duncan 1995, 7-8 & 10-12.
[172] Black 2005, 47.
[173] Nobility in Germany was abolished after the First World War so officially there is no difference to other citizens other than perhaps in name. Due to continuous, often polarising efficaciousness and their self-perception, members of (former) noble families will still be referred to as nobles, not least as it is shorter.

nobles caused significant attraction, e.g. as participants in discussions.[174] They could all be convinced to eventually contribute to the exhibition, too. A however admits that they needed to compromise. For instance, an exhibit illustrating a topic like National Socialism had not been requested from the concerning noble family but from another source, such as an archive.[175]

7.6. Criticisms

By referring to the *Enola Gay* exhibition of the Smithsonian National Air and Space Museum, Witcomb points out the flipside of showing novel, questioning perspectives.[176] The exhibition was conceived to materialise calls for a public display of the eponymous aircraft that dropped the nuclear bomb on Hiroshima. The curators designed the exhibition to contextualise the bomb droppings over Hiroshima and Nagasaki, including charred objects, photos of victims, and accounts of witnesses. Military interest groups, politicians, and the general public harshly criticised a lack of objectivity and undue emotionality, so the exhibition was eventually replaced by a basic display of the aircraft's fuselage in 1995.[177] According to Witcomb, this incident revealed that funding parties often did not appreciate alternative narratives as they reduced 'social cohesion' due to addressing marginalised groups. Additionally, multiple perspectives could appear confusing as people did not expect debating information in museums.[178] Around the same time, a similar course of events occurred in Germany. Between 1995 and 1999, the travelling *Wehrmachtsausstellung* polarised the German public since it deconstructed the myth that the Wehrmacht had not been involved in war crimes during WW2. Musial states that the discourse became charged and politicised to an extent that obstructed objective discussions. Unlike the *Enola Gay* exhibition, the *Wehrmachtsausstellung* was scorched for a plethora of mistakes and considerable manipulation. A second, revised exhibition by different curators was praised instead which Musial attributes to a reduced number of photos and more elaborative text.[179] Cameron argues that controversial topics such as taboos, revisionism, and political matters had become more important due to the notion of a singular truth being questioned. It posed risks for museums to display complex, controversial narratives though, as they challenge the audience's values and beliefs, so social, political, or economic repercussions were realistic

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[174] Interview A, 51:28-51:58.
[175] Ibid., 38:35-39:01 & 40:11-40:47.
[176] Witcomb 2010, 247.
[177] Wright 2020.
[178] Witcomb 2010, 247-248.
[179] Musial 2011; it is worth mentioning that this exhibition was not cancelled because it was financed by the Hamburger Institut für Sozialforschung/Hamburg Institute of Social Research which in turn is funded by a trust established by its founder and longstanding director, multimillionaire Reemtsma.

concerns. Still, Cameron infers that these controversies showed that museums were held in high regards in terms of their influence on public debates and perception.[180]

Despite compelling arguments in favour of multisensory approaches in museums, there has been criticism from professionals. Ernst warns of adopting new media since museums could lose track of their forte, material objects. These were fundamentally distinguished from digital equivalents or reproductions.[181] During a workshop about acoustic design in exhibitions,[182] I witnessed sound designers being naturally convinced of their craft whilst curators voiced criticisms. The latter felt ultimately responsible for the emotions evoked by sounds or music which were not as obviously controllable as knowledge conveyed by conventional texts. Still, curators felt ultimately responsible for the emotions. Also Biehl-Missal and Lehn acknowledge that induced experiences often diverged from the curators' intention.[183] Specifically, debates flared up about difficult topics like war. Appealing to the senses by related sounds was not only seen as inappropriate but potentially dangerous. Biehl-Missal and Lehn admit that atmospheric methods can be criticised for being manipulative, even though they allowed visitors to experience emotionally and imaginatively, to spark curiosity.[184] Another issue appears with temporal art or media in a spatial context. Radywyl et al. cite a visitor who remarked how stark a contrast it made to watch the second half of something before the first,[185] indicating there is a risk of inducing frustration. Several attendees also criticised the sound design of the exhibition *was war. Historische Räume und Landschaften*, on display at the historical museum in Graz in 2021,[186] for being too obtrusive. In a space that for them meant peace and quiet, some felt disturbed to such an extent that they cut their visit short. Furthermore, they remarked that a constant soundscape could conflict with hearing sensitivity. Other reactions to this sound design are few and far between, however one blogger actually linked the sounds becoming louder and faster to the overall message of the exhibition, without explicit negative remarks.[187]

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[180] Cameron 2010, 1-2.

[181] Ernst considers museums distinct institutions of remembrance, Henning/Ernst 2015, 3-5, 8-9 & 12.

[182] Held in Bern in April 2022.

[183] Biehl-Missal/Lehn 2015, 251.

[184] Ibid., 242-243.

[185] Radywyl et al. 2015, 428-429.

[186] 13&9 Design describe their work to feature a narrative and an abstract layer. The former consisted of sound effects related to time periods and artefacts. The latter mirrored the exhibition's main points, namely that the landscape had gotten denser, faster, and more complex as a result of human intrusion. The components drumbeats, noise, and heartbeats accelerated correspondingly and became more intense and discordant, see *Sound Installation at History Museum Graz. How It Was. Space and History*, *13&9*, https://www.13and9design.com/design/how-it-was-space-and-history/ (accessed 20 April 2023) and INNOCAD architecture: *how it was. Space and History at History Museum in Graz, Austria*, *Vimeo*, 8. September 2021, https://vimeo.com/600078974 (accessed 20 April 2023).

[187] Krinzinger 2021.

Concerns about obtrusive soundscapes at museums are very real, especially at institutions such as the Ruhr Museum. It is after all strongly intertwined with the industrial heritage of the region. Sometimes, demonstrations of work processes take place at the Zollverein complex and give a remote idea of the enormous noise that many witnesses attribute to the mining operations of the past. Stottrop considers the sound of a region to be a pivotal aspect of its identity. To examine the soundscape of the Ruhr area, she partnered up with Saerberg. Both agreed that his blindness and thus outstandingly developed hearing predestined him to produce a soundtrack of the region from recordings. Saerberg states that soundscape was characterised by constant noises of human life, mostly technology related to transportation and industry. At the same time, seasonal nature sounds were almost as ubiquitous, leaving silence to be a rare occurrence in the region.[188] After all, the museum is located in one of the largest metropolitan areas in Europe. 53 cities blending into each other house more than 5 million inhabitants.[189] Based on similar observations about urban space, Frith judges that silence had become a rare and accordingly valuable good, e.g. highlighted during holidays.[190] Whilst at the redeveloped Zollverein complex, the unusual silence has been noted to be a striking characteristic, a growing number of people is exposed to noise. In 2021, 77,5% of the German population lived in cities, up from 75% in 2000.[191] Frith stresses that unexpected, unwelcome noise could have detrimental effects on health. In the UK in 2000, there had even been a proposition to 'regulate involuntary listening' in public places.[192] A comprehensive study consisting of a systemic review of 45 publications and two sub-studies conducted by the German Environment Agency examined the effect of noise on mental wellbeing. The researchers confirm that higher levels of traffic-related noise were connected to an increase in depression, anxiety, general cognitive disorders, as well as ADHD in children.[193]

8. Sounds in the museum. A historical overview

According to Kannenberg, the earliest mentioning of object-centred museum practice had been Quiccheberg's *Inscriptiones* from 1565, a treatise on how to organise the private collections of elites, mostly nobles. These cabinets of curiosities were multisensory including smell, touch, and even taste to allow for examination by the audience. This was to meet the expectations of

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[188] The soundtrack ended up being nearly 100 hours long, Stottrop 2012, 146 & Saerberg 2000, 46-47.
[189] *Über die Metropole*, *Metropole Ruhr*, https://metropole.ruhr/metropole (accessed 4 June 2023).
[190] Frith 2012, 150-151.
[191] Turulski 2023.
[192] Frith 2012, 149.
[193] They ascertained for the first time that railroad noise had a negative impact on mental health when woken by it more than three times a night, Seidler et al. 2023, 33-34 & 38-40; the publication is full of typographical errors, with already the institution being misspelt on the title page ('Herausgerber: / Umwelbundesamt' [sic]).

the visitors, many of whom were of high standing as access was not public.[194] On top of that, most cultural institutions in Europe during that time were either profit-orientated or accessible by expensive subscriptions only.[195] In 1781, the Belvedere Museum in Vienna was one of the first in Europe to be declared public.[196] Already around 1800, museums had been compared to churches in that they transcended everyday life to provide a sacred atmosphere.[197] During that time period, the institution started assuming its modern shape. Culture had been accepted as a means of power to educate and civilise the population to resist supposedly lowly temptations and instead adopt morals and diligence. Museums were one type of institution alongside parks or libraries[198] that culminated in what Bennett labels the 'exhibitionary complex'. He explains:

'the exhibitionary disciplines of history, art history, archaeology, anthropology, and natural history were deployed in the new open setting of the public museum where they worked together through mechanisms of pedagogy and entertainment to recruit the support of extended citizenries for the bourgeois democratic economic, social, and political order.'[199]

In early modern societies, events like public executions were meant to demonstrate royal power. Whilst Foucault famously stated these spectacles had disappeared, Bennett argues that elite collections had become public entertainment and education, thus expressing two fundamental principles of power: firstly, the power of commodity and technology as driving forces behind industrial capitalism and secondly, the power of nation states as successors to aristocratic sovereignty.[200] Radywyl et al. discern that Foucault's idea of museums as a relation between audience and disciplinary institution was insufficient. Amusement and diversion had become central aspects of museums and signalled the 'rise of consumer capitalism', which is why objects were presented more spectacularly through sounds, images, and texts.[201] The now public museum was no longer seen as site of research but shrine of knowledge that demanded silent, distant contemplation from audiences. Silence had become a prerequisite for 'creative, technical thought and the acquisition of knowledge' by UK elites who generally expressed disdain for the increasingly noisy soundscape of their time.[202]

Industrialisation, mechanisation, and war had caused sounds in cities to become obtrusive and associated with lower classes as well as popular culture. Society's middle class adapted to these

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[194] Kannenberg 2017, II 5.
[195] Radywyl et al. 2015, 419.
[196] *Geschichte Belvedere*, *Belvedere*, https://www.belvedere.at/geschichte-belvedere (accessed 5 May 2023); Radywyl et al. however claim it was made public in 1792, see Radywyl et al. 2015, 419.
[197] Goethe e.g. had been amazed by museums but also recognised their influential power, Duncan 1995, 13-16.
[198] Bennett 1995, 19-21.
[199] Bennett 2015a, 4.
[200] Ibid., 8.
[201] Radywyl et al. 2015, 419-420.
[202] Especially in cities, e.g. by Dickens, see Kannenberg 2017, II 5.

circumstances by adopting silence and restrained demeanour to express differentiation. Cortez concludes that museums had become tools for this purpose 'by exercising visual control and power'.[203] Vision was deemed the epitome of rationality, so objects served as illustrations of 'text-based systems of knowledge'[204] and started taking precedence over people's curiosity.[205] At its most extreme, 19th century writing called for a suppression of allegedly lower senses. Classen points to Oken's scale of races that placed the European 'eye-man' at the top and the African 'touch-man' at the bottom.[206] Resulting from these assumptions were museum spaces that by walking through them had been supposed to convey a sense of progression tied to ideas of civilisation, colonialism, and race.[207]

Despite these prevalent notions, in 1908 the American Museum of Natural History in New York City used a gramophone to provide information on tuberculosis.[208] According to Cortez, the advent of recording technology had revivified the presence of sounds which had caused an epistemological shift away from visual hegemony since sounds could now be perceived without their respective sources.[209] This dynamic accelerated in the 1960s and 70s when a more performative understanding of citizenship arose. It tied the formation of citizens to affect, memory, and senses. These aspects had been picked up as socio-political tools by Sensory Studies and museums. The latter desired more interactive, reflective discovery and started involving minorities as well as prioritising local and lived forms of experience. Whilst sound in the form of voices, particularly as oral history, became crucial, the flow of communication had stayed one-directional.[210]

During the 1970s and 80s, debates about museums belonging to the public had caused multisensory contact with artefacts to be expanded to handicapped people and marginalised groups which had remained controversial in terms of conservation.[211] Since then, there had been greater variety in terms of topics and portrayal. Cortez lists several reasons for this change. Firstly, museums had evolved from centres of collection to centres of community. Neuroscience discerned that humans were multisensory which could be satisfied due to technological progress. Sound had also been acknowledged as a significant factor for emotions, memory, as

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[203] Cortez 2022, 7.
[204] Witcomb 2015, 324.
[205] Howes 2014, 288-289; also picked up by Cortez, see Cortez 2022, 1.
[206] Classen 2012, XII.
[207] Bennett 1995, 182-186.
[208] Mortensen 2012, 22.
[209] Cortez 2022, 7-8.
[210] Witcomb 2015, 322 & 325-327.
[211] Howes 2014, 289.

well as identity and had become more manageable since having been conceptualised as object and artefact. It was no longer a mere carrier of meaning, but of interest itself.[212]

Macdonald describes a paradoxical situation for museums before the turn of the millennium. On the one hand, she sees them as representative of phenomena said to be perishing, such as concepts of permanence or authenticity, great narratives, the nation-state or even history itself. On the other hand, the number of museums was increasing despite many issues in terms of inclusion, funding, or attracting interest. They had managed to persist since they opened themselves to more diverse, at times controversial or previously disregarded topics.[213] Today, museums were striving to be more audience-focussed and accessible. Biehl-Missal and Lehn refer to them as postmodern theatre with integrated visitors.[214] In this regard, two demands were made for modern museum: equal representation and equal access.[215] Lacey and Sathian remark that museums had relaxed their strict visual approaches that place artefacts out of reach.[216] Kannenberg also declares visitor participation to now be at the heart of museum practice. [217]

9. Interview methodology

Complementarily, this scrutiny will draw on information gathered in interviews. Of particular interest are decisions and processes concerning conceptualisation since these are often difficult to reconstruct from public sources. Being a qualitative research method, interviews can help with understanding people and their respective thinking. The reference point remains thick description as outlined by Geertz.[218] By that, he means a process of describing to its full extent how cultural behaviour is produced, perceived, and interpreted, beyond the mere visual level. The layers of meaning could interlace, overlap, or initially remain hidden.[219] Geertz understands culture as a semiotically meaningful, publicly accessible context in which events, behaviour, processes, or institutions could be recognised and subsequently described.[220] Referencing Geertz' 1973 paper *Deep play*, Titon criticises that insights were only stated from Geertz' point of view. Additionally, there was no mention of what the locals think about the interpretation.

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[212] Cortez 2022, 1-2.
[213] These contradictions form the framework for her edited volume, see Macdonald 1996, 1-3.
[214] Biehl-Missal/Lehn 2015, 244.
[215] Bennett 1995, 9.
[216] The Yorvik Viking Centre in York recreated sound and smell of a Viking settlement, Lacey/Sathian 2014, 3.
[217] Kannenberg 2017, II 5.
[218] Misoch 2019, 2-3 & 13.
[219] Orig. 'thick description' following Gilbert Ryle, Geertz 1994, 215 & 217.
[220] Ibid., 219-220 & 222.

Consequently, Titon calls for an inclusion of dialogue with concerned subjects as well as a more openly palpable interpretative process, 'further thickening the description'.[221]

Formally, the interviews conducted here will be expert interviews. The interviewees have for many years been professionals in museums.[222] On Misoch's scale, I will take a position that is situated between that of an amateur and a co-expert. After all, I was involved in creating the exhibition assessed here and have been educated in closely related subject, but it would be presumptuous to assume equal competence between the interviewees and myself. As a result, symmetrical and asymmetrical phases of communication will take turn during the interviews. That means that some segments of exchange might occur on a high technical level which also implies a potentially problematic, limited scope. Other parts might be dominated by the expert, meaning less control from the interviewer.[223] This dichotomy, according to Misoch advantage as well as disadvantage of expert interviews, is on the other hand the hierarchy that Spradley envisions for his ethnographic interviews. He is keen to comprehend cultures from the inside by learning from individuals instead of studying them from the outside. A central method in this regard was to express 'cultural ignorance', i.e. lack of knowledge regarding the prevailing cultural conditions, so interviewers ought to keep asking questions, remain in a more passive role as listeners, and steadily express interest.[224] Although Spradley's approach was conceived of for the study of isolated cultures it can still provide fruitful impulses for this study. As both interviewer and interviewees have a comparable educational background, the subconscious danger of naïve realism, i.e. the belief that certain objects or phenomena held the same meaning for every human being, looms.[225] On the other hand, cultural knowledge, both implicit and explicit, was more likely to not be mentioned since it could be taken for granted.[226] However, since I have now raised awareness of these potential hazards, they can in principle be avoided. Still, I must stress that interviews are merely supposed to deliver additional information whilst other sources and documents form the basis for this text.

The interviews at hand were conducted with three people either currently or formerly working for the Ruhr Museum in positions responsible for exhibitions and events, particularly curation and research. Each of them came about in one sitting, ranging in length from about 80 to about 120 minutes. I had intended a duration of 60 to 90 minutes, so all of them were either longer or

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[221] Titon 2012, 80-82.
[222] The interviewee's background clearly fulfils Misoch's demand for terminological clarity regarding experts.
[223] Misoch 2019, 122 & 126-127.
[224] Spradley 1979, 3, 46 & 61-62.
[225] Orig. 'naive realism', see Spradley 1979, 4.
[226] Ibid., 8-9.

close to the time limit. I dare attribute this to the interviewees' curiosity about this topic, their interest in supporting me (which I am immensely grateful for) as well as their enthusiasm about their own work. However, in the tradition of good academic practice my interview partners will remain anonymous, as stated in the declaration of consent. Interview A was conducted on the 16th of May, interview B on the 21st of July, and interview C on the 4th of August 2022.

10. The Ruhr Museum at Zollverein

The Ruhr Museum is envisioned to be the regional museum of the Ruhr area in the state of North Rhine-Westphalia, Germany. It exists as a dependent foundation within the Zollverein foundation and is publicly funded by the state, the Landschaftsverband Rheinland, a regional entity of self-government, the city as well as earnings. The museum is located in the former coal preparation plant of the Zollverein Coal Mine Industrial Complex.[227] The latter covers more than 100 hectares that extend far beyond the Ruhr Museum itself. Zollverein once was the most productive coal mine in Europe but shut down operations in 1986. On the 14th of December 2001 it was declared a UNESCO world heritage site, still the only one in the Ruhr area, for representing heavy industries, especially due to its commendable architecture.[228] The Zollverein complex styles itself 'the most beautiful coal mine in the world'.[229] Despite the obvious ties of the site, the city, and the region to the coal and steel industry, the museum is not designed as an industrial museum but as 'memory and shop window of the Ruhr metropolis'.[230] Hence, it houses a collection of both natural and cultural history, archaeology, and photography. The centre of its interest is the Ruhr area itself, as evidenced by the permanent exhibition and collection efforts, but the temporary exhibitions regularly addressed further topics, too.[231]

Despite the Ruhr Museum's formidable topical variety, the location at the Zollverein Coal Mine Industrial Complex has a very perceptible impact on the museum experience, not least due to the architecture of the former coal washing plant. The museum is aware of this heritage and tries to account for it. Correspondingly, Krims calls any location that is mere space without meanings or conceptions would be a 'worst-case scenario' because locations were constructed,

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[227] *Das Ruhr Museum*, *Ruhr Museum*, https://ruhrmuseum.de/museum/ueber-uns (accessed 11 May 2023).
[228] *Zollverein. UNESCO World Heritage Site. The Heritage of Mankind*, *Zollverein*, https://www.zollverein.de/zollverein-unesco-world-heritage-site/history/ (accessed 12 May 2023).
[229] Orig. 'Die schönste Zeche der Welt', see *Die schönste Zeche der Welt. Das UNESCO-Welterbe Zollverein*, *Zollverein*, https://www.zollverein.de/ (accessed 12 May 2023).
[230] Orig. 'Gedächtnis und Schaufenster der Metropole Ruhr'.
[231] *Das Ruhr Museum*, *Ruhr Museum*, https://ruhrmuseum.de/museum/ueber-uns (accessed 12 May 2023).

so inherently historical, and profoundly intertwined with identity.[232] A leaflet[233] gives an insightful impression of how the museum presents its efforts. These showcase that the Ruhr Museum intends to not simply impart knowledge but to provide an experience that appeals to different senses. The leaflet is obviously overwhelmingly visual. Texts of several dozen words each describe the institution, its concept as well as collections and gives practical information. Several photos are meant to reflect the varied topics presented. Still, the architecture of the site prevails in most of them, leading to a visual hegemony of the industrial heritage. This is also apparent in the layout of the space. In accordance with recent research, the former coal washing plant was redesigned to have visitors experience history. In this case, they are moved to the 24-meter level by a very long escalator, similar to the conveyor belts of the past. Then, the visitors move from top to bottom just like the coal used to. Sensing the space, called proprioception, is also mentioned in the text. For example, the museum building is described as impressive and imposing due to its sheer size. Sound plays a pronounced role in the leaflet, too. Most notably, the free audio guide app is advertised on the cover as the only feature to appear. Apart from it, a dedicated text lists guided tours, museum talks, workshops, lectures, film screenings, and other pedagogical activities as part of an extensive educational programme. In this sense, sound is only explicitly mentioned as sound as lecturing in Cortez' terms.

The history of the Ruhr Museum dates back to 1901 when the museum society of Essen was founded. In view of the drastic industrialisation of the time, initiatives to preserve a rapidly fading past had been very typical around the end of the 19th century, according to Habsburg-Lothringen.[234] In 1904, a first museum for arts, regional and natural history as well as ethnology opened. Ever since the beginning, there had been aspirations to create an industrial museum for the entire region. After revamping, the museum was renamed Ruhrland-Museum in 1934. It constituted the museum centre in Essen together with the Museum Folkwang until 2007. The next year, the former Ruhrlandmuseum was restructured to a foundation and relocated to the Zollverein area. As part of the European Capital of Culture *RUHR.2010*, the new Ruhr Museum

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[232] Krims 2012, 141-142.

[233] *DAS RUHR MUSEUM AUF ZOLLVEREIN IN ESSEN*, *RUHR MUSEUM*, https://ruhrmuseum.de/fileadmin/redakteur/PDF/Flyer/Flyer_Das_Ruhr_Museum.pdf (accessed 13 May 2023), in English *THE RUHR MUSEUM AT ZOLLVEREIN IN ESSEN*, *RUHR MUSEUM*, https://ruhrmuseum.de/fileadmin/redakteur/PDF/Flyer/Flyer_The_Ruhr_Museum.pdf (accessed 13 May 2023).

