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MOVING ONWARDS
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EDITORIAL

In 2021, amid the uncertainty of continued lockdowns and their drastic alterations to our personal and academic lives, the new EAR editorial team sought intellectual responses to the question of how we might move onward in a world reshaped bv is its focus on the process of research and acknowledgement of the setbacks and incongruencies of doing fieldwork, collecting data, and the subsequent analysis. We believe that embracing the untidiness of research contributes to the validity of the research itself by meeting a complex world with creative and adaptive methods. The editorial team would like to thank our Academic Advisory Board for their assistance in the peer-review process for this issue of the EAR Journal.

This issue of EAR builds on the work of the previous editorial team which raised questions of matter and form, seeking to embrace new technologies and communication formats to respond to the changing world of publication. EAR 37 is the second issue of the journal to be distributed digitally, making the content more accessible, and the first issue to be a direct product of the COVID-19 pandemic. Authors responded to our call for papers with a variety of innovative methodologies: oral history interviews, photo interviews, autoethnography, performance fictioning, artisanal forms of construction, creative use of digital tools, speculative design methods, inferential statistics, examining evaluation in co-design and archival work of different types. As Andrew Marks mentions regarding his use of methods there is a *scavenging* quality to the way all authors move through the vast repertoire of available methods and combine them to respond to their research questions. In today's world where global pandemics and climate change are a pressing reality, the reuse and combination of qualitative and quantitative methods to respond to current research and design challenges is only appropriate.

For most of our contributors, moving onwards involved learning from the past to explore and respond to present global challenges – most immediately the isolation and confinement brought about by the pandemic – and a need to find sustainable ways of designing to respond to growing environmental crises. In "Contextualising Appraisal and the Destruction of the Soviet Design Institute's Archives: A Field Note," Ksenia Litvinenko questions how the political and institutional context in former or present-day state socialist countries has determined the configuration of architectural archives and reviews critically the archival research method. Alex Plent, in his paper "Neomedieval *Peregrinatio in Stabilitate*: On the Use of Fourfold Allegory in Performance Fictioning," retrieves a medieval method of monastic pilgrimage and discusses its use to perform world-creating fictions that have the possibility of generating new modes of subjectivity and political agency. The articles "Digital Imperfection: Earth Brick Construction Supported by Mixed-Reality Technologies," by Federico Garrido, Joy Samuel, Rodrigo Brum and Christian Schmitt and "Designing Futures with Pasts: Rediscovering and transforming abandoned paths of food preservation under today's paradigm of sustainability," by Christoph Tochtrop and Dustin Jessen take from the past to propose sustainable design solutions for the future. While Garrido, Samuel, Brum and Schmitt enquire into the traditional craft of brick construction and its materials to explore its combination with digital tools by introducing the use of sustainable materials in combination with parametric design as resource-

saving method, Tochtrop and Jessen look into historical examples of food preservation to discuss speculative design ideas for sustainable design. Finally, in "Commoning landscapes from home: building queer ecological commons online at a time of COVID-19," Andrew Marks turns to oral history interviews to understand how landscapes have been shaped and transformed by particular groups and how such knowledge can inform a sustainable management of resources as part of an action research project.

Some contributions in this issue addressed the COVID-19 pandemic directly by responding to the challenges of confinement and isolation with the search for methods capable of foreseeing better futures. Interestingly, while Andrew Marks, Shawn Bodden and Jenny Elliott entertain the idea of working together and forming a community to deal with the problems raised by prolonged confinement, Alex Plent argues for an introspective, individual path centred on reflection and imagination. The advantages and significance of integrating new technologies and digital tools into our research methodologies are discussed by Andrew Marks, Federico Garrido, Joy Samuel, Rodrigo Brum and Christian Schmitt. Such digital forms of building physical and social spaces bring forward new arenas of knowledge formation that can contribute towards a less uneven future if considered carefully. Our authors also show a shared concern for understanding how the political, social and educational context influences the aesthetics of the built space. Whereas "Evaluation Of Aesthetic Perceptions Of Public Buildings' Facades By Design Professionals" by Reuben Peters Omale highlights how the educational background of architects, artists and engineers in Nigeria influences the perceptions of building's facades, Shawn Bodden and Jenny Elliott problematise how a lack of integral participation in projects of co-design impacts negatively on the look and feel of the project. Finally, Ksenia Litvinenko highlights how practices of archiving architecture under a particular political regime affect the aesthetic criteria of the architectural material "worth" archiving.

These times of crisis and uncertainty bring out the transitional quality in both built and digital social spaces. In such a fast-changing context, with challenging social, political and economic scenarios around each corner, new methodological possibilities have arisen in the ways that our contributors have proposed to move onward from the pandemic and seek less catastrophic futures. The past is not approached here as fixed or indisputable, and is therefore neither archaic nor obsolete. To the contrary, the transitory quality of space generated by these unprecedent times has seemed to alter our sense of time, leading us either to search for answers in the past or to question it. The papers presented in this issue show that, through the exploration and combination of methods, we can make sense of an imperfect and sometimes catastrophic reality. We hope the discussion and reflections presented in this issue inspire researchers of the built environment and beyond at all levels creatively to adjust their methodologies in response to an increasingly challenging global setting.

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Contextualising Appraisal and the Destruction of the Soviet Design Institute's Archives

A field note [1]

Abstract

Recently, historians and theorists of architecture have started questioning the neutrality of traditional archival research methods by uncovering the operations of power and authority inherent to the creation, appraisal, accessioning, or erasure of historical documents and the institutionalisation of official and unofficial archives. Most of this research is based on analyses of archiving in Euro-American and (post-) colonial contexts; consequently, there is limited understanding of the politics and practices of archiving architecture in both former and current state-socialist countries. in formerly or presently state-socialist countries. The paper addresses this lacuna by exploring different ways of archiving a single design practice, the Giproteatr Institute, one of the central organisations behind the construction of buildings for culture and the performing arts in the Soviet Union and beyond. By reconstructing the changing material and economic conditions of architectural labour in the late Soviet and immediate post-Soviet periods, precedents of authorised and unauthorised destruction of architectural documents, archival regulations, and appraisal procedures, the paper demonstrates that Giproteatr Institute's archives are in themselves historical and carry different definitions of archival value and of the architectural profession. Therefore, the paper further problematises the notion of 'evidence' in architectural history and advocates for strengthening the focus on analysis of material processes of archiving.

Introduction

Architectural history has lately exhibited a sustained interest in de-centralising and globalising the Eurocentric canon in research and teaching. This work was achieved primarily by expanding the geographical scope of the discipline and incorporating case studies from the so-called 'Global South' and the former 'Second World.' However, while alternative geographies have often been recognised and included in recent anthologies of global architectural history (Ching, Jarzombek, and Prakash 2017; Fazio, Moffett, and Wodehouse 2008; Fraser 2019 [Fletcher 1896]; James-Chakraborty 2014), reflection on methodological approaches and alternative archives or epistemologies that emerge within such a de-centring remains understudied. As Huda Tayob has pointed out, the "imperative" of this new wave of reconsidering the foundations of the architectural discipline is "to question not only where we find knowledge, but how we produce it" (Tayob 2020). This article aims to respond to this prompt with a methodological reflection on archiving and its role in the architectural history of Soviet socialism.

1 I thank Lukasz Stanek, Lea-Catherine Szacka, Alla Vronskaya, Brett Mommersteeg, David Firth and Simona Amariutei for providing comments and encouragement on earlier versions of this article, and Edward Bottoms for offering guidance in my research of literature on archival appraisal. Huge thanks to employees of the Russian State Archive in Samara – Svetlana Ryzhkova, Natalia Znamenskaia and Olga Soldatova – for helping me navigate the history of regulations for and processes of archiving 'scientific-technical documentation' in the Soviet Union and post-Soviet Russia. I am also grateful to Vladilen Krasil'nikov and Elena Antipova, former employees of the Giproteatr Institute, for sharing their professional experiences and time via oral history interviews. Finally, I sincerely thank the anonymous reviewer for their valuable comments and editorial suggestions.

There has been a surge of interest in the practices of design institutes from the Soviet Union, state-socialist Eastern and Southeastern European countries, and in their involvement in global architectural mobilities and processes of urbanisation (Beyer 2019; Butter 2018; Erofeev 2019; Motylinska 2020; Schwenkel 2020; Seculic 2017; Stanek 2020). These studies have challenged the notion of 'globalisation' as seen exclusively as a result of the expansion of the capitalist market economy and its 'technoscience' by outlining a more complex map of networks and actors, including from the former Second World. Even though these new findings have allowed scholars to start reimagining twentieth-century architectural history, the literature rarely reflects on the methodological techniques that have assisted in the production of these new histories. Particularly, attention to the specificities of archiving practices in state-socialist and immediate post-socialist contexts would allow better management of future researchers' archival expectations and a more nuanced understanding of the limits and possibilities of archival research methodology precisely at the stages of source criticism and interpretation.

To address this research gap, the article first reviews the relevant literature on methodological considerations in archive studies and specifically in relation to architectural archives. Secondly, the article analyses the dispersed archives of the State Institute for the Design of Theatre and Entertainment Enterprises (Giproteatr) within the Ministry of Culture for the USSR, one of the central organisations behind the construction of buildings for culture and performing arts in the Soviet Union and beyond. In exploring the ways in which Giproteatr's activities were archived, the article analyses the state archives that hold documents concerning Giproteatr's operations and reflects upon their historicity via reconstructing different logics behind the appraisal, accession and destruction of blueprints and paperwork produced by the institute. Ultimately, the article argues that the ongoing re-centring of attention on the histories of state-socialist design institutes and on engagement with large corpora of newly discovered sources requires reflection on the conditions in which these sources were archived, preserved, and deemed accessible. Does the study of socialist architectural archives prompt an analytical retooling and a methodological adjustment of traditional methods within architectural history? This article aims to start answering this question in the form of a field note.

Archives and Evolving Architectural Historiography

The changing definitions of an 'architectural archive' and, more broadly, how a research methodology could adequately accommodate studies of actors who were previously missing from classical accounts, are at the centre of this ongoing discussion among architectural historians. The Aggregate Architectural History Collaborative associate the origins of such a discussion with the anglophone revisionist historiography that grew strong in the

second half of the twentieth century (Mumford 1938; Giedion 2013 [1948]; Banham 1969; Kostoff 1977; Colomina 1994; Frampton 2002; Davis 2006) and questioned the centrality of architectural drawings, form and the oeuvre of individual architects as a main source and subject of architectural histories, branching off towards the exploration of broader social, economic and cultural implications of the architectural profession (Abramson, Çelik Alexander, Osman 2021). Methodologically, all of these works, Aggregate argued, performed this shift by either focusing on alternative types of documents 'within' the vast archives of canonical architects, such as Colomina's examination of Le Corbusier's engagement with media and photography, or going 'beyond' architectural archives altogether and exploring broader technical devices such as patents and standards to offer new insights into the construction and engineering histories of canonical buildings such as Larkin Building Wall by Frank Lloyd Wright (Abramson, Çelik Alexander, Osman 2021). These documents and objects of eminent architect-donors, as anthropologist Albena Yaneva (2020) has observed, are often further reassembled and "crafted" at archiving institutions. The labour of selecting, processing and restoring architectural documents, she contends, to some extent offers an epistemological framing of architectural practice that precedes historical writing.

Another field of research that experiments with using alternative sources for architectural history research is the history of architectural labour. These scholars aim to look at the processes of architectural production: from questions of the extractive nature of architecture and procurement chains of building materials and labour (Hutton 2019; Amhoff, Beech, and Lloyd-Thomas, 2016; Lloyd-Thomas 2022) to histories of the architectural profession that view the architect primarily as a worker within a broader economy of paid and unpaid labour practices (Deamer 2020), working within large organisations and offices (Martin 2003), and that view these practices as mundane routines and techniques that do not necessarily include only design, or 'creative,' tasks (Deamer 2020, Osman 2018, Celik Alexander and May 2020). Telling these stories, as Aggregate (Abramson, Çelik Alexander, Osman 2021) has shown, is possible by shifting the 'historical' focus towards other types of documents and archives. However, such de-centring still happens mainly within a narrow set of reference points: through writing and rewriting the histories of largely Euro-American architects and buildings.

By contrast, scholars working within a postcolonial framework and problematising the relationship between architecture and race put the centrality of the institutionalised archives of architectural history into question (Cheng, Davis II, and Wilson 2020). For instance, Anooradha Iyer Siddiqi and Huda Tayob are interested in how to write histories in the absence of institutionalised records or official archives in order to give voice to or reconstruct histories of historically marginalised actors. Oral history, ego-documents such as memoirs and diaries, artifacts from private archives (Siddiqi 2017), as well as poetry and fiction (Tayob 2020), in this case, become the toolkit for recovering histories that were

previously ignored by state archives and heritage specialists for ideological, racist, political (Rotbard 2014) or other reasons, such as considering the work of non-white actors as something improper and 'outside of history' (Cheng, Davis II, and Wilson 2020, 10). As a result, scholars working with these marginalised histories are faced with the methodological challenge of working with and around 'absences', without the conventional 'historical sources' or forms of 'evidence'. As Irene Cheng, Charles L. Davis II and Mabel O. Wilson argued, historians should be "suspicious" of archives and borrow methods of "literary deconstruction and critical race studies to uncover the racial logics behind Hegelian universal history and postmodern aesthetics" (Cheng, Davis II, and Wilson 2020, 11-12). Therefore, postcolonial histories raise concerns about the centrality of archival research methods to architectural knowledge production.

Similarly, it has been demonstrated that oral history can help reflect upon some of the archival 'absences'. For instance, the gendered aspects of architectural production, and the processes of construction, inhabitation and maintenance that are often excluded from the 'solo' and 'masculine' architects-centred narratives (Gosseye and van der Plaat 2019). The inclusion and discussion of the role of construction workers (Wall 2013), volunteers and urban residents in sustaining and repairing a public building (Graziano and Troga 2019), housing complexes (Schwenkel 2020; Akcan 2018) or larger infrastructural systems (Barnes 2017) in these oral histories foreground the everyday work of maintenance and care raising broader questions of the disciplinary and methodological boundaries of architectural history.

Indeed, we can see that architectural history methodologies now constitute a spectrum of different tools, and a historian can juggle and combine them to produce more complex and situated stories – both from within and on the outside of official and unofficial archives. Architectural history methodology no longer seems to be a universal standard applied to case studies within and outside of Europe. Instead, depending on a research context, various research methods could potentially acquire different social and political meanings.

The History of Late Soviet Architecture: An Institutional Lens

What does this polyvocality and the decentralisation of conventional archival research methods mean for the history of architecture in state-socialism? And, more specifically: how can researchers attune methodologically to continue reviewing the canon through the critical inclusion of Soviet architecture in these ongoing discussions?

While in capitalist conditions the state most often plays a role as a secondary actor in architectural practices — briefly appearing in the discussion of zoning laws, the legible form of contracts, or in

2 While design institutes also existed in other state socialist countries, their organisational structure and work principles were far from a simple copy of the Soviet model. See, for example, the analysis of the institutionalisation of Stavoprojekt in Czechoslovakia by Kimberly Elman Zarecor, who highlights that the state-run practice inherited some of the organisational principles of the interwar industrial capitalist Bata corporation, and that the Soviet influence started to be visible only since the 1950s (Zarecor 2011).

building regulations — in state socialism the situation was different. In the post-WWII Soviet Union, for example, most architectural projects were designed not by private ateliers, but in large planning teams, some of which had the status of design or research institutes.[2] Such a form for the organisation of labour required design professionals to be strongly integrated within different industry branches of the government that, in turn, worked within the centrally produced economic plans that allocated funding for future goals in each sphere of the economy. The state financed the wages of design professionals, as well as the building projects themselves. In the Soviet Union, the State Planning Committee (*Gosplan*) allocated annual funding for all organisations working on design, research, building and construction, as well as financing building projects following centrally devised plans for each branch of the construction sector, whether housing, public services, transport, energy infrastructures, military-industrial complex or culture. This strategy was called "central planning" (Rindzeviciute 2008, 89). In practice, such planning meant that design practices were administratively incorporated into various governing bodies across 15 Soviet national republics — they, for instance, could collaborate with a ministry,[3] or a regional- or city-level municipal government.[4] Within this system, different branches of the government could serve simultaneously as a commissioning body, a funder and a client.

Between 1953 and 1992, the Giproteatr Institute operated within these conditions. The Institute was subordinated to the Ministry of Culture of the Soviet Union and therefore was the recipient of the Soviet government's architectural commissions for the construction of public buildings for culture, education and the performing arts, for example, theatres, libraries, houses of culture, circuses and museums (including both projects for mass production and individual designs) (*Normativy udel'nikh kapitalovlojenii v stritelstvo objektov kelturi na 1976-1980 gody* [Standards for specific investments in the construction of cultural facilities for 1976-1980]. 1976. Approved by the Ministry of Culture of the Soviet Union and Gosplan of the USSR). The Institute specialised in the design, refurbishment and research of buildings for culture and the performing arts and had three offices – Moscow, Leningrad (Soviet Russia) and Baku (Soviet Azerbaijan). Giproteatr's interdisciplinary team of architects, structural engineers, stage design and technology specialists, stage mechanics, film and lighting engineers, researchers and invited acoustics experts were, moreover, working both domestically and internationally. Apart from producing building and stage designs, Giproteatr also conducted research and cultural industry forecasts for the Ministry of Culture of the Soviet Union, participated in the development of building norms and technical equipment standards at national and international levels, collaborating with partner organisations at the Council for Mutual Economic Assistance (COMECON), and published its own 'digest' on theatre design and technology that circulated across theatre specialists in the Soviet Union and in Eastern European countries. Despite the Institute's historical significance and global impact, Giproteatr's archives (similarly to

3 In this case, institutes often specialised in a single type of building programme (housing, sports facilities, public buildings, industry-related structures, etc.) that was supervised by a relevant branch of government.

4 For more on the institutional networks of Soviet institutional structure, see the example of the State Committee for Construction of the Soviet Union (*Gosstroy*) (Meuser and Zadorin 2016).

the archives of many other Soviet design institutes and republic- and city-level architectural practices) are surprisingly sparsely preserved, making reconstructing the organisation's history challenging due to a number of absences. For example, at times, researchers struggle to identify the location of documents or entire archives relating to prominent actors in socialist building industries. Existing archival collections often report entire chronological or thematic ranges of lost documents, and some collections preserve only drawings from late in the design process, focussing instead on their records of correspondence, making the reconstruction of some basic details about the building process and procurement challenging. While recent studies on 'socialist globalisation' in architecture have shown that Soviet design institutes have had a broad reach and significant impact on the international stage (Stanek 2020; Erofeev 2019; Beyer 2019), what made their archives so precarious?