[234] Habsburg-Lothringen 2019, 64.

was opened as regional museum to great success. The moving was only finished when the visible storage in another part of the Zollverein area opened[235] on the 26th of June 2021.[236]

The Ruhr Museum's house rules indicate an orientation towards conservation and protection. These are stipulated to be the guards' tasks. Visitors in turn are asked to behave politely and respectfully, i.e. not causing disturbances or touching anything as well as keeping sufficient distance. Some regulations are explicitly sound-related, in particular geared towards avoiding noise. For example, visitors are expected to mute their phones and not talk on them. Moreover, running and frolicking around were not allowed. Remarkably, the rules then draw an implicit but immediate line to children. They explain that for fun and variety, they offered a museum bag and quizzes.[237] The visitor information page adds that the bag provided a discovery of the permanent exhibition including riddles as evidenced by the name Rätsel-Reise Ruhr Museum which roughly translates to Riddle journey Ruhr Museum. The quizzes were part of the temporary exhibitions as well as the Mineral Museum, a locally separated subsection of the institution. Their purpose was to showcase highlights and give an overview of general assertions. Both these options are advertised towards families with children above 6 years of age.[238] That way, the ludic elements available are supposedly designed with those groups in mind and thus somewhat reserved for them. According to research about ludification in museums, there is merit to this approach. Camps-Ortueta et al. maintain that whilst playing was a part of lifelong learning, it mostly benefitted younger people and children. They consider games to be a central part of museums becoming more open and participatory. However, they remark that games had a dual purpose of entertaining and teaching which in turn has implications on their appeal as well as their didactic qualities.[239] Hornecker and Nicol tie into this by stating that visitors desired both education and entertainment. Their demand was shaped by the supply, so what methods were present. Hornecker and Nicol generally examine how game installations affect the relationship between parents and children, but also between siblings. They noticed that the games sparked communication comparable to relations between teachers and pupils, so in the shape of assistance and education.[240] Grenier laments the lack of

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[235] *Museum. Geschichte*, *Ruhr Museum*, https://ruhrmuseum.de/museum/geschichte (accessed 12 May 2023).

[236] *Hin&Weg. Zentral und Schaudepot/20. Oktober 2021/Ruhr Museum Essen*, *LVR*, 17 September 2021, https://www.lvr.de/de/nav_main/derlvr/presse_1/pressemeldungen/press_report_293888.jsp (accessed 15 May 2023).

[237] *Hausordnung*, *Ruhr Museum*, https://ruhrmuseum.de/hausordnung (accessed 9 May 2023).

[238] Besuch. Informationen, *Ruhr Museum*, https://ruhrmuseum.de/besuch/informationen#c1368 (accessed 10 May 2023).

[239] Camps-Ortueta et al. 2021, 194 & 196.

[240] Interestingly, their site of research, the Robert Burns Birthplace museum, employed digital and non-digital interactivity to appeal to both young families and older adults, Hornecker/Nicol 2012, 359 & 364.

play for adult learning and development. Especially museums were highly promising for implementation because they were creative, social, and educational sites. Games could integrate well since they promoted reflection, problem-solving, and discovery which benefitted creativity as well as understanding complex matters. Thus, play in museums could appeal to people who felt burdened by the idea of having to learn a certain way.[241]

11. Visible storage

The visible storage is basically an accessible museum depot. It is located in a redesigned former salt factory on the Zollverein complex and houses more than 25,000 artefacts from the Ruhr Museum's archaeological, scientific, and historical collections.[242] These would remain hidden to the public had a conventional solution been used. In that respect, the new solution can be seen as a substantial step towards making the museum collections more accessible and integrating the museum into a local community. Habsburg-Lothringen assesses that demands for such changes were the reason that a huge number of visible storages had been founded recently in German-speaking countries. Museums literally started opening up and seized the chance to demonstrate that their work meant more than simply presenting objects. Lastly, Habsburg-Lothringen claims that visible storages could maintain multidimensionality whilst now both permanent and temporary exhibitions resorted to straightforward narratives.[243]

The Ruhr Museum explains that the new depot solution had a very different dynamic compared to a common exhibition. Firstly, 25,000 artefacts are many times more than presented in *Eine Klasse für sich* which displayed about 800.[244] On top of that, there was no exhibition narrative or educational workup, e.g. labels, which made guided tours necessary. These usually take 90 minutes but can be customised for professionals, schools, or elderly.[245] To put things into perspective: the visible storage of the Universalmuseum Joanneum in Graz offers a much more limited selection of artefacts, displaying only 2,000 artefacts out of 35,000 in its material

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[241] Grenier 2010, 77-79 & 82-83; she proposes three categories how play took place in museums: collaboration, fantasy and role-play, and experimentation, see ibid., 79-81.

[242] This approach is in according with Habsburg-Lothringen who states that visible storages generally aimed at providing a conclusive profile of their collections, see Habsburg-Lothringen 2019, 67.

[243] Ibid., 67-68.

[244] *Sonderausstellung. Eine Klasse für sich. Adel an Rhein und Ruhr*, *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/archiv/2022/eine-klasse-fuer-sich-adel-an-rhein-und-ruhr (accessed 14 May 2023).

[245] *Das Schaudepot des Ruhr Museums auf Zollverein*, *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/aktuell/das-schaudepot-des-ruhr-museums (accessed 12 May 2023).

collection.[246] On the one hand, that storage is considerably smaller than the one in Essen, with 500 sqm compared to 1,500 sqm.[247] On the other, the Graz institution is divided into one part showcasing artefacts of material culture and another one that is dedicated to multimedia documents, i.e. photography, film, and sound. Still, the density of material objects appears to be much higher in Essen even though in Graz there is a greater variety.

After all, the two institutions go in slightly different directions with their visible storages. The one in Graz is visitor-focussed. It is advertised to serve the sole purpose of presenting the collection.[248] For this reason, the persons in charge decided to go without glass or cabinets which engendered a tension with conservation efforts.[249] An accompanying video uncovers that the artefacts are behind wire or fabric mesh instead of glass, so not as open as promoted.[250] However, the visible storage in Graz is accessible even without a guided tour. Just like in Essen there are no labels but a concise index and a free leaflet to offer guidance to people outside of tours. The idea was that visitors engaged intensively with the artefacts, free of disturbances. Habsburg-Lothringen admits though that this only partly worked out. Some visitor sought more context whilst others were lost without it. She elaborates that in general, many visitors appreciated being allowed around something that had been inaccessible and was in a state before curation. Being faced with a plethora of artefacts empowered the audience to choose and to track history through a line of material traces right in front of them. Habsburg-Lothringen compares this attitude to a current consumerist lifestyle.[251]

The visible storage in Essen appears to be more collection-focussed. A leaflet[252] states that the new installation was both a storage and an opportunity to now make the museum collection accessible to visitors. It represented the five tasks of a museum, i.e. collecting preserving, researching, exhibiting, and imparting as codified by the German Museum Association.[253] In a

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[246] *Schaudepot*, *Universalmuseum Joanneum. Museum für Geschichte*, https://www.museum-joanneum.at/museum-fuer-geschichte/ausstellungen/ausstellungen/events/event/2408/schaudepot-2 (accessed 13 May 2023).

[247] Habsburg-Lothringen 2019, 64 and *Hin&Weg. Zentral und Schaudepot/20. Oktober 2021/Ruhr Museum Essen*, *LVR*, 17 September 2021, https://www.lvr.de/de/nav_main/derlvr/presse_1/pressemeldungen/press_report_293888.jsp (accessed 15 May 2023).

[248] *Schaudepot*, *Universalmuseum Joanneum. Museum für Geschichte*, https://www.museum-joanneum.at/museum-fuer-geschichte/ausstellungen/ausstellungen/events/event/2408/schaudepot-2 (accessed 13 May 2023).

[249] Habsburg-Lothringen 2019, 71.

[250] E.g. at 0:34, see Universalmuseum Joanneum: *Das Museum für Geschichte stellt sich vor*, *YouTube*, 12 July 2018, https://youtu.be/9py2zwVTZjo (accessed 14 May 2023).

[251] Involving shopping and zapping, so freely picking from many options, Habsburg-Lothringen 2019, 71-72.

[252] *DAS SCHAUDEPOT DES RUHR MUSEUMS AUF ZOLLVEREIN IN ESSEN*, *RUHR MUSEUM*, https://ruhrmuseum.de/fileadmin/redakteur/PDF/Flyer/Flyer_Das_Schaudepot.pdf (accessed 14 May 2023).

[253] *Museumsaufgaben*, German Museums Association/*Deutscher Museumsbund*, 6 March 2017, https://www.museumsbund.de/museumsaufgaben/ (accessed 13 May 2023).

video promoting the newly opened storage, Kerner, the person in charge, explains that there had been a demand for more depot space in general and for a depot on site in particular. He clarifies that the former salt factory had been impressive due to its structure and its industrial architecture. Therefore, it had from the beginning been intended to become an accessible storage solution, providing good conditions and the opportunity to show off the sprawling collections that used to be concealed to the public. That is why director Grütter names it central and visible storage.[254] Another factor is that the visible storage can only be visited as part of guided tours which greatly controls the flow of visitors. On the other hand, their range of tours provides another source of insight for participants. The curator-headed tours were specifically meant to grant access to both the collections and the work of the professionals behind the scenes.[255] This is an important step since even the German Museum Association maintains that a considerable part of a museum's distinct tasks remained hidden to the public.[256] In addition, the video designed as a walkabout reveals that not all of the pieces are behind glass. Larger artefacts like minerals or furniture are openly accessible although this is clearly discouraged.[257]

The promotional video[258] is noteworthy since not every exhibition or installation of the Ruhr Museum receives one. It alternates between showing the site with the collection therein and explanations given by the director and curators. Pieces of music change during each transition. They are all instrumental, dominated by a piano and percussion but regularly also with pad sounds by strings or synthesizers. To set the tone, the video starts off with music accompanying footage of the visible storage, i.e. the space itself and some of the artefacts on display, until the first presentation begins. The piece used here is remarkable because it contains a ticking noise resembling a clock. Thus, it creates an obvious link to time which is a decisive factor for historical collections. Perhaps due to this characteristic, it is the only piece to appear twice, in the beginning as well as during the last transition at 18:21. At the very end, around 22:04, the outro shows a shot from the top floor to illustrate the installation's several layers and size. Compared to previous samples, the music chosen here is distinctly more agitated and dominated by an orchestral sound as to offer a finale. Furthermore, the music can also determine the pace

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[254] Orig. 'Zentral- und Schaudepot', see 00:41, 03:26-04:04 & 04:12-04:44, Ruhr Museum: *Rundgang durch das neue Schaudepot des Ruhr Museums auf der Kokerei Zollverein*, *Vimeo*, 28 June 2021, https://vimeo.com/568440949 (accessed 14 May 2023).

[255] Ibid., 21:51.

[256] *Museumsaufgaben*, German Museums Association/*Deutscher Museumsbund*, 6 March 2017, https://www.museumsbund.de/museumsaufgaben/ (accessed 13 May 2023).

[257] E.g. 9:41, Ruhr Museum: *Rundgang durch das neue Schaudepot des Ruhr Museums auf der Kokerei Zollverein*, *Vimeo*, 28 June 2021, https://vimeo.com/568440949 (accessed 14 May 2023).

[258] Ruhr Museum: *Rundgang durch das neue Schaudepot des Ruhr Museums auf der Kokerei Zollverein*, *Vimeo*, 28 June 2021, https://vimeo.com/568440949 (accessed 14 May 2023).

of the video footage. A sequence starting at 00:15 changes shot after each bar of the music. This practice is however not strictly employed but also broken open, e.g. around 00:24.

However, the usage of music throughout the video is not consistent. The first few times, the pieces accompany the transitional segments and then fade out at the beginning of explanations. At 06:14 the music keeps playing for another 20 seconds and then suddenly stops without any apparent reason. Several presentations like the ones between 08:21-10:31 or 16:02-18:19 are however entirely accompanied by music. In none of these cases is there a striking clue in either presentation, images, position of the person speaking, or sound itself why music is playing or not, making the decision seem arbitrary. On the other hand, the sound plays a crucial role for the purpose of the video. Text is very sparse throughout and usually limited to giving name and job title of the person speaking. All the other textual information is transported via speech, rendering sound the prime carrier of concrete meaning. The voices were recorded on site. The spacious visible storage created echoes, so the sound actually gives another layer of impression of its size and properties. Music impacts the transitions as well as some interview segments. It is also the first and last sound of source in the video. The images provide a myriad of visual impressions of the artefacts, also as a complement to the interview-like segments. Only one a Roman jug is picked up by the curator for explanation, representing touch, which can obviously not be experienced by a viewer. In this regard, the presentation chosen here aligns with the visual hegemony present in most exhibitions, as discussed in chapter 7.3.

12. Integration at the Ruhr Museum

During a workshop about industrial heritage that took place in Essen in 2021, director Grütter discussed how neighbouring communities and the public could be involved in creating concepts and policies on the Zollverein site and the Ruhr Museum.[259] On this occasion, he declared that the museum had a responsibility to contribute to integrational measures in its surroundings, not least to help overcome stark social differences between the richer south of the city and the poorer north. He admitted there was room for improvement. Thus, integration is a key concept both for the Ruhr Museum and the institution in general. Recent research has frequently pointed out that museums needed to integrate visitors but were also significant to further the integration of society at large. Hooper-Greenhill considers culture to be not just reflective but constructivist since it could form identities, thoughts, and feelings through perception and values. More

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[259] See panel 4.1, *Industrielles Welterbe. Chance und Verantwortung*, *Zollverein*, https://www.zollverein.de/erleben/industrielles-welterbe/ (accessed 17 May 2023).

specifically, the selection, presentation, and review of exhibits had political effects, so museum education could be a factor for social issues, e.g. when marginalised groups are addressed.[260] Sandell adds that museums even had the responsibility to fight social inequality due to their authority and their public funding. Depending on their means, museums could do so on three levels. Firstly, individuals could experience positive impacts on their lives whilst secondly, communities could be empowered and socially regenerated. Lastly, society at large had the chance to become more equitable. A single museum visit would not change ingrained convictions or opinions but could still present certain values such as social equity.[261] Young however remarks that some people would not wish to be included because that meant being part of an exclusive system. Another issue was that running a museum depended on low pay workers who were excluded economically.[262] Sandell warns that by resisting change and disregarding their responsibilities, museums ran the risk of slipping into irrelevance.[263]

However, Abram acknowledges deep-seated scepticism towards a stronger social investment. A major issue was declining trust in public institutions, particularly the government.[264] In accordance with Abram, Sandell admits that even people in social fields saw these efforts as unnecessary. Still, concretised policies and changed attitudes in people involved with museums had caused social agency to move to the foreground. Professionals were however reluctant to pursue politicised approaches at the expense of 'perceived objectivity' which formed the backbone of the institution's authority.[265] Interview A reveals that at the Ruhr Museum, exhibitions aspired to be critical and academic but explicitly neutral in a political sense.[266] A adds that this was not in conflict with putting controversial topics on display. The Ruhr Museum would finance corresponding exhibitions by itself when it had been able to secure funding for another project.[267] A concrete example of criticism are the Glasgow culture wars from the 1990s referenced by O'Neill. At that time, critics voiced their anger at curators' inclusive exhibitions for being superficial and dumbed-down.[268] They criticised multimedia displays, costumes, and performances as undesirable low culture, implying that the visitors were not worthy of being in art museums. The attitude behind this was that museums were for those who were already

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[260] Hooper-Greenhill 2000, 13 & 148; Sandell confirms her findings but notices a lack of studies regarding effects, see Sandell 2002, 8-9.
[261] Sandell 2002, 3-4 & 17-19.
[262] Young 2002, 204.
[263] Sandell 2002, 21.
[264] Abram 2002, 129-130 & 135.
[265] Sandell 2002, 3-4 & 18.
[266] More specifically, the general tasks of museums were defined this way, see Interview A, 39:16-39:58.
[267] Ibid., 30:02-30:46
[268] O'Neill interjects that many art museums hardy provided any information.

educated. Exhibitions had thus been designed to mute enthusiasm because boredom implied 'academic respectability'. Analogue to this, curators were of the opinion that they could not compensate for flaws in the educational system.[269]

All in all, Sandell allays that the required action was much less menacing and radical than it might seem. Museums were after all not alone in this undertaking and equity would not become their sole purpose. They just needed to consider their role and make readjustments, e.g. by striving for plurality instead of speaking with an authoritative voice.[270] Abram also recommends open communication, explicitly inviting criticism and being candid with discoveries and corrections. She also advocates for a tie to the present. A museum about social issues could practically teach about regulations and how to spot violations.[271]

Regarding current conventional measures to help with integration in museums, O'Neill discerns that dedicated staff for education or outreach were just a 'welfare model of provision'. Instead of fundamental changes, this meant just minor adjustments in order to cater to pressures. True inclusion was about actively searching and removing barriers. O'Neill considers giving suitable access to each visitor to be so integral that it should form the basis of every museum professional's work.[272] The Ruhr Museum, like probably most museums, maintains separate departments for education or communication.[273] It is arguably sensible to employ people for specifically these matters even though the degree of separation is of the essence. Interview A reveals a division with occasionally opposing goals: curators aimed at academic rigour whilst educators worked towards accessibility.[274] It is furthermore telling that the persons in charge of communicational design, outreach, and education are only mentioned at the very end of the acknowledgements in the *Eine Klasse für sich* catalogue, behind curators, editors, craftspeople, or external contributors and only before the publisher and the noble families.[275]

Interview A expands upon the idea of integration. First of all, they are highly aware of the great diversity of people visiting. Just in terms of age the audience was ranging from young children to seniors. Also very different levels of education needed to be considered. Catering to all these

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[269] O'Neill 2002, 29-34.
[270] Sandell 2002, 19-21.
[271] Abram 2002, 135.
[272] O'Neill 2002, 24 & 36-38; for his own work in Glasgow, he conceptualised 6 measures against inequality for practical application: 1. Starting point: accepting the level of education of potential visitors; 2. accepting that museum conventions are valued traditions that need modifications to be welcoming to new visitors; 3. understanding exclusion is only possible if working with corresponding representatives; 4. employing a pluralistic approach to displays; 5. redefining research so staff know as much about visitors as about the collection; 6. redefining displays so they provide access according to peoples' realities, O'Neill 2002, 39.
[273] *Über uns. Team*, *Ruhr Museum*, https://ruhrmuseum.de/museum/ueber-uns (accessed 24 May 2023).
[274] Interview A, 56:55-57:59.
[275] Grütter 2021, 14-15.

was the aspiration.[276] In addition, some people originally came for the Zollverein complex but visited the museum spontaneously. This indicates that the museum minds its local integration into the larger complex and the social integration into the corresponding community of visitors. Remarkably, A then goes on to assume that these spontaneous visitors had no prior knowledge of the Ruhr area but still needed to be satisfied.[277] Doing so can be interpreted as a contrast to Serrel's claim to disregard stereotypes and instead view visitors as in principle motivated but limited by time.[278] Then again, the interview was conducted in one go and I did not enquire about this statement which could have simply proven a mere overstatement. However, the audio guide app had been designed to cater to people who would not stay around as long. They were provided with a selection of artefacts offering an overview of the topic.[279] Even though this experience is highly pre-determined, it still roots in the idea to incorporate individual visitor agency, bringing this approach is very much in line with Serrel's understanding of visitors.

Furthermore, the Ruhr Museum already strives to incorporate feedback and interests to integrate its audience. A explains that political discussions were an important backdrop in contemporary society and thus a reason for the conception of a new exhibition. These debates needed to be included so the topics remained relevant and interesting.[280] Museum work could also engage with these debates by sparking questions. Feedback could be gathered from the guest book for instance. For the nobility exhibition, some people expressed their curiosity about the nobles and their numbers whilst others were far more critical and remarked that the nobility no longer formally existed. Such a wide spectrum of perspectives needed to be accommodated. If the impression arose that the exhibition itself did not meet these expectations in some respects, lectures, debate panels or a film night could take remedial action.[281] This proceeding aligns with the popular notion that museums were neutral and displayed factual truths whilst opinions would only be voiced by arts and media, an idea that Cameron refutes.[282] Accordingly, it stands out that the proposed formats open for controversy are less conventional for museums than their signature exhibitions. Conversely, it becomes apparent that these more discussion-centred methods unfolded momentarily whilst exhibitions were rather static and required much more preparation. Workshops were also a welcome means to strike a balance between the aspirations of curators and educators. Interestingly, these statements reveal that also longstanding

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[276] Interview A, 20:38-20:55.
[277] Ibid., 21:13-21:30.
[278] Serrell 2015, 63.
[279] Interview A, 22:13-22:33.
[280] Ibid., 15:24-16:49 & 18:28-18:46.
[281] Interview A, 19:03-20:03.
[282] Cameron 2010, 3.

professionals maintained such a separation even though educators had been part of the entire conceptional process. It is also conspicuous that A appears pensive or even conflicted about this matter, as indicated by many breaks, ruptured sentences, and slightly nervous laughter.[283]

13. The exhibition *Eine Klasse für sich*

The exhibition *Eine Klasse für sich. Adel an Rhein und Ruhr* opened on the 13th of December 2021 until the 31st of July 2022. Initially, it was scheduled to close after the 24th of April, still evident in the official catalogue,[284] but was then prolonged because of great interest.[285] According to director Grütter, the motivation to prepare this exhibition had stemmed from the fact that the Ruhr area was overwhelmingly associated with its industrial heritage when for a majority of its history, the region[286] had been governed by nobles. As a result, neither a research overview nor a comprehensive exhibition of the local nobility had been produced yet.[287] Interview A clarifies there had been an exhibition about nobles in the Middle Ages at the archaeology museum. Originally, also the Ruhr Museum's concept included only the medieval and early modern periods. The curators quickly acknowledged that they needed to include all time periods until today though. They could not disregard that the contemporary conditions of the noble families, whether they still existed, how their lifestyles were and what they lived off, piqued interest amongst the audience. This course of action reveals a distinct desire to meet visitor expectations and to provide a point of contact for people to relate to.[288] Additionally, making the exhibition had been driven by wanting to showcase that the time of both aristocratic government and heavy industries were just phases in the region's history. Now that coal and steel were no longer of defining relevance, this was meant to help with difficult transformation processes and maintaining the regional identity.[289] As such, the museum aspired to actively get involved in the social affairs of the region by improving conditions up from the individual level. In total, the purpose of the exhibition is to shed light on a part of regional history that is often overlooked or flat out unknown. However, it remains to be seen if the perspectival shift in terms of content is met by one in terms of methods.