Archiving Giproteatr

Impact of poor working conditions on archiving

In November 1958, the State Fire Supervision Department of the Ministry of Internal Affairs of the Leningradsky District of Moscow carried out a fire–prevention inspection at the head office of the Giproteatr Institute. Department representatives were deeply dissatisfied with what they saw. In the report filed following this visit, the fire supervisor had ordered for the mitigation of multiple fire risks. The fire inspector was concerned that Institute employees were casually smoking in workrooms filled with electric heaters. But most importantly, it was happening in the presence of "a large amount of all kinds of paper spread" around the office (RGA Samara, 'Fire-fighting inspection of the premises, Order 11 of November 4, 1958,' Fund P-578, op. 1-6, d. 24, 11). *All kinds of paper*, the report stated, were stacked on top of cables, and overflowing into the office's corridors, filling up almost every square metre of the space intended for evacuation. While it is unknown whether Giproteatr employees had addressed the warnings of the firefighting commission, what this report evokes well are two impressions about the everyday life of a Soviet state design institute. First, it was required to process large amounts of paper, and paper of various kinds – in fact, even more than the office allocated by the Ministry of Culture could handle. Secondly, workers were navigating such conditions by stockpiling the excessive paper across the office, repurposing corridors and corners into temporary storage spaces for the continuously accumulating paperwork that was necessary for running the practice. Even though each design institute should have had its own archive, there was so much paper that it was obstructing the workers' labour and, according to the firefighting standards of 1958, even putting them at risk; yet architectural workers evidently needed all this paper to conduct their duties.

Paperwork was indeed at the heart of the Institute's operations. Paper-based research and industry review reports were filed to

the Ministry of Culture of the Soviet Union and were returned with various operational and project orders. Paper was used for drafting, sketching, listing, noting, tracing, and copying, and was at the heart of design, research, communication, management, and the dissemination of information. Paper was used to type articles, and reviews for Giproteatr's own institutional digest published quarterly between 1958 and 1985. Paper was used to publish and circulate building norms and technical standards for cultural buildings. Seemingly, following various genres of paperwork handled by the multiple professionals at the Institute, one could reconstruct the contours of the material world of the organisation and get a glimpse of what architectural labour in state-socialist design institutes constituted. Yet, when one leafs through archived paperwork of Giproteatr at different state archives and libraries, it becomes clear that it is not a direct encounter with a fragment of Giproteatr's life informed by paperwork. It is also the encounter with the consequences of archiving and selecting these materials as not all paperwork stacked around the corners of the office made it to the archive.

Oral history interviews with Giproteatr employees and archival workers who later processed Giproteatr's documents confirmed that the destruction of records dating from the 1950s-60s primarily happened due to overall poor working conditions in the design organisation and the lack of storage space for large amounts of files. As the Institute did not have a permanent office, the organisation often changed their address. According to Vladilen Krasil'nikov, a former chief architect of one of the Giproteatr's architectural ateliers, in one of the locations, the Institute's archive was stored in the cellar (which was against regulations) due to the lack of space. As a result, much of the documentation was severely damaged by water leaks (Krasil'nikov 2019). Moreover, with each move to a new location, the preservation of the archives was further impacted (Antipova 2019). The composition of Giproteatr's documents that later arrived in the hands of representatives of the state archive for appraisal and accessioning reflected the material conditions at the organisation.

Bureaucratic and 'technical-scientific' logics of archiving

It is also important to follow this paperwork from archive to archive, each with their own definitions of what constitutes an archive of a Soviet design institute. The largest part of Giproteatr's archival trace is currently split across four state archives collections: the Russian State Archive of Literature and Art (RGALI) in Moscow, the Russian State Archive of Scientific-Technical Documentation (RGANTD) in Moscow, the Central State Archive of Scientific and Technical Documentation of St. Petersburg (TsGANTD SPb), and the Russian State Archive in Samara (RGA Samara).[5] The three latter archives previously comprised different branches of one state archive for Scientific-Technical Documentation, so their collections

5 Archival documents from the Baku branch of Giproteatr were not found during the research.

and archiving principles are similar and focus around Giproteatr's building projects. By contrast, in RGALI, Giproteatr is archived as a part of the Ministry of Culture of the Soviet Union, and the archive holds files related to the Institute's bureaucratic exchange with the government administrators: documents that circulated between the design Institute and the Ministry of Culture of the Soviet Union. The main archived paperwork genres resulting from this exchange were scientific-technical reports, foreign trips and forecasting reports, routine correspondence, meeting protocols, and orders that "in-formed" the flow of information and expertise between the two parties. Reporting was a core condition of Giproteatr's negotiations with governmental actors. Through these media, the theatre design community was involved in producing policies for the administration of the cultural life of the population across the Soviet Union and beyond. If one looks exclusively at the RGALI archives to evaluate Giproteatr's activity, they would probably tell a story of architectural workers as bureaucrats and their collaboration with the Soviet government. However, the archives that formed part of the scientific-technical documentation system follow a different logic, hold other documents, and frame a different portrait of Giproteatr's design practice.

The RGA Samara and NTD-network archives, for instance, mainly hold visual materials and blueprints that mediated the construction of theatres and different types of buildings for culture and performing arts in the Soviet Union and abroad. However, the collection of these blueprints and supporting documentation is in itself historical, involving various agents and forces that facilitated the selection and destruction of documents. RGA Samara (previously The Central State Archive of Scientific and Technical Documentation of the USSR) was founded in Kuibyshev (as Samara was called between 1935-1991) in 1964 with the aim of preserving "the history of domestic science and the development of design thought and technology" (*Volzhskaya Kommuna* 24 February 1977). Upon the opening of the new building of the archive in 1977, its new director, Anatoly Prokopenko, gave an interview to the local newspaper, *Volzhskaya Kommuna*. The interview reported that leading design, construction and research institutes from Soviet Russia were ordered to send original paper-based documents to create a national "chronicle" of the development of science and technology. Prokopenko also highlighted that, in accordance with the Decree of the Council of People's Commissars of the RSFSR from the 1st of June 1918 on the Reorganisation and Centralization of Archival Affairs in the USSR, all paperwork produced by state-sponsored institutes was considered state property and, therefore, should have been "concentrated in the system of state archival fonds" (*Volzhskaya Kommuna* 24 February 1977, 4).

The main goal of the mass accumulation of documents at a new State Archive in Kuibyshev was to create a retrievable base of information about different industry branches, facilitate inventions and innovation, and create educational materials for professionals who were just starting out in the industry. Among other activities, it was planned to produce copies of documents for professional

organisations upon request, create a "classificator of all types of buildings and industrial products", launch a convenient electronic search engine, publish and disseminate thematic sections and organise exclusions to the archival holdings (*Volzhskaya Kommuna* 24 February 1977). Giproteatr's documents were part of more than seven million files that were intended to be "received, processed and stored" at the archive. Therefore, the archive itself had its own political agenda: simultaneously to become a repository of Soviet technological, architectural and industrial 'innovation' (*izobretatel'stvo*) and to foster such innovation in the future.

In accordance with Soviet archival law, every five years, the Main Archive Directorate of the Council of Ministers of the USSR (*Glavarkhiv SSSR*) should have nominated organisations and persons whose "documents [...] are advisable for acceptance for state storage" (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 108). The selection of institutions and (less often) individuals was carried out according to the following criteria: "the importance of institutions within the system of governance, the completeness of the reflection of the activities of the institution in the documents of higher and other institutions, the correspondence of the activities of the institution with the profile of the archive" (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 108). Within this procedure, design institutes should submit so-called "scientific-technical documentation" (largely, the blueprints) no less than once every twenty-five years, and all management documentation every ten years.[6] To ensure this process was carried out accurately, various Soviet ministries would also have oversight of it and would direct institutes and organisations working under their patronage to comply with the new archival policy. However, the 1985 note that reported on the ongoing results of assembling the Kuibyshev archival collection pointed out that not all ministries "fulfilled the duties assigned to them to work with scientific and technical documentation" (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 109), leading to the full or partial loss of archival documents. To mitigate the loss of valuable documents, the Main Archives of the USSR (*Glavarkhiv USSR*) offered consultancy meetings with ministry administrators as well as with the institutes themselves for "improving work with scientific and technical documentation" in preparation for archiving (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 3).

Such meetings were introduced to stress the importance of archiving "historically valuable" (RGA Samara, f. R-846, op. 2-6, d. 316, 'Note of the head of the main archival department under the Council of Ministers of the USSR No. 16/7-B dated 5 January 1985 'On the progress of the implementation of the Resolution of the Council of Ministers of the USSR dated 21 May 1964 'On the centralization of storage of scientific and technical documentation and on organising its widespread use', 2) "scientific-technical documentation" related to a building, a technology or an industrial product. As a result, the archive had less interest in the broader work routines of organisations that did not necessarily lead to an innovation. The institutionalisation of a new "scientific-

6 Requests for submission of scientific-technical documentation could also arrive in case the design institute was liquidated or changed institutional belonging within the system of governance (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 109).

technical" archive suggested its own starting points for a history of Soviet technological development centring around particular organisations and mostly storing such paperwork genres as final-stage blueprints for building projects and technical equipment, minutes of meetings (if preserved) and documents related to significant changes in organisations' administration.

Archival research at RGALI and scientific-technical documentation-type archives is, therefore, an encounter not only with the documents of an organisation in focus but also with the results of retrospective framing of the organisation's practice. Different modes of archiving Giproteatr's documents produced varying definitions of architectural labour and technological progress. Within RGALI's bureaucratic or ministerial logic, Giproteatr's paper trail mainly consists of different types of reports preserving 'official' genres of collaboration with government administrators in the Ministry of Culture of the USSR. The Institute's involvement in the production and forecasting of state cultural policy and the voices of the Institute's director and research team are, as a result, at the forefront of the Giproteatr fond at RGALI. The RGA Samara (former Kuibyshev), on the other hand, accessioned documents that focus on the results of the professional creativity of the Giproteatr's design team and foreground the agency of the Institute, following the archive's agenda of defining and fostering future technological innovation.

Double appraisal process

To make matters even more complicated, in addition to the impact of precarious labour conditions and different logics of accessioning, multiple actors also participated in document appraisals. In 1958, Giproteatr's director V. Dubinin ordered the establishment of a commission within the institute that would annually evaluate all the documents archived at the institute – both the visual documents such as blueprints that recorded the different stages of project preparation and the so-called 'managerial documents', the reports and correspondence – and would decide on which documents were to be placed for further preservation in state archives. Therefore, the design institute was asked not only to produce and handle different types of paperwork, and archive it, but also to pass an initial judgement of the 'historical value' of these documents (RGA Samara f. P-578, op. 1-6, d. 23, 1958, 'Order number 176' from 16 August 1958). Thus, already at this stage, some documents were destroyed as they were considered unworthy of preservation.

In addition, before formally transferring the documents to a state archive, Giproteatr had to evaluate the documents' "physical and sanitary-hygienic condition", and, where necessary, to perform their "fumigation or restoration" (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 111). If the document did not present any "scientific and practical importance" (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 115), had repeated information available in other documents or was damaged to

a degree that made it illegible, it could be destroyed (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 114). The inventory of documents (*opis'*) also had to be prepared by the organisation and handed over to the state archive together with the original files. Further systematisation of documents was carried out by professional archivists at a state archive (Glavnoe Arhivnoe Upravlenie Pri Sovete Ministrov SSSR 1984, 113). Therefore, all documents comprising Giproteatr's archival funds in state archives resulted from a double appraisal – one routinely performed by the institute's employees and another afterwards by the professional archivists. Files encountered in the Giproteatr archive are not just single documents or interfaces establishing an unbroken continuum with the institute's 'real' work routines. The institute's archival fonds also result from several erasures, value-making transactions between different actors and classification systems participating in the appraisal process.

Reflections on politics and appraisal theories, or the so-called archival 'weeding', are central to long-ongoing debates in archival sciences (Blouin Jr. and Rosenberg 2007; Cox 2004; Duranti 1994; Hughes 2014; Kolsrud 1992; Lutzker 1982; Schwartz and Cook 2002). The problem of appraisal, as Terry Cook pointed out, is especially pertinent to the archiving of modern institutions as the volume of records they produce with the mass introduction of bureaucratic governance in Europe and internationally since the interwar period put archivists in a situation of 'information overload' (Cook 1996, 140). There are now simply too many documents to handle and too few resources for processing and storage. Naturally, the question of theoretical foundations of 'weeding' and destroying parts of the large corpora of documents yet still making archival fonds useful for future research took centre stage in archival sciences. On the other hand, questions of counter-archiving and inclusion of previously marginalised groups and voices further problematised state- or institutional archives and archive-keeping principles (Johnson 2007). In this context, appraisal decisions become ever more visible and politicised as they foreground the archivists' involvement in defining historical value and curating initial interpretation of and relationships between documents. The way 'evidence' is made accessible for historians via archives already assumes that it has a particular 'informational value' that is not 'objective' but 'purposeful.' (Menne-Haritz 1994, 541).

Similarly, in the case of appraising Giproteatr's documents, the Deputy Chairwoman of the Management Board of Kuibyshev archive, Olga Soldatova, who had worked at the archive since the late Soviet period, noted that the archiving process favoured the preservation of projects that held higher "historical value", and therefore often only final blueprints were preserved, foregrounding the final stages and versions of the project (Soldatova 2019). The project documentation that belonged to the earlier stages of projects "had to stay in the organisations for internal use" and after "the need to use it disappeared, it was usually destroyed" (Soldatova 2019). Only certain types of earlier stages of project documentation were marked valuable: "an assignment for a design,

a feasibility study, explanatory notes." "And working drawings... this stage is not subject to state storage" (Soldatova 2019), concludes Soldatova. Therefore, the selection of documents was also conducted according to the ideal of the linearity of the project, punctuated by specific types of documents that charted the project from commission to realisation. To achieve structural coherency in design institute's archival fonds, each project was archived along a standardised temporal axis, and it is therefore often hard to get a sense of the contingencies, delays, informal practices, and agreements, and to map all stakeholders that were part of the process of design and execution. The style of archiving scientific-technical documentation often does not give enough sense of the project-as-a-process and therefore can significantly impact the possibilities for telling a story of a Soviet design practice. This, of course, must be considered during the archival research.

In addition, not all aspects of the life of a Soviet design institute could be reflected by what was processed via 'official' paperwork genres and final-stage blueprints. Therefore, archival research might be profitably complemented using other research methods to address gaps in the record generated by precarious labour conditions and different appraisal logics. These gaps can be partially reconstructed through the analysis of 'nonarchival sources' (Cook 1996, 142): local newspapers, professional design magazines, 'grey' literature, oral history interviews with design or construction workers and eyewitnesses. As Kit Hughes has pointed out, oral history is especially valuable as it allows us to reconstruct how workers made sense of their labour and routines at an organisation (Hughes 2014, 293). Apart from interviewing members of the organisation, Hughes also suggests conducting participant observations (if possible) and preserving elements of the institutional material culture in a museum setting (Hughes 2014, 287-288). Some of Giproteatr's workers salvaged fragments of the Institute's archive, so working with *impromptu* private archives combined with oral history could be another alternative. Valerie Johnson, on the other hand, suggests working *with* archival silences instead of against them by allowing previously suppressed voices to speak or analysing records 'against the grain' (Johnson 2017, 107). Acknowledging and historicising these partiality and archival gaps is also essential to source criticism and interpretation of the remaining documents.

Towards Contours of Absence

Giproteatr's files dating back to the 1970s-80s were due to be archived at the beginning of the 1990s. The transfer of documents overlapped with the collapse of the Soviet Union, followed by a breakdown of the state property system and privatisation of formerly state-sponsored design and construction organisations and institutes. These events prompted the most extensive loss of archival documents of Giproteatr and many other Soviet design practices. Giproteatr went through privatisation in 1992. That same

year, the Leningrad branch of the Institute was sold at an auction (TsGANTD SPb, f. F-398, op. 1-1, d. 229, 'Order on preparation for privatisation of 14.01.1992', 5; 'Order of September 11, 1992. 'In connection with the upcoming sale of Giproteatr at an auction, director Apraksin B. A. is ordered to transfer the documents to the archive', 51). The Moscow branch remained functioning, but the scale of work, number of employees and a variety of disciplinary competences offered by the Institute were no longer comparable with those offered during the 1970s-80s. Most of the Institute's architects left the practice to pursue individual work or founded private ateliers. Overnight, the archived documents turned from state property to a financial burden for the newly privatised design practices facing high bankruptcy risks. Funding for the costly preparation of the documents for archiving was no longer covered by the state. Soviet archiving rules were still in place in the immediate post-Soviet period; however, they were not effective in new economic conditions: "They [institutes] had no money, they were bankrupt [...] Documents may not have been saved […]. We had to collect [the documents ourselves]. Many documents went missing. And not only managerial [documents], but there were also personal [files] [...]. Former employees were left without a pension, without payments" (Soldatova 2019). Following eyewitness accounts, many institutes that did not go bankrupt immediately chose to rent parts of their offices to third parties to make ends meet. Large volumes of paperwork, project documentation and architectural models were often thrown away to free up space for commercial use (Krasil'nikov 2019).

Paradoxically, in the historiography of Soviet architecture, and more generally, in the historiography of Soviet history, the 1990s are considered the years of 'opening of archives'. Many archives were declassified, making new research directions possible. By contrast, from the point of view of Soviet architectural history, these years also marked a minor archival catastrophe: the destruction of the large corpus of documents of the Soviet design institutes and other organisations involved in research, construction and planning practices. Now, more than thirty years later, it might be time to comprehend these gaps and commence a discussion on a research methodology that pays attention to archival collections of state-socialist design institutes as a historical context and meaning-making culture.

Conclusion

As this article has demonstrated, the corpus of documents that constitutes an architectural archive of a Soviet design institute is a result of different appraisal systems and varying understandings of what constitutes architecture and the architectural profession: bureaucratic work or technological innovation through design. Several factors have had a particularly notable impact on the social life of Giproteatr's archival fonds: archiving in poor material and working conditions; the effects of bureaucratic and technical-

scientific logics of document selection that led to the preservation or destruction of diverse paperwork genres; double appraisal, whereby both design workers and professional archivists evaluated documents based on descriptions of 'historical value' that were not openly declared or reflected; Soviet archival regulations; and finally, the impact of privatisation and changing economic conditions in the immediate post-Soviet period. Complementing archival research methods with the critical study of material processes and histories of archiving in a specific research context – what Sonja Luehrmann calls 'archival ecologies' (Luehrmann 2015) – allows for a more nuanced understanding of the limits and possibilities of archival research methodology. Attuning to files not only as sources of information but also as elements of these 'ecologies' would improve the process of source criticism and management of both researcher's archival expectations and archivists' awareness of the sorts of questions architecture humanities scholars are pursuing in their research.

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Neomedieval *Peregrinatio in Stabilitate*:
On the use of fourfold allegory in performance fictioning

ALEX
P L E N T

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Abstract

The responsibilities and vows owed by medieval monastics to their cloistered communities, aside from other practicalities, made leaving the monastery to embark on pilgrimage difficult. Emphasising the spiritual and allegorical character of pilgrimage—in which—the physical journey merely represented the individual moral journey from sin to grace and the collective ascent from Earth into the Heavenly Jerusalem—medieval monastics developed a set of meditational practices historiographically referred to as *peregrinatio in stabilitate*. These practices enabled pilgrimage to be conducted through the imagination while remaining within the sanctity of the cloister.

It has been hypothesised that climate change could increase the future incidence of pandemics thereby making the imposition of lockdowns and other non–pharmaceutical interventions more and more commonplace. This prospect is understood to not only threaten the future viability of conducting many forms of fieldwork but to further damage our already–weakened collective capacity to imagine emancipatory futures from within ever more restricted presents. Responding thereto this paper proposes a neomedieval method, analogous to the medieval practice of *peregrinatio in stabilitate*, by which self–isolating anchoritic practitioners may perform world–creating fictions from the safety and stability of their own cloisters.

Following the work of David Burrows and Simon O'Sullivan, neomedieval *peregrinatio in stabilitate* is proposed as a form of performance fictioning and justified according to a constructivist methodology: here it is assumed that performance fictioning has a mythopoetic capacity to not only describe realities but to create them and that imaginary fieldwork functions as 'the catalyst not for judgement or education but for the articulation and actualisation of [...] a people to come'. Medieval *peregrinatio in stabilitate* and resources used by its historical practitioners are discussed in order to demonstrate the performative qualities of the proposed practice's historical antecedent while a commentary on the concept of neomedievalism details the nature of the relation between medieval and neomedieval *peregrinatio in stabilitate*. Finally, drawing upon Fredric Jameson's Allegory and Ideology, this article finds fourfold medieval allegory to provide a model for the development of complex neomedieval performance fictions that may engender new modes of subjectivity and forms of political agency.

Introduction

> *Long life to the Middle Ages and to the dreaming of them, provided that it is not the dream of reason. We have already generated too many monsters.*
>
> *Umberto Eco, 1987*

Drawing upon 400 years of data, a recent study found that the probability of a pandemic of equal severity to COVID–19 occurring in any given year is around 2% and rising quickly (Marani et al. 2021). The increasing incidence of pandemics, driven by globalisation and climate change, raises the awful prospect that those who declared the arrival of a "new normal" in the spring of 2020 may be proved right, that lockdowns and other non–pharmaceutical methods of containing diseases may become commonplace. Such an alarming vision raises innumerable concerns, amongst which one may consider the future of fieldwork and those avenues of scholarship that rely thereupon.

However, in the face of potential restrictions on travel in the future, the possibility of an interiorised form of fieldwork always remains to us that necessitates neither violation of any enforced *regula* nor exit from the safety and *stabilitas* of one's own *cellula*.[1] The following article proposes such a lockdown–proof fieldwork method in the form of a mythopoetic practice of performance fiction: a neomedieval practice of *peregrinatio in stabilitate*.[2]

In describing the proposed fieldwork method as a form of performance fictioning, I draw on the work of theorists David Burrows and Simon O'Sullivan, who construe such practices as 'engendering new subjectivities and collectivities […] through actions and performances' in which 'different pasts and futures are manifested and made coextensive' (Burrows and O'Sullivan 2019, 6).[3] Following an introduction to the concept of performance fictioning, this article will define the medieval practice of *peregrinatio in stabilitate* with reference to historiographical literature. The discussion will then articulate the particular function that this historical model plays in the proposed methodology, namely as not merely half of a descriptive allegory but rather one level of a fourfold allegory that 'helps set up further conditions—contours and coordination points—for the production of a different mode of being (and thus […] a different world) from within already existing ones' (Burrows and O'Sullivan 2019, 18).

Neomedieval *peregrinatio in stabilitate* is proposed as a substitute for fieldwork methods, such as those of land artist Robert Smithson, that necessitate the practitioner's first-hand critical and creative engagement with a given landscape. As is evident in "A Tour of the Monuments of Passaic, New Jersey" and "Incidents of Mirror-Travel in the Yucatan" (Smithson 1996, 68-74, 119-33), Smithson's artistic practice involved undertaking walks through mundane landscapes and reimagining them in extraordinary ways. Emily Scott likens Smithson's walks to a form of fieldwork practice

1 Benedicitine monks took a vow of *stabilitas* whereby they promised to remain within the monastery (1931, 83-6). The term *cellula* is used to describe monastic living spaces.

2 *Peregrinatio in stabilitate* (which could be translated as interior pilgrimage) names a set of meditational practices developed by Benedictine monks to facilitate pilgrimage without violation of their vow of *stabilitas*.

3 The concept of performance fictioning bears similarities to that of hyperstition developed by the Ccru in the late 90s, as Burrows and O'Sullivan recognise (2019, 305). Hyperstition names an 'element of effective culture that makes itself real' and a 'fictional quantity functional as a time-travelling device' (Ccru, n.d.).

through which, she argues, Smithson 'invented field destinations as a creative–critical act' (Scott 2011, 43). Burrows and O'Sullivan similarly recognise his work as a form of performance fictioning (Burrows and O'Sullivan 2019, 130-4). Smithson insisted upon the intrinsic value of the "primary process" of artistic production—'of making contact with matter' (Smithson 1996, 103)—and objected to critics who, 'by focusing on the "art object," deprive the artist of any existence in the world of both mind and matter'(Smithson 1996, 111). Against such reductive understandings of art, Smithson's fieldwork stands as an experimental form of praxis within an ongoing and open–ended artistic process.

Like Smithson's method, neomedieval *peregrinatio in stabilitate* is a means of engaging with a given landscape through performance fiction but unlike them it does not require the practitioner to go outside. Nonetheless, neomedieval *peregrinatio in stabilitate* does constitute a form of fieldwork insofar as it involves an estrangement (or fictioning) of the indoors. The prospective value of this activity hinges upon its capacity to allow practitioners to imagine alternative futures from within restricted presents. Pandemics, after all, and the non–pharmaceutical interventions used to contain them, figure not only as inhibitions upon our everyday lives but as limitations upon our capacity to imagine emancipatory futures.

Performance Fictioning

Burrows and O'Sullivan's *Fictioning* catalogues the work of disparate artists, scientists and philosophers in a vast volume which resembles a sourcebook for the would-be practitioner of fictioning. 'We [...] declare the possibility of practices that engender that which does not exist, that precisely, fictions it', Burrows and O'Sullivan state, 'it is towards such a productive notion of fictioning—beyond parody and simulation [...]—that we have written our book' (Burrows and O'Sullivan 2019, 5). *Fictioning* is structured around the three "myth-functions" of contemporary art and philosophy (mythopoesis, myth–science and mythotechnesis) and three respective modes of fictioning (performance fictioning, science fictioning and machine ficitoning). Each "myth–function" and mode of fictioning is associated with a particular tradition of thought and history of practice—performance fictioning, for example, is associated with European and Anglo–American avant-gardism, masculine subjectivities and a tendency towards romanticism or a longing for redemption (Burrows and O'Sullivan 2019, 6-7).

The authors describe performance fictioning as 'the art (and/or science) of calling forth *something in us that ain't us*,' adding that, 'this necessarily involves the fictioning of other ways of speaking, enjoying, relating and existing [...] engendered by images, sounds, writing and events' (Burrows and O'Sullivan 2019, 16-7). At the crux of performance fictioning is the practitioner's own

attitude towards the story; they must not only tell the story, but *really* believe in this story themselves—we admit to proceeding as if fiction were reality, Burrows and O'Sullivan write, 'that is […] through experimenting with believing in what we know might not be true' (Burrows and O'Sullivan 2019, 512). As a consequence of this attitude, unlike other forms of fiction, performance fictioning is necessarily 'an ongoing practice that is without a set beginning or ending' (Burrows and O'Sullivan 2019, 6).

The most significant methodological step made by Burrows and O'Sullivan—which leads them to transform "fiction" from a noun into a verb—is the ascription to performance fictioning of a mythopoetic capacity not only to describe realities but to create them—where 'art and writing are the catalyst not for the judgement or education but for the articulation and actualisation of [...] a people to come' (Burrows and O'Sullivan 2019, 17). Fictioning therefore presupposes a radical constructivism (though they do not describe it as such) that might be defined in opposition to *social constructivism*. Social constructivists maintain that art and writing (as forms of language) should be understood as socially constructed phenomena, that is, not as real things themselves but representations of real things—as mere words representing the world. More radical still is the notion within constructivism that entails the rejection of any fundamental distinction between the natural and the social, where art and writing (and fictioning) may be understood as processes in which human and non–human agencies are active and through which truth and reality are constructed. On this epistemological footing, inasmuch as art and writing are constructed, historically contingent and, therefore, liable to alteration, so too are truth and reality. As such, performance fictioning responds to the blockage of the collective political imagination described by Mark Fisher as "capitalist realism," or ' the widespread sense that not only is capitalism the only viable political and economic system, but also that it is now impossible even to *imagine* a coherent alternative to it' (Fisher 2009, 2). Indeed, Burrows and O'Sullivan briefly describe performance fictioning as 'a practical elaboration or manifestation of th[e] belief […] that another world is indeed possible, besides the one of "Capitalist Realism" ' (Burrows and O'Sullivan 2019, 34).

For their part, Burrows and O'Sullivan explicitly locate the urgency of their work in the context of the emergence of post-factual politics and the replacement of any idea of truth with ideas of perception management—fictioning, they argue (referring to all three of the aforementioned modes thereof) does not simply operate 'as a critique of this new terrain, but as something that operates on the same level as these fictions, and engages with the strategies and tactics deployed by agencies engaging in managing and experimenting with perception and reality' (Burrows and O'Sullivan 2019, 10). This seems to be a strategically astute political position which converts post-factualisation from a source of anxiety and despair into a promise of empowerment and emancipation. Needless to say, in recent years the COVID–19 pandemic and the prospect of lockdowns and other non-pharmaceutical interventions becoming commonplace have accentuated a sense of anxiety and despair such that constructivist practices, performance fictioning included, appear more vital than ever.

Medieval *Peregrinatio in Stabilitate*

Giles Constable observes that Monasticism and pilgrimage, two of the most familiar characteristics of medieval religious life, were also greatly incompatible with one another: while monasticism insists on an obligation to remain within the stability of the cloister, pilgrimage implies movement and travel (Constable 1977, 3). However, Constable's conflation obscures the plurality and mutability of medieval pilgrimage practices, the historical development of which was contingent not only upon theological issues but also political and socioeconomic factors. In response to this, the proposed method invokes the historiographical distinction made by Jean Leclercq between two modes of practice (Leclercq 1961, 51):

> 1. *Stabilitas in peregrinatione*, which requires physical movement (whether that may take the form of either a journey to one or more specific holy sites (often the earthly Jerusalem) or a more open–ended peripateticism). This is the mode of pilgrimage practice that Constable mistakes for pilgrimage per se.
>
> 2. *Peregrinatio in stabilitate*, which requires focused meditation in order to progress along an inner or spiritual journey towards the Heavenly Jerusalem. This is the mode of pilgrimage that Constable reduces to monasticism.

Constable's reduction is understandable given the predominance of *peregrinatio in stabilitate* among monastic pilgrimage practices from the eleventh–century (Leclercq 1961, 51). This was due in no small part to the influence of *The Rule of St Benedict*, a sixth-century book of precepts written for cenobitic monks, in which St Benedict stresses the virtue of monastic enclosure over peripateticism (St Benedict 1931, 7–8, 99–101). St Benedict conceived the monastic enclosure as both an Edenic paradise and a provisional heaven, a refuge from the mortal world of sin and imperfection—a metaphor that was expressed architecturally by the enclosed garth (Helms, 2002). According to St Benedict, to remain within the enclosure was to be a stranger to the world, a *viator*, a pilgrim, while to leave the monastery was to be a stranger to God, an *alienus*, as Adam and Eve became upon expulsion from the Garden (Ladner 1967, 234–8).

On the other hand, Constable's later assessment that monasticism and pilgrimage were functionally similar is more discerning. As he suggests, both institutions imply withdrawal from the world and constitute, in the lives of individual practicing Christians, a rite of passage, the beginning of 'une nouvelle vie religieuse, coupée des valeurs et des chemins du siècle' (Constable 1977, 6).[4] Monasticism and pilgrimage (in either mode of the practice), both address the oppositional relationship between God and the world established in the First Epistle of John (2:15-16),[5] providing means for Christians to live out the scriptural ideal of being a future citizen of heaven while in the temporary exile of earthly life (cf. Psalms, 39:12; Philippians, 3:20; Hebrews, 11:9; 1 Peter, 2–11) (Dyas 2001, 27–55).

4 'a new religious life, cut off from contemporary values and ways of life' (my translation).

5 'Love not the world, neither the things that are in the world. If any man love the world, the love of the Father is not in him. For all that is in the world, the lust of the flesh, and the lust of the eyes, and the pride of life, is not of the Father, but is of the world'.

Throughout the medieval period, resources were produced to support practitioners of *peregrinatio in stabilitate*. Daniel K. Connolly describes one such resource, Matthew of Paris' thirteenth-century itinerary maps, as having dynamic and interactive qualities that have been overlooked by earlier scholarship:

> *The Benedictine brother who perused these pages understood this map primarily through its performative possibilities, as a dynamic setting, the operation of whose pages, texts, images, and appendages aided him in effecting an imagined pilgrimage (Connolly 1999, 598).*

Connolly notes the embodied language used to annotate the maps and their orientation such that the route to Jerusalem is marked by a vertical line reaching away from the viewer towards the horizon at the top of each page (Connolly 1999, 608), arguing that in the act of studying the codex, 'the place of the viewer […] becomes also the place of the body in the world, and it is this "placeness" that is part of the performance' (Connolly 1999, 610). Connolly compares Matthew of Paris' itinerary maps to other medieval texts that advocate a form of embodied performance fiction in which the reader's *cellula* is imagined as a given pilgrimage site (Connolly 1999, 610).[6] One such case is the fourteenth–century *Libro d'Oltramare* by Niccolò da Poggibonsi which relates many measurements that would be helpful to pilgrims physically travelling through the Holy Land but, as John K. Hyde argues, 'when we are told, for example, that the Holy Sepulchre is nine palms long by three and a half wide and stands four palms above the ground, or that the chapel of Mary Magdalene is ten paces from the Sepulchre, the aim was clearly different' (1990, 22). Such resources are testament to the performative quality of medieval *peregrinatio in stabilitate* and may also indicate what sort of tools may be useful to practitioners of its neomedieval counterpart.

Analogical vs. Allegorical Neomedievalism

Neomedievalism first gained traction within the discipline of political theory. Following the publication of Hedley Bull's *The Anarchical Society* (Bull 1977, 254), the neomedieval was used to draw an analogy between the political system of medieval Europe and that of post–Fordist transnational capitalism. The pre–Westphalian political system of medieval Europe—in which authority and sovereignty were vertically–stratified through the complex, asymmetrical system of overlapping liege–lord relationships characteristic of feudalism—provided an analogue, so early neomedievalists argued, to the system that was emerging in world politics during the late twentieth–century in which the growing political influence of intergovernmental organisations, transnational corporations and other non–governmental organisations was increasingly challenging the exclusivity of state sovereignty.

6 This particular form of performance fiction is remarkably similar to that which was advocated by Xavier de Maistre on occasion of his imprisonment (1828).

In his seminal essay, "Dreaming of the Middle Ages" (1986), Umberto Eco used the term to describe the widespread tendency in European and American pop culture to splice the archaic and the futuristic together—for example, Eco reads "Star Wars", in which an order of knights defend their code in a galactic war by making use of faster–than–light interstellar travel, as a neomedievalism. Remarking upon the contradictory ways in which neomedievalisms represent the medieval, Eco expressed concern that some may be 'supporting, perhaps without realising it, some new reactionary plot' (Eco 1986, 72). Similarly, Burrows and O'Sullivan suggest that neomedievalism may provide impetus to reactionaries who reject the principles of democracy and egalitarianism in favour of greater social stratification and a return to pre–modern authoritarian forms of monarchical government, combined with futuristic technology and hypercapitalism (Burrows and O'Sullivan 2019, 104–107). In voicing such concerns, Eco assumes that neomedievalisms are 'works of fiction that can have traction on reality beyond their status as literature' (Burrows and O'Sullivan 2019, 26). Thus, whereas Bull deploys the neomedieval as a descriptive analogy, Eco recognises the mythopoetic potential of neomedievalisms, that is, their prescriptive capacity to gain traction on the real and instantiate the worlds they describe.

Burrows and O'Sullivan also seem to recognise this distinction between the analogical and allegorical as well as the mythopoetic potential of allegory. They praise Arnold Williams' "operational approach" to fourfold allegory 'that points to fictioning modes that can address the "horizontal" […] aspect of postmodern culture' (Burrows and O'Sullivan 2019, 109). They contrast the fertility of Williams' approach—which the historian himself describes as 'a method of interpretation and a method of creation' (Williams 1969, 77)—to Jameson's dismissal of allegory as a method of 'static medieval or biblical decoding' operating via 'one–on–one conceptual labels' that is incapable of producing novelty (Jameson 1991, 168, cited in Burrows and O'Sullivan 2019, 109). Here Burrows and O'Sullivan seem to inadvertently pre–empt Jameson's later rejection (in *Allegory and Ideology*, published three months after *Fictioning*) of such static, dualistic forms of allegory as little more than analogy (Jameson 2019, 7). There, Jameson likewise finds in fourfold allegory a process through which, by shifting back and forth between the neomedieval present and the medieval past, 'the old levels enter on a variety of new and impermanent relationships and complex structural adjustments' (2019, 310).

Burrows and O'Sullivan's are interested in neomedieval performance fictions 'as a means of resisting those dominant forms of globalisation that have transformed societies' (Burrows and O'Sullivan 2019, 103). They approvingly recall Fredric Jameson's description of globalisation as a representational problem, namely as the historical process by which postmodernity 'finally succeeded in transcending the capacities of the individual human body to locate itself, to organise its immediate surroundings perceptually, and cognitively to map its position in a mappable external world' (Jameson 1991, 44, cited in Burrows and O'Sullivan 2019, 106).

Jameson provisionally refers to one means of overcoming this problem of mapping the complexities of the globalised world and the subject's position therein as "cognitive mapping", which has been the goal of his ongoing research since at least 1984 (Jameson 1984, 92). While reference to cognitive mapping in *Allegory and Ideology* is conspicuously scant, Jameson seems to have found in fourfold allegory a practice that is functionally similar, remarking that the 'interrelationship between the various levels of allegory invents connections between dimensions of reality otherwise imperceptible in the complexities of modern social life' (Jameson 2019, 347).

The fourfold schema is expounded by Jameson with reference to a specific biblical example:

> *Its founders and practitioners […] posited the events of the Old Testament as a literal text in which a different and future event was prefigured. Thus famously the descent of the Hebrews into Egypt, grasped as an event that really happened in history, is also read as a foreshadowing of Christ's descent, after his crucifixion and death, into Hell […] their exodus from Egypt then clearly prefigures the resurrection; and these two events, taken stereoscopically, may also serve to characterise the wallowing of the soul in sin and earthly misery and its emergence into salvation by way of a radical conversion. At the same time, this earthly and individual parallel also prefigures the fate of the collectivity itself, which can be redeemed by the Last Judgement (2019, 18-9).*

Thus, there are four levels: the literal, the allegorical, the moral and the anagogical. Jameson points to the obvious qualitative differences between the levels and the asymmetrical relationships which bind them, suggesting the diagrammatic form of Algirdas Julien Greimas's semiotic square as 'an apt vehicle for its analysis' (Jameson 2019, 331). Like the Greimas square, fourfold allegory is 'not some replication of two simple dualisms added together,' Jameson argues, 'but rather a distinction between two kinds of negations' (Jameson 2019, 16).

Neomedieval Peregrinatio in Stabilitate as Fourfold Allegory

The fourfold schema provides a model for the development of complex neomedieval performance fictions and, therefore, may indicate how such practices engender novel forms of subjectivity and collectivity. In this final section, drawing upon two neomedieval guidebooks that address similar neomedieval meditational practices in the contemplative tradition, neomedieval *peregrinatio in stabilitate* will be articulated as a fourfold allegory.