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[283] Interview A, 56:55-57:59.
[284] *Eine Klasse für sich* 2021, title page.
[285] Orig. ‚wegen des großen Interesses', @ruhrmuseum, *Twitter*, 24 March 2022, https://twitter.com/ruhrmuseum/status/1506909935254192128?s=20 (accessed 24 May 2023).
[286] The Ruhr area only grew together into a more or less coherent region with its own identity due to industrialisation. Using the term for earlier times would be an anachronism.
[287] Grütter 2021, 13.
[288] Interview A, 31:30-34:16.
[289] Ibid., 25:20-27:29.

The Ruhr Museum utilises the fact they showed the 'entire history of the nobility' in the region 'for the first time' for advertising purposes. The quoted passages, set in bold, dominate the subheading of the official article about the exhibition.[290] The text does not mention any of the accompanying lectures or workshops but promotes the collection on display which consisted of more than 800 artefacts from about 160 sources, some of them never publicly exhibited, with an insurance sum of nearly €30 million. These anecdotal details are likewise put in bold, arguably to attract curiosity. Throughout the article, in particular in the subsection *1000 JAHRE UND VIELE HERRSCHAFTEN*[291], the exhibits are outlined. In this context, it stands out that they are consistently material and visual, both in nature and in description. Right after the anecdotal details, some of the artefacts on display are announced. Amongst these was silver and porcelain crockery as well as portraits and paintings. Documents, pedigrees and illustrated books were meant to provide insight into the living environment of the nobility. Amongst the highlights were a splendorous suit of armour, cultural treasures from the Essen cathedral treasury, or a famous portrait of princess-abbess Franziska Christine. The aforementioned subsection goes into greater detail regarding the exhibition's structure and collection. The central space was dedicated to the nobility's 1000 years of history, without however specifying how exactly these tumultuous times would be represented. The smaller rooms on the side were dedicated to particular topics that had to do with nobles regardless of period, such as tradition and self-representation, their residences and living spaces including attendants, practices regarding education, marriage policies, celebrations, hunts, and funerals.

The introductory article uses the number of castles in the area as another gimmick. In the past there had been 400, now still 200 even though some of them were ruinous. The promotional video's narration starts off with these number to illustrate how densely permeated the region was with noble residences. The video also shows the map that adorned the exhibition.[292] This example shows that visual representations allow for personal connections, too. As mentioned, the map visualises the sheer density at first sight. It also enables people to spot their homes or places they know and then to relate to all the residences around, potentially learning about their surroundings and thus shifting perspectives. Interview A also references the astonishment many locals expressed regarding the number of keeps and castles.[293] The article text then manages to
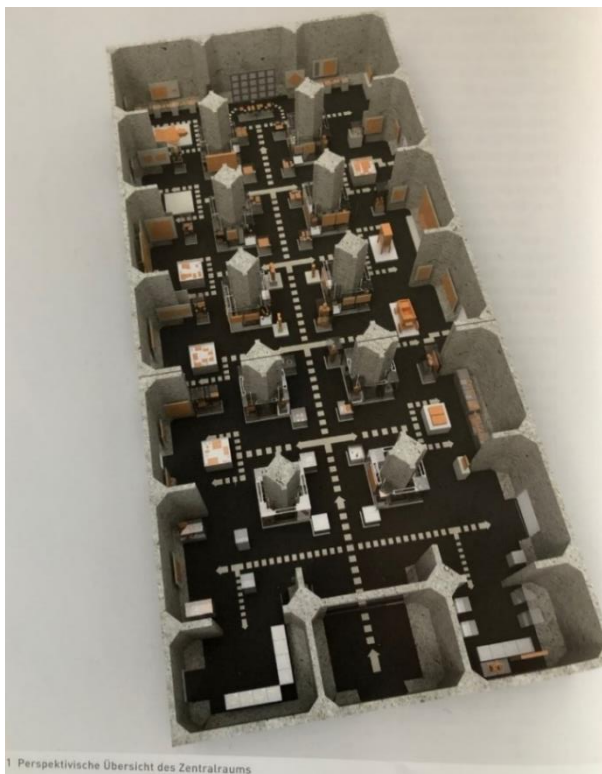
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[290] *Sonderausstellung. Eine Klasse für sich. Adel an Rhein und Ruhr*, *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/archiv/2022/eine-klasse-fuer-sich-adel-an-rhein-und-ruhr (accessed 14 May 2023).
[291] 1000 years and many sovereignties OR ladies and gentlemen, as a pun.
[292] 0:22, Ruhr Museum: *Sonderausstellung 'Eine Klasse für sich. Adel an Rhein und Ruhr'. Der Film*, *Vimeo*, 13 December 2021, https://vimeo.com/656043851 (accessed 25 May 2023).
[293] Interview A, 31:30-34:16

skilfully move from the residences to the people. The nobles themselves and their role in history were obviously examined by asking who lived here, how they were connected, what everyday life as well as special occasions looked like, where the nobility's power came from, what roles rituals and symbols played, how they had managed to persevere despite losing both privileges and political power, and how they lived today after having gone through so many changes. In this sense, the description is about practices, lives, and people instead of things. Strikingly, no exhibits are mentioned.[294] However, shifting the attention to the nobles themselves can be seen as an attempt to further the personal connection to visitors, particularly due to the reference of how they lived today. Interview A explained that the living situations of noble families today had been a decisive reason to also include contemporary history in the exhibition.[295]

13.1. Design

Both at the beginning and the end, the official article introducing *Eine Klasse für sich* mentions that the exhibition was housed in a spectacular 'Glaspalast' surrounded by the rough concrete walls of the former coal washing plant. The abundance of glass allowed for an unhindered view of artefacts and space together whilst always redirecting the view back to the central segment.[296] Architect Denkinger describes in detail his conception of the exhibition which is on display on level 12 of the museum, the space for temporary exhibitions. He proceeds from the structure of the rooms which led him to employ two different approaches. The smaller rooms on the side he used for singular topics displayed by classical object presentation.[297] The large central room that takes most of the space is however subject to a sophisticated concept that is derived from the exhibition's overarching topic but meant to go beyond narratives and facts tied to singular artefacts. Instead, Denkinger chose one integral characteristic of nobility to guide his design. He settled for representation, i.e. a noble's obligation to express their pronounced position in society, since it had been the most decisive factor for their self-understanding as well as their actions. Representation was communicated through 2 systems, a formulaic one towards the rest of society and an intricate one towards other nobles. In terms of design, Denkinger concludes that representation required an expansive space with a large number of exceptional artefacts.

[294] *Sonderausstellung. Eine Klasse für sich. Adel an Rhein und Ruhr*, *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/archiv/2022/eine-klasse-fuer-sich-adel-an-rhein-und-ruhr (accessed 14 May 2023).
[295] Interview A, 31:30-34:16.
[296] *Sonderausstellung. Eine Klasse für sich. Adel an Rhein und Ruhr*, *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/archiv/2022/eine-klasse-fuer-sich-adel-an-rhein-und-ruhr (accessed 14 May 2023).
[297] Orig. 'klassische Objektpräsentationen mit jeweils in sich abgeschlossenen Themen', Denkinger 2021, 17.

The systems communicating the representation were then portrayed by repeating patterns which was taken from baroque and classicistic architectural norms. The architect continues that the central corridor was treated as conceptual centrepiece. It formed the main visual axis, immediately taking effect on the visitors, so it housed the most outstanding pieces of the exhibition. The visual effect was heightened by light installations whilst the structure of the axis is dictated by the architecture of the room, in particularly two rows of concrete pillars that act as 'islands'. To enable the entire length of the room as well as the artefacts within to be perceived at once, all the cabinets were made of glass, however low enough to still have the brutalist architecture of the room be visible. In addition, all the other paths eventually converged back to the main axis. As a result, the visitors experience the centrality of this axis and repeatedly encounter the same highlights of artefacts.[298] However, this visual linearity is what McLuhan famously criticised for having dominated Western perception for centuries. Instead, he welcomes that this dynamic had been reversed by new media technologies, making sounds gain in importance.[299] On the other hand, Denkinger's approach aligns with Hanak-Lettner's and Kossmann's. The former understands visitors as actors who give life to an exhibition, their stage so to speak, by moving around. They should not be pushed to passivity, e.g. by an overuse of media, as most of them broke out of pre-determined structures anyway.[300] The movement of the audience is also vital for Kossmann but in this case for their own experience. He suggests incentivising walking and stopping, for instance through curiosity which could be sparked by an appropriate first impression. Additionally, prominent eyecatchers should act as visual stimuli. The central axis and the artefact highlights correspond to these propositions.[301]

1 Perspektivische Übersicht des Zentralraums

An illustration from the exhibition catalogue showing architect Denkinger's concept for the central room. The side rooms only appear in one out of 7 images, a hand drawn sketch.[302]

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[298] Denkinger 2021, 17-18.
[299] McLuhan 2004, 68-69 & 72.
[300] Hanak-Lettner, 2014, 39.
[301] Kossmann 2014, 55-56.
[302] Denkinger 2021, 16.

Director Grütter refers to the architectural concept in the official trailer.[303] In particular, at 10:13 he is full of praise for the use of glass, creating a 'palace'[304]. Its transparent qualities allowed for looking through the different centuries and topics. In addition, the glass did not cover up the architecture of the, according to the director, 'archaic, almost seemingly sacral industrial room'[305] but instead brought it to its full potential (9:57). Already around 1800, museums had been compared to churches in that they also provided a sacral atmosphere, transcending everyday life, to elevate the artefacts into a different sphere.[306] The impression is also amplified by the pillars of the room which resemble those of a church. Most of the exhibits are behind glass however, again showing an approach invested into preserving the collections. Lastly, Grütter declared that the design enabled the opulence of both the topic and the exhibition to be sensorially and aesthetically expressed (10:28-10:39). This statement is noteworthy as it reveals that aesthetics and sensorial stimulation played a decisive role in the design. The hitherto discussed literature implied that visual approaches were strictly about imparting knowledge, much less about experiences. Even though evidence and clues still support this view in general, also mostly visual designs can act on an experiential level as evidenced by this example. For this topic, such an approach might be the most appropriate course of action to actually display the sheer opulence, in Grütter's words, of the noble world. The director concludes the promotion by stating that he considers *Eine Klasse für sich* to be one of the most beautiful exhibitions made by the Ruhr Museum (13:28).

13.2. Soundwalking the Ruhr Museum

Sounds or other means of presentation are however not explicitly named as part of the architectural concept. As such, it collides with the suggestion by audio design studio Idee und Klang to include them from the start of the conceptualisation.[307] Sounds do however appear in several regards throughout *Eine Klasse für sich*. They can roughly be subdivided into internal sounds, i.e. sounds that are part of the exhibition itself such as videos, audio examples, the audio guide app, or even the space, and external sounds like lectures, debates, promotional material, or the film night. First, Voegelin's concept of soundwalking will be taken as a basis for a report

[303] Ruhr Museum: *Sonderausstellung 'Eine Klasse für sich. Adel an Rhein und Ruhr'. Der Film*, *Vimeo*, 13 December 2021, https://vimeo.com/656043851 (accessed 25 May 2023).
[304] Orig. 'Glaspalast'.
[305] Orig. 'diesem archaischen, fast sakral anmutenden Industrieraum'.
[306] Duncan 1995, 15.
[307] *Holistic Sound Scenography. Our way to immersive sound in the room*, *Idee und Klang*, https://ideeundklang.com/audio/en/about/Holistic-Sound-Scenography.html (accessed 11 May 2023).

of sound experiences during a museum visit. These are obviously subjective impressions I gathered, as is the case with many other examples here, but I did so carefully and self-consciously. Still, these sensations are meant to be just that, without aspiring to be objective. And yet, awareness of all existing sounds is fundamental for understanding what might impact people's visits, even just subconsciously. Voegelin acknowledges the audiovisuality of museum spaces, including almost unavoidable human sounds like footsteps or talking, regardless of who they come from. On this basis, she drafted soundwalking, meaning reflectingly 'walking the landscape with a focus on listening to one's environment'.[308] This concept is useful and valuable for this endeavour as it gives me a framework to record my sound impressions of the museum space. Here, this layer is merely analytical to aid understanding, without further implications. Her system of taking notes is based on Schafer's but more refined.[309] Since I intend to use these impressions just complementarily, my written account is sketchy and less systematic. I cannot fall back on additional experiences by students, so my point of view is naturally very personal and temporary, a snapshot of sound conditions.

Mimicking a visit to the Ruhr Museum and the exhibition *Eine Klasse für sich*, this soundwalk is going to start at the square in front of the building. It is a random day in summer. Far in the distance is an audible backdrop, the soundscape of the city. In this case it is most of all one very high pitched, persistent tone that could belong to a road sweeper. Otherwise, the surrounding streets are surprisingly silent, almost imperceptible, which could be a reason of ongoing road constructions. Occasionally, the faint noises of aeroplane turbines can be heard, alongside the rustling of leaves. A gentle breeze brushes the plants growing in the former roadbed. A lot of the attention, sound-wise or else, is drawn by the constant stream of visitors. Footsteps, occasionally bicycles, are scrunching on the gravel. Conversations are usually limited and subdued. Still, a lot of languages are present. Some people are more talkative and louder, so they immediately stand out. Especially children can be heard both talking and moving. Right underneath the coking coal bunker a group is playing. They are very loud, not least because the architecture of the massive concrete structure produces echoes. The second considerable source of sounds comes from construction work around the museum. Close by there are engine noises, probably a construction machine. In the building underneath the famous winding tower of shaft 12, a crane device mounted on a rail on the ceiling starts moving. The sound of the engine, the metallic squeaking, and the alarm are extremely dominant, although just temporarily.

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[308] Voegelin 2014, 120.
[309] Ibid., 121 & 124-125.

Simultaneously, there are working sounds, e.g. hammer blows and rustling chains. The workers speak loudly and yell at times, indicating they are more unhinged than the majority of visitors.

The escalator up to the entrance is very long. For the entire time up there is a loud machine noise with a slight whistling. Moreover, the steps clatter and produce a metallic grinding noise. Once at the top, there is a small platform that is still pervaded by the sounds of the escalator. You can at some spots hear steps on the metallic underground but only for a short while since this platform is only meant for transitioning. In the entrance hall, there is a background static composed of the escalator outside and, most definingly, snippets of conversations which are unintelligible. The steps of people are very subsidiary. In the vicinity of the café, there are corresponding sounds like the clattering of crockery and cutlery. The ticket booths are sealed off with glass, so communication is only possible through a microphone and speakers, creating robotic voices. The shop is exposed to the same noises as the entrance hall since they are side by side. The voices are perhaps a bit more muffled. Very tellingly, I experienced a woman shushing presumably her daughter because she was running. This happened very quickly and effectively with a singular 'Sh!'. This encounter revealed that even the shop is recognised as a space of relative peace and quiet which people actively contribute to.

The way towards the stairs leads along former machinery. The sounds of the entrance hall fade into the background. Instead, one's own and other people's steps on the metal plated floor become the main source of sounds. In addition, there is another sensory impression here. The smell of oily metal, presumably from the surrounding machines, is fairly strong in this area, but makes the passage pretty memorable, too. A guard in the area claimed that some visitors had lamented a missing impression of the former coal washing plant, also in terms of sound. According to this assertation, both the guard and the visitors were of the opinion that such an impression required a corresponding sensory experience.

The last stage before the temporary exhibition is either the lift or the stairs. The former is unremarkable. There are typical noises of the buttons, the doors closing, or the lift moving, but no music. The beeping sound is reminiscent of an alarm. The latter however is perhaps the only space in the museum that is subject to a constant sound installation. The permanent exhibition houses a collection of mostly work-related sounds from the coal mine. These are activated when stepping underneath one of the speakers, causing the sounds to play at fairly high volume. The stairs however play such sounds automatically at predetermined intervals. Some of the samples are extremely loud, however the perception strongly depends on one's position or proximity to the speaker. This implementation can be located somewhere in between Cortez' sound as

artefact and sound as ambiance since sound objects are used to create an ambient backdrop. Otherwise, the stairs are rather silent unless people talk or walk loudly.

The exhibition space itself is naturally silent. There is a very quiet static noise coming from the air conditioning. Due to the architecture, characterised by massive pillars and separate rooms on the sides, conversations usually become quickly muffled and incomprehensible. According to current museum customs, the talking is low and limited. The floor is very hard and a bit rough, so steps can be audible. This floor is composed of a special type of concrete which was necessary because it was only built for the museum, not coal washing purposes. Still, the overall soundscape is very much dependent on number and composition of the visitors. The interviewed guards elaborate that they found the space quiet and calming even with visitors present. School classes, the loudest groups according to a second guard, were calmed down if necessary. In general there were no disturbing noises, not least because the guards were mostly concerned with preventing turmoil. Running was forbidden also because of tripping dangers, not just noise. Apart from these main sources the guards described, there were other noticeable sounds like the lift, the phone, the alarm, and the hand tally counter. In addition, they had learnt to distinguish colleagues by their gait. The videos and music on site would not disturb them as opposed to two guided tours at once. Comparably, an entry in the visitors' book from the 16th of July 2022 complains that a simultaneous curator-led tour had been too loud, making the audio guide incomprehensible. All in all, the space is for the most part geared to quietness. Most of the sound sources are due to visitors or of technical nature. This aligns with Biehl-Missal's and Lehn's museum rituals, i.e. architecture and social organisation promoting discipline, order, and silence, enforced through social norms and wardens.[310]

13.3. Internal sounds: the exhibition, tours, and the audio guide app

Guided tours are a very typical way to employ sounds in exhibitions. Visitors can get additional information whilst the predetermined structure can be helpful in terms of time and selection. Having personal contact to a guide allows for personalisation, more interactivity as well as easier access which can encompass both interest and very literal access for handicapped people. Here, specialised tours for blind people not only use sound but touch.[311] The Ruhr Museum also

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[310] Biehl-Missal/Lehn 2015, 250.
[311] *Veranstaltungen. Angebote. Führungen für Menschen mit Sehbehinderung*, *Ruhr Museum*, https://ruhrmuseum.de/veranstaltungen/angebote/fuehrungen-fuer-menschen-mit-sehbehinderung (accessed 1 June 2023).

offers tours in sign language for hearing-impaired people.[312] In these, the sensorial experience is reversed. Whilst tours usually allow for a conventionally visual exhibition to be perceived more aurally, a tour in sign language is visual on both levels.[313] The Ruhr Museum also publicly advertises normal tours on social media,[314] indicating that they are held in high regard. A tweet promotes a tour given by Drexl, one of the exhibitions' curators. Remarkably, she is featured in a short video clip that was recorded just for this occasion. Even though the sound is just used as lecturing, the video is worth mentioning since there are only very few comparable examples on the Ruhr Museum's twitter page, and it was produced to directly bridge the gap between visitors and curators.[315] Drexl introduces herself and then directly addresses potential visitors to join the tour. There is just a very brief overview of the tour's content which the post also has in writing. Like most other sound sources related to the exhibition, the tours outlined here as well as the ones I experienced are sound as lecturing, following Cortez. Schulze remarks that the voice had a curious relation to sound. On the one hand, he labels it the gateway to the sound of the world.[316] On the other, the voice when speaking was just functional, and any other sounds were detrimental to the actual purpose. Referring to Serres, Schulze argues that speaking happened without senses and was just a learnt habit.[317]

An experience very similar to that of a guided tour is offered by the official audio guide app of *Eine Klasse für sich*. It is available on app stores for free.[318] The museum advertised the new app on social media.[319] This post is special since it is one of the very few on the museum's Twitter page to include sounds in the form of an 11-second video recorded in the entrance hall on the 24-meter level. A pair of hands hold a smartphone that is running the app to demonstrate

[312] @ruhrmuseum, *Twitter*, 13 January 2022, https://twitter.com/ruhrmuseum/status/1481538254805639169?s=20 (accessed 30 May 2023).
[313] The Ruhr Museum generally tries to accommodate all people with handicaps. The website is designed according to current EU policies. The museum lists a known number of issues, however there is no mention of implementing sound solutions for visually impaired people. Instead, the flaws are usually attributed to missing texts, see *Barrierefreiheit. Erklärung zur Barrierefreiheit*, *Ruhr Museum*, https://ruhrmuseum.de/barrierefreiheit (accessed 30 May 2023); the city of Essen has an impressive array of tools to make the website more accessible, including having the text on screen read out loud by AI. Policies might be stricter since the city offers vital services, see *Aktuell*, Stadt *Essen*, https://www.essen.de/aktuell.de.html (accessed 30 May 2023).
[314] @ruhrmuseum, *Twitter*, 20 January 2022, https://twitter.com/ruhrmuseum/status/1484074215380865024?s=20 (accessed 30 May 2023).
[315] @ruhrmuseum, *Twitter*, 12 June 2022, https://twitter.com/ruhrmuseum/status/1535904739266813952?s=20 (accessed 31 May 2023).
[316] 'Tor zur Klanglichkeit der Welt', Schulze 2008, 7.
[317] Ibid., 7-8.
[318] E.g. Stiftung Ruhr Museum: *Ruhr Museum Audioguide*, *Apple App Store*, https://apps.apple.com/us/app/adel-an-rhein-und-ruhr/id1596946739 (accessed 30 May 2023) or Acoustiguide GmbH: *Ruhr Museum Audioguide*, *Google Play*, https://play.google.com/store/apps/details?id=com.acoustiguidemobile.am_ruhr (accessed 30 May 2023).
[319] @ruhrmuseum, *Twitter*, 10 December 2021, https://twitter.com/ruhrmuseum/status/1469217822190362625?s=20 (accessed 30 May 2023).

its functionality. In the background there is a slight static noise as well as some unintelligible conversation, thus capturing a moment of the museum's soundscape. At the very end, the first file from the audio guide is started, giving an impression of the narrator. A second post advertises the app as the means to learn the most about the exhibition, apart from taking a tour.[320] Interview A explains that the app had been planned for a while, but the pandemic situation increased the urgency for it to be developed. They needed to reduce people touching things to an absolute minimum and could furthermore avoid the disinfection of conventional audio guides.[321] Ultimately, the app's sound pieces were selected to address representative highlights of the exhibition, thus providing the audience with a way to experience the exhibition in a shorter amount of time and on one's own account.[322] In total, there are 26 stations. Each sound file had a length between 1:00 and 1:40 minutes. They show an image of the artefact in question as well as the underlying text. Sound-wise, the audio guide only features the narrator's
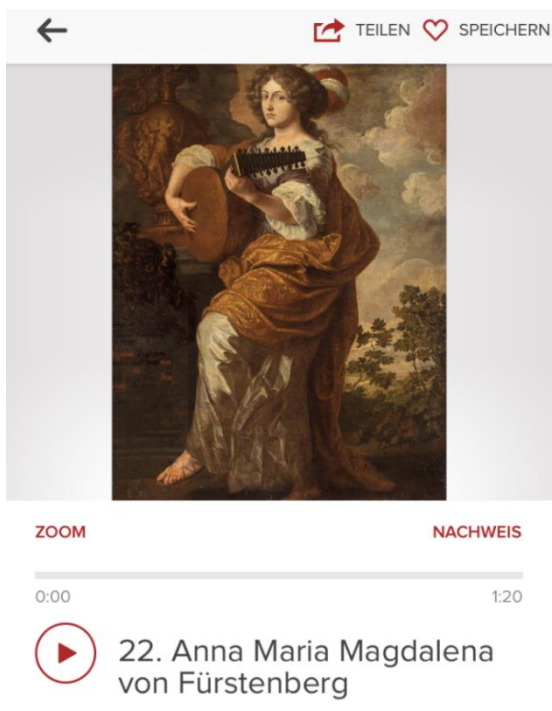
An illustration taken from the audio guide app.

voice. He speaks noticeably slowly and clearly, arguably to make understanding as easy as possible. The narration itself is very much sound as lecturing in Cortez' terms. The presented exhibits are explained and used to illustrate the overarching context. There are no further illustrative sounds, not even when the content offered an obvious opportunity. Number 6 for example is about a huge wedding celebration that included fireworks. Number 22 also stands out. It represents the chapter about festivities and music using the example of a painting. Despite the latter and the topic explicitly being about music, there is none to be heard. However, when used in the exhibition there would have been the audio station at that point. Conversely, Cortez argues that audio guides were the most dominant form of sounds in museum, so they could lead the way for implementing sounds as well.[323] Furthermore, the entire audio guide is designed like a guide in the narrower sense, meaning that the sound pieces

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[320] @ruhrmuseum, *Twitter*, 19 February 2022, https://twitter.com/ruhrmuseum/status/1495075172214362118?s=20 (accessed 30 May 2023).