The literal level, being the first, can be freely nominated and is constituted here by the practice of medieval *peregrinatio in stabilitate*. The second, allegorical level, must be occupied by something analogous to the first, in this case, the practice of neomedieval *peregrinatio in stabilitate*. Yet the relationship between these two initial levels must be construed as more intimate than simply analogy. It is instructive to think of this relationship as that of typology—the ancient art of reading the New Testament as the fulfilment of the Old Testament in such a way that neither is complete without the other. This relationship is one of prophecy rather than causation and, as Jameson notes (Jameson 2019, 21), is that which is described by Walter Benjamin as being surmounted by the tiger's leap—'a past charged with the time of the now […] blasted out of the continuum of history' (Benjamin 1973, 263). Thus, the medieval and neomedieval practices of *peregrinatio in stabilitate* must not be grasped as two sequential historical events on a timeline but as two eternal events according to what Benjamin referred to as the *jetztzeit* (Benjamin 1973, 263).

The events of the first level, when read stereoscopically with those of the second, imply a form of subjectivity proper thereto: this normative subjectivity constitutes the third, moral level. In Jameson's example, the descent of the Hebrews into Egypt and their subsequent deliverance, when read stereoscopically with the crucifixion of Jesus and his subsequent resurrection, served to remind the individual medieval Christian of the promise of their salvation: that they were temporary exiles on Earth but future citizens of the Heavenly Jerusalem. The third level of the fourfold allegory we are developing here need not refer to salvation, redemption or an afterlife, as Jameson suggests (Jameson 2019, xvi).

Schott, Smith and Whitehead, authors of the neomedieval *Guidebook for an Armchair Pilgrimage*, resist alluding to such themes: upon reaching the goal of their pilgrimage, they implore their readers to engage in 'not a reassuring worship; these things do not promise redemption, but a connection that will take you into unpredictable relationships' (Schott, Smith and Whitehead 2019, 108).[7] They recognise that the emergence of such new relationships is dependent upon the practitioner undergoing a process by which they lose their sense of self, imploring their readers to do so at multiple intervals. For example, they write:

> *Give up any templates you still have left. Let them dissolve and slip between the currents. Let nothing frame how you see the world. Then follow their example: liquefy your self […] take a few minutes to dissolve (Schott, Smith and Whitehead 2019, 12).*

Unlike medieval guidebooks, such as that of Goscelin, an 11th century monk, which advocates the practice of anchoritism for its capacity to foster a closer relationship with God (1955, 89, cited in Hughes–Edwards 2012, 81), such passages in *Guidebook for an Armchair Pilgrimage* suggest that the same meditational devices employed by anchorites might lead the practitioner to re–evaluate their relationship with all things.

7 Schott, Smith and Whitehead's guidebook, based on a walk they took through an undisclosed landscape, is a large format pressing packing over 100 photographs, many of them full-page, into 144 pages. They implicitly relate their work to medieval *peregrinatio in stabilitate*, acknowledging the influence on their guidebook of Felix Faber – 'a fifteenth-century monk, who drew upon his visits to Jerusalem to write a handbook to be used by nuns for a virtual pilgrimage to that city' (Schott, Smith and Whitehead 2019, 3) – yet, due to its pictorial qualities and frequent injunctions to the reader, it is equally reminiscent of Matthew Paris' itinerary maps.

8 The Confraternity of Neoflagellants' "The Journeyman's Guide to Anchoritism" is a guidebook to various neomedieval anchorholds. Anchoritism is an ancient hermetic tradition of solitary confinement and contemplative prayer established by the Desert Fathers. The Confraternity of Neoflagellants refer to guidebooks produced in medieval England for prospective anchorites which were largely written in an accessible style because, as Mari Hughes-Edwards argues, in medieval England 'anchoritism functioned as an increasingly accessible spiritual model for the laity' (Hughes-Edwards 2012, 25. See also: Dyas 2001, 214). While the lay style of such guidebooks distinguishes medieval English anchoritism from the formalised practice of monastic *peregrinatio in stabilitate*, the two practices are similar insofar as they both emphasise stability of place as conducive to the contemplative life (Hughes-Edwards 2012, 32).

The Confraternity of Neoflagellants (a collaborative neomedieval theory–fiction project by Sergeant–at–Law Norman Hogg and Keeper of the Wardrobe Neil Mulholland) likewise recognise the potential of anchoritism in this regard.[8] Recalling the offices 'recited to signify the new anchorite's liminal status as already dead to the world yet reborn to a life of solitary spiritual communion,' they write, 'the anchorite abandons its person-assets and becomes quasi-object' (The Confraternity of Neoflagellants 2013, 110). Popularised by Bruno Latour in *We Have Never Been Modern* (1993), the notion of quasi–objects describes entities that are neither passive recipients of human action (natural objects) nor capable of intentionality or self-direction (social subjects), but hybrids –'monstrous composites circulating in (and crucially as) networks of translation and mediation' (The Confraternity of Neoflagellants 2013, 132). Anchorites become quasi–objects, not because they forfeit their personhood and withdraw from the world, but because they 'paradoxically find themselves at the centre of parish life,' a nodal point at the centre of a network dispensing spiritual counsel and connecting 'this world and the next' (The Confraternity of Neoflagellants 2013, 122).

The self–isolating practitioner of neomedieval *peregrinatio in stabilitate*, unlike the anchorite, does not paradoxically become a quasi-object mediating between subjects in a network—they remain a subject engaged in a network limited primarily to their *cellula* and the objects therein. Within this limited network the guidebooks and other meditational resources must be recognised as quasi–objects insofar as they propel the practitioner–subject's imagination. After all, such effects cannot be accounted for without recourse to quasi–objects: the guidebook's authors are not present, they act vicariously *through* their writings as quasi–objects. Moreover, the products of the practitioner's imagination themselves, insofar as they cannot always be controlled by the practitioner, must also be recognised as quasi–objects that '[call] forth *something in us that ain't us*' (Burrows and O'Sullivan 2019, 16). Insofar as neomedieval *peregrinatio in stabilitate* demands acknowledgement of the reality of quasi–objects it effectively requires us to adhere to Latour's thesis—that we have never been modern. Thus, the subjectivity proper to neomedieval *peregrinatio in stabilitate* is no less than that described by Latour as that of the nonmodern (Latour 1993, 47).

The fourth level of the fourfold allegory, Jameson writes, is that which retroactively reveals the former to be a mere 'supplementary interpretive and individual commentary of a far more fully formed and fleshed out anagogical or collective meaning' (Jameson 2019, 20). In Jameson's biblical example, the salvation of the individual's soul prefigures the collective redemption of mankind in the Last Judgement. However, he stresses the difficulty of identifying the fourth level in any given allegorical schema (Jameson 2019, 352). Neither of the neomedieval guidebooks considered above make specific reference to what collective change contemplative practice may affect, and such ambitions also lie outside the remit of this article. Nonetheless, it is clear that, unlike in Jameson's

example, the fourth level need not necessarily refer to a redemptive eschatology. Against such transcendentalism—where this names a belief that the capacity to transform the world lies beyond the limits of human reason and resources—Burrows and O'Sullivan advocate performance fiction as an 'invention in the realm of life (a technology of immanence as it were)' (Burrows and O'Sullivan 2019, 2). Nonmodernity, therefore, need not be heralded by the divine nor entail the redemption of mankind and their ascent from this world into heaven—another world is possible within this one.

The non–necessity of redemptive themes within the latter levels of fourfold allegory, returns us to Eco's concern that some neomedievalisms may unwittingly abet reactionary causes. Ultimately, as Burrows and O'Sullivan write, 'it all comes down to a question of how the past is activated or fictioned in the present' (Burrows and O'Sullivan 2019, 106). The achievements of democracy and egalitarianism may be rendered an aberration, the possibility of their destruction as an opportunity for atonement and redemption, while the medieval past may be nostalgically romanticised as an ideal model. On the other hand, neomedieval practices may be used 'to explore the potential of allegory and fiction combined with performance to find alternatives to globalising tendencies' (Burrows and O'Sullivan, 2019, 106). Only the latter promises the exciting mythopoetic potential of constructivism:

> *[…] the transformation of all the unlovely advances of capitalism's universal accelerationisms into humanising achievements: the transmutation of ecological disaster into the terra–forming of the earth, and of population explosion into a genuine human age, an Anthropocene to be celebrated rather caricatured in second–rate dystopias (Jameson 2019, 37).*

The Mythopoetic Capacity of The Eerie

Following Burrows and O'Sullivan, this article has outlined neomedieval *peregrinatio in stabilitate* as a lockdown–proof form of performance fictioning. With reference to Fisher's *Capitalist Realism*, the urgency of the proposed method has been anchored to the risk that future pandemics may threaten our already–weakened collective capacity to imagine emancipatory futures. Burrows and O'Sullivan make an insightful connection between the overtly political *Capitalist Realism* and Fisher's later work, *The Weird and the Eerie*, ostensibly a literary study of horror and science fiction of little political consequence: the eerie, they suggest, may function as 'an antidote to capitalist realism' (Burrows and O'Sullivan 2019, 139). Fisher describes the eerie as a mode of feeling that clings to 'landscapes partially emptied of the human' (Fisher 2016, 11). Notably, Smithson's work, and that of others which Burrows and O'Sullivan identify as instances of performance fictioning, are preoccupied with such landscapes (Burrows and O'Sullivan 2019, 125–42). The perspective of the eerie, Fisher argues, 'can give us access to the forces that govern mundane reality but which are ordinarily obscured, just as it can give us

access to spaces beyond mundane reality altogether' (Fisher 2016, 13). Burrows and O'Sullivan's suggestion, then, is that the eerie has the potential to inspire the restoration of our collective capacity to imagine emancipatory futures. As such, performance fictioning, when utilised as a method of engaging with a given landscape—and, by extension, neomedieval *peregrinatio in stabilitate*—may be most effective when attuned to the eerie.

The mythopoetic capacity of the eerie may be further demonstrated by grasping four terms deployed in *The Weird and the Eerie* (the familiar, the *unheimlich*, the weird and the eerie) as a fourfold allegory. Fisher's primary argument in *The Weird and the Eerie* is that, despite all three concerning the strange, the weird and the eerie are distinct modes of being from the *unheimlich*: 'Freud's *unheimlich* is about the strange *within* the familiar', Fisher argues, while on the other hand, 'the weird and the eerie make the opposite move: they allow us to see the inside from the perspective of the outside' (Fisher 2016, 10). Is this not the task to which third and fourth levels of medieval fourfold allegory were set: to locate the individual Christian within a universal cosmology? Regardless, such avenues of thought lead us to reiterate once more the second aim of this article: to augment Burrows and O'Sullivan's project with Jameson's discussion of fourfold allegory. It has been argued here that Jameson's fourfold schema of medieval allegory, as a conceptual tool capable of calling forth new forms of subjectivity and collectivity, represents a fertile model for the development of neomedieval performance fictions.

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Digital Imperfection

Earth brick construction supported by mixed–reality technologies

Abstract

Digital Imperfection was a temporary installation at the German University in Cairo (GUC) that combined the use of mixed-reality tools and earth as a sustainable and multifaceted material. The project involved two separate processes that came together during the final montage procedure: on the one hand, the design of handmade earth bricks, and on the other, the design of a parametric wall and the coding of the montage procedure on the mixed-reality platform.

The project aimed to reconnect both students and a wider audience with a traditional craft through the use of modern digital tools. Hand-crafted bricks were stacked to create a wall with the help of a HoloLens device, which overlaid a digital four-dimensional model over the physical world. Despite the mediation of digital apparatus, the aim was to engage participants in a comprehensive workflow that involved aspects of both handmade production and interactive assembly, rather than promoting a mere robotic process. During the research phase, we investigated the relationship between high-tech and low-tech tools through the following questions:

- How can we incorporate digital technology without losing human interaction?
- How can we measure and account for manufacturing imperfections?
- How can we minimise those imperfections within the design and its montage?
- What benefits and opportunities are offered by the combination of low- and high-tech techniques?

The process accounted for various imperfections and height irregularities (resulting, for example, from differences in mortar thickness or manufacturing), sustaining a constant loop with real-time feedback: the physical model was updated with new bricks while the digital model was updated with height corrections.

The research offers multiple benefits. Firstly, it introduces students (and a broader academic public) to the use of sustainable materials in combination with parametric design. Secondly, it produces a digitally-designed installation (of relative complexity) without the need for printed documentation. Finally, it demonstrates a resource-saving method in which both building procedure and instructions are entirely virtual, eliminating the need for framework or printed plans.

Digital Imperfection puts humans at the centre of the digital assembly process; humans are not replaced by robots or algorithms

but instead collaborate with them in ways that maximise the advantages they offer.

Introduction

Earth is no longer a peripheral material phenomenon. Circularity, lifecycle and cradle to cradle are finally dominating architectural debates and conferences about sustainability. The architectural world is developing a new awareness and a sustainable conscience around architecture and construction. Recognising and reflecting this growing awareness, and seeking to further develop it, a workshop was held at the German University in Cairo (GUC) in 2021. The workshop was organised as a collaborative event between two elective courses, "Unplugged Matter: Earthen Material" (UM:EM) and "Introduction to Robotics in Architecture" (IRA). It considered the use of earth as a building material from a range of perspectives, including ecological, economic, social, participative and aesthetic. These considerations are all important for the development of a holistic approach to sustainable activity.

The present research aimed to combine perspectives specific to each of the elective courses, and thus to integrate, at every stage, knowledge and understanding particular to both material responsible design and digital/parametric design. While it is already almost impossible to avoid digital technologies in contemporary architectural discourse, the collaboration also proposed to augment not only the capacities of each sub-discipline, but also the perception (and auto-perception) of them by associating low-tech building techniques with hi-tech design procedures. Given the focus of the IRA elective course, one key priority of the collaboration was to expose students to some of the most complex tools currently available for design and construction. This is a highly relevant concern within contemporary architecture given the relative absence of mixed reality technologies such as Augmented reality (AR) and Virtual reality (VR) in design and construction contexts despite these same technologies rapidly becoming ubiquitous in other areas of everyday life (for example, in the form of real-time image and video filters on social media platforms such as Snapchat and Instagram).

The research used Microsoft's HoloLens, a smart glass projection system that uses a complex array of sensors and cameras in order to 'sense' its environment. The device is able to interpret its position in a given environment and project information seamlessly onto a transparent glass, creating the impression of "holographic" projection, that is, the superposition of digital imagery over reality. The HoloLens is Microsoft's take on "mixed reality", (Speicher, Hall, and Nebeling 2019, 1-15) a combination of technologies that fosters interactions between real and virtual environments by using instinctual interfaces such as precise motion detection and environmental sensing. Mixed reality is designed as a blend between physical and digital worlds, a form of technology that

enables the user to operate seamlessly in both physical and virtual spaces. According to Microsoft, the developer of HoloLens, Mixed Reality can be thought of as a spectrum, with the physical world at one end and the digital world at the other (Wen et al. 2022). Within this spectrum, AR is often understood as being closer to the ' physical world,' while VR is closer to the 'digital world.'

The scope of the present research does not include consideration of the many and complex functions of mixed reality technologies, such as motion sensing or cloud computing. The focus instead will be on using the HoloLens as a location and projection device. This will involve tracking the user in three-dimensional space while overlaying graphics and precise visual feedback.

Objectives

The main objective of this research project is to explore possible relationships between handmade craft techniques and digital tools. The research installation was designed as a collaboration between two courses, one dealing with earth construction and the other with robotics and parametric design, and for this reason, the intention was to find common topics and concepts in order to cross-fertilise each field of expertise with the other.

The possible fields for collaboration between the two courses, UM:EM and IRA, were defined by the different stages of a design, either analogue or digital. These stages were defined roughly as:

- Conceptual design
- Constructive/detail design
- Design procedure
- Design of construction procedure
- Construction process

The concept behind the collaboration was to hybridise these stages, to the extent possible, blending both analogue and digital techniques. As previously noted, while most contemporary design procedures include more or less of a digital component, we intended to maximise this feature by using parametric design or remote sensing instead of just using three-dimensional modelling or CAD drawings. For example, when designing the final pieces, or 'bricks,' the student did not only model them in 3D but also parametrised their design, exploring different formal and size variations of the same design. In the conceptual design stage, we evaluated the possibilities of building two distinct types of object: either, on the one hand, a sculpture or a bench, or else a wall. The possibilities of digitalisation allowed us to parametrise a shape, for example, a bench, and then the formwork that would limit the rammed earth. The parametric wall was designed by considering two parametric variables: the brick and the wall itself. Design research explored both, testing different dimensions and geometries of forms and their interactions. At this point, before any material input, this

conceptual design stage was limited only to the decision to build either a wall or a sculpture.

The constructive design phase was carried out by students from the UM:EM course. They explored several brick types using different earth construction techniques, such as for compressed earth bricks (CEB), adobe and rammed earth. As each student group tested and developed their own ideas, there was significant diversity in the shapes of the resultant bricks, ranging from 'tileable' shapes like hexagons or traditional bricks to other, more complex forms, featuring interlocking shapes and Tetris-like geometries (Figure 1). This stage was carried out entirely with analogue tools such as sketches and models, while also trying to take into account material qualities and characteristics such as resistance, rigidity, overall load bearing capacity and other visual features, such as textures or colours.

During this semester, teaching was influenced by Covid 19. Lockdown forced us to reconsider the manufacturing process, leading to a switch from CEB bricks to the use of a wooden frame that could be exchanged among students. Students *rammed* the bricks by hand at home, then let them dry until the assembly day. The increased number of imperfections resulting from this procedure forced, and indeed inspired, us to come up with a digital solution – one that could effectively address the issue of bricks of varying heights and could be integrated into the digital design and build setup.

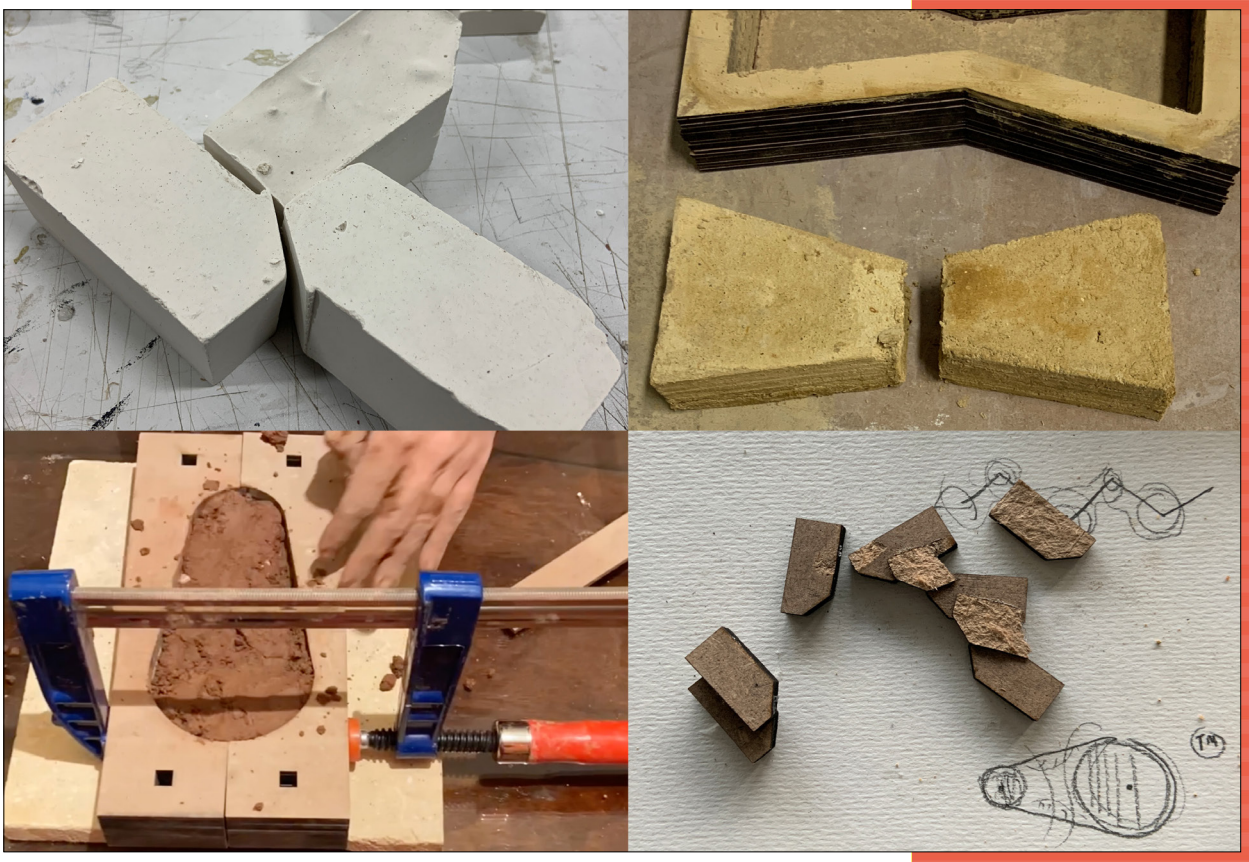

Figure 1. Student work. Early sketches and models for brick design and interlocking possibilities

In parallel to this work, students from the IRA course carried out the design procedure for a wall composed of single bricks. It was allowed for the wall to take any shape, both in section and floorplan, including the possibility of slope, inclination or curvature in any plane. The solution for the wall definition was quite simple. A surface is defined by two curves or polygons (top and bottom). If both curves have the same dimensions and are displaced in vertical, the wall will be perfectly vertical. If they are misaligned or offset, rotated or scaled in any direction, then the wall or parts of it will be sloped. Finally, the wall is ´sectioned´, or ´sliced´, in horizontal lines: these will be the guiding lines for the bricks. Each brick will be located over these horizontal lines, either aligned to it or re-oriented according to other criteria.

Lastly, the construction procedure was designed by students from both teams, who negotiated the particularities of the material and construction technologies and translated them to the digital project. The assembly procedure needed to be embedded with the final design of the wall, as did brick size and the unique positions of each brick in the wall. Since the procedure was to be performed with the HoloLens device, a certain differentiation between the different bricks had to be defined, for example, between the bricks in the wall, the bricks in the pick-up area and the ´current´ brick, the one being carried by the user.

The intention was to create a seamless workflow that would allow the user to visualise any change in the design of the wall (either its overall shape or the position or type of bricks) in real-time, on a one-to-one scale and superimposed on the actual site. It was also intended to account for various imprecisions, such as geometric inaccuracies due to the manufacturing process, mounting mistakes or discrepancies in the thicknesses of materials, for example, in the ´mortar´. Since these types of errors are embedded in the material and the construction procedure itself, the purpose of this research was also to create a design process that could effectively account for them.

Rammed Earth: Material and Technique

The use of rammed earth construction methods stretches back through centuries-long traditions, with the technique evolving from generation to generation through orally transmitted experience reports among master-builders (Guillaud 1997, 5). Rammed earth is made from a mixture of loam and granulated stone that can frequently be found in nature. During the ramming process the loose earthen material is turned into a solid mass (Kapfinger and Sauer 2015, 157). Humid earth is poured into a formwork in thin layers and then rammed to compress the material and increase its density. By increasing the density, the compressive strength and water resistance of the material are also increased. Traditionally, the ramming process was done by hand with a heavy stomp, but in recent decades, ramming has been done mechanically using a pneumatic tool. Current research projects are attempting to partly automatise the process using robotic manufacturing technologies (Bonwetsch, n. d.).

Rammed earth is not homogeneous around the world. In fact, as compared to adobe and compressed earth bricks, rammed earth is considered particularly susceptible to variation in quality due to differences in soil quality and homogeneity (Houben and Guillaud 1994; Standards Australia 2002). Due to their enhanced durability, buildings constructed from both rammed earth and compressed earth bricks are considered less costly to maintain compared to those constructed from adobe.

Use of prefabricated rammed earth blocks is a technique that sits somewhere between rammed earth and compressed earth bricks. They are usually manufactured by hand or with very little mechanisation. Apparently, the first attempts in creating rammed blocks were made in France during the nineteenth century by Francois Cointeraux. Cointeraux fabricated pre-cast small blocks of rammed earth, using hand rammers to compress humid soil into small wooden moulds, which were held in place with the feet (BASEhabitat 2018). The present research was carried out using a similar technique, the compressing of small brick-type blocks on a wooden frame.

Clay types: The case of Egypt

Although earthen materials are available worldwide, Egypt offers two main subtypes of clay: one originates in the sedimentation of the Nile, another in the desert. As the former subtype is important for agriculture, its use has been restricted over time. The bricks for this project belong to the latter subtype: desert clay.

The soil for this project was obtained from Tunis Village, in the Fayoum governorate. This soil is a desert clay soil, suitable for earthen construction, and its use does not cause desertification of agricultural land. A series of tests were carried out in order to determine the composition of the clay. For example, one of the tests employed was the sedimentation test. This test is conducted by filling a transparent bottle one quarter full with soil and three quarters with water. The bottle is shaken vigorously and left to settle until, after a period of around eight hours, the water on top is clear, gravel and sand fill the bottom of the bottle, with silt above this, then clay, and finally organic components on the top of the excess water. This test can be used to approximately tell the percentages of each component in the soil, which is then was plotted on the United States Department of Agriculture (USDA) textural classification chart to determine the type of the soil. In this case, a lab test established the percentages of each material: clay 15%, silt 50%, and sand 35%. According to the USDA chart, the soil type is a loamy soil. Further compression lab tests yielded 8.36 kg/cm^2 as a result for unconfined compressive strength (Maher 2020) (Figure 2).

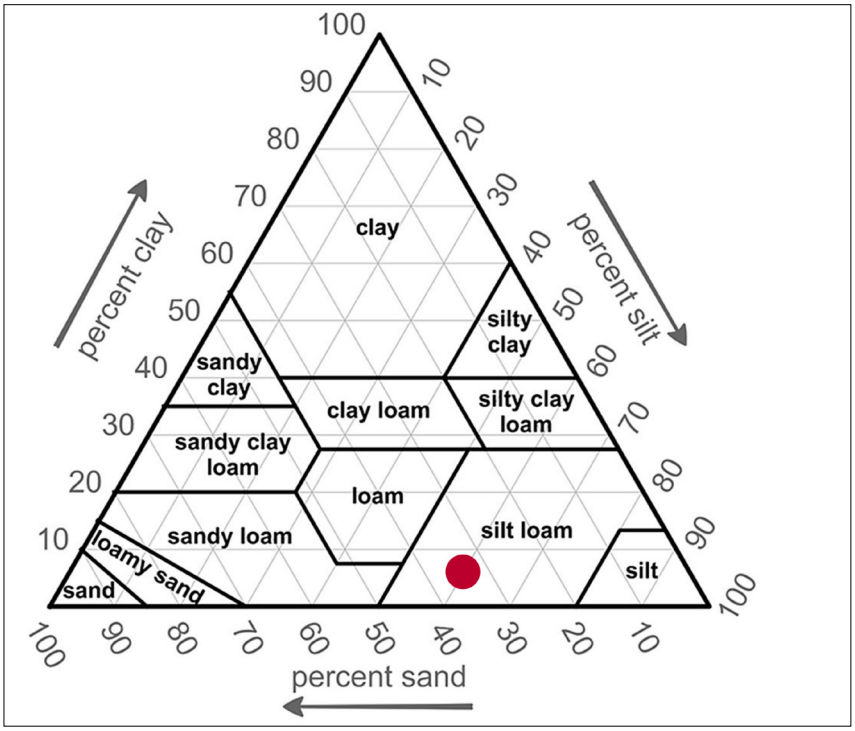

Figure 2. USDA textural classification chart

Brick design

The design of the rammed earth bricks was an integral part of the UM:EM course. The students were divided in teams, and each group designed and manufactured several brick types, first in a digital medium, later as models and finally in real scale with actual earth. The bricks were formed manually by students, without mechanical assistance, to conform to set dimensions. Each brick needed to be formed of a number of flat sides, such that they could be stacked or recombined horizontally, vertically or in any other possible combinations. Similarly, the geometrical characteristics of each brick were required to be such that they were able to ʻlockʼ to their vertical or horizontal neighbours.

Within the bounds of these geometrical constraints, the students experimented with various designs and techniques. Several kinds of brick were employed to test different types of walls, starting from straight, vertical walls and then experimenting with other designs, such as zig-zagging and curved walls. The teaching team and the students eventually decided on a final design for the brick to be used (Figure 3): an isosceles trapezoid with curved edges. This shape allows the brick to be ‘articulated’ and rotated incrementally without exposing edges, which might otherwise present points of structural weakness.

Once this brick design was established, several wall designs were tested, taking into account the number of rows, overall weight, number of bricks and structural resistance. Given that the wall was to be built without any physical reference or measurement, the final design of the wall was limited only by its material characteristics (Figure 4).

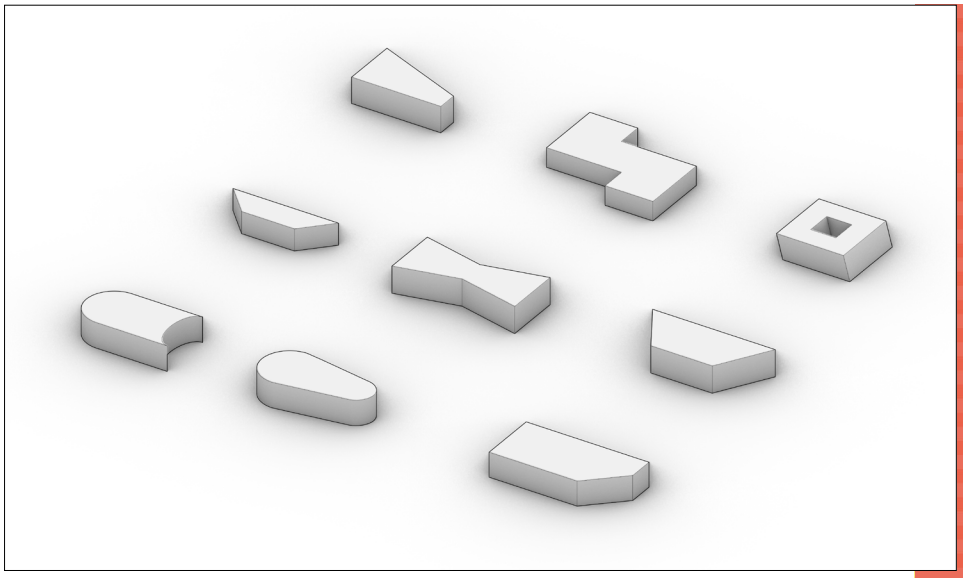

Figure 3. Different brick types designed by the students

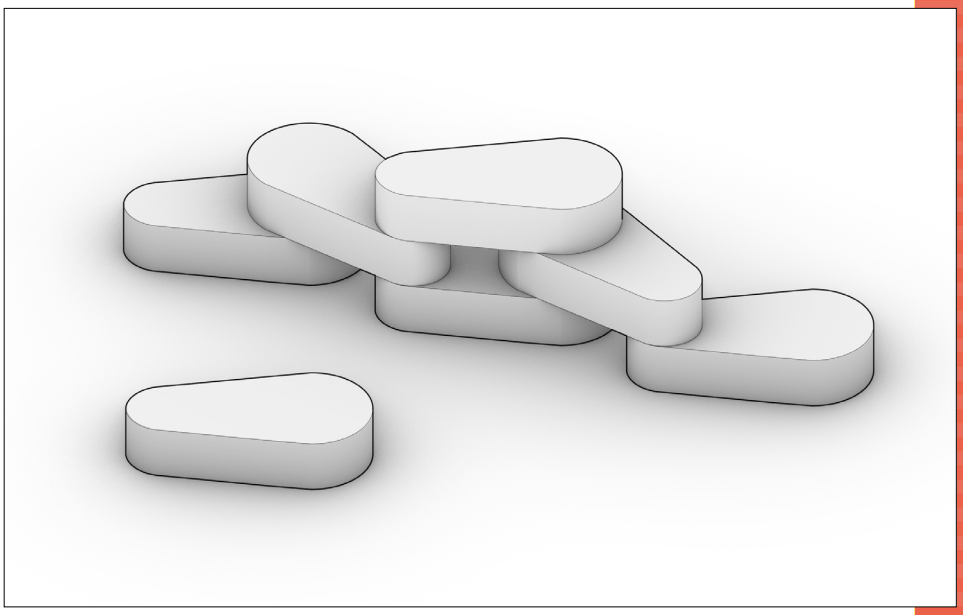

Figure 4. Selected brick

Design Procedure

The wall was designed with a parametric design software (Rhinoceros Grasshopper), while simultaneously, a real-time procedure was streamed to the HoloLens device in the field. The parametric definition takes two curves (one on the bottom and the other on top) and creates a surface between them. If both curves are straight parallel lines, the resulting surface will be a straight surface. If they are not parallel, the result will be a ruled surface. Finally, if one or both curves are curved, Rhinoceros will interpolate a surface connecting them, resulting in any number of complex surfaces, like hyperboloid or paraboloid patches, among other irregular surfaces.

In the next step, this surface is 'divided' in rows according to the height of each brick row (calculated as the thickness of the brick and the mortar combined), resulting in a series of stacked curves that are parallel to the ground. On each of these curves, a line of bricks will be laid, separated by a user-defined parameter (Figure 5).

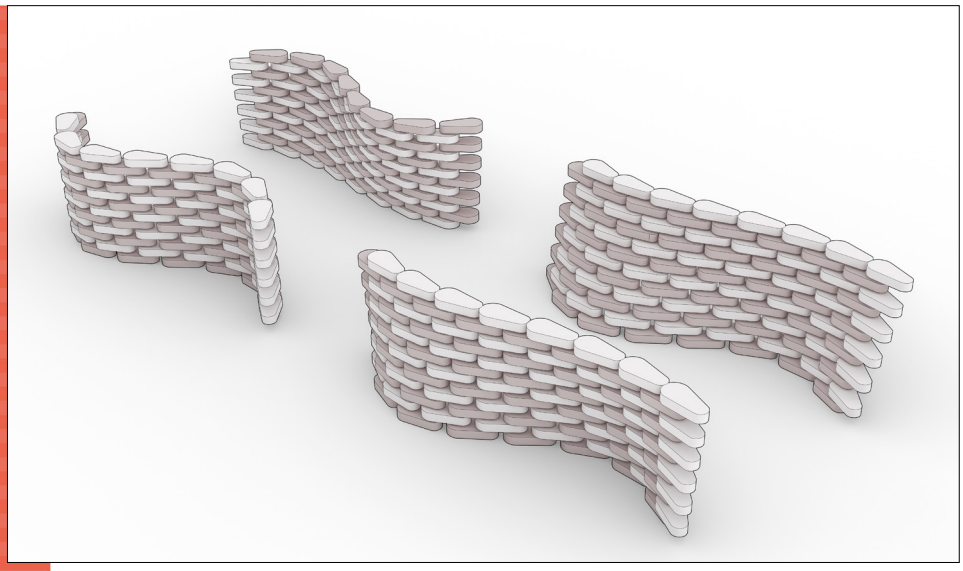

Figure 5. Parametric wall compositions

Because of the design of the brick, the relevant characteristic is that the centres of the curved parts are aligned. This way, the relative rotation angle between each brick can vary without compromising its structural capacity. Also, the separation between bricks remains constant, but the relative rotation may change while adapting to the wall geometry. Furthermore, the position of each brick is precisely defined in a three-dimensional space, as is its angle in the XY plane (parallel to the ground).

Assembly Procedure

The position and rotation angle of each brick is pin-pointed in space, and this information is transmitted to the HoloLens device. Due to fabrication issues, there were two different brick types, of two different thicknesses. Due to the need to maintain a regular height, the user must be able to identify them easily. Since the difference in height was sensible but not easily noticeable, two different piles of bricks were defined, one with each brick type (A and B). The parametric procedure indicated to the user where to pick up the bricks (either pile A or B) and then where to locate them with precision.

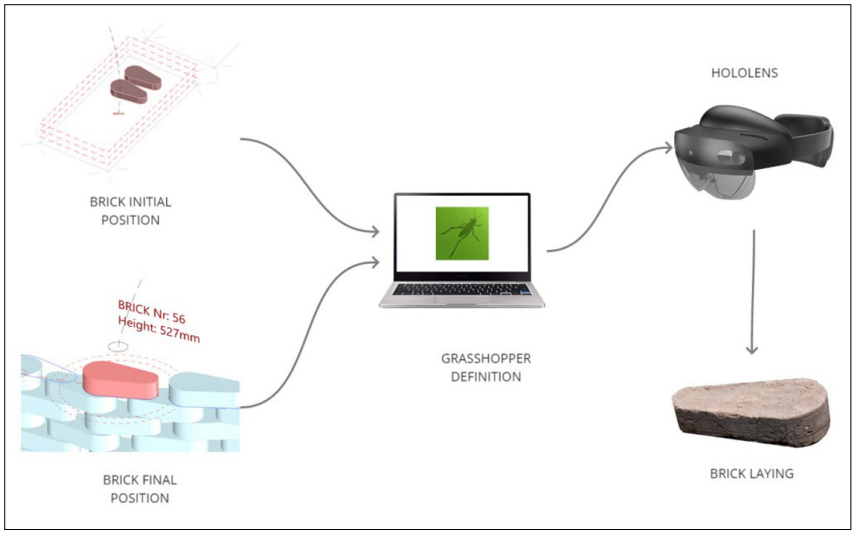

Figure 6. Assembly procedure, from parametric design to bricklaying

The assembly process required two persons: a user or brick layer using the HoloLens device, and an operator on the computer. The operator controlled the overall procedure and selected the 'active brick', that is, the brick that is highlighted in the wall composition and streamed to the HoloLens device (Figure 6).

The bricklayer receives the 'active brick' location (either pile A or B) and also the final position in the wall. The HoloLens device highlights the location of the brick pile by projecting a dotted line from the brick to its final position on the wall (a video of the installation assembly process can be seen here: https://vimeo.com/714403348) (Figure 7- 9)[1]. The final position of the brick in the wall, as well as its rotation, is highlighted in red. The bricklayer then matches the position of the physical brick to its position in the HoloLens projection. Once the brick is located in its final position, the operator moves on to the next brick: a new 'active brick' is designated, and the process is repeated.