[321] Interview A, 1:29:07-1:29:55.

[322] Ibid., 22:13-22:33.

[323] Cortez 2022, 11-12.

include passages telling the visitors where to go and how to get there. These sections are helpful to establish a structure but take up quite a lot of time. The 26 sound files are roughly 37 minutes long and the guiding segments take up an estimated 15 to 20% of it. Again, Cortez ties the 'oral narratives' resembling lectures to initial audio guides that required a straight path. Track selection and later guides instead offered free movement whilst podcasts expanded beyond the actual museum space.[324] Henning however regards phones through a perspective on nonhuman agency, meaning a pessimistic outlook. He stresses the media's 'insidious powers' that made people attached or addicted and led to a shutdown instead of a facilitation of communication.[325] Huhtamo proceeds from a similar assumption, namely that apps, as alternatives of classic audio guides, exploited people's attachment and expertise. He acknowledges however that using phones could both save costs and yielded more potential for media. Apps could also be used outside the museum itself, e.g. by superimposing images in the city (e.g. the Streetmuseum or the Museum of London) or ludification (e.g. the Tate Trumps or the Tate Modern).[326]

As outlined before, the side rooms are meant to complement the main narrative by enlarging upon several topics. Two of these sections stand out in this context regarding their material representation. Firstly, attendants are represented by the uniforms they wore. Whilst at first it might seem dubious to reduce people to their clothing and function, it is exactly this function and difference in standing that is of the essence here. Moreover, the display of various uniforms made for a memorable sight which is graspable in the promotional video.[327] This room is one of the few to actively employ multimedia, in this case a little screen that shows an interview with a former attendant. The file is almost four minutes long and not publicly available. The interview features Rosemarie Szilinski who had lived with her former superiors, the von Spee family, at Heltorf castle in Düsseldorf for more than 57 years. In terms of sounds, the video is again sound as lecturing. Szilinski talks about her life and work for the family, including general impressions as well as details. The interview was recorded on site, so in the background there is a very faint layer of noise, including wind, rustling of trees, bird sounds, and traffic noises like ambulances or at the very end an aeroplane. Apart from that, the visual footage often diverges from showing her talking whilst the soundtrack remains unchanged. In this regard, the sound is completely focussed on the interview. Between 3:09 and 3:13 she talks about enjoying the company of the noble family including drinking and singing but there is no corresponding

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[324] Cortez 2022, 12.
[325] Henning 2015, XXXVI.
[326] Huhtamo 2015, 270-271.
[327] See 1:53 Ruhr Museum: *Sonderausstellung 'Eine Klasse für sich. Adel an Rhein und Ruhr'. Der Film*, *Vimeo*, 13 December 2021, https://vimeo.com/656043851 (accessed 25 May 2023).

sound illustration. There are only two instances when the sounds from the footage are perceptible behind the interview. The most striking example is between 1:00 and 1:09 when Szilinski operates a rotary iron which is quietly audible. In addition, there are footsteps of her on gravel at 2:46. At a different place in the exhibition, there is an interview with a local noble, Maximilian Freiherr von Fürstenberg, which is very similar to the first one in terms of sound design. It is mostly him speaking about what it means to be a descendant of a noble family whilst in the background there is very little noise from wind and traffic. The very end of this clip, a 12 second snippet, was used to promote on social media an open discussion about noble families in the current day and age with von Fürstenberg as primary informant.[328]

Both devices playing these interviews are fitted with motion sensors, so the videos only play when someone is in front of them. Interview A maintains that it was important to limit sound emissions in exhibitions. Some visitors might like music playing whilst others were looking for peace and quiet. The wellbeing of the guards was another concern since they had to spend up to 8 hours around the sound backdrop.[329] A previous exhibition staged by the Ruhr Museum addressed pop music in the Ruhr area. Music was labelled central for that exhibition's concept, so a dedicated sound room was placed in the middle. There, songs and corresponding visuals from 60 years of pop music in the region could be experienced. Additionally, there had been single songs in other parts of the exhibition and snippets on the way to the exhibition space.[330] This shows that the museum has recent experience with exhibiting sound-reliant topics, not least since the same director was in charge. However, one of the guards recalled working in this environment and several years later expressed their distress over the constant music. In particular, they had had trouble getting Nena's *99 Luftballons* out of their head, even after the exhibition had closed. This case shows a clear issue with a more constant exposure to sound and is a reminder to take into consideration both visitors and wardens. Without including the latter, the approach to include sounds for integration purposes was not truly integrational.

The second section standing out in terms of material representation is about festivities, including music, which were represented by paintings and musical instruments. This approach is reminiscent of the past musicological debate whether a score was pure music or music at all. Most modern approaches stress performative conceptions of music.[331] Without indulging in a

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[328] @ruhrmuseum, *Twitter*, 12 February 2022,
https://twitter.com/ruhrmuseum/status/1492546792847781888?s=20 (accessed 31 May 2023).
[329] Interview A, 1:27:14-1:28:14.
[330] Bierkämper 2016, 20 & 23.
[331] E.g. Frith stresses the significance of both listeners and producers for emotions, sociality, and communication, see Frith 2012, 157.

discussion about the implications, the section mentioned above is still striking: it is described to consist of material objects whilst it was the only one to involve an audio station in the actual exhibition. Following Cortez, sound is the artefact here, but also shows characteristics of art and ambiance. The music chosen is connected to the region's nobility and comes from different time periods. The first example is a piece for lute from Bernhard Schenckinck's family register from 1563. The second choice was a trio in G major for piano, flute, and bassoon that Ludwig van Beethoven composed for the Westerholt-Gysenberg family around 1790. Lastly, the curators picked a song called *Altdeutsches Frühlingslied* with music from Felix Mendelssohn-Bartholdy and words by Friedrich Spee, famous for his criticism of the early modern witch hunts. Interview A explains that it had been fairly obvious to add an audio station to this chapter because it explicitly dealt with music. However, the implementation relied on thorough considerations about the placement within the space. The concern was that the sounds or in this case music could impact other sections of the exhibition since they addressed different time periods. Due to the COVID-19 pandemic the museum had not been able to resort to headphones which would have been less of an issue regarding disturbances.[332] The music was played via speakers and remained perceptible beyond the room dedicated to the topic of festivities, albeit only very faintly. A couple of interviews conducted with guards in this exhibition space was revealing since they had spent significant amounts of time around this music playing. One guard expressed they did not mind the music or the videos for that matter. A second guard explained that they even appreciated the music for helping with the long working hours.

13.4. External sounds: the trailer, events, and social media

The introduction mentioned before has a promotional video[333] embedded. Interview A explains that this trailer had been produced because of the pandemic. It was unknown if the exhibition could be opened with a ceremony on site or if another lockdown was coming. A however praises the trailer for possibly having attracted some people to visit by demonstrating the exhibition's pleasing aesthetics.[334] In this sense, the production of the video can be interpreted as innovation driven by the COVID-19 situation, as tragic as it was. Parsons comes to a similar estimation shortly after the beginning of the pandemic. He compiled efforts by music ensembles who had to cope with not being able to perform live. Therefore, they resorted to the means of the internet

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[332] Interview A, 1:24:46-1:26:00.
[333] Ruhr Museum: *Sonderausstellung 'Eine Klasse für sich. Adel an Rhein und Ruhr'. Der Film*, *Vimeo*, 13 December 2021, https://vimeo.com/656043851 (accessed 25 May 2023).
[334] Interview A, 52:16-52:52.

to reach their audience. His own ensemble had actually been able to expand its audience from the UK to continental Europe and North America. Thus, he estimates the new approaches to be 'overwhelmingly a positive addition' and hopes they continue after the pandemic's end.[335]

The trailer was produced by an external company that the Ruhr Museums has worked with numerous times, e.g. also for the video presenting the visible storage.[336] The trailer was made public only in the very early morning of the exhibition's opening day, and has a total length of 13 minutes and 56 seconds. Out of these, more than 4 minutes are just visuals and music. This is a considerable difference in scope compared to the trailer of the visible storage which is much longer (over 22 minutes) but has only about 3 minutes of segments that just feature music alongside images of the space. The storage's trailer is also structurally more straightforward as interview portions are just separated by short transitions. The exhibition's trailer on the other hand has more scenic changes, so individual parts are shorter and often intertwined. A curator's elaborations could be stretched out with narrative and musical passages in between. The reasons for these different directions are unknown to me. It is possible that the longer trailer for the visible storage allowed for all the visual impressions to be used during the interview segments. These are longer, possibly due to the visible storage not offering any kind of concrete information about its exhibits, so in a way mimicking the experience of being on a guided tour.

The trailer for the exhibition, just like the visible storage's, starts off with an exposition of the space, accompanied by music. The footage clearly references the architectural principles outlined by Denkinger. The camera follows the main corridor, the centrepiece of the design, and at 0:10 shows a shot through several glass cabinets with the artefacts therein. Sequences like this one, featuring a piece of music whilst showing the exhibition, are found throughout the entire video and can affect the perception of watching it. The producers of the video, a company called Zeitlupe, explain that they specialised in emotional imparting of information. Films could appeal to multiple senses at once, not least due to sounds and music which helped with remembrance.[337] This association of visual and audio here works seamlessly because of the music chosen. In contrast to Kannenberg who alerts that music was burdened by 'a vast amount of cultural bias and pre-conceived notions'[338], the music throughout the video carries such meanings, making sound play a very pronounced role. Specifically, there are 3 pieces from the 17th or 18th century, judging by their sound aesthetics, that are played by a small string

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[335] Parsons 2020, 403 & 405.
[336] Interview A, 53:57-54:07.
[337] *Über uns. Philosophie*, *Zeitlupe*, https://zeitlupe.tv/#about (accessed 24 May 2023).
[338] Kannenberg 2017, I 4.

ensemble. One of them appears twice, including at the very end. Furthermore, the famous canon in D major by Johann Pachelbel is included. It starts in the very beginning and then plays anew later in the video. The recording used is by a string orchestra and a harpsichord as basso continuo. Hence, the pieces are from the early modern period, the 'great time of the nobility'[339] as Grütter calls it. In conjunction with the instrumentation, the musical choice aligns with popular conceptions of a sophisticated, history-rooted nobility. This approach is not without its issues since it builds on stereotypes and eventually reinforces them but makes for a memorable and enjoyable experience. On the other hand, one could argue that using the music in this context only creates the association of it and the topic. However, the chosen pieces are similar in period and style to the ones that are heard in the actual exhibition. These music-dominated segments are found very regularly. Sometimes they are brief, e.g. between 6:22 and 6:25, to ease the longer spoken passages. In other cases, like between 1:49 and 2:34 or 12:23 and 13:16, the sections are quite long and leave enough time to have artefacts and music take effect. The abundance of such passages makes the images and the music merge together, creating a singular aesthetic experience. Pachelbel's canon alone plays for almost 8 minutes of the video, so only about 2 minutes of it have no music. Here, sound is used as a soundtrack in Cortez' framework.

In general, the video is fairly varied in terms of structure. Apart from the sound-driven parts discussed above, there are various spoken sections. These are sound as lecturing, as Cortez would say. Some of them are voiced by a narrator giving additional pieces of information, others are the director and the curators talking about the exhibition. Right after the exposition, the narrator explains the relevance of the nobility in the region. The music from the beginning keeps playing but is significantly lower. It is very frequently the case for music to continue during explanations, albeit much quieter. After the narrator finished at 0:36, the music is louder again during a short transition before being softer a few seconds later for director Grütter's first appearance. Henning estimates that video testimonies like this one had a dual purpose. On the one hand, their framing was meant as an emotional expression, often implying eye contact. On the other hand, the aesthetics and methodology stressed the documentational character and objectivity.[340] Kossmann judges that such passages had more of an effect when visitors could identify with the narrator, e.g. by seeing them. In museum practice, just like the invisible narrator here, the curators remained faceless and intangible which led to a greater distance between them and their audience.[341] The music fades out only 4 minutes in, which is the second

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[339] 'Die große Zeit des Adels', 5:33.
[340] Henning 2015, XL.
[341] Kossmann 2014, 62 & 64.

time the first curator speaks. It is not the end of the piece, so it is unclear why the music is cut at this point. However, in that moment it becomes obvious also for this video that the voices were recorded on site. The corresponding echoes suggest the size of the room, very similarly to the trailer of the visible storage.

The spoken sections are also permeated by shots of artefacts. At times, these can be connected to the narration. For example, between 1:25 and 1:49 Grütter talks about the nobility's opulence which is meant to be represented by largely material exhibits. These are simultaneously displayed. Just shortly after, between 2:11 and 2:34, there are shots of the camera moving forward along the corridor and arc shots focussing on some artefacts that evoke the impression of traversing the space and then beholding said artefacts from different sides. Also tying sound and image together, at 6:15 a lute is shown whilst the music is faded in again. Shortly before the very end of the trailer, the image turns white, displaying acknowledgements and information about the exhibition. The music keeps playing until 13:54, when it reverberates for a few more seconds until the video stops.

This trailer was used to create a spin-off that appeared at the end of the press conference for *Eine Klasse für sich*. Not least due to the COVID-19 pandemic, this conference was streamed and for a limited amount of time made available. Director Grütter and architect Denkinger explained their thoughts behind the concept and the design. A round of questions, specifically including those from virtual visitors, was meant to complete the event. However, since people watching the stream could obviously not join the tour on site, this experience was substituted by said spin-off trailer (48:38-54:03). It features no voices at all, only music. Specifically, the Pachelbel canon and the other piece to appear twice were reused and play one after the other. There is only a very brief moment of cross-fade at 52:49, other than that the pieces are unaltered and basically like in the main trailer. This soundtrack is used alongside footage that illustrated both exhibition and exhibits in the original trailer. Still, this spin-off clip merges sound and image together even more, intended to convey a convincing experience of the exhibition at a crucial time. Considering the usual prevalence of language-related sounds, it is all the more striking that only music is used when a visit of the exhibition is mimicked. In Cortez' system, the sounds here could be seen as soundtrack, perhaps also art.

In terms of complementary activities and events, the Ruhr Museum offers a very wide variety. They range from various sorts of tours, lectures, discussions, workshops, and educational content for different age groups to more unusual things. Amongst these are e.g. films, festivities, excursions, walks, smithing presentations, and ludic elements, most notably variations of

football due to the latest exhibition about the sport.[342] The most abundant source of sounds belonging to *Eine Klasse für sich* externally, i.e. not in the exhibition space itself, is a series of lectures and discussions. Specifically, there were 4 lectures by renowned scholars about historical topics and one open conversation between director Grütter and a member of local noble family. They took place between the 18th of January and the 15th of February 2022 and were recorded to be made public, which they still are.[343] Consequently, not the actual events can be assessed but merely their mediations, the recordings. They are, despite their length, rather unremarkable in terms of sound even though the video form had permitted for sounds to be added. Instead, they show the events at hand from the beginning until the end, without any kinds of mediatised introductions, transitions, or outros. As such, the videos try to convey the impression of having been to the actual lecture rather than perceiving media. And yet, all of them constantly show the watermark of the museum. In that sense, the speaking voices, usually that of the lecturer, are very much in the foreground, not least since they were amplified by microphones. A lecture given by Kauertz[344] reveals however that the recording is not entirely unaltered. At 10:31 there is a cut for unknown reasons that appears to have just taken out a short segment of the event, indicated by the slide staying the same and the lecturer starting over with 'anyway'.[345] Moreover, during the subsequent round of questions some cuts were employed, e.g. at 1:17:21 after Kauertz ended her lecture. These were presumably just meant to bridge gaps of silence or minor turmoil due to undesirable noises from people moving. Interestingly, at 19:20 Kauertz also names music to be a major field of representation for nobles in the past. However, she does not go into further detail apart from mentioning that the exhibition showed musical instruments and sheet music, so not music itself but material artefacts of it.

The lecture given by Gersmann[346] serves to illustrate a few more points. First of all, her example stands out because it was the only one to take place with a lecturer joining virtually, via Zoom. Gersmann herself apologises for not appearing in person but explains that she was trying to practice social distancing (5:35-5:53). Consequently, her voice is very slightly distorted by the recording and broadcasting. These circumstances also lead to a few other occurrences. Firstly,

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[342] *Veranstaltungen. Angebote. Unsere Angebote von A bis Z*, *Ruhr Museum*, https://ruhrmuseum.de/veranstaltungen/angebote (accessed 1 June 2023).

[343] *Ausstellungen. Archiv. Vortragsreihe zur Ausstellung* 'Eine Klasse für sich. Adel an Rhein und Ruhr', *Ruhr Museum*, https://ruhrmuseum.de/ausstellungen/aktuell/eine-klasse-fuer-sich-adel-an-rhein-und-ruhr/vortragsreihe-zur-sonderausstellung-eine-klasse-fuer-sich (accessed 1 June 2023).

[344] Ruhr Museum: *Vortrag. 'Adlige Lebenswelten zwischen Ruhr und Lippe im Spiegel der schriftlichen Überlieferung'*, *Vimeo*, 27 January 2022, https://vimeo.com/670602103 (accessed 1 June 2023).

[345] Orig. 'jedenfalls'.

[346] Ruhr Museum: *Vortrag. 'Im Schatten der Französischen Revolution. Adlige Lebenswelten im Rheinland und in Westfalen "um 1800"'*, *Vimeo*, 9 February 2022, https://vimeo.com/675454131 (accessed 2 June 2023).

at several points, e.g. 11:30, there is an immense echo on her voice that can be a bit distracting. Then, there are several cases of very common concomitant noises that are amplified and thus become very present. Between 40:07 and 42:39, the rustling of paper, knocks on the table, and clicking of buttons sometimes overshadow the talking. Around 44:39 an ambulance can be perceived in the distance. In addition, a guest gets up at around 34:59 to leave which culminates in a banging door around 20 seconds later. Obviously, these sounds are natural and unavoidable. However, they were not edited out, creating the impression to witness a vivid live event when watching the recording rather than a completely orchestrated mediation. The use of technology appears to have reinforced some of these commonly disturbing background noises.

Talking about the French Revolution, she includes a lot of French titles. Instead of just leaving them written, she also reads them out, e.g. at 12:33. Doing that helps understanding the titles and the context, bringing both literally to life. Unlike the actual lectures, the rounds of questions at the end do not entirely fit Cortez' sound as lecturing. Even though the eventual answers are again a form of lecturing, it is pivotal that the questioning allows for a dialogue. Visitors can make themselves heard, affect the information they encounter, so play an active part in how this programme plays out, and engage with people behind the scenes which is not possible in most exhibitions. Sound in these cases is obviously very broadly understood, since the voice talking is the basis of most conversations, unless sign language is used.

Exchanging is also at the very core of a conversation between Maximilian von Fürstenberg, the current head of local noble family, and director Grütter.[347] Guided by the latter's questions, most of the event is about von Fürstenberg talking since it is meant as an opportunity for people to get in contact with noble life today. Towards the end there is again half an hour of time allotted for the audience to ask questions. Another form of spontaneous exchanging apparent in this discussion is humour. It impacts the audience's and the orators' experiences as evidenced by their laughs. Director Grütter in particular cracks jokes at various points throughout the event. In his introduction for instance, he jokingly refers to the universities of Cologne and Bonn his collocutor studied at as venerable whilst commoners like him had to make do with Bochum. Grütter also jests that they had studied the same subjects but von Fürstenberg had managed to not end up in the destitution of historians (1:18-1:59). After the discussion, a tweet stated that the series of lectures had come to an end but that there was still a film night.[348]

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[347] Ruhr Museum: *Gespräch 'Tradition und Moderne im Adel'*, *Vimeo*, 16 Februrary 2022, https://vimeo.com/678300940 (accessed 1 June 2023).
[348] Announced in a follow-up, @ruhrmuseum, *Twitter*, 17 February 2022, https://twitter.com/ruhrmuseum/status/1494325287290486792?s=20 (accessed 1 June 2023).

The film night was treated separately from the series both on the museum's website[349] and on social media.[350] The latter is noteworthy since it includes a clip of 9 seconds that shows the title of the exhibition, seemingly filmed by hand from a sign, in black and white. This footage is then altered with a filter that adds visual artefacts and narrows the field of vision with black bars with fuzzy borders. Without any kind of noises, scratching, or static, a piece of music is playing. It appears to feature strings playing pizzicato and is much more playful in nature compared to the more solemn ones used in the trailer. Still, in terms of instrumentation and connotation there are perceptible parallels. Unlike the sound, the visuals also tie in with retro or nostalgic tendencies in art by resembling early silent films, perhaps having become en vogue since the 2011 film *The Artist.* Also one of the films of the evening showed these visual peculiarities.