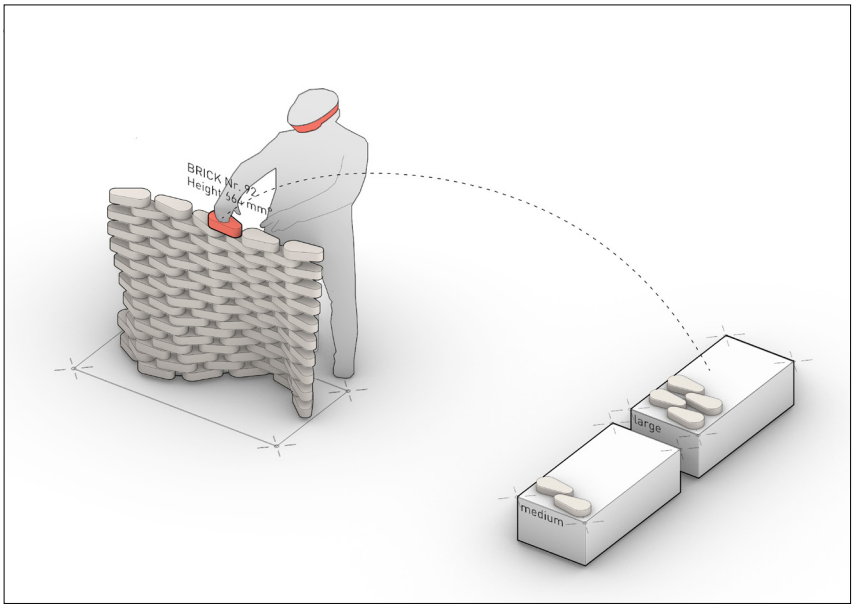

Figure 7. Brick type location and assembly procedure

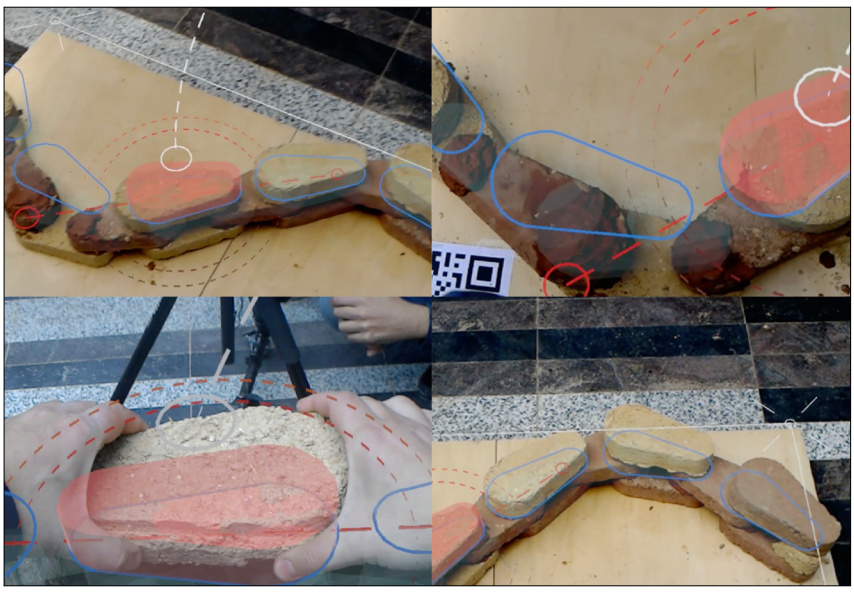

Figure 8. Assembly procedure through HoloLens

Figure 9. Assembly Process (https://vimeo.com/714403348)

Height Compensation

One of the key difficulties of this research arose through differences in precision between the three main components of the procedure. The parametric model was obviously the most precise of all, as it is mathematically perfect. The HoloLens device, however, introduces minor errors due to its positioning sensors. Most importantly, the bricks themselves have manufacturing 'imperfections', resulting in differences in their geometries. Finally, the application of mortar also adds yet another source of discrepancies (Figure 10).

Figure 10. Bricklaying with earth mortar

In order to compensate for these errors, the parametric definition allows the operator to readjust every brick row in order to match the actual position of the physical bricks. This error compensation mechanism is performed after each row of bricks has been laid, with the necessary feedback provided by the HoloLens user via visual aids projected by the parametric definition. Once the operator makes the corresponding adjustments, the bricklayer should see the next row of virtual bricks exactly positioned on top of the last real brick row.

This feedback procedure proved to be fundamental to the whole process, and it was used every two or three rows, thus adjusting the virtual brick wall to the dimensions of the real one. Both walls were thus built simultaneously, each one continuously informing the other.

Conclusions and Further Research

The benefits of mixed reality devices in the field of construction are mostly related to the display of spatial and geometrical data, providing users with useful contextual information, for example for assembly or maintenance operations. In this case, mixed reality technologies were combined with low-tech construction materials (earth bricks), speeding up the design process and removing the need for traditional construction documentation (i.e., plans or sections).

This research questioned the relationship between high-tech and low-tech tools, measuring and accounting for variations in manufacturing, montage and design. It also attempted to compensate for and/or minimise discrepancies within the design and its montage by establishing extra parameters and a feedback loop between the operator and the bricklayer.

The process accounted for various imperfections and height differences (such as those caused by differences in mortar thickness and manufacturing), sustaining a constant loop with real-time feedback: the physical model was updated with new bricks, while the digital model was updated with corrected heights. The imperfection of adobe or earth bricks is often understood synonym with low-tech construction and deprived communities. These materials remain a simple, cheap and often a perfect resource with which to build in many parts of the world. With Digital Imperfection, we wanted to underline that earth is much more than a vernacular material, and how by combining its use with innovative digital tools, we can augment the use of rammed earth bricks in a contemporary, elegant way.

Using digital technologies to enhance and to promote locally sourced materials presents exciting possibilities. Particularly in countries in the global south, ‘technical’ or ‘digital’ enhancement can help communities to identify with their own material traditions and projects, as well as encourage participation in the planning and construction process.

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Designing Futures with Pasts

Rediscovering and transforming abandoned paths of food preservation under today's paradigm of sustainability

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Abstract

The impending climate catastrophe gives rise to an increased environmental awareness among many designers, who direct their work towards the paradigm of sustainability. While designing with an 'ecological lens' is necessarily oriented towards the future, we highlight the *past* as an inspiring realm to explore. Rather than recycling materials, we encourage the *recycling of ideas* as a combination of historiographic and speculative design methods.

We will present a framework that extends the idea of design as a 'projecting' activity into the idea of design as a constant negotiation process about the relevance and appropriateness of current and past technologies. Design revolves not just about *what will be*, but to a large extent about *what should remain* and *what should recur*, or as Jan Michl put it: "seeing design as redesign" (Michl 2002). We will illustrate the thought of *designing futures with pasts* by means of a research project that aims at developing a refrigerator for circular economy. The refrigerator – as the currently dominant technology to preserve food – will serve as a starting point to show how artefacts and architecture as well as human skills and knowledge in the preparation and preservation of food are historically interlinked. The history of food preservation unfolds not only along the evolution of the refrigerator, but encompasses household techniques like smoking, curing and fermenting, as well as long-forgotten architectural 'answers' such as deep-freeze community buildings. We will revisit three historical examples of food preservation and present the method 'throwing' past ideas into the future.

Three main arguments are presented in this richly illustrated paper: First, that historiography is a form of designing, second, that designing is constituted and influenced by path dependencies (cf. David 1985) that are deeply rooted in the past and third, that the past is a valuable source of inspiration when designing for sustainable development. Looking at history becomes a way of "mental window shopping" (Simon 1985, 188) for approaches that are to be reactivated and transformed.

Introduction

Major socio-technical transformations and shifting cultural values affect design practices just as much as they are shaped by design. Currently, the impending climate catastrophe is giving rise to an increased environmental awareness among many designers, who – like us – are trying to deal with the challenges and contradictions of the paradigm of sustainability (Blühdorn 2017). With these normative goals growing in importance, a growing number of design

theories, strategies and methods directed towards sustainable development are currently being developed, tested and applied. Circular economy approaches are particularly popular in the latest design methodology (e.g., Ellen MacArthur Foundation and IDEO 2018), and likewise the discipline of design is addressed in circular economy policies (e.g., Circular Economy Initiative Deutschland 2021, 74; European Environment Agency 2017; Greiff et al. 2021; Tischner and Moser 2015). While designing with an 'ecological lens' is necessarily oriented towards the future, we would like to highlight that the past is an incredibly inspiring realm to explore. As many sustainable design strategies focus on the recycling of materials, we encourage the *recycling of ideas*. Thus, *designing futures with pasts*.

First, we will present a conceptual framework that is just as *hypothetical* as it is *methodological*. We *hypothesise* that it is a basic *method* of design to question the relevance and appropriateness of existing technologies or cultural practices. By negotiating what to maintain and what to change, every design intervention challenges the validity of what already exists. While designing is often described as a primarily future-oriented activity, it actually revolves not just around what will be, but also to a large extent around what should *remain* and what should *recur* – "seeing design as redesign" (Michl 2002). As designers we eventually always negotiate with the existent and the past. By approaching this negotiation process in a more conscious and methodical way, we can show how our concepts and ideas are deeply rooted in history.

In the following we will illustrate the method of designing futures with pasts by means of the research project "Circular by Design", which aims at developing a refrigerator for the circular economy. The refrigerator – as the currently dominant technology to preserve food in private households – will serve as a starting point to show how artefacts and architecture as well as human skills and knowledge in the preparation and preservation of food are historically interlinked. The history of food preservation unfolds not only along the evolution of the refrigerator (as a relatively young artefact), but also encompasses household techniques like smoking, curing and fermenting, long-forgotten architectural 'answers' such as deep-freeze community buildings, as well as devices that evolved around the global trade in natural ice.

Eventually, we will apply our method by revisiting three historical examples of food preservation and 'throwing' them into the future as speculative designs in order to discuss their potential to contribute to sustainable development.

Designing Futures with Pasts – A Conceptual Framework

The PPPP-diagram by Dunne and Raby (2013, 5) – which has undergone a long evolution in futurology (Candy 2010, 35; Voros 2003, 13; Hancock and Bezold 1994, 25; Amara 1974) – provides a

framework to distinguish between probable (P), plausible (P) and possible (P) futures, in order to debate along these plausibilities which scenarios are actually preferable (P) (Figure 1). However, as the saying goes: if you want to design the future, you have to know the past. And, even if this perspective can be found in the methodological canon (Meinel and Leifer 2011, 15), we believe that it receives too little attention as a fundamental method of design. While the focus of product design, especially in advertising, is often placed heavily on novelty, it might be a more honest perspective to acknowledge that products are the result of a continuous socio-technical evolutionary process, and from one generation to the next, most of their characteristics remain basically unchanged.

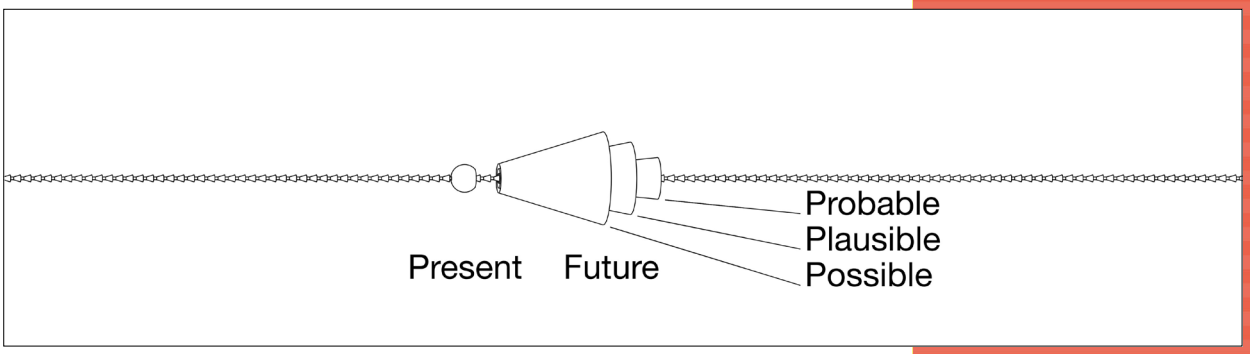

Figure 1. "PPPP-Diagram", adapted by the authors from Dunne and Raby (2013).

For the purpose of visual clarity, we skip the advanced discourses on space and time in our scheme, and use an operational understanding of time as a continuum, without denying that one may construct multiple pasts, presents and futures (Rendall 2008). The thought of a "continuum" between a "range of plausible pasts" and a "range of plausible futures" was already depicted in "The Cone of Plausibility" diagram published over 30 years ago by Charles W. Taylor (1990, 14), who developed it to foster strategic thinking among military and corporate leaders. Just as we look from the present into the future and speculate about it, we also speculate about the past. Although it seems as if the past is unchangeable and the future can still be shaped, both are eventually human creations and constantly subject to changing world views. The process of writing history and the process of designing appear to be surprisingly similar – oftentimes highly speculative – activities. Although we might look "myopic" (Simon 1985, 188) into the future and a little more hyperopic into the past (which we are indicating by the different sized cones in Figure 2), we speculate just as much about what was as about what will be.

Moving with these 'optical principles' through time (Figures 2 and 3), some futures slowly sharpen and become the present, while some pasts gradually fade away, and vice versa. However:

> *"That which we design is not produced without pre-conditions. Our lives are governed by circumstances. We do not decide freely, but instead move within a field of standards, values, fixed conditions. The things we create [...] are subject to these conditions. They*

are present in the world into which we are thrown, are given—and are in turn transformed through the designs we oppose to the world projectively." (von Borries 2020, 5)

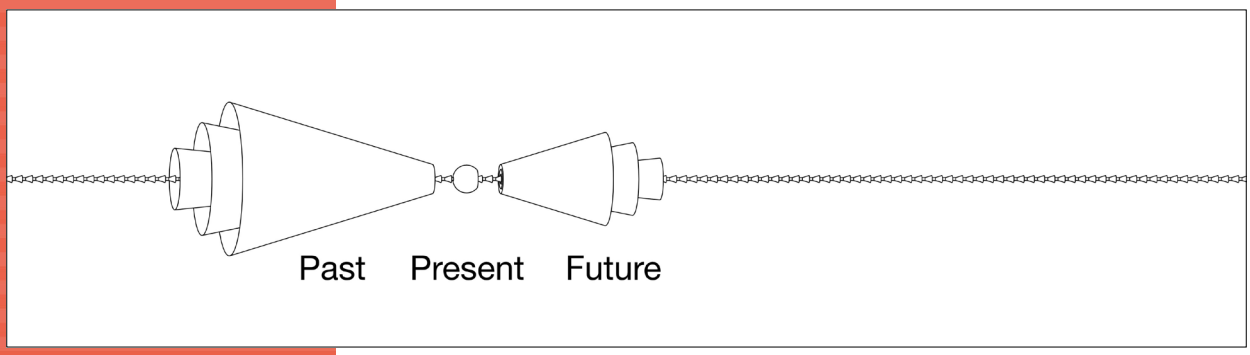

Figure 2. "The Cone of Plausibility", adapted by the authors from Taylor (1990).

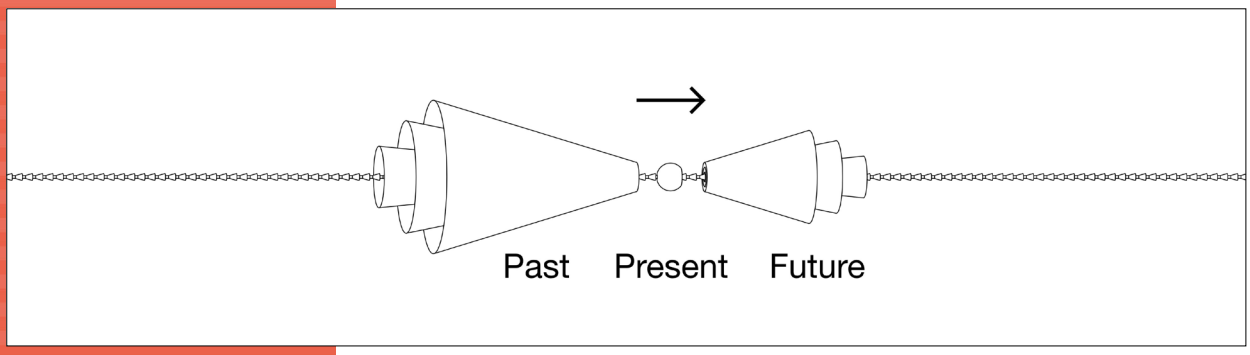

Figure 3. "The Cone of Plausibility" as an 'optical device' is moving with us through time.

Designing as a (professional) activity is constituted and influenced by path dependencies (David 1985) that are deeply rooted in the past. So, instead of understanding the activity of designing as a point in the present from which to speculate unconditionally about futures, it should be understood as a *space* (Figure 4), which the musician and visual artist Brian Eno aptly described like this: "'Now' is never just a moment. The Long Now is the recognition that the precise moment you're in grows out of the past and is a seed for the future. The longer your sense of Now, the more past and future it includes" (Eno 1995). We picked up on this idea in our diagram with the metaphor of a zip tie (Figure 4), which provides some *space* to move in a new direction, and eventually snaps into place on the axis of time; transformation happens step by step.

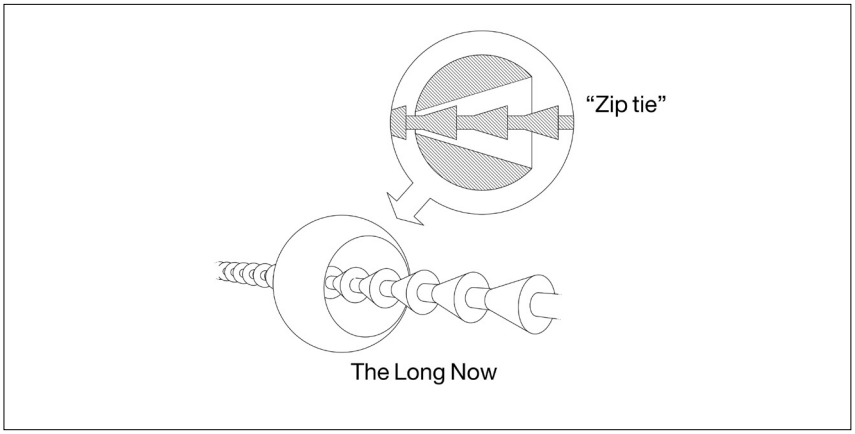

Figure 4. The present as a conceptual space that allows a step-by-step transition towards possible futures.

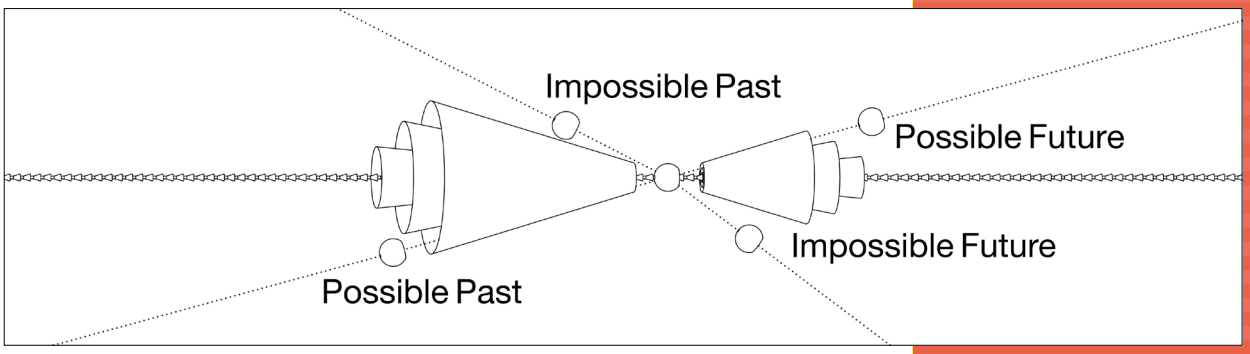

Figure 5. While infinite pasts and futures are imaginable, most of them are impossible.

When a future once thought possible actually becomes the present reality, this always means that numerous other projections – even if they once seemed very probable – have not come true: they have become another impossibility (Figure 6).

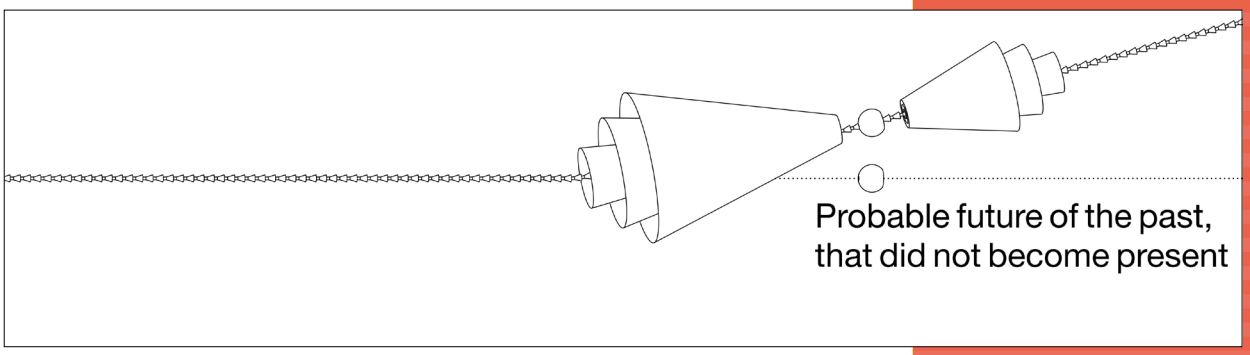

Figure 6. Some things that seemed probable in the past have not come to pass.

In light of our living in what might once have been a hard-to-imagine future, we might also look back on past events and developments from a new angle (Figure 7). As we, for example, shift from a society of smokers towards a non-smoking society – a development that can be observed in Germany and many other European nations – the image of passengers smoking on a plane comes to appear more and more bizarre. Individuals' perceptions of past events as well as predictions about the future are subject to a biased view from the present. Time is constantly distorted, compressed and bent.

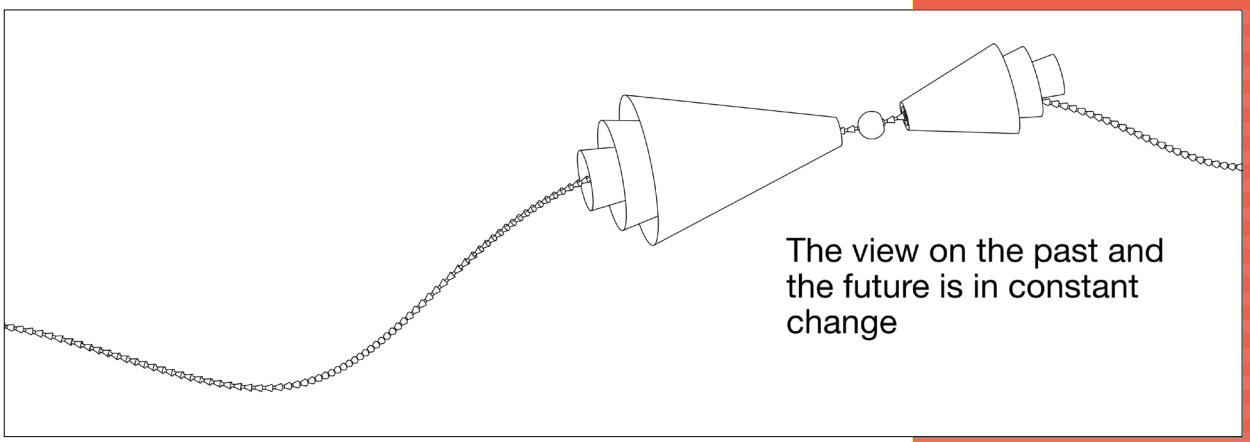

Figure 7. As we move towards the future, the perspective on it changes, as does that on the past.

Old technologies, forgotten crafts or abandoned practices can suddenly appear attractive again and come to the attention of designers through their contemporary perspective on the past (Figure 8). Today, some historical artefacts and technologies might reappear on designers' radar due to their increased ecological awareness.

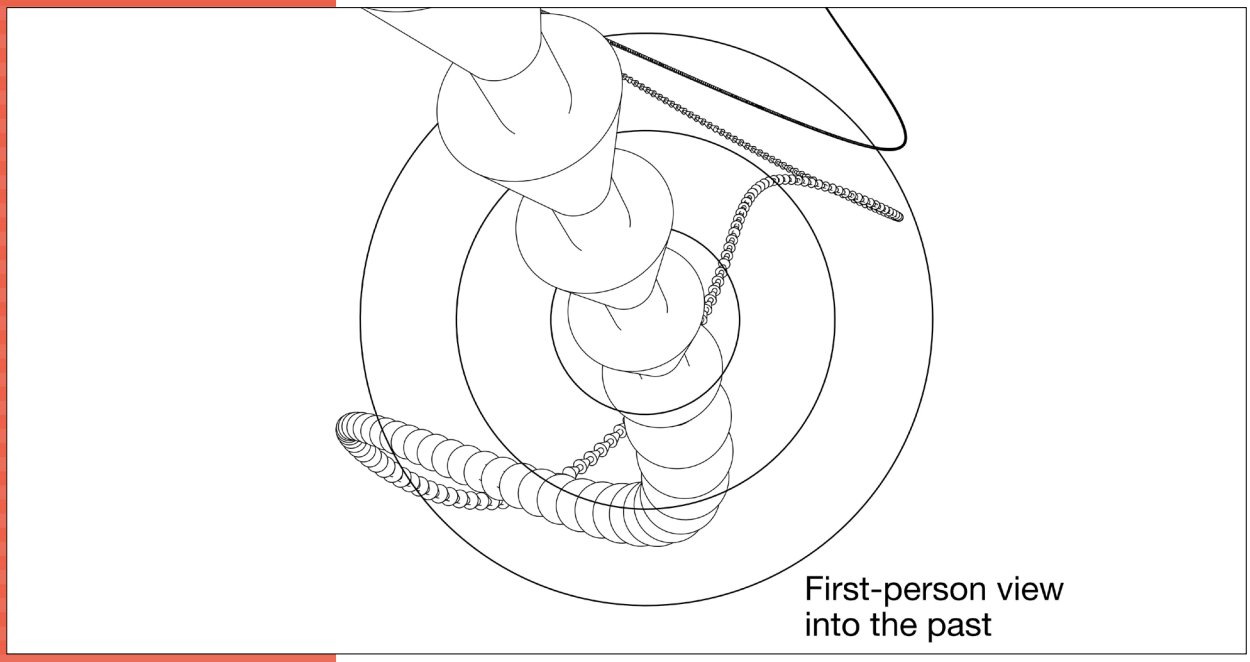

Figure 8. Looking through today's radar of plausible, probable and possible pasts.

While we seem to be confronted with new futures at an ever faster pace (Toffler 1971), the art of designing the transition (Irwin 2015; Liedtke et al. 2019) towards more sustainable futures is becoming increasingly important. Contrary to widespread belief in 'progress' through so-called 'leap innovations', we are proposing considered *steps 'back' into the future* by recycling ideas that have been forgotten or abandoned (Figure 9).

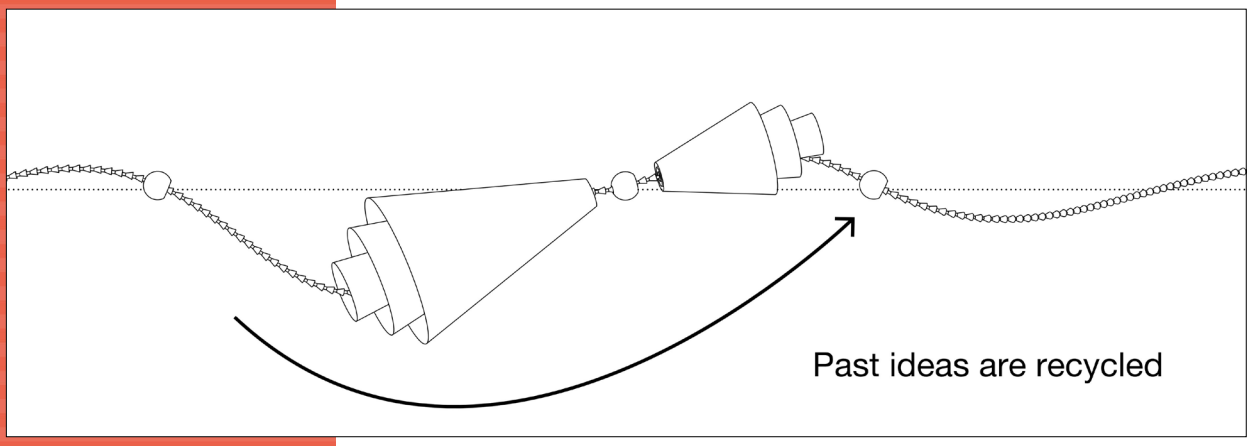

Figure 9. Some historical resources can be reused for the future.

In the following we will show how we applied the theoretical considerations above in the concrete case of the research project "Circular by Design". Before we dive into the methodological application, we will briefly explain the particular framework, constraints and briefing of the research project.

Designing a Refrigerator for Circular Economy

The refrigerator has a prevalence rate of almost 100% in households of industrialised countries (Rao and Ummel 2017), and it is deeply embedded in our everyday behaviour patterns. Thus, the refrigerator offers great potential to be rethought with a view on 'Planetary Boundaries' (Steffen et al. 2015). It has a particular impact on Sustainable Development Goal (SDG) 2, 'zero hunger', and SDG 12, 'responsible consumption and production', but it is further linked to all other SDGs (Rockström and Sukhdev 2016). The circular economy – as an effort to reduce the amount of resources needed to produce products (Potting et al. 2017) – is an important concept for addressing the SDGs (Cui 2021, 18). The development of circular economy approaches playing an increasingly important role in today's product design is also evident in the design research project "Circular by Design". Various institutions (an institute for resource technologies, an institute of application-oriented sustainability research, a team of design researchers with industrial design backgrounds) and stakeholders (a manufacturer of refrigerators, a retailer for kitchen appliances, several recycling companies) are working together to develop a refrigerator for the circular economy. The project is designed to involve many actors along the current (uncircular) material path of refrigerators. Design takes on a transdisciplinary and synthesising role, trying to transfer the findings and insights of the respective project partners into concepts and interventions. In contrast to professional design contexts, where the designers would presumably be bound to the interests of the manufacturer, or at least to the strong forces of the market, the academic context enables design to take on a research role that is to some extent emancipated from industry and economy. The creative and epistemic freedom of this particular project goes so far that it is even possible to come up with concepts and scenarios in which private refrigerators are made completely redundant. This reflects that in the "era of 'R'" (Stahel 2019, 27), it is in accordance with the European Union's waste hierarchy that strategies of *prevention* take precedence over strategies of reuse, recycling, (energy) recovery or disposal (European Union 2008, sec. 4).

When the prevention of a product becomes a possible response to the challenge of redesigning a product, we must look beyond its physical existence and examine the socio-technical context in which it is situated (Latour 1999, 186). Existing laws, regulations, standards, production, distribution, logistics, ways of use, social conventions, maintenance, repair, disposal or recycling practices: these all might inform the outcome of the design process. As part of the kitchen, the refrigeration unit is in direct connection with both humans and non-human "actants" (Latour 2010). As an interim storage device for food, it has many different relationships to other products, systems and social practices: packaging sizes, supermarket shelves, eating habits, food culture, recipes, beverage manufacturers, birthday cakes, festive roasts or daily eating routines – they all influence and condition each other, and form a network of relationships. It is crucial to understand the elements

and dynamics of such a system in order to discover pathways of action for more climate justice possibilities (cf. Bickel 2021).

The recently published Ecodesign Directive (European Commission 2016) sets out rules for improving and assessing the environmental performance of products. This puts the evaluation methods on a much broader basis than the well-known energy efficiency label has done so far. The refrigerator is a familiar assessment object in this context. However, with regards to the open-ended project outcome, it remains an open question how to evaluate scenarios that aim to replace the evaluated products with a solution (e.g., a 24/7 food delivery service) that has completely different system boundaries.

In meeting the challenge of designing with a systemic approach, there are plenty of design guides that provide a multitude of methods for designing a more sustainable product (cf. Gründl and Institute of Design Research Vienna 2014; BMUB and UBA 2015; Simonse 2017; Bakker et al. 2020; Boeijen et al. 2014). The Circular Design Guide from IDEO and the Ellen MacArthur Foundation offers a variety of easily accessible creative methods (Ellen MacArthur Foundation and IDEO 2018) aimed at getting closer to the goal of a circular economy; for example, by using a simplified life cycle assessment for design processes (Liedtke et al. 2019). A method for dealing creatively with the past seems to be a little-noticed idea. While existing design methods draw their creative potential from a strong orientation to the future, we suggest looking at the past as creative material that can be transformed and reactivated using current knowledge and technologies.

Designing by Throwing Pasts into Futures

In the following, the refrigerator is understood as one among many answers to the question: how can food be preserved and made accessible for longer periods of time? This leads us to the research question: what can we find in the history of food preservation that has the potential to be used again in the future? We will breathe life into the theoretical framework described in the first section by means of three examples: products, architecture and knowledge that once played a role in the preservation of food are thrown into the future to discuss their potential in contributing to sustainable development.

Rediscovering Fermentation

Before we were able to cool down food, fermenting, curing, smoking, pickling, drying or sugaring were prevailing practices to preserve food. All of these methods have in common that they greatly alter the taste of the food they preserve. When cabbage is fermented, sauerkraut is produced: a process that is triggered by lactic acid bacteria. The invention of Sauerkraut is, however, much

more than the invention of long-lasting cabbage, as it affected people's lives in profound ways. Having a much longer shelf life than white cabbage, sauerkraut historically played an important role in the food supply during the winter months. The preparation of food months before and dislocated from its consumption had effects on the division of labour, as well as on food supplies for military units. Napoleon is said to have pushed the invention of the can to provide his units with food more flexibly (cf. Wilson 2012). The stereotypical term 'Krauts' for Germans, dating from World War II, suggests how formative this food must have been, while the 'Krauthobel' – a kitchen tool reminiscent of a carpenter's slicer – and the sauerkraut barrel demonstrate how there are even some specialised artefacts that evolved around the production of this particular food.

Figure 10. Making sauerkraut (between 1910 and 1920) Credit: National Photo Company Collection, available at: https://commons.wikimedia.org/wiki/File:Food_Adm.-_making_sauerkraut_LCCN2016824355.tif.

Thanks to the invention and adoption of alternative processes for preserving food, we nowadays enjoy fermented foods as a delicacy, or as Bee Wilson says: "Countless delicious foodstuffs might never have been invented if refrigeration had been available sooner" (Wilson 2012). Artificial refrigeration has made possible a method that preserves food with virtually no change in taste.

In this light, the widespread use of refrigerators has not only made housework easier; it also means that we can eat a more balanced and healthier diet today (Park et al. 2011; Täubrich and Tschoeke 1991). Fermented products have experienced a revival in recent years. "The Noma Guide to fermentation" (Redzepi and Zilber 2018), published by two-Michelin-star restaurant Noma, highlights this trend. Fermented foods are no longer a necessity, but a taste experience, and more and more varieties are gaining access to 'our' kitchens (again): kombucha, vinegar, koji, miso, shoyu, and garum (cf. Redzepi and Zilber 2018).

Fermentation began as a preservation method for staple foods. Without ever completely disappearing from the menu, fermented foods are now reliving their role as delicacies. With today's quest for a more sustainable lifestyle, fermentation is back on the agenda as a delicate staple food (see Figure 11), and it might become even more important in the future, if the necessity to save energy became even more urgent. Preserving food with microorganisms does not require any additional electrical energy, and – unlike frozen vegetables – the preserved food can be stored for longer periods in an almost resource-neutral manner. Fermentation can make a varied contribution to a plant-based diet, which tends to be lighter on resources (Katz 2012). Furthermore, fermented foods are also well suited to join the growing online food trade, where unrefrigerated goods can be handled more easily.

This illustrates how sauerkraut has contributed to the course of history in the past and how new influences are possible through our current perspective. It is unlikely that fermented foods will entirely replace cold chains, but they might become a supplement (illustrated in Figure 11). As market penetration grows, this may even lead to a reduction in refrigerated volumes.

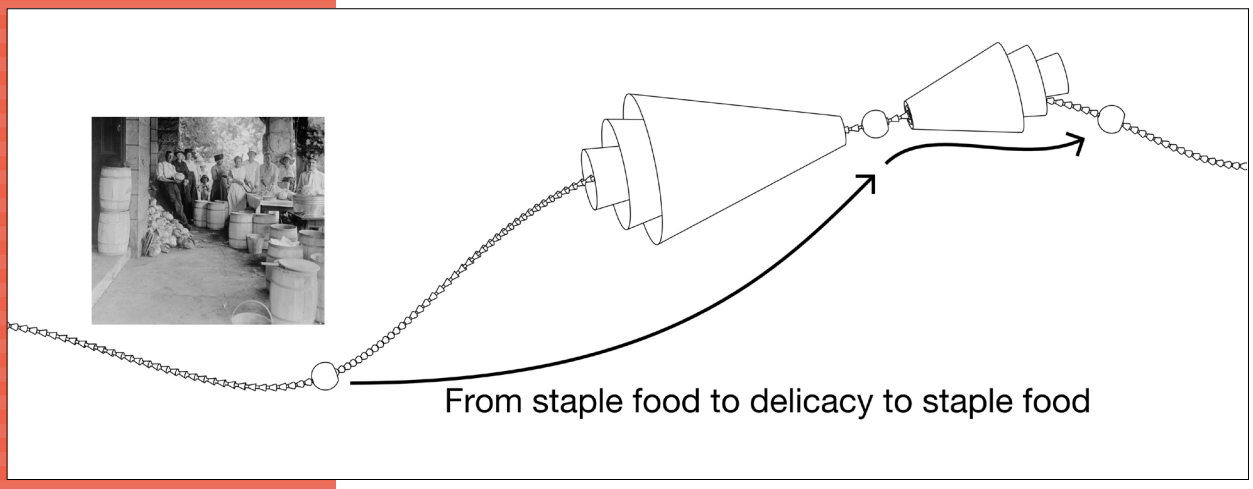

Figure 11. The practice of fermenting could contribute to the proliferation of unrefrigerated foods in the future.