The Ruhr Museum's film evening was organised in cooperation with the West German Broadcasting corporation and the Kinemathek im Ruhrgebiet with its head Paul Hofmann, indicating local integration. The first part of the evening was a compilation of several individual reports about noble families in the Ruhr area put together by Hofmann. The second part was the full film *Im Damenstift* from 1984. It is a documentary about a retirement home in a castle that houses penniless, unmarried, catholic women from noble families. Unlike the compiled reports, this film is publicly, albeit commercially, available. However, in both cases the use of sound aligns with observations made previously. A trailer for *Im Damenstift*[351] suffices to give an impression. The image itself shows artefacts just like the clip on Twitter. More than in the actual film, there are interview segments lined up. Only the voices of the interviewees are heard, usually with the according footage but sometimes accompanied by historical photographs (0:24-0:39), other recordings of life in the institution (1:14-1:26) or a black screen with white text giving additional information (0:20-0:24). One of these latter segments also features a short sequence of music (0:39-0:44). The piece is for a small string ensemble and a brass instrument, probably a French horn. Although difficult to estimate due to the brevity of the excerpt, the piece appears to have been written very roughly around 1800. Another sequence including music is at the very end of the trailer (1:41). In this case, the piece seems to be a string quartet. Again, the music employed here is very similar to that of the promotional trailer, in that certain

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[349] *Veranstaltungen. Kalender. Film. Adel im Rheinland und in Westfalen. Filmische Dokumente*, *Ruhr Museum*, https://ruhrmuseum.de/veranstaltungen/kalender/film-adel-im-rheinland-und-in-westfalen-filmische-dokumente/date/130240?cHash=dcb0d8f83f998245b0ba53a08ed443ff (accessed 1 June 2023).
[350] @ruhrmuseum, *Twitter*, 22 February 2022, https://twitter.com/ruhrmuseum/status/1496075106573029379?s=20 (accessed 1 June 2023).
[351] absolutMEDIENBerlin: *Im Damenstift / DVD-Trailer*, *YouTube*, 6 July 2017, https://youtu.be/J5DLTyYe9Jo (accessed 2 June 2023).

connotations of Western classical music and string instruments are made use of to evoke associations with the nobility. Curiously, both musical sections in the trailer include a faint nature soundscape, most obviously twittering birds.

Two more social media posts are noteworthy. The first one points out that the exhibition closed soon and was posted only a few days before that.[352] Compared to other tweets, the embedded video clip is very long, running for 26 seconds. It shows several artefacts and views from the exhibition but features no sound at all. This leads to a peculiar result because expectations are thwarted, not least because the video player allows for muting or adjusting the volume. This clip is thus indicative of Frith's observation that nowadays we had grown so accustomed to a constant stream of sound that the lack of it indicated an error.[353] The second clip does not belong to the exhibition but is one of the very few ones to present a non-talking-based workshop or event the Ruhr Museum offers, specifically a smithing demonstration.[354] Two people hammer a glowing piece of metal on an anvil which creates a very distinct sound of metal on metal. Additionally, there is chatting and laughing in background, leading to a vivid impression of the event at hand. Interview A mentions that a similar workshop had been offered for *Eine Klasse für sich*. Instead of witnessing smiths, visitors had had the opportunity to craft chainmail themselves, meaning an active, multisensorial first-hand experience.[355]

14. Geology & mineralogy: 14.1. *Der Klang der Steine*

So far, my assessments of sounds in the Ruhr Museum have been focussed on the main site in the former coal washing plant. There, both permanent and temporary exhibitions as well as a lot of the accompanying programmes take place. The visible storage housed in the salt factory is also at Zollverein, so is the coking coal bunker that is often used for press conferences or lectures. The Ruhr Museum is however not limited to this one site. One of its secondary sites is the Mineral Museum on the other side of the city, in the borough of Kupferdreh. This branch was founded in 1984 on the initiative of an association of local citizens, the Bürgerschaft Kupferdreh e.V., as well as a private benefactor who wanted to make his collection publicly available.[356] An information board erected in front of the building by the aforementioned

[352] @ruhrmuseum, *Twitter*, 29 July 2022, https://twitter.com/ruhrmuseum/status/1552930974698201088?s=20 (accessed 2 June 2023).

[353] Frith 2012, 151.

[354] @ruhrmuseum, *Twitter*, 6 November 2022, https://twitter.com/ruhrmuseum/status/1589187331805675522?s=20 (accessed 2 June 2023).

[355] Interview A, 58:19-58:37.

[356] *DAS MINERALIEN-MUSEUM IN ESSEN-KUPFERDREH*, *Ruhr Museum*, https://ruhrmuseum.de/fileadmin/redakteur/PDF/Flyer/Flyer_Mineralien-Museum.pdf (accessed 3 June 2023).

association in 2007 clarifies a few details. The building had been a former school, the Hinsbeckschule, that was shut in 1968 following a reform. To prevent demolition, the association of citizens started campaigning. For a start, they began renting a room in the building after a local, Oswald Hänisch, had bestowed his collection of minerals to them, on the condition it be publicly exhibited. Hereafter, the Bürgerschaft Kupferdreh e.V. got in talks with the Ruhrlandmuseum and the city of Essen. As a result, the endowment and parts of that museum's collection were pooled to found the Mineral Museum in 1984. In 2018, the permanent exhibition was redesigned to show a convergence of biology, mineralogy, and geology unique in Germany.

The official introduction on the Ruhr Museum's website continues that the entrance was free, and that the Mineral Museum cooperated with international supporters regarding current research in biomineralisation or bioinorganic chemistry.[357] These characteristics are a first indication of how central access and integration are to this museum branch. The guided tours, workshops, and children's birthdays mentioned in the introduction's first paragraph took place hundreds of times a year.[358] The introduction article is very invested in the auxiliary programme which is supervised by educators and explicitly geared towards visitors of all age. For children, the museum offered differently themed birthday parties and excursion whilst adults benefitted from a cooperation with an institution for adult education, the Volkshochschule. Specifically, visitors could manually experience the materials, some of which could even be worked with tools like hammers or grinders. Also sounds are part of the programme. The section *The Sound of Stones* made it possible for people to experiment with different kinds of rock and stones to create sounds. In addition, the Mineral Museum was conveniently located to start geological excursions in the vicinity. The collections were then modelled on so-called wunderkammers or cabinets of curiosities,[359] privately owned collections of the 16th and 17th centuries which revolved around a multisensorial notion of its artefacts,[360] similar to how this museum operates.

Stottrop outlines several exhibitions that were conceptualised by the geo-scientific curators and researchers of the Ruhr Museum. Her account is revealing since it gives an impression of multisensory methods employed by them. Generally, their thoughts were all driven by the wish to exhibit intangible heritage, as proclaimed by the UNESCO declaration of 2003. Stottrop

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[357] *Standorte. In Essen. Mineralien-Museum*, *Ruhr Museum*, https://ruhrmuseum.de/standorte/in-essen/mineralien-museum (accessed 3 June 2023).
[358] *DAS MINERALIEN-MUSEUM IN ESSEN-KUPFERDREH*, *Ruhr Museum*, https://ruhrmuseum.de/fileadmin/redakteur/PDF/Flyer/Flyer_Mineralien-Museum.pdf (accessed 3 June 2023).
[359] *Standorte. In Essen. Mineralien-Museum*, *Ruhr Museum*, https://ruhrmuseum.de/standorte/in-essen/mineralien-museum (accessed 3 June 2023).
[360] Kannenberg 2017, II 5.

argues that this heritage was a considerable challenge. On the other hand, she declares that conventional artefacts were already carrying connotations and meanings, not least since simply moving them to a museum meant that they now had become symbols engaging with visitors.[361] The first exhibition she outlines is *Terra Cognita* which had been modelled on cabinets of curiosities, like the Mineral Museum. This exhibition was about showing a multitude of interpretations. It employed sounds in both sound installations and in sound tours in which a musician performed 'a series of set pieces, each of which was a musical response in sound to different sections of the exhibition'.[362] The second exhibition, *Down and Under*,[363] examined smells, exhibited through various samples, and people's memories of these, both intangible and on top of that integrating locals with their own experiences. Furthermore, the curators decided to showcase the Ruhr area by having 48 photographers in a strictly coordinated fashion take 6 photographs each. All of these 288 photos were taken on the 21st of November 1999 at 3:30 pm and then assembled into one, revealing a region much less affected by its industrial heritage than expected.[364] The third exhibition Stottrop describes is *Living Stones*. To display the art of nature, the work of several professional photographers, so photography as art, was shown to the public. In addition, the space featured two purposefully contrasting films. One showed volcanic eruptions and the other a still and eroded landscape, accompanied by Philipp Glass' music. Stottrop estimates that such installations, as well as sounds, poetical quotes, or aesthetic beauty of artefacts, had the potential to move, touch, and captivate visitors,[365] in line with a lot of the research presented earlier.

For this purpose, the last exhibit *The Sound of Stones*[366] is of most interest. Stottrop explains that it had been organised explicitly for the Mineral Museum, in cooperation with a musician. The goal had been to create an interdisciplinary portrayal of the history, meaning, and significance of sounding stones, in particular with visitors themselves creating sounds with rocks and stones.[367] Interview B reveals that the exhibition had been organised with Julia Zanke, a local music teacher from the Folkwang music school.[368] She had also been responsible for the sound tours of the *Terra Cognita* exhibition. These tours had shown potential, so they decided to conduct more research on the relation of sounds and geology, discovering that it was an

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[361] Stottrop 2012, 139-140.
[362] Ibid., 142-143.
[363] A curious choice of translation for the original title is *Unten und Oben*.
[364] Stottrop 2012, 145-147.
[365] Ibid., 143 & 150-152.
[366] Orig. *Der Klang der Steine*.
[367] Stottrop 2012, 153.
[368] Reisdorf refers to her as an educated musician and music therapist, see Reisdorf 2020, 63.

anthropological constant reaching back to the Palaeolithic.[369] Stottrop adds that rock gongs for example could be found on basically every continent.[370] Zanke, in the function of a guest curator, was now responsible for assembling the stones that people could experiment with. B unveils that due to a lack of funds, they had cooperated with a stone merchant from Düsseldorf who generously supported their cause. B furthermore explains that the current installation at the Mineral Museum was not the complete exhibition of the past: just the experimentation room and most of the texts had made it.[371] This room consisted of several types of sounding stones. Rock gongs had originally been used for signals or rituals. Then, there were lithophones, basically glockenspiels made from stone. One of the exhibited examples was a famous chromatic one that had been produced to perform Carl Orff's *Antigonae*.[372]

Two lithophones from the experimentation room. The one on the left is untuned and made from so-called phonolite, a volcanic rock from the Eifel region known for its sound qualities. The one on the right is tuned. A recording I made of it (27s), accessible by clicking on the symbol, exemplifies sound qualities of these instruments. The rock was first stroked, as suggested by the label, and then struck. Note the various mallets next to them. Photos DH.

Lithophone.mp3

Another highlight, albeit in a separate side room, was a statue by Elmar Daucher who had initially made percussive sculptures. Then, he discovered by accident that running a finger over wet stones could cause vibrations and led to an ethereal sound touching human instincts.[373] According to the label, the same principle applied here. The cuts in the stone needed to be deep enough to allow for vibrations, however they caused the sculpture to be very fragile. As a result, it is only played for special occasions and protected by a cover the rest of the time.

Photo DH.

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[369] Interview B, 1:07:35-1:08:24 & 1:09:11-1:09:19.
[370] Stottrop 2012, 153.
[371] Interview B, 1:07:35-1:08:24 & 1:11:25-1:11:53.
[372] Stottrop 2012, 154.
[373] Ibid., 156.

To complement these mostly hewn pieces, the exhibition organisers also proceeded from the understanding that the planet was full of sounds due to constant movements of the earth or the wind. Thus, they gathered rocks of various shapes and sizes to be played with other rocks or mallets. Sometimes there were also contraptions like a barrel or a seesaw filled with stones to create certain sounds, like a stony beach moved by waves.[374] This room is difficult to grasp in Cortez' framework. The sounds from these stones are certainly artefacts since they represent the significance of this anthropological constant. On the other hand, the sounds have to be made by the visitors, so the room also qualifies for sound as crowd curation which Cortez limited to the internet. Lastly, the ubiquity of sounds when the instruments and devices are used almost corresponds to a soundtrack. This room shows some limitations of Cortez' system, although she acknowledged that the boundaries were not sharp and that fringe cases could appear.

The experimentation room in question. Note the poetic quote on the wall, the barrel and the seesaw on the right-hand side, as well as the singing bowls in the background. Photo DH.

In addition to the sound-related installations in the experimentation room, the Mineral Museum also possesses a meditation room in the attic. Surrounded by a bed of gravel, just a few rocks shaped by natural phenomena are exhibited upon steles. They were chosen because sounds occurred when they received their current state.[375] B explains that they wanted to include sounds and connect them to geological phenomena because they aspired to an exhaustive account, and

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[374] Stottrop 2012, 155.
[375] Ibid., 156.

sounds were part of the big picture.[376] The exhibits are illuminated whilst the remaining lighting is reduced. To further facilitate meditation, visitors can take a pillow on which they can sit on the floor, an unusual thought for a public space. At the same time, the room is filled with various pieces of music and sound related to stone. Apart from modern compositions by Stefan Micus, like *The Music of Stones* using sculptures by Elmar Daucher like the one described above, there is also music from the Rapa Nui, the Easter Island, and electromagnetic vibrations made audible from a pulsar in Cassiopeia A or Miranda, one of the moons of Uranus. Here, sounds are used as soundtrack or even art in Cortez' terms.

In the sense of some of the research discussed earlier,[377] the Mineral Museum extends the perception of the museum space from the exhibition itself to other spaces, in this case the lavatories. There, visitors can see some additional exhibits, coprolites to be precise. Like in a conventional museum, they are behind glass and provided with a label giving basic information. Also, the insides of the toilet cabins' doors have texts explaining more about coprolites. These explanations have a rather light and humorous tone, but they arguably appeal even more to people due to their surprising placement. The latter also means that they can be read and absorbed in a relatively silent, private environment to most likely increase remembrance.

B concludes that the audience welcomed their approaches. Not only did guests leave rave reviews in guest books, they also felt that the exhibition organisers had put a lot of effort into conveying their messages. B however admits that visitor numbers had been acceptable but not amazing.[378] *The Sound of Stones* then sparked many questions in visitors, prompting dialogue between them and the museum employees. The concept certainly appeals to visitors. During my interviews at the Mineral Museum, a family entered the experimental room and started trying all the instruments and installations. It went on for so long at a significant volume, that we decided to change sites.[379] Interview B actually remarked later that they saw clear limits to employing sounds, namely when it turned to noise and distracted from the artefacts on display. In this case, the room could become a cacophony especially with groups present, making conflicts regarding use and conservation apparent. This issue was amplified because often times, visitors did not pay attention to the instructions.[380] B's statement points towards a remarkable dynamic. As discussed before, conventional museums were generally quite disciplinary and banked on visual or textual means to impart knowledge and their messages.

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[376] Interview B, 3:19-3:47
[377] E.g. Black 2005, 77, suggesting that media could engage people before and after visiting.
[378] Interview B, 1:01:47-1:02:52.
[379] Ibid., 12:03-14:02.
[380] Ibid., 1:15:15-1:17:27.

These principles played little to no role in the audience's behaviour here, even though the experimentation room is still in a museum context, which prompts questions about the efficacy of conventional museum methods. Lastly, a variety of examples and unusual exhibits helped with enlightening changes of perspective. B mentions photographs of bicycles from India that had been used to transport around half a ton of coal in one go. These examples were shocking at first due to the working conditions but then revealed that the workers did not feel deprived because they made a wage many times higher than farmers around them.[381]

Photo DH.

14.2. *Stone Techno*

Achim Reisdorf draws a direct connecting line between his new project *Stone Techno* and *The Sound of Stones* from the Mineral Museum.[382] Encountering this exhibition had integrated seamlessly with his long-cherished idea to connect music and rocks.[383] Also interviewee B, one of the driving forces behind *The Sound of Stones*, expresses their contentment that the sound-based curation employed there had left an impression due to offering a multitude of sound potentials. Now, a new field of interest, namely techno, was linked to existing exhibits and the mineral museum.[384] Reisdorf intends on maintaining this legacy with two music projects that he started in 2019 and that laid the foundation for *Stone Techno*. He explains that his personal interests, particularly his passion for music, inspired him to use sounds and music for scientific communication. Later, he discovered science slams, a form of poetry slams with academic topics, which helped him hone his skills in accessible communication. At that time, it had been a popular practice to write new texts for established music. Reisdorf then came up with the idea

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[381] Interview B, 1:04:01-1:04:35.
[382] He also expresses his immense appreciation of Ulrike Stottrop, his predecessor, Reisdorf 2020, 64.
[383] Gripp/Reisdorf 2021.
[384] Interview B, 1:12:14-1:13:21.

to upend this by writing texts for musicians to compose music to. Eventually, he and his friend Kurt Gluck founded the format Science Slam Sonic Explorers that produced tracks based on texts by several researchers. These were then released on picture discs showing fossils to mimic actual fossil specimens and thus make them more accessible. In addition, Reisdorf contemplates an exhibition of minerals to be accompanied by songs produced from samples of said minerals. This music could attract new visitors, provide an enhanced exhibition experience, and showcase another quality of the exhibits. To him, these unconventional approaches were also beneficial since they got him in contact with different colleagues and led to prolific discussions.[385]

The first project revolves around a sound library comprising sounds of rocks from the Mineral Museum. Julia Zanke, the guest curator of *The Sound of Stones*, and American musician Kurt Gluck aka Submerged coaxed sounds out of these rocks and recorded their endeavours. This sound library was then used as a basis for ambient music by Gluck that was released in 2019 under the title *Reverberations of Stone*.[386] Interview C explains that the aesthetic qualities of ambient music had constituted an obvious way to represent environments and natural spaces or generally to connect music with geology. C relates ambient to soundscapes and concrete music, so often based on actual sound recordings.[387] Roquet explicitly deals with musical landscapes in ambient music, particularly those of Brian Eno and Tetsu Inoue. Eno had conceptualised this kind of music as a form of landscape painting, drawing on visual arts. Roquet points out that Eno's approach tied visuals and sound together whilst Schafer's soundscape had sought to isolate the sound layer.[388] Specifically, Eno's *A Clearing* did so by emulating a landscape. A low, steady drone formed both a harmonic and spatial ground from which soft pad synthesizer sounds arise, seemingly arbitrary in terms of pitch, permutation, and duration. Slow oscillations of the bass tone provided a sense of breathing or liveliness whilst the seemingly unfounded fadeout at the end gave the impression of the piece continuing.[389] The tracks on *Reverberations of Stone* do not follow Roquet's interpretation but show some uncanny resemblances. For example, *Metamorphes I* has a very present droning bass for most of its duration. It changes in materiality and pitch, giving it a likewise alive character. Moreover, there are elongated sounds from the singing bells as well as shorter percussive ones. The latter are initially quite isolated but around 2:20, a more regular pattern similar to wind chimes appears. Despite these characteristics being noticeable throughout most of the song, they appear somewhat erratic and

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[385] Gripp/Reisdorf 2021.
[386] Orig. *Nachhall aus Stein*, Reisdorf 2020, 64.
[387] Interview C, 8:05-9:11.
[388] Roquet 2009, 364-366.
[389] Ibid., 370-371.

do not allow for an easy recognition of conventional rhythms, melodies, harmonies, or structures, as is the case for the other tracks. That way however, the attention is inevitably drawn towards the quality and materiality of the actual sounds, i.e. the sampled rocks. One notable exception is found towards the end of *Magmatisches III* when a voice is heard. Due to it being voiceless and having a vibrato, the voice integrates well with the elongated, slightly oscillating samples. The result is a thought-provoking symbiosis of persistent rock and fading flesh, shortly united in a time-based art form but separated by their longevity. Instead of building environments, the songs are firstly meant to both represent the collection, since they consist of recordings of the exhibits' inherent properties. The official description lists the instruments:

'Gravel, Gravel Bed, Rocker filled with Stones, Wooden Drum filled with Stones, Stone Slabs, Pien Ch'ing Gong, Rock Gongs (Tiles, Roof Slates), Small Lithophones compiled from fragments of Stone Slabs, Large Phonolite Lithophone, Large Pentatonic Greenschist Lithophone, Quartz Glass Bowls, Elmar Daucher Klangstein, Mallets (Pebbles, Small Prismatic Rocks, Wooden Sticks and Beater, Timpani Sticks), Voice'.[390]

Secondly, the album is meant to impart knowledge about this collection by making information accessible. *Reverberations of Stone* is a concept album about the natural rock cycle, so the song titles are technical terms from that cycle.[391] The sounds heard come from corresponding rocks. Moreover, the booklet contains data of exhibits that were used in the production, thus acting as a collection catalogue. The latter is then distributed unconventionally, via physical and digital releases of the record. The cover integrates into the concept of disseminating museum knowledge and information, too. It shows a glacial erratic, i.e. a granite boulder that was carried from southern Finland to its current location due to glaciers of the last ice age. Artistically, the cover then constituted a found object or objet trouvé which is now moved again in replicated form.[392] Interview C adds that the cover photograph being out of focus symbolised the reverb and the vibrations of the stones.[393] In this regard, *Reverberations of Stone*, more than any other aspect of *Stone Techno*, epitomises the undertaking to take a quality of the exhibits, namely their sound, and make it publicly available whilst maintaining a continuous link to the museum, the collection, and the subject of geology. In terms of Cortez, the sound library is both sound

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[390] Submerged + Julia Zanke: *Nachhall aus Stein, Bandcamp*, 29 November 2019, https://ohmresistance.bandcamp.com/album/nachhall-aus-stein (accessed 7 June 2023).
[391] Reisdorf 2020, 64.
[392] Ibid., 64-65.
[393] Interview C, 48:02-48:19.

as crowd curation, still publicly available after all,[394] and sound as object, since the samples are inherent properties of exhibits, whilst the result is sound as art.

The second music project outlined by Reisdorf is a series of picture disc LPs bearing the title *Mineralien-Museum*. These records are about techno made with samples from the Mineral Museum's collection. They are released in irregular runs of 300 copies dedicated to a mineral specimen from the museum.[395] Interview C adds that the techno genre was firstly chosen for having a vivid scene that would engage with both the production of music and the reception of the contents brought forward by the project and the museum. Secondly, techno required no vocals and could thus only be made using sampled rock sounds.[396] According to interview C, label partner Sisman had first been hesitant, but the artists across the board had expressed amazement due to a fresh resource to work with.[397] Then, they had to analyse the recorded sounds before creating music which Reisdorf characterises as doing their own research.[398] Moreover, the label held a contest involving upcoming musicians who were tasked with making songs using the samples. Amongst 170 submissions, Emil Baghino had his released on one of the EPs.[399] In an interview, Reisdorf explains that this competition had been born out of concern for musicians during the pandemic. The guidelines for participants had been lenient, just techno in the widest sense, so the results were correspondingly varied.[400] In a video, this project is promoted by musician Felix Fleer, geologist Reisdorf, and Ahmet Sisman of the record label The Third Room. They each give insights into their workflow for the project, the link between sounds, science, and the museum as well as the details about the tracks, respectively. The victor then appeared on a vinyl release alongside established and popular artists.[401] The video also visually establishes these links. Fleer is shown in his studio whilst Reisdorf and Sisman appear in different parts of the Ruhr Museum. Fleer's and Sisman's segments are mixed with shots of different kinds of music-related equipment whilst Reisdorf's is with minerals and rocks. His part also contains a diegetic rock sound, a singing bell struck by him to be precise, at 1:31

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[394] *Stone_Techno_Samples_2021*, *Dropbox*, https://www.dropbox.com/sh/sk0riemdvzsjfki/AAD3dCVE396wy2KXPnNBWYFOa?dl=0 (accessed 8 June 2023).
[395] Reisdorf 2020, 65.
[396] Interview C, 1:09:38-1:10:55.
[397] Ibid., 54:33-55:41.
[398] Gripp/Reisdorf 2021.
[399] The Third Room, *Stone Techno Series - Orthorhombic EP*, *Bandcamp*, 8 October 2021, https://thethirdroom.bandcamp.com/album/stone-techno-series-orthorhombic-ep (accessed 8 June 2023).
[400] Gripp/Reisdorf 2021.
[401] Thomann Synthesizers: *Challenge. Be part of T3R's Vinyl Release ft. Rødåd, FJAAK, Efdemin, Oscar Mulero & More | Thomann*, *YouTube*, 25 December 2020, https://youtu.be/8-PkvPExkaQ (accessed 8 June 2023).

showcasing the sound potentials of the promoted sample library. Moreover, the video is accompanied by a track from a previous *Stone Techno* release, Efdemin's *Steinbeisser*.

These songs can then be played at events, accompanied by a light show to illustrate the play of light and colours of the mineral at hand. Public performances could at the same time garner a new audience for scientific topics and promote the Ruhr Museum whilst the record series allowed buyers to build up their own collection of minerals.[402] Until now, this series has seen 6 releases. The first 4 were EPs with 4 tracks each. These were then combined into the *Stone Techno Series 2021 Bundle* that was released by the end of that year. Then, the label appears to have skipped right to bundling 16 tracks for the 2022 release.[403] This one differs from previous records in that it is based on a new sound library. It was recorded in the old mine shaft at Zollverein, about 1000 meters underground, and is thus also a document of conditions that would otherwise be lost when the shaft is eventually backfilled. This time, renowned electronic music producer Matthew Herbert was in charge of the sound library.[404]

In contrast to *Reverberations of Stone*, the sound aesthetic of this series is very perceptibly techno. In this regard, an oversimplified yet illustrative classification by Fales can be of help. She acknowledges ambiguity but claims that techno had become an umbrella term for electronic dance music whilst non-dance music was mostly ambient.[405] The first EP *Hexagonal*[406] for instance starts off with *Steinbeisser* by Efdemin, a title that bridges the gap between the previous release and this series. Initially, the song resembles the ambient titles from *Reverberations of Stone* since it appears to use rather arbitrarily nothing but samples, mostly percussive ones, with a bit drone in the background. However, this initial shape changes at around 0:42 when percussive elements start becoming more regular. Around 20 seconds later, this impression intensifies due to a perceptible emphasis on every beat and keeps intensifying due to a hi hat type sound at 1:28 and then a dominant bass setting at around 2:15. At this point, the track is very techno-like whilst maintaining the erratic stone samples that characterised the beginning. The other tracks on the EP are much more obviously techno. They are all dominated by a motoric four-on-the-floor beat with a very heavy bass drum and bass. The high focus on this

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[402] Reisdorf 2020, 65.

[403] The Third Room, *Bandcamp*, https://thethirdroom.bandcamp.com/ (accessed 7 June 2023).

[404] The Third Room, *Stone Techno Series 2022 - Triclinic*, *Bandcamp*, 1 July 2022, https://thethirdroom.bandcamp.com/album/stone-techno-series-2022-triclinic (accessed 8 June 2023).

[405] Fales 2005, 160.

[406] The Third Room, *Stone Techno Series - Hexagonal EP*, *Bandcamp*, 2 July 2021, https://thethirdroom.bandcamp.com/album/stone-techno-series-hexagonal-ep (accessed 8 June 2023).

steady rhythm is complemented by very reduced melodics and harmonics, occupied by the mineral recordings, as well as occasional voice samples.

A video published by ARTE Concert[407] encapsulates the aspiration to combine the production and performance of techno with the Ruhr Museum and its collections. At its core, it is an immense concert film featuring Colin Benders, Jamaica Suk, Rødhåd & Vril, Nene H, and Oscar Mulero who each played a set of roughly 60 minutes for a total length of more than 5 hours. All of them appeared on the first 4 EPs of the *Mineralien-Museum* record series. In terms of sound, there is a continuous soundtrack of exclusively the music performed from the very beginning until the very end of the video. The initial performance by Colin Benders gives an impression of the individual sets. They are mostly techno with ambient passages, such as in the very beginning. Here, Benders does not resort to more seemingly arbitrary sound patterns but builds on an arpeggio and a strongly echoing, reverberating pad synthesizer sound. Both keep fading in and out, greatly altered, without percussion. A steady beat is introduced at around 0:57 when a bass starts playing and then around 3:08 a bass drum. Both remain in the background however and fade out again. Continuously, the rhythm section becomes heavier and steadier, with occasional techno passages being discernible. At the latest at 16:48, there is a heavy four-on-the-floor type beat dominated by the bass drum. Benders performs on a large modular synthesizer, so he constantly modifies the parameters of his music. The transition from his performance to Jamaica Suk's is also more ambient, with reduced rhythmic aspects. The two sets blend into each other without a break. Audibly, the moment of transition is vaguely perceptible at 1:01:01 whilst visually, it is much clearer. Benders performed in the former coal washing plant, to be precise in the corridor leading from the entrance hall to the stairs and the lift. At the end of his set, the camera moves away from him and turns into the dark. Then, the video shows drone footage of the outside of the Zollverein complex, first the coking plant and then the visible storage in the former salt factory. That is where the remaining 4 performances took place.

To expand on the visuals, the video begins and ends with similar drone shots of the museum's main site, the coal washing plant next to the winding tower of shaft 12. Some overlaying text gives basic information. Details about *Stone Techno*, such as title, the artists' names and the name of location are not just superimposed on the footage. Instead, during a single drone flight (0:10-0:30) through the winding tower and around the museum the text is edited to somewhat

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[407] ARTE Concert: *StoneTechnoXZollverein - Oscar Mulero Rødhåd Nene H Colin Benders Jamaica Suk & Vril – ARTE Concert*, *YouTube*, 20 August 2021, https://youtu.be/Nw18eVEIoQ0 (accessed 9 June 2023).

evoke the impression of integrating with the architecture, thus visually bringing the project and the space together. Bender's performance mostly shows him and his modular synthesizer amidst the surrounding industrial space, machinery in particular, which is thus treated like an artefact. For example, at 37:00 there is a shot of a switch board being semi-transparently overlaid onto him performing, thus visually merging the museum artefacts and the music. These shots are found regularly. The same is the case for stroboscopic lights flickering and changing colours around him, for instance around 17:25. The other sets, all set in the new visible storage, instead address the artefacts on display there. A short sequence during Rødhåd & Vril between 2:11:50 and 2:12:00 first shows the two amidst shelves of exhibits, with light effects surrounding them. The video then cuts to a closeup of a mineral that reflects these first swelling, then diminishing lights to expose a variety of visual facets that might be lost with conventional lighting. Interview B hails the production of this video in particular for revealing new perspectives on artefacts in the new visible storage.[408] Interview C meanwhile explains that they had guided the production of this video. Visual aspects were dominant because the visible storage was all about the exhibits within. This had made a very elaborate pre-production necessary, with the majority of close-up shots having been filmed beforehand. C had also influenced the choice of lights and suggested spots to film whilst the actual filming techniques were done by the producers Klangmalerei.tv.[409] In the meantime, the visible storage has been used for yet another musical project. Edwin Rosen, a German post-punk musician, performed several songs on site, including a cover of *Nur ein Wort* by Wir sind Helden.[410] The clip is a much more conventional music video. He is also shown surrounded by shelves of exhibits, but without close-ups or other filming techniques. The music does not have a direct link to the museum either.[411] In a behind-the-scenes video, a representative of the Zollverein foundation and a curator for art-related matters explain that this cooperation was mostly about presenting Zollverein as a vivid site open to both visitors and artists. Rosen emphasises that he valued the multidimensional art, as evidenced by the contrast between his music and the artefacts.[412]

Meanwhile, *Stone Techno* has branched out from these two release strategies. Firstly, there was a cooperation with the Institute of Musicology at the University of Cologne which amongst

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[408] Interview B, 1:14:05-1:14:41.
[409] Interview C, 1:36:18-1:37:30.
[410] DIFFUS: *Edwin Rosen - Nur Ein Wort (Live at Zollverein Essen - Wir Sind Helden Cover) | DIFFUS*, *YouTube*, 8 July 2022, https://youtu.be/YLP9fc96aSc (accessed 9 July 2023).
[411] Admittedly, the tracks played for the expansive ARTE production were not strictly *Stone Techno* either.
[412] 0:15-2:46, DIFFUS: Behind the Scenes - ReBoot Culture (Edwin Rosen & ART Live at Zollverein) | DIFFUS, *YouTube*, 9 July 2022, https://youtu.be/nu9t4MdMTKM (accessed 9 July 2023).

other things materialised in a lecture as part of the event series *Raum-Musik*.[413] Secondly, *Stone Techno* is used as a means of promotion and identification for the Ruhr Museum. During the opening ceremony for the visible storage two of the songs are used. Regrettably, the recording of the stream is no longer publicly available. After a brief part that only displays a welcome message giving some basic information, the recorded ceremony begins with *Steinbeisser* by Efdemin, earlier described to manage the balancing act between the ambient and the techno side of *Stone Techno*. It starts some time into the track with the hi hat already audible and then plays for almost 3 minutes when it fades out before having come to an end. The song is accompanied by an animation of the first EP's cover which has the mineral rotate to show different facets and light reflections. Additionally, there are some zoomed in sections and a range of visual artefacts like screen tear and blurry edges. In the conference hall, this video is presented on a big screen. The stream also shows shots of the hall with the video playing but for the most part has the animation in full screen. At around 3:06, the presenter takes over and encourages the audience to applaud, which hesitantly does. Then there is a cut, hampering estimation. Still, the hesitation indicates a clash of expectations, either in terms of music or behaviour. At 46:11 a second section about *Stone Techno* begins. The presenter gives an introduction about how the project came to be and what it is about. The second track, Ahmet Sisman's *Behind Concrete*, is also from the first EP. The presentation is basically the same as the first one, just that the animation is of the mineral from the second EP's cover. The remainder of the conference is speeches delivered by the chairman of the Zollverein foundation, politicians and office holders as well as the Ruhr Museum's director, with transitions by the presenter.

The third and now probably most prominent aspect of *Stone Techno* is a festival taking place at the Zollverein site. The first iteration of it occured on the 9th and 10th of July 2022. Interview C explains that there were two major motivations to organise a festival of this sort. Firstly, festival concepts allowed for intellectual thinking and an appreciation of art to be combined. Secondly, the potentially large number of guests was ideal for outreach work, such as the combination of music and minerals here.[414] C states that they were aware such a task could only succeed when cooperating with the local scene. It was furthermore a principal concern to create something that the locals could identify with, in contrast to a more international and thus anonymous scene in Berlin for instance.[415] Subsequently, the organisers teamed up with the local label The Third

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[413] *Raum-Musik. Dr. Achim G. Reisdorf & Ahmet Sisman*, https://musikwissenschaft.phil-fak.uni-koeln.de/veranstaltungen-und-aktuelles/veranstaltungen/raum-musik (accessed 11 June 2023).
[414] Interview C, 31:57-32:12 & 32:27-32:36.
[415] They understand identification in several layers, i.e. for Zollverein, Essen, and the Ruhr area, Interview C, 52:20-52:29 & 1:06:01-1:06:37.

Room, T3R for short. It is run by DJ and producer Ahmet Sisman who played a central role for the musical side of *Stone Techno*. According to an introduction on its Bandcamp page, his label got the name from the eponymous philosophy by Homi K. Bhabha which is about a space of different cultures co-existing and then intermingling. This idea is then applied to music, in terms of both styles and communities,[416] meaning that integration and access play a central role for the label, too. Moreover, the label had already organised techno events on the Zollverein site, specifically the former mixing plant. Despite challenging conditions, the site had tremendous charm that appealed to people both from the region and even from abroad. Sisman compares the Ruhr area in terms of history and meaning to Detroit, techno's place of origin.[417] Also interview C stresses that Zollverein was an obvious choice for techno and industrial events.[418]

There was broad coverage for the festival. Established magazine GROOVE informed about it taking place several months beforehand. The text does not mention *Stone Techno*'s aspiration but goes into detail about Zollverein's mining history. The author draws up a connection due to the Ruhr area's successful transition from industrial to cultural centre. Apart from a photo of DJ Héctor Oaks, the article only has the festival's official promotional poster embedded which uses minerals as its background.[419] In an interview, the festival's art direction, i.e. Reisdorf as well as artist and designer Jan Petry, talked mostly about the artwork advertising the first festival iteration. They based their design on a prominent twin crystal from the collection to establish a local connection. Then, Petry modelled the mineral to be scientifically accurate in 3D software whilst he took some artistic liberties in terms of texturing to make the result seem closer to techno. The final result then relates both to its source of inspiration as a carrier of knowledge and to the project as means of promotion and identification.[420]

The festival was again captured and made public by ARTE Concert for which also the Ruhr Museum advertises.[421] Drückler claims the performance by Patrick Mason to have been a highlight of the festival.[422] The corresponding video[423] is very similar to the earlier one by

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[416] The Third Room, *Bandcamp*, https://thethirdroom.bandcamp.com/ (accessed 7 June 2023).

[417] 1:37-2:47, The Third Room, *The Third Room – Behind the scenes*, *YouTube*, 28 May 2020, https://youtu.be/NfKnhVPZDXY (accessed 9 June 2023).

[418] Interview C, 1:12:04-1:12:12.

[419] Kanis 2022.

[420] The interview contains additional information regarding the artwork in particular, *Stone Techno Festival 2022. Kurzinterview mit der Art Direction*, interview with Petry, Jan and Reisdorf, Achim by the editors, *GROOVE*, 8 July 2022, https://groove.de/2022/07/08/stone-techno-festival-2022/ (accessed 9 June 2023).

[421] @ruhrmuseum, *Twitter*, 22 July 2022, https://twitter.com/ruhrmuseum/status/1550512220919971840?s=20 (accessed 10 June 2023).

[422] Drückler 2022.

[423] ARTE Concert: *Patrick Mason – Stone Techno 2022 - @ARTE Concert*, *YouTube*, 24 July 2022, https://youtu.be/PJt5IdO8h3I (accessed 10 June 2023).

ARTE set in the visible storage. It also opens with an establishing drone shot of the coking plant and other bits of the Zollverein site. Apart from that, the visuals are very focussed on Mason's performance and the audience. The inconspicuous stage that is fully surrounded by ravers gives the impression of integration into the space. Musically, his set is techno in a wider sense and aims at being very danceable. For the most part, it is a steady four-on-the-floor beat that is only occasionally scaled back to improve the effect of its re-emergence. One of these moments, with Mason climbing onto the desk at 1:40:20, is particularly noted by Drückler. He generally pays special attention to more light-hearted aspects of the performance, even juxtaposing Mason with the remaining 'serious' artists. Further examples are the almost campy track selection, including an edit of the *Space Jam* theme, as well as the DJ's exuberant personality and his dancing, all leading to an ecstatic result.[424] Drückler's verdict of Patrick Mason, even picked up almost a year later by Hartmann in the same magazine for the festival's second iteration,[425] is quite telling. KiNK's set of similar length was treated in only a few sentences, even though he appeared on the 2022 The Third Room release and played his contribution live.[426] The original idea of *Stone Techno* was to combine music with science and the museum, an arguably serious aspiration. Here however, the authors emphasise a performance that is explicitly unserious. Moreover, the two articles do not mention the original aspiration. On the other hand, these are just two examples from the same magazine, so this perception cannot be generalised. Likewise, the recording of Mason's performance might have more views than KiNK's but significantly less than others, with KI/KI's having almost triple despite similar lengths.[427] This again implies that the allegedly unserious side is not the primary association with the event.

Drückler also goes into detail about the festival's role for the Ruhr area's music culture, in particular regarding clubs and nightlife. The regional electronic music scene had been suffering from lacking political support, fragmentation, and the trauma from the Love Parade catastrophe in 2010. The *Stone Techno* festival however had revealed great potential for techno music in the area, showing promise for vital youth culture. After all, the ravers were tomorrow's museum guests. In addition, Drückler's rave review constantly builds links between the festival and the Zollverein site, concluding that *Stone Techno* successfully intertwined the Ruhr area's historical and industrial identity with techno and club culture.[428] A photo story by English/Chinese

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[424] Drückler 2022.

[425] Hartmann 2023.

[426] *Pots and Pans*, played around 55:00, ARTE Concert: *KiNK – Stone Techno 2022 - @ARTE Concert*, *YouTube*, 26 July 2022, https://youtu.be/cmGySEYDMMQ (accessed 10 June 2023).

[427] 172k vs. 492k as of the 10th of June 2023, ARTE Concert: *KI/KI – Stone Techno 2022 - @ARTE Concert*, *YouTube*, 23 July 2022, https://youtu.be/5j8cbL2Vouk (accessed 10 June 2023).

[428] 'Ein Event, das die historische Identität und Industriekultur des Ruhrgebiets mit Techno und Clubkultur verwob, ohne bei einer dieser Komponenten Abstriche machen zu müssen', Drückler 2022.

magazine KEYI establishes connections between the festival and the former heavy industry in the form of the site's architecture.[429] The participating artists express similar sentiments in a video concluding the event.[430] In interview snippets, several musicians praise the location for its aesthetics and suitability for techno. However, they also state that they got a feeling for the history and that they were amazed by the sound samples. The label undergirds the association with the mining history by putting corresponding archive footage at the end of the video (after 3:42). Interview C acknowledges that the World Heritage site Zollverein had certainly played a significant role for attracting visitors.[431] Interview B expresses joy about the festival bringing in a new audience. At the same time, they felt that the festival was somewhat disconnected from the museum and its collections. Parallel to this, B is of the opinion that events should only be used to boost a museum's appeal as long as they were related to exhibitions.[432]

Despite criticisms of the project's original aspiration lacking presence, the organising side, as indicated by C, expresses great satisfaction with the festival. They particularly laud the lineup, at its core artists who had contributed productions to *Stone Techno*, and give prominence to the organisation and communication done by Sisman and The Third Room.[433] After all, the goal was to gain outreach and get people to visit the site which is intertwined with the museum. As such, the interest in the architecture and the history of Zollverein indirectly included curiosity for topics that the Ruhr Museum addresses. Additionally, the mobile information unit by Wissenschaft im Dialog, a non-profit organisation active in research communication, had been present on site, informing curious visitors about the energy system transformation. It is unknown how effective these efforts proved to be. C however was satisfied with the number of attendees, estimating about 5,000 to 6,000. Even though the festival had been conceptualised to accommodate 6,000 to 10,000, it had still been a remarkable result for a first iteration, not least because of established festivals and events taking place simultaneously.[434] Considering these numbers, it appears more than likely that at least some goals of conveying information or sparking interest were met. The upcoming second festival is advertised by the Ruhr Museum with reference to not only the industrial site, but also the blend of music with workings of the museum and research. At the very least for this year's iteration, the festival ticket could be used

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[429] *#BEST-FESTIVALS. Vivid insight into recent STONE TECHNO FESTIVAL 2022 by The Third Room in Essen, Germany with photo report by Keyi Studio*, *KEYI*, 28 July 2022, https://www.keyimagazine.com/2022/07/28/stone-techno-festival-photo-reportage/ (accessed 10 June 2023).
[430] The Third Room: *Stone Techno Festival 2022 (Aftermovie)*, *YouTube*, 10 August 2022, https://youtu.be/7WAGmbzBogA (accessed 10 June 2023).
[431] Interview C, 1:19:59-1:20:05.
[432] Interview B, 31:46-32:14, 1:13:24-1:13:54 & 1:14:05-1:14:41.
[433] Interview C, 1:04:45-1:05:04 & 1:16:30-1:17:02.
[434] Ibid., 1:04:07-1:04:31 & 1:27:06-1:27:48.

for free entry to the museum, indicating a stronger focus on the informational side.[435] All in all, the *Stone Techno* festival is thus very much an example of sound as crowd curation and sound as art, even if it pushes the frame of the museum context to its very limit.

15. Structural conditions and individual decisions

The examination of the visible storage, the exhibition *Eine Klasse für sich*, and *Stone Techno* have shown different approaches in terms of employing sound. Whilst the cultural history division of the museum, most evident in the exhibition and the accompanying programme, are careful regarding sound and for the most part use it for lecturing, the natural history division, represented by geologists in this case, have proven more adventurous. They generally appear to proceed from an understanding of sound as an object or at least integral parameter of their exhibits. B for instance explicitly states that they considered objects to be at the centre of every effort, regardless of them being material, sound, or olfactory.[436]

To get an idea of where this difference comes from and how sounds in the museum are thought of, I propose a brief look behind the scenes. At the Ruhr Museum, I was told to write exhibition labels in a way that they were comprehendible for everyone, regardless of background. 'Everyone' here was still limited to people who were both literate and could see well enough. Others were not excluded but in the hands of the department of education and communication instead of the curators'. Due to this systemic division, the audio alternatives were of less concern to those curating the exhibitions. It is only natural that such means would then disappear from view. In this, I am not implying a lack of audio or multisensory design (on what basis?) but merely intend to point out how structural conditions can impact the individuals within. The persons I had the pleasure to interview revealed some insights into their histories, convictions, and some structural conditions surrounding them which, I reckon, are too significant to go without.

The structures of the cultural and natural history divisions appear similar enough. Both are part of the Ruhr Museum which considers them to be its cornerstones. A, part of the former, as well as B, part of the latter, state there was a separation between curators and educators which B attributes to the museum's focus on objects or artefacts.[437] Thus, the education division had

[435] *Stone Techno Festival 2023*, *Ruhr Museum*, https://ruhrmuseum.de/detail-aktuelles/stone-techno-festival-2023 (accessed 10 June 2023).
[436] Interview B, 22:32-23:28.
[437] Interview A, 56:55-57:59 & Interview B, 55:16-56:08.

little say in the material examined here. According to A however, there were many other parties that curators needed to coordinate with, such as the director, the curators, PR, designers, the photographers, and the visitors' service. A adds that conflicts of interest between curators and designers could easily arise because both wanted to implement their own concepts.[438] Thus, exhibition design is not just the result of the curator's intentions. A change was reported by A and B, according to whom the previous director Borsdorf gave curators more liberties whilst nowadays, director Grütter masterminded exhibition concepts.[439] This factor has limited explanatory power though since Grütter has been head of the Ruhr Museum for most of its existence and backed both the design and implementation of the visible storage, *Eine Klasse für sich*, as well as *Stone Techno*.

Still, these projects show considerable differences regarding methodology which is why individuals involved with the concepts need to enter the spotlights. A, a historian, was part of organising the nobility exhibition. They start their work from the premise that an exhibition's hypothesis or statement needed to be illustrated visually and aesthetically, with artefacts. A recognises that there was a development in their career because early on, they had overvalued specialised knowledge. In addition, A realised that less was more, meaning that a stronger selection was preferable as long as those fewer artefacts could each represent multiple perspectives of the information delivered. Lastly, A acknowledges that visitors could just as well enjoy exhibitions as purely aesthetic sites.[440] A clearly understands the experiential power that artefacts can hold as well as the need to meet certain visitor's expectations. They proceed from an understanding that is rooted in visuality and very much tie the artefacts to the exhibition narrative. Historians focussing so much on materiality might be explained with their education. An established methodological introduction by Brandt[441] goes into detail regarding historical sources. He refers to Kirn's definition of sources being texts, objects, or facts that allow for knowledge of the past to be gained. Even though facts are immaterial, and Brandt later on outlines oral traditions like songs or tales to have potential for historiography, the vast majority of examples are of material nature. All chapters dedicated to auxiliary sciences of history regarding sources deal with material remnants of the past, such as writing, documents, crests, seals, or coins.[442]

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[438] Interview A, 1:12:12-1:12:39 & 1:20:13-1:21:16.
[439] Interview A, 28:06-28:14 & Interview B, 1:06:24-1:06:39.
[440] Interview A, 4:57-5:41, 11:33-11:53 & 23:47-23:56.
[441] Brandt's *Werkzeug des Historikers* was first published in 1958. Until 2012 there had been 18 editions.
[442] Brandt 2012, 48 & 54 as well as chapters III 2, 3, 4, 5, and 6.

B and C on the other hand, both representing the natural history and science side of the museum, show different fundamental assumptions. C for instance was driven by the motivation to bring together intellectual information with the arts. Thus, they felt fascinated with the Ruhr Museum being not only involved with natural and cultural history but interlinking the two. After all, the permanent exhibition about the Ruhr area was multisensory, utilising also sounds and smells.[443] B refers to the museum working in several fields, too, inferring that their work had been influenced by that circumstance. Outlining the conditions for working with multiple senses and experiences, B cites their personal passion for the sciences as well as interest in art and their curiosity about the perception of others as a basis for their work. They add that already as a child, they had been fascinated by stones and tried to perceive them in every way they could. These personal impression had meant that objects in the widest sense were at the heart of their work.[444] C expresses similar sentiments. They had been shaped by their upbringing in a mining region where they collected stones and rocks. A relative working in the mining industry had supported the interest which had been further kindled through holidays. Moreover, C gives an impressive account of their passion for music, in particular demanding kinds of music that required active involvement. They name the band Napalm Death as a milestone in terms of being exposed to sounds requiring getting used to. Their former drummer Mick Harris had then piqued interest for electronic music.[445] On this basis, C became curious about the sonification of scientific data. In particular, they wanted to represent sea-level curves, i.e. the sea levels's history of changes. Since geology and music were time-based, the idea was to imitate the sound of the sea and then adjust the volume of the noise depending on the historical progression at one place.[446] Jonathan Coleclough, a British musician produced the result of these efforts, a 4-hour album called *Sea Change*.[447]

B concludes that they had implemented multisensory approaches for over 20 years but were still surprised that even recently, these ideas were treated as novel. In turn, they admit that their more innovative work required coming into conflict with the convictions of colleagues.[448] A possible explanation for B and C being that curious about multisensory approaches could be the fact that in geology, it is a common procedure when determining rocks to not only look at

[443] Interview C, 31:57-32:12 & 42:21-42:45.
[444] Interview B, 2:17-2:58, 19:47-20:08, 22:32-23:28 & 25:14-26:02.
[445] Interview C, 2:55-3:17, 3:35-4:17, 5:23-5:51 & 6:41-7:51.
[446] Ibid., 9:47-10:05, 11:43-11:54, 13:00-13:38 & 28:28-28:32.
[447] Jonathan Coleclough, *Sea Change*, *Bandcamp*, 29 April 2020, https://jonathan-coleclough.bandcamp.com/album/sea-change (accessed 11 June 2023).
[448] Interview B, 1:33-2:12 & 45:38-46:04.

them, but to also touch, smell, and even taste them.[449] Ultimately though, both A and B state explicit limits regarding the use of sound, namely permanent installations.[450]

16. Conclusion

Representing a rather novel academic field, this examination has been an attempt to conduct research on sounds in the museum, specifically using the Ruhr Museum in Essen as an example. A diverse body of literature provided a theoretical basis. Museums had for the longest time been governed by visual approaches when neuroscience could discern that human perception was multisensory by default. Other societal and intellectual shifts had led to more performative understandings of the world which was another reason that multisensory approaches gained in importance. Hence, sounds increasingly found their way into museums, not least due to their potentials to both impart knowledge and create experiences. Still, there were some concerns with regard to implementing sounds. For instance, it was feared that they evoked unpredictable emotional reactions, posed a danger to the exhibits, or overloaded an exhibition's soundscape. A piece of research that deserves special mention is a system describing different functions of museum sounds drafted by Cortez[451] as it formed a conceptual backbone. Specifically, her classification of sound as lecturing, artefact, ambiance/soundtrack, art, or sound curation was then applied to the manifold examples taken from the museum's context. Even though curator-sided practices were undoubtedly the main focal point, visitors and the architecture were complementarily included. Sound has thus not stood just for itself but was regarded in relation to other aspects of the museum, particularly its collections but also visual aesthetics. This procedure has also been a result of the material at hand, often videos or audio related to artefacts.

In a leaflet, the Ruhr Museum presents itself to offer an experience for different senses; sound in particular is advertised on the cover. However, the house rules imply, quite naturally, that efforts are much more about conservation and protection. In fact, the visible storage reveals more collection-focussed orientation compared to a similar installation in Graz which has stronger visitor-focussed policies. The exhibition *Eine Klasse für sich* goes into a similar direction. Like the storage, it is centred around a material collection that is primarily presented visually. However, this approach also allows for an aesthetic and experiential visit. In that regard, the research literature proved somewhat lacklustre since it usually emphasised these

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[449] Ibid., 27:21-28:31.
[450] Interview A, 1:27:14-1:28:14 & Interview B, 1:15:15-1:17:27.
[451] Cortez 2022.

qualities for multisensory means. For both the visible storage and the exhibition, there were various sources of sound which generally employed it as lecturing. More varied uses of sound, e.g. as art, were most apparent in promotional videos which were produced due to pandemic-related uncertainties. Whilst the visible storage in itself is a step towards granting more access, the highest degrees of access and integration were found in the accompanying programmes, even though Young et al. consider exhibitions to be the most central means of communication between a museum and audience.[452] A soundwalking report of the museum's main site indicated that its soundscape was simply quiet, in part by design and in part by behavioural norms. Sounds that did occur were mostly tied to visitors. This layer of sound is both inevitable, as museums are public, and the most obvious example for ouïr, i.e. passively perceiving without further involvement, in terms of Chion's listening modes. The vast majority of other sounds are designed for the mode comprendre, so attempting to understand the code.

These examples were more closely tied to the cultural history side of the museum, whilst the natural history one came up with very different ways to employ sounds. Here, the starting point was *The Sound of Stones*, an exhibition centred around an experimentation room that permitted visitors to create sounds themselves to experience both the sound potentials of stones and the soundscape of geological events. This room stretches Cortez' concept since she describes sound as crowd curation to be tied to the internet. The idea of these sounds as objects was then used for a sample library to start the *Stone Techno* project. Especially its first iteration, an ambient album called *Reverberations of Stone*, builds on qualities from the exhibits. These are made available to a larger public with recordings, alongside additional information about the pieces. The festival, stretching the museum as a concept, seems to be largely perceived as an event.

Thus, the Ruhr Museum makes use of highly varied methods regarding sound. In the assessed exhibition as well as the visible storage, it is mainly used as lecturing, occasionally as art and object, whilst the soundscape is reduced. In *The Sound of Stones*, sound is mainly used as an object whilst *Stone Techno* uses it as art, crowd curation, and object. As such, the Ruhr Museum strikes a balance between different approaches and thus meets different expectations. After all, museums are commonly seen as spaces for quiet contemplation, not least by professionals. In an attempt to explain the considerable differences with regard to employing sounds, I pointed to a separation of cultural and natural history in terms of staff, i.e. their individual backgrounds and notions. A, a historian, revealed an understanding rooted in materiality and visuality which I tried to attribute to corresponding tendencies in history. B and C on the other hand, both

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[452] Especially permanent exhibitions leaned towards inertia though, Young et al. 2015, 403.

involved with geology and science, exhibit more open views on objects and their qualities. Here, I established a connection to geological methods to determine rocks and minerals, including touching, smelling, and tasting them. The most important takeaway in this context, I suppose, is that when examining an institution of this sort, the results highly depend on the individuals filling the structural frame. Hence, these individuals need to be taken into account in order to understand why certain choices were made, e.g. regarding sound. Another structural separation at the Ruhr Museum was apparent between curators and educators. It extended to integration and accessibility despite acknowledging the importance of these.

This study has revealed several potential fields of research which would be needed to arrive at more generally pertaining conditions. Most importantly, it was not feasible here to employ quantitative approaches regarding the audience's perspective on methods, be they conventional or more innovative. In addition, it could be insightful to assess longer term effects, maybe benefits, of utilising sound-based approaches. Other factors that remained largely unconsidered were the space or architecture as well as technology. The latter can reveal implications about the relation of visitors amongst each other and to the space. For example, headphones cause a partition to the environment whilst advanced solutions that play sounds depending on a person's position in a space resemble the conventional dynamic of knowledge bound to labels, just using a different sense. Lastly, a similar approach can be applied to other museums. All in all, I cannot help but notice that so much involvement with allegedly innovative versus conventional means has resulted in this study, which remains all too conventional in form. Old habits die hard.

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18. Appendix

Again, I must express my immense gratitude to the interviewees for having allowed me to record the interviews. It has proved a tremendous help.

18.1. Interview A

Conducted on the 16th of May 2022.

4:57-5:41	A: Am Anfang ist es vielleicht eher so, dass man relativ viel Fachwissen auch in die Ausstellung packt. DH: Mmh. A: Und mit zunehmenden Erfahrungen würd ich sagen, wird immer wichtiger (.), dass eben (.) öhm, ja, die Objekte gut ausgewählt sind. DH: Ok. A: Die sowohl ästhetisch, öhm, nen Anreiz bieten die Ausstellung zu besuchen. DH: Mmh. A: Aber auch die dann inhaltlich die Sachen rüberbringen können, ne? DH: Ja. A: Und, öhm, ja, je länger ich's mache desto öfter denk ich auch weniger ist mehr. DH: Ja. A: Also dass man sich konzentriert auf bestimmte Stücke, die dann auch, ähm, multiperspektivisch sind, ne?
11:33-11:53	A: […] als Kuratoren musst du dir ja immer überlegen, wie bringst du das visuell rüber, was du sagen möchtest, ne? DH: Ja. A: Du kannst ne noch so tolle These haben, aber wenn die nicht auch ästhetisch und visuell anschaulich machen kannst, dann (.) dann wird's schwierig ne Ausstellung zu machen, ne?
15:24-16:49	A: Also wir haben jetzt zum Beispiel ne große Dauerausstellung, aber man möchte ja bestimmte Aspekte unter Umständen vertiefen. DH: Mmh. A: Dazu macht man dann ne Sonderausstellung, oder man konnte bestimmte Themen nicht unterbringen, DH: Mmh. A: ähh, in der Dauerausstellung, dann macht man auch eine. Oder es ist (.) es gibt ja viele Ausstellungen, die macht man, weil weil irgendein Jahrestag ist, DH: Ja. A: ein Jubiläum, oder weil halt politisch aktuell irgendwas ist, was uns jetzt in der Gesellschaft bewegt. DH: Ok. A: Öhm, dann würd man ja auch eine Ausstellung machen. DH: Also es gibt ne ganze Reihe von Faktoren, die bestimmen, ob jetzt da (..) (A gleichzeitig: wann welche Ausstellung) Interesse oder Notwendigkeit besteht. A: Ja, genau.

	DH: Also einfach, um Lücken zu schließen, um das Thema weiter aufzuarbeiten, was man sowieso schon als Thema hat A: Mmh. DH: oder einfach, um zu sagen, das ist zurzeit wichtig und deswegen beschäftigen wir uns damit. A: Ja, oder da, genau. So, oder oder es hat noch nie jemand gemacht, ne? DH: Ach so. A: Ne? Also jetzt bei beim Adel, bei der Adelsausstellung, da gab's ja jetzt kein'n historischen (.) öh, kein historisches Ereignis, wo man sagt: so, jetzt, öhm, 2021 müssen wir das unbedingt machen, ne? Es gibt kein Jubiläum oder so. Aber es war klar, dass es noch nie ne Ausstellung zum Adel so als Gesamtüberblick gegeben hat (.) und dann bot sich das natürlich an. DH: Mmh.
18:28- 18:46	A: […] ich find wichtig, wenn man ne Ausstellung macht, dass man, ähm, so, öhm, im Bilde ist, was grad für Debatten laufen, ne? DH: Ok. Ja. A: Ob man die aufnehmen kann und wenn ja, (räuspern) wie man sie aufnehmen kann. Das finde ich schon wichtig, dass man jetzt nicht so en abgekapseltes Thema hat […]
19:03- 20:03	A: Oder eben, dass man auch Fragen anregt, ne? DH: Ja. A: Also, ich hab ja, wir gucken ja immer wieder ins Besucherbuch. Da sieht man dann auch, dass die einen halt (.) jetzt in dem Fall mit der Adelsausstellung das interessant finden, weil sie gar nicht gedacht haben, dass so viel Adel existiert. Es gibt aber auch ganz kritische Stimmen, die sagen, öhm, dass wir halt öhm (..) ja, dass den Adel als Klasse gar nicht mehr gibt (laughs) DH: Ja. A: Und wieso wir denn so ne Ausstellung machen, ne? DH: Ok. A: Und die dieses Spektrum muss man ja irgendwie auch ansprechen. DH: Mmh. A: Von von bis, ne? DH: Ja. A: Und das versuchen wir natürlich dann auch, wenn es in der Ausstellung nicht so rüberkommt, mit mit Vorträgen oder mit Diskussionsveranstaltungen oder auch m mit dem Filmabend, den wir gemacht haben, das mer da, öhm, (.) ja, (.) im Prinzip noch mal an einzelnen Punkten in die Tiefe geht.
20:38- 20:55	A: Und und man hat natürlich auch sehr unterschiedliche Besucher, also das fängt ja schon, hm, im Schulalter an und dann eben, bis, ja, öhm, bis ins hohe Rentenalter. Und auch verschiedene Bildungsschichten und man muss ja eigentlich schon alle bedienen, ne? Das ist schon immer der Anspruch.
21:13- 21:30	A: Es kommen ja manche Besucher, die wollen einfach die Zeche sehen. DH: Ja. A: Und dann gucken sie, öhm, was findet grad statt DH: Mmh. A: und gehen sie in ne Ausstellung. Und die haben ja gar kein Vorwissen. DH: Mmh. A: Jetzt vom Ruhrgebiet oder so. Und die muss man schon auch ne (.) DH: Ja. A: besp, befriedigen im Prinzip

22:13-22:33	A: Also deswegen machen wir zum Beispiel auch diese App
	DH: Ja.
	A: Mit der man dann durch die Ausstellung laufen kann,
	DH: Ja.
	A: weil das ist ja jetzt, wenn man jetzt nicht so lange da drin bleiben möchte
	DH: Mmh.
	A: dann kann man sich, das sind öhm, also für jedes Kapitel ein Objekt,
	DH: Mmh.
	A: dann kann man sich nur diese Sachen angucken und würde trotzdem so nen Überblick bekommen.
23:47-23:56	A: Man kann die Ausstellung ja auch rein (.) äh, ästhetisch sich nur anschauen, ne?
	DH: Ja.
	A: Ohne ohne die ganzen Hintergründe.
25:20-27:29	A: Deswegen machen wir auch Ausstellungen zur vormodernen Geschichte
	DH: Ja.
	A: immer wieder. Damit eben jetzt, wo die Industrialisierung im Prinzip zu Ende ist, dass die früheren Schichten auch wieder ins Bewusstsein kommen, ne?
	[…]
	DH: euch ist auch daran gelegen, das etwas zu (.) oder einfach dieses Vorurteil vielleicht zu revidieren oder infrage zustellen
	A: Mmh.
	DH: oder zu erweitern, einfach zu zeigen, das ist eben nicht nur
	A überlappend: jaja, nicht nur das Vorurteil, sondern schon auch, dass man sagt, das war ne bestimmte Epoche jetzt eben.
	DH: Ja.
	A: Und (.) es gab ne Zeit vor der Industrialisierung und danach kommt auch wieder was, ne? Also diese, wir können ja als Museum nicht den Blick in die Zukunft wa, ähm, machen. Aber dass man schon sieht, durch diese Art, dass es eben, ähm, (..)weitergeht, ne?
	DH: Ja.
	A: Dass auch wieder ne andere Epoche kommt nach der Industrialisierung.
	DH: Also ihr versteht das so, einfach, die Dinge vielleicht etwas zu relativieren, indem ihr sagt: das ist es eine Epoche, die ist vielleicht heute für die Wahrnehmung prägend, aber es gab eben auch Epochen danach und es, oder es wird Epochen danach geben
	A: Mmh.
	DH: und es gab eben auch Epochen davor.
	A: Mmh.
	DH: Genau. Das betrachtet ihr dann auch nebeneinander, einfach.
	A: Mmh. Genau. (…) ja und natürlich auch ein Stück weit, ähm, das ist ja nicht einfach, dieser Transformationsprozess, ne?
	DH: Ja.
	A: wenn Arbeitsplätze verlorengehen und so. Dass man, ähm, das hängt ja schon ein bisschen damit zusammen, dass der, ähm, Region so ne gewisse Identität, ähm, dadurch ermöglicht wird, indem man eben auch Schichten, die lange verdeckt waren, wieder aufdeckt, ne?
28:06-28:14	A: Also das ist jetzt bei uns momentan schon so, dass der, äh, Museumsleiter,
	DH: Ja.
	A: die Themen so ein Stück weit vorgibt.

30:02- 30:46	A: Also deswegen kann man eben manchmal schwierigere Themen in Anführungszeichen machen, die jetzt vielleicht niemand fördert, wenn man dann bei ner nächsten Ausstellung die vielleicht voll finanziert kriegt, ne? Das ist schon auch wichtig für das Gesamtprogramm DH: Ok. A: von Ausstellungen. DH: Also das A: Dass sich das mischt. DH: Das heißt, ganz pragmatisch gesprochen, die Themenauswahl orientiert sich dann auch daran, dass man dann die entsprechend, die entsprechende Finanzierung überhaupt dafür bekommt? A: Ja, aber nicht nur. DH: Nicht nur. A: Zwischendurch kommt eben so ne Ausstellung, die vielleicht auch unbequem ist oder die, wo man halt weiß, da wird keiner finanzieren, aber das Thema ist wichtig.
31:30- 34:16	A: Das war jetzt, öhm, in erster Linie, dass es halt dazu noch keine Gesamt-, ähm, überblick DH: Mmh. A: gegeben hat. Also es gab ja mal ne Ausstellung im Archäologiemuseum, die betraf aber dann nur das Mittelalter, ne? DH: Ja. A: Die frühe Zeit, also das Hochmittelalter. Aber jetzt so ne Ausstellung, (.) wie wir's jetzt gemacht haben, vom Mittelalter bis heute, die gab's ähm noch nicht. Und öhm bei den vormodernen Themen ist's ja oft so, dass so Otto Normalverbraucher sag ich jetzt mal, gar nicht weiß, öhm, dass es zum Beispiel so viele Burgen und Schlösser hier gegeben hat, ne? DH: Ok. A: Also wir haben ja am Eingang die Karte, ne? DH: Mmh. A: Und immer, wenn man da anfängt, dann sind eigentlich alle erstaunt, selbst die, die hier wohnen, ne? […] A: Also zum Beispiel jetzt bei dieser Ausstellung war es erst mal so gedacht, dass man nur Mittelalter und Frühe Neuzeit macht. DH: Mmh. A: Wenn man jetzt sagt, aber die Leute interessiert doch eigentlich, das (.) ob's heute noch nen Adel gibt, wie der lebt, ähm (..) wie die heute ihr Geld verdienen. Und dann war das ziemlich schnell klar, dass wir das eben nicht nur auf so ähm die Vormoderne begrenzen, sondern bis heute weiterführen. DH: Mmh. Also ging es dann auch […] Also euch ging es dann auch darum, sozusagen einen Anknüpfungspunkt zu haben A: Ja. DH: für die Leute heutzutage. A: Ja genau. DH: Und das nicht nur in historischer Perspektive zu haben. A: Genau. DH: Ok. A: Weil da, man muss ja immer öhm fragen, warum sollen sich die Leute dafür interessieren, ne? DH: Mmh.

	A: Und das geht natürlich am ehesten immer, wenn man aus der Gegenwart rauskommt, ne?
38:35-39:01	A: Wir haben auch das Konzept, die Konzeptbroschüre gemacht DH: Mmh. A: und dann sind wir mit dieser Broschüre zu den Adeligen gegangen. DH: Mmh. A: Und die (.) zum Teil waren die am Anfang (.) schon skeptisch. DH: Ja. A: ob wir jetzt sehr (.) super kritisch mit den Adeligen umgehen. DH: Mmh. A: Aber nachdem sie das Konzept gelesen haben, waren sie eigentlich alle, (.) öhm (.), überzeugt und, öhm, haben auch mitgemacht, ne?
39:16-39:58	A: Also, aber das ist halt der Anspruch eines jeden Museums, dass er neutral die, ähm, das Thema rüberbringt. DH: Mmh. A: Und jetzt nicht eine Perspektive verfolgt. DH: Mmh (..) A: Das ist eigentlich die Aufgabe vom Museum, ne? DH: Du meinst, die Aufgabe ist es dann auch, die Dinge kritisch zu beleuchten? A: Kritisch, aber schon auch w.wissenschaftlich und eben (.)v eher neutral. Dass man nicht jetzt sagen kann, das ist jetzt politisch in die Richtung oder in die andere, ne? DH: Ok.
40:11-40:47	A: Wir haben ja zum Beispiel jetzt auch, öhm, (..) Nationalsozialismus thematisiert, ne? DH: Ja. A: Und, (..) da haben wir jetzt schon so Kompromisse gemacht, dass wir jetzt nicht bei dem jeweiligen, DH: Mmh. A: wo wir wissen da gibt's in der Familie jemanden, der den Nazis nahestand DH: Ja. A: Dass man von dem direkt die Objekte angefordert hat, ne? DH: Ok. A:Sondern wir konnten uns dann ja mit anderen Objekten helfen, DH: Ja. A: um das zu thematisieren und brauchten's nicht aus der eigenen Familie dann. (..) Also das Risiko wollten wir in dem Fall nicht eingehen, dass die uns dann gar nichts mehr geben, ne?
51:28-51:58	A: Oder jetzt bei unserer Vortragsreihe, da war ja zum Beispiel der (.) haben wir Vorträge gehabt und die letzte Veranstaltung war dann, ähm, die (.) Dis (.) also ne Gespräch zwischen dem Museumsleiter und nem Adeligen DH: Mmh. A: Und da merkt man zum Beispiel auch, dass es gut ist, dass wir's so gemacht haben. Da komm dann, äh, schon nochmal mehr Leute, weil so ein Adeliger zieht dann schon nochmal andere Leute an, ne? DH: Okay. A: Die sonst bei den anderen Vorträgen nicht unbedingt da waren.
52:16-52:52	A: Jetzt in dem Fall, weil Corona war, haben wir eben so nen Trailer gemacht. DH: Ja.

	A: Der ist natürlich, der ist (.) ist (.) ist ja schon nochmal Zusatzkosten, aber wir wussten ja nicht, ob wir die Eröffnung so machen können, wie wir sie schließlich machen konnten dann. Äh, deswegen haben wir den Trailer produziert und der ist glaub ich schon für viele so'n, öhm, (.) ja den konnten sie sich mal angucken und dann entscheiden, ob sie ins Museum gehen und DH: Ja. A: weil ja die Ausstellung ästhetisch auch sehr gelungen ist, glaub ich, dass das schon nochmal einige anzieht. DH: Mmh. A: Die dann, öhm, vielleicht so nicht gekommen wären, ne?
53:57-54:07	A: Und beim Trailer das, das hat ne Firma gemacht, ne? DH: Ja. Also auch ne externe Firma. A: Ja, ne externe. Also dafür hat man nicht das, äh, Personal.
56:55-57:59	A: Also die [Museumspädagogen, DH] sind, eigentlich können die von Anfang an mit in den Konzeptionssitzungen sein (…) öhm (..) die Frage ist immer (.), wenn die jetzt direkt an den Vitrinen Gestaltung oder (.) DH: Ja. A: Änderungen, ähm, oder Vorschläge haben DH: Mmh. A: das ist manchmal nicht so ganz einfach, ne? DH: Ok. Inwiefern ist das nicht ganz einfach? A: Ja, aber. Wenn's jetzt zum Beispiel sehr kindgerecht gemacht wird, DH: Ja. A: dann ist es halt öhm (..) ja, für die Kuratoren manchmal ein Problem, weil die natürlich ne wissenschaftliche Ausstellung machen möchten (lacht leise) DH: Ach so. Also das ist auch etwas dieser vermittelnde Aspekt, den du ansprachst, dass dann da eure euer wissenschaftlicher Anspruch auf diesen leichten, auf den Anspruch des leichten Zugangs trifft, sag ich mal. A: Ja. Aber man kann das natürlich schön, schon auch ausgleichen, indem man eben so Workshops macht.
58:19-58:37	A: Aber die hatten jetzt zum Beispiel nen Workshop zu, äh, Flechten von Kettenhemden und so. DH: Ja. (…) Also in diesen Workshops ist es dann auch möglich, die Dinge etwas (.) mit ganz vielen Sinnen zu erleben, A: Ja, genau.
1:12:12-1:12:39	A: Aber das ist schon auch, ähm, unter Umständen ne konfliktreiche Auseinandersetzung, ne? DH: Ja. Das kann ich mir gut vorstellen. A: Weil natürlich, öhm, ist ja auch wichtig, dass der Ausstellungsgestalter auch ein Konzept hat, ne? DH: Ja. A: Und jetzt nicht nur unsere Objekte, äh, um unsere Objekte rum Vitrinen baut, DH: Mmh. A: sondern das soll ja ästhetisch auch, ähm, ja, ähm, ne Einheitlichkeit haben.
1:20:13-1:21:16	A: Also da gibt's eben große Teamsitzungen zu bestimmten Phasen der Ausstellungs, DH: Ja. A: -vorbereitung oder DH: Und wer ist da alles involviert?

	A: Ja, die Kuratoren, dann is in der Regel, ähm, sind die, ähm, Museumspädagogen beteiligt, dann die Öffentlichkeitsarbeit, dann natürlich der Direktor, dann der Ausstellungsgestalter. Dann der, der andere Gestalter, öhm, der Besucherdienst (..) kommt auch dazu. […] A: Also ganz wichtig, ähm, ist natürlich der Fotograf auch noch, ne?
1:24:46- 1:26:00	A: Also wenn man jetzt, wie hier bei Adel, haben wir ja ne, äh, (.) ähm, ein eigenes, äh, Kapitel, wo Musik ne Rolle spielt. DH: Ja. A: Da bietet sich's natürlich an, ne? DH: Ja. A: Und dann, ähm, (..) besprechen wir das aber schon in der Runde, ob das jetzt an der Stelle Sinn macht, weil das hängt ja auch davon ab, wo, wo dieses Thema platziert ist im Raum, ne? DH: Mmh. A: Ob das zum Beispiel die anderen Ausstellungseinheiten sehr stark beeinträchtigt. DH: Ja. A: Muss man ja auch überlegen. (..) Weil jetzt zu Coronazeiten war das halt nicht so, öh, angesagt, dass man jetzt Sachen in die Hand nehmen kann, ne? DH: Ja. A: Sonst kann man ja mal hören, DH: Ja. A: Haben wir früher immer Kopfhörer genommen, aber jetzt zu Coronazeiten ist das eben nicht mehr so angesagt. DH: Ja. A: Und dann muss man schon genau überlegen, ob das eben stört oder nicht, ne? DH: Also, A: Bei den anderen Ausstellungseinheiten. DH: Ok, was meinst du, ob das stört? A: Ja, also, wenn, wenn ich in nem Raum bin, was weiß ich, ähm, (.) da ist jetzt eine Hörstation, wie hier bei uns bei Musik und ich thematisier aber gleich im Nebenraum Französische Revolution und das passt hinten und vorne nicht zusammen.
1:27:14- 1:28:14	A: Man möchte ja nicht, dass die ganze Ausstellung so ne Dauerbeschallung hat, ne? DH: Ja. A: Oder bei den Interviews, die wir dann jetzt zeigen, wo Leute eben sprechen. Da ist es ja jetzt so, dass es eben wieder ausgeht, wenn, ähm, der Besucher weggeht, ne? DH: Ja. A: Also dass es mit Bewegungsmelder funktioniert. DH: Ja. A: Und das ist, öhm, ist schon immer sehr wichtig ne, weil sonst, öh, also ist es einfach zu laut irgendwann in der Ausstellung. DH: Ja. A: (.) Und man muss natürlich da mit solchen Dingen auch manchmal schon an's Personal auch denken. Die sitzen ja 8 Stunden in dem Raum, ne? DH: Mmh.

	A: Und, äh, die können jetzt auch nicht so ne Dauerbeschallung haben jeden Tag, ne? DH: Mmh. A: Wenn die Ausstellung 6 Monate läuft. (..) Und es gibt eben unterschiedliche Besucher. Manche möchte eben, finden es schön mit irgendwelcher Musik und manche möchten aber, ja, DH: Die Ruhe. A: Ja.
1:29:07- 1:29:55	DH: Vielleicht zum Abschluss, wenn du sagtest, Corona hat, äh, (.) dazu geführt, dass ihr nicht wolltet, dass viele Dinge in die Hand genommen werden oder möglichst gar nichts vielleicht, ähm, hat das jetzt auch einen Einfluss konkret darauf gehabt, ob ihr jetzt gesagt habt oder dass ihr jetzt gesagt habt in dem Zusammenhang machen wir vielleicht weniger mit Kopfhörern oder Klang, A: Ne. DH: weil, A: das jetzt nicht. DH: Ne? Ne? Ok. A: Also was wir verändert haben, wir haben jetzt halt keinen Audioguide mehr, sondern diese App. DH: Ja. A: Das war jetzt schon, öhm, das haben wir immer schon vorgehabt, aber das war jetzt mit Corona nochmal ganz klar, dass wir's jetzt machen, weil man dann halt keine (..), ja, diese ganze Desinfektion von Audioguides wegfällt, ne?

18.2. Interview B

Conducted on the 21st of July 2022.

Interviewee B did not permit the transcription of their interview to be published. I both understand and respect their decision and remain immensely grateful for their support and input. DH

18.3. Interview C

Conducted on the 4th of August 2022.

2:55-3:17	C: Ich bin auf vielfältige Art und Weise natürlich durch meine Heimat geprägt worden DH: Mmh. C: ein ganz wesentlicher Aspekt ist natürlich mein Interesse für Geologie, ähm, Paläontologie, generell für für Geowissenschaften, weil möglicherweise ist das dir bekannt, Freiberg ist eine bekannte Bergbaustadt.
3:35-4:17	C: […] in einer Haldenlandschaft bin ich groß geworden. Ich hab als Kind schon Steine gesucht, äh, die auf Halden rumliegen DH: Mmh. C: die da geglitzert haben, die meine Aufmerksamkeit erregt haben. Und dann kommt hinzu, äh, dass mein Onkel, der in Hoyerswerda lebt, äh, in der Braunkohle angestellt gewesen ist DH: Mmh. C: und das Interesse, das ich entwickelt habe, für Gesteine, ähm, gefördert hat. DH: Mmh. C: Ja, also ich bin da öfters mal, äh, im Urlaub gewesen, in den Ferien gewesen und, ähm, bin da mit dem Bergbau, sprich mit dem Braunkohletagebau, ähm, so ein bisschen konfrontiert worden, er hat mir viel erzählt.
5:23-5:51	C: Und, ähm, irgendwann bin ich mit Musik, äh, konfrontiert worden, die jetzt nicht so ganz Mainstream sind, sagen wir das so. Und ich denke, das ist ein weiterer wichtiger Aspekt für das, was dann später passiert ist, nämlich, ähm, ja das Interesse entwickelt zu haben, mich mit Musik näher und intensiver auseinanderzusetzen als Musik nur als, ich sag mal, Nebengeräusch im Radio zu konsumieren.
6:41-7:51	C: […] und damit meine Ohren geöffnet eben für Klänge, ja, die, an die man sich erst mal herantasten muss. Und, ähm, weiterhin war für mich ganz wichtig in dem Kontext eine Band, die dir sicherlich auch ein Begriff ist, Napalm Death, DH: Mmh. C: und, ähm, die habe ich mit großer Begeisterung gehört, höre ich heute immer noch. Und da ist ganz wichtig, dass der ehemalige Drummer Mick Harris ähm (..) ein ein Talent hat und ein Interesse hat an Musik, was auch sehr breit gestreut ist. Also, ich habe mich, äh, mit den Projekten, die er angeschoben hat, gerade in der elektronischen Musik, äh, dann näher beschäftigt. Er hat ja also Ambientmusik gestaltet, ähm, aber auch andere Dinge wie Techno, Drum and Bass, Dub, Trip-Hop und was weiß ich nicht alles. Ja, und das war mein, mein Zugang zur elektronischen Musik.
9:47-10:05	C: Und dann entstand die Idee, ähm, aus (.) und jetzt wird es vielleicht ein bisschen nerdiger, ähm, ähm, dass man Sonifikation von geologischen und ganz generell naturwissenschaftlichen Daten, äh, durchführt.
11:43-11:54	C: […] und da entsprang für mich die Idee, dass man, äh, diese Meeresspiegelkurve klanglich umsetzt, also letztendlich eine Sonifikation durchführt.
13:00-13:38	C: […] und wenn du vor deinem inneren Ohr jetzt und Auge dir vorstellst, du würdest hier an dieser Stelle sitzen und Jahrmillionen Jahre zurückreisen und

	du hast deine Ohren offen, dann wirst du irgendwann mal ein Meeresrauschen hören. DH: Mmh. C: Ja, also will heißen, äh, und dieses Meeresrauschen wird immer stärker und irgendwann bist du unter Wasser. Weil, weil schlicht ergreifend der Raum hier über überflutet ist. Will heißen, in deiner Position als Zuhörer nimmst du wahr, ob sich das Meer entfernt oder näher rückt. DH: Ja. C: Das war die Intention von diesem Projekt.
21:35-21:58	C: […] der Hintergedanke, der dahinter steht: auf welche Art und Weise ist es möglich Geowissenschaften für eine breitere Bevölkerung interessant zu machen. DH: Mmh. C: Ähm, als Geowissenschaftler begegnet man immer wieder, ich sag mal so, öhm, einem gewissen Desinteresse.
28:28-28:32	C: Das ist ja die Verbindung, die auch Geologie zur Musik hat: DH: Ja. C: es geht um Zeit.
31:57-32:12	C: Also, bei den Dingen, die ich mach, äh, ich sag mal so, das ist immer so dieser Spagat, ähm, (.) das Verkopfte mit dem kunstinteressierten Geist DH: Ja. C: irgendwo zusammenzubringen.
32:27-32:36	C: […] und das natürlich auch vor einem größerem Publikum, ja? Das ist …. Mir geht´s letztendlich ja dabei um,um Öffentlichkeit, Öffentlichkeitsarbeit.
42:21-42:45	C: […] und was mich hier am, am Ruhrmuseum so fasziniert hat, ist wir, wir sind ja hier an einem Multispartenmuseum. Das sozusagen diese verschiedenen Sparten so ineinandergreifen DH: Mmh. C: und und sich gegenseitig bereichern, was man eben, äh, vorzüglich ja in der Dauerausstellung sieht, äh, wo quasi ja auch mit allen Sinnen letztendlich gearbeitet wird.
48:02-48:19	C: […] und was mich auch noch so fasziniert bei dem Gedanken mit diesem Cover: da siehst du ja diesen Findling, der eine gewisse Unschärfe hat DH: Mmh. C: in der Abbildung, und das soll eben sozusagen diesen Nachhall, das Vibrieren dieses Gesteins symbolisieren.
52:20-52:29	C: Des Weiteren war es mir wichtig, wenn man hier etwas in Essen, äh, dergleichen auf die Beine stellt, dass man die lokale Szene einbinden muss.
54:33-55:41	C: […] also ich habe mich damals mit dem, mit dem Ahmed das erste Mal getroffen, hab ihm das Konzept vorgestellt, auch diese diese Sound-Library. Und Ahmed war erstmal skeptisch DH: Mmh. C: ähm, und zwar deshalb auch, weil diese Sound-Library, äh, nun nicht die das ganze Spektrum an an Klängen beinhaltet, welches, sagen wir so, die essentiellen Zutaten von einem Techno-Track sind, DH: Mmh. C: ja, also eine Base-Drum zum Beispiel war, quasi gab es keine Entsprechung in dieser Sound-Library. Wenngleich wir die Leute aufgerufen haben: ihr könnt diese Klänge auch manipulieren, weil das ist ja wie ein Rohstoff, den man bearbeiten kann DH: Ja.

	C: ne? Und (.), ähm, ja, Ahmed, äh, hat sich das Ganze durch den Kopf gehen lassen und hat gesagt: Okay, lass uns doch einen Versuch starten. Ich akquiriere Künstler in in meinem Netzwerk und schaue mal, wie die da drauf anspringen. Und die sind alle sofort darauf angesprungen, weil sie auf einmal mit einem Rohstoff zu tun hatten, äh, der neu war.
1:04:07-1:04:31	C: […] aus dem Grunde, ähm, bietet sich auch ein Festival an, das dort weiter auszugestalten, dass es eben nicht einfach nur ein Festival ist, wo Leute hingehen, um Musik zu hören, sondern sie mit solchen Themen ein Stück weit zu konfrontieren. Und dieses Jahr hatten wir das Infomobil von „Wissenschaft im Dialog" DH: Mmh. C: vor Ort, ähm, die eben über die Energiewende informiert haben.
1:04:45-1:05:04	C: Das Festival selber, ähm, das hat natürlich, war eine lange Vorbereitungszeit. Die die verschiedenen Künstler, sind ja über 40 Künstler:innen, die da aufgetreten sind. Im Kern sind das alles Künstler:innen, die eben, ähm, Tracks produziert haben für diese Stone-Techno-Series.
1:06:01-1:06:37	C: […] dass wir mit mit Stone-Techno etwas kreieren, was authentisch ist. Wo sich Leute mit identifizieren können, die hier aus dem Ort kommen. Ähm, dass man sich auch abhebt, bewusst abhebt von einer Szene , wie sie von mir aus in Berlin ist. Die, die dann doch eher anonym ist. Und zumindest die großen Parties, (..) ich will das überhaupt nicht kritisieren, äh, Leute von überall her zieht. DH: Mmh. C: Aber mir geht es auch darum, dass sich die Leute <u>hier</u>, vor Ort, mit dem, mit Zollverein, mit Essen, mit dem Ruhrgebiet identifizieren.
1:09:38-1:10:55	C: […] Techno als solches, erstmal als, als Kultur, ähm, oder Ausdruck von Kultur. Äh, es ist zwar immer noch, verglichen mit mit anderen Genres , eine Art von Nischenposition. DH: Mmh. C: Aber es hat durchaus eine, eine, eine große Szene. DH: Ja. C: Also, das ist der erste Ansatzpunkt. Der zweite, äh, dass Techno durchaus auf Vocals verzichten kann, auch wenn es natürlich bei House und verschiedenen Spielarten natürlich ganz essentiell ist. Aber Techno braucht keine Vocals DH: Mmh. C: und ich hab nach einer Möglichkeit gesucht, eine, ähm, ein Genre, ähm, ins. Ich sag mal so, das Genre, das geeignete Genre zu finden, Rhythmus einerseits DH: Mmh. C: und, äh, (.) als Ausdruck für Geologie oder als Forschungsobjekt für Geologie und Mineralogie, eben Gesteine und Mineralien zusammenzufügen. DH: Mmh. C: Und weil eben Gesteine und Mineralien Klänge, also weil man damit Klänge erzeugen kann DH: Mmh. C: und damit auch letztendlich rhythmische Klänge erzeugen kann, spielt das dann direkt zum Techno über. DH: Mmh. C: Ja, also ich brauche keine anderen Instrumente.

1:12:04- 1:12:12	C: […] als natürliches Environment *lacht* ist Zollverein Techno. DH: Ja. C: Ne? Nix anderes. DH: Mmh. C: Und Industrial.
1:16:30- 1:17:02	C: […] für mich ein absolutes, absoluter Erfolg, äh, Menschen mit so einem Projekt hier auf diesem fantastischen UNESCO Welterbe zu locken in Anführungsstrichen. Ähm. Und das mit einem hochkarätigen Line-up. DH: Mmh. C: Ja? Also das, das ist natürlich, also das Line-up ist natürlich das unglaubliche Verdienst von, äh, The Third Room, insbesondere von von Ahmed, DH: Mmh. C: den ich nicht genug lobend herausstellen kann […]
1:19:59- 1:20:05	C: […] ich denke auch, dass es viel was auch mit dem UNESCO Wer, Welterbe zu tun hat.
1:27:06- 1:27:48	C: Wir hatten ja dieses Festival konzipiert auf eine Menge von zwischen 6 und 10000 Leuten. DH: Mmh. C: Ähm, es wird, äh, darauf hinauslaufen, dass wir zwischen 5 und 6000 Besucher hatten für das Festival DH: Das ist doch schon sehr konkret. C: Ne? Aber ich kenne keine, keine näheren, äh, Daten. Und, äh, für, dafür, dass dieses Festival zum allererten Mal stattgefunden ist , und das auch im, ähm, jetzt zwar nicht vom Genre her, aber an Veranstaltungsmenge hier in der Region, äh, gleichzeitig stattfindenden Festivals, beziehungsweise Konzerte, ist das schon beachtlich.
1:36:18- 1:37:30	C: […] aber das, was eben dieses Schaudepot ausmacht, sind ja die Objekte, die drin sind DH: Mmh. C: und die Bilder, die kreiert werden durch gleis, gleichartige Objekte. Und da war dann relativ schnell klar, dass man anders als bei, ich sag mal so, typischen Konzertvideos, äh, durch den visuellen Aspekt oder, oder den, den, den lokalen Aspekt von dem Schaudepot stärker zum Tragen bringt, DH: Mmh. C: indem eben einzelne Objekte abgefilmt worden sind. Das war eine sehr, sehr aufwändige Vorproduktion. Also, man hat eine Nacht zuvor, äh, wurden dann, äh, diese ganzen Detailaufnahmen gemacht DH: Ok. C: oder einen Großteil der Detailaufnahmen gemacht, die dann letztendlich reingeschnitten worden sind. Also da hatte ich auch in der Auswahl, aus welchem Lichthof man jetzt dann entsprechend diese DJ-Sets ansiedelt, äh, noch noch einen Einfluss und auch was Farbwahl anbetrifft, von von Beleuchtungskörpern und so. DH: Mmh. C: Genau, aber der, was jetzt Perspektiven anbetrifft generell. Da sind natürlich die Profis von Klangmalerei.TV die Leute, die wissen, was sie machen […]

Erklärung über die selbstständige Verfassung der Abschlussarbeit

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Köln, den 18. Juni 2023.

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