From Deep-Freeze Community Buildings to Food Hubs

Today, we usually understand the refrigerator as a piece of furniture situated in the kitchen. Historically, the refrigerator has approached the kitchen through many buildings, constructions and artefacts. The pantry on the north side of the house, which can still be found in some houses, refers to a time when ice and cold were a natural product. From today's point of view it is hard to imagine that there was a whole branch of industry involved in the trade of natural ice, but in the nineteenth century ice was industrially mined from lakes, rivers and glaciers during the cold months. This process was done with specially equipped ploughs, saws and ice chutes, and the mined ice was stored in large ice houses throughout the whole year.

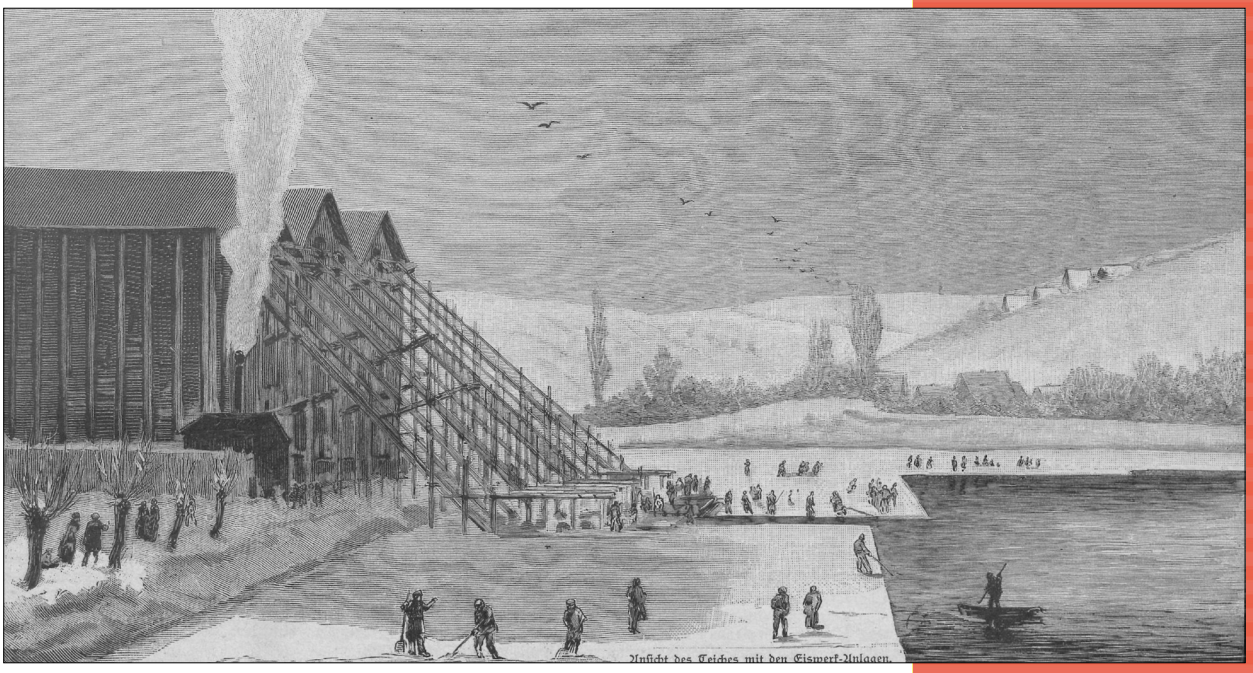

Figure 12. The ice factory at the Mockritzer pond, near Dresden. Credit: "Das Buch für Alle" 1886, copyright expired.

A brief historical review: New York's natural ice demand increased from 12,000 tons in 1843 to 1 million tons in 1879 (cf. Thévenot and Fidler 1979, citing Täubrich and Tschoeke 1991). The ice was sold to breweries, slaughterhouses, cafés, pastry shops, fish and game dealers and eventually to private citizens. Where the demand could not be met with regional natural ice, ice was imported. The first shipload of ice was transported from New York to Charleston in 1799 (Habs 1894, 141). The Wenham Sea Company supported the construction of ice warehouses in cities such as Havana, Charleston and New Orleans in order to sell natural ice there as well. The company reached its export peak in 1872 with 225,000 tons (Täubrich and Tschoeke 1991, 51–67). The principles to produce ice artificially were already laid in 1805 (Giedion 1970 [1948], 601), but it was not until around 1913 that the international trade in natural ice became increasingly displaced by ice from artificial ice factories. To satisfy the need for refrigeration, the production of bar ice made in the artificial ice factories was soon supplemented by cold storage. In addition to the production of bar ice, goods from all over the world were soon traded and stored here. In parallel with commercial customers, the market of private individuals who had an icebox at home – an insulated cabinet filled with ice and food – also grew (cf. Hellmann 1990; Täubrich and Tschoeke 1991). The private refrigerator first replaced the icebox in affluent households, until its use increased rapidly from about 20% to 84% between 1958 and 1969 (in Germany). Artificial cold became mainstream.

During the transition period between the distribution of natural ice to the distribution of refrigerators, there were some pilot projects that might gain relevance again. Before refrigerators were affordable for all, electric community freezers (Figure 13) were implemented in some locations (cf. Wölfel 2016, 94). As these have larger cooling volumes with less surface area per volume, they are favourable in terms of energy efficiency.

Figure 13. "Tiefkühlgemeinschaft" (deep-freeze community) of Waltra in the municipality of Sankt Anna am Aigen, Austria. Credit: Wikimedia. User: "Niki L." 2020. Published under CC BY-SA 4.0 Licence. Available at: https://commons.wikimedia.org/wiki/File:Tiefk%C3%BChlanlage_Waltra.jpg.

From these historical considerations, it can be deduced that today it is not necessarily the private refrigerator that should seem essential to us. In fact, it is the cool chain behind it that ensures that we can transport countless foodstuffs over a long distance and store them for a long time. Once private refrigerators had become accessible to all, shared-use concepts went out of favour, because there was a comprehensible desire to participate in technological progress.

The use of private refrigerators has become a habit today, but it doesn't have to stay that way. Contemporary eating patterns show that the way we cook at home is transforming and, especially following the Coronavirus pandemic, delivery services have seen tremendous growth. For some, the refrigerator may seem like a burden, because it is an unwieldy piece of furniture that needs to be kept neat and clean. This opens up the possibility of reactivating the principle of the communal freezer. We imagine that similar to parcel stations, so-called Food Hubs (see Figure 14) could spread in urban areas. These have refrigerated, non-heated as well as warm holding lockers and are filled by food from delivery services, which are no longer burdened with resource-intensive last-mile delivery (Stelwagen et al. 2021). As they are located not far from people's apartments, they are suitable for daily delivery and collection. On-demand ordering of small quantities must be enabled in this system. In order to fully unfold its sustainable potential, a Food Hub should foster a regional and seasonal food supply (Schmitt et al. 2017). However, making such hubs into a reality depends not only on the design of the products, but especially on the design of the service (European Environment Agency 2017, 26). Nevertheless, Food Hubs could be a stepping stone toward making private refrigerators redundant. Once it was the natural ice that could unfold its cooling effect on warm days through a functioning supply chain. Inspired by this historical approach, we can say: we do not necessarily need a refrigerator; we need fresh food! With new technical possibilities, this food might also be delivered to a new type of community fridge in the future (see Figure 15).

Figure 14. Rendering of the Food Hub concept.

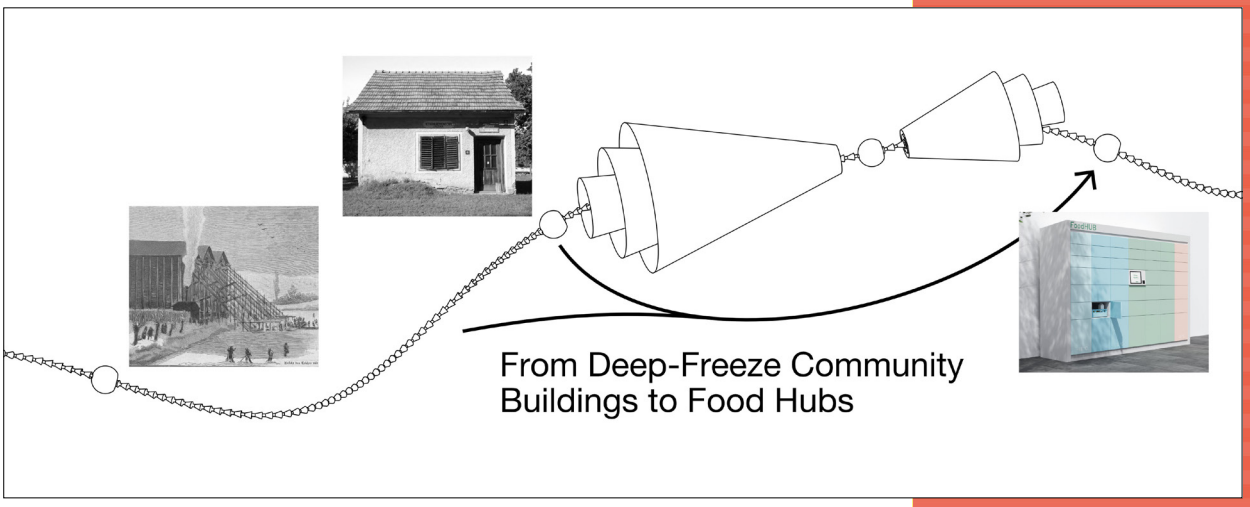

Figure 15. With inspirations from the past, a speculative design concept is created.

From Monitor Top to Cool Front

In light of today's views on dismountability, reparability and modularity, some refrigerators of the past offer auspicious ways of construction. The “Monitor Top” by General Electric (Figure 16) was introduced to the market in 1926 and is considered the first mass-produced refrigerator in history; by 1931, one million units had already been sold. The cooling unit on the top contained all the technical components and connected them to the cabinet. With a total weight of 212 kg (Museum of Applied Arts & Sciences 2020), the Monitor Top was significantly heavier than today's refrigerators, which weigh about 60 kg with similar overall dimensions (cf. Hellmann 1990; Täubrich and Tschoeke 1991).

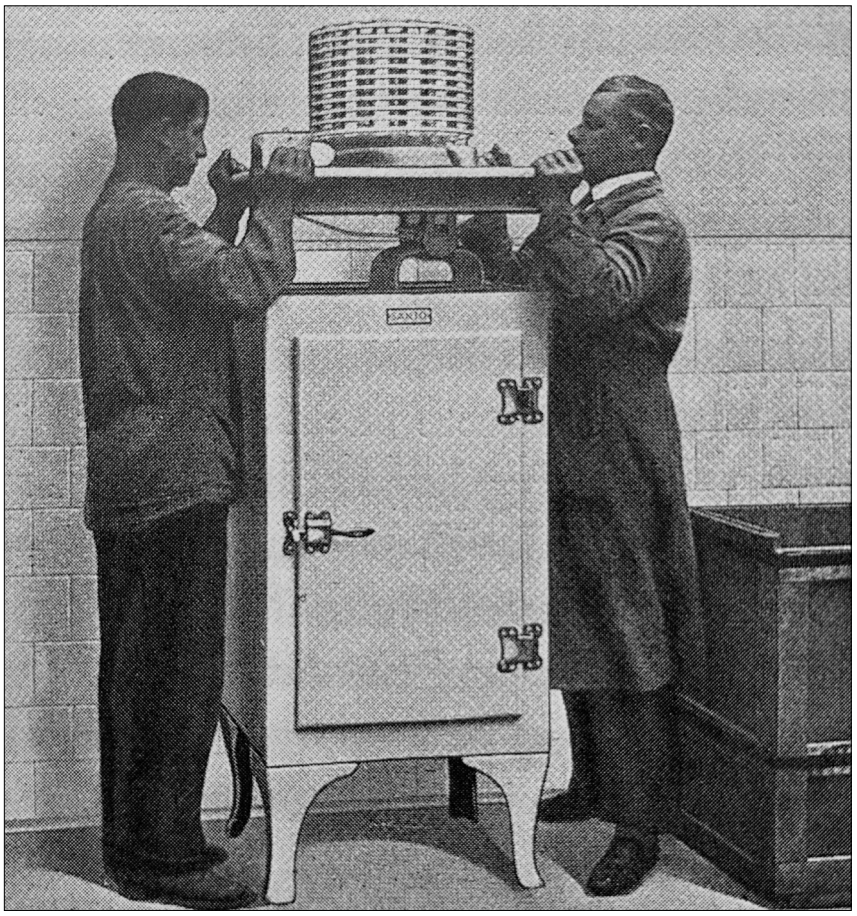

Figure 16. Installation of the cooling unit of a Monitor Top refrigerator. Credit: U. Hellmann 1990 / Copyright by Werkbund-Archiv, Berlin (usage rights requested).

While today's refrigerators belong to the product category of so-called 'white goods', they are better described as 'black boxes' when it comes to what they reveal about their inner workings (Dunne 2008, 20). Rather than presenting its users with an entirely sleek surface, the refrigerator today could be structured like a modular furniture system. Side panels, lids, drawers and shelves could be individually refurbished, replenished or replaced. This could be complemented with the construction principle that the Monitor Top has shown us: one bundled technical unit that is connected with a rather low-tech cabinet. In this way, today's usual closed unit could become a refrigerator that is adaptable and 'learns' over time through continuous improvements (Brand 1995).

The concept "Cool Front" (Figure 17) envisions that all technical elements, such as compressor, heat exchanger, light, thermometer and electronic control system, are placed in the door. For hygiene and energy efficiency, it is beneficial if the inside of a refrigerator has as few openings as possible. The body consists of a modular insulated plastic shell on the inside, which can be extended by adding insulating elements as desired. Enclosed in a standard kitchen body, this results in a product whose components can be repaired and upgraded easily. Dismantling also reduces the transport volume due to the stackability of parts. For the end-of-life phase, the materials can be reprocessed in a focused manner. The result is a highly adaptable refrigerator that performs in a proven manner, but meets key requirements of the circular economy by separating the technological components from the casing (Potting et al. 2017; European Environment Agency 2017).

Figure 17. Rendering of the Cool Front concept.

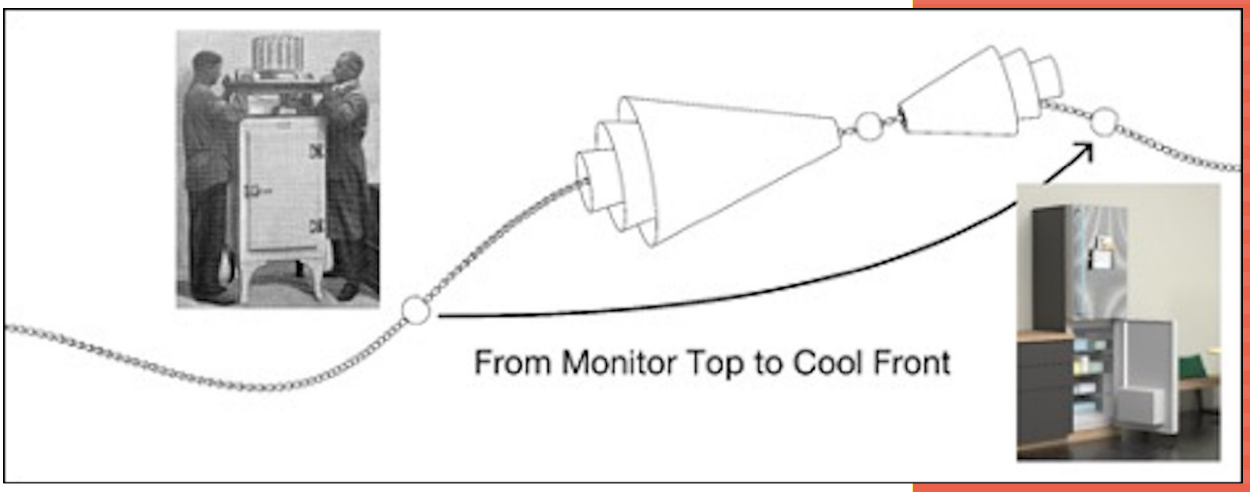

Figure 18. A nearly lost idea is used for a new design.

Discussion

While techniques of smoking, curing and fermenting were once the means to preserve food, it would be wrong to assert that the refrigerator simply undertook this task. Technological changes have always tended to change much more than their inventors intended, or even imagined.

> *"Strictly speaking, a tool is not produced to carry out a defined utilitarian task. Tools are born as challenges to existing concepts of utility. They open up new understandings of what could be useful. Utility is not a given unambiguous need. Ambiguity about utility is what drives new forms of utility." (Colomina and Wigley 2016, 52)*

While the above-mentioned techniques had a huge impact on the taste of the food they were used to preserve, the refrigerator gave rise to a whole range of other products and services, changed our culinary culture and had a lasting impact on our society. Thus, with the development of refrigerators, we did not merely experience the triumph of a technology in otherwise unchanged conditions, but profound socio-cultural change.

> *"The theory of socio-cultural evolution seems to be a useful framework to denote the unpredictability of project outcomes, and thus the limits of causal explanations, in a scientific manner. This is not to deny that designers are able intentionally to design and manufacture a new teapot, a new aircraft, or a new constitution. But these designs are temporal interventions into evolutionary processes. Most results disappear, a few are integrated into the further process. Failures as well as successes become part of the socio-cultural archive of humankind." (Jonas 2007, 195)*

Humans have always changed so much more than they seeked to change with their inventions, and the history of food preservation shows the deep interconnections between the social and the technical spheres (cf. Latour and Roßler 2016, 7), or as Marshall McLuhan once put it: "For the 'message' of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs" (McLuhan 2001, 8).

When we try to initiate sustainable developments through design today, we should be aware that we are always operating in complex socio-technical networks into which we have to weave our concepts with a great deal of care and modesty. From this point of view, engaging with the past becomes a downright duty for designers. Reflecting on the complex historical contexts in which products evolved is important not only for a historical understanding of these products, but also to realise their transformation and further development.

Conclusion

We have shown that looking into the past brings useful insights that enrich the design for the future. From today's perspective, the past sometimes seems bizarre. For example, with today's access to food products from global cold chains, it seems unbelievable that ships could have carried frozen water across the world's oceans. This way of looking at things can encourage us to take possible futures more seriously, even if they still seem improbable from our current point of view.

It was also shown that under today's paradigm of sustainability, the past preserves ideas that we can use again – such as the separate cooling unit of the "Monitor Top". These ideas could also

be developed from scratch, but the knowledge and experience of the past provides too much to be ignored. The 'brand new idea' is rarely as new as it appears to be. Designers are sometimes negligent or unaware about their historical references. Therefore, we try to promote a design practice that deals openly with its inspirations and points out its references. In addition to the benefits for the creative process, this approach would bring design practice one step closer to the idea of openly accessible knowledge. Communicating design references is currently mainly in the hands of design historians. That designers cite the 'sources' that informed their design process is the exception. While it remains unresolved how products might be able to reference non-textual citations, it is certainly a path worth exploring. This thought could become another aspect in the discussions that unfold around the so-called "Product Pass" (Götz, Adisorn, and Tholen 2021) – a product description that contains important information about its material composition.

At the end of the day, design is always re-design (Michl 2002). Some design processes are preceded by historical research, often without mentioning it. Our framework invites designers to engage more with historical reflections and encourages them to use – or admit – history as a source of inspiration.

As a metaphor, the *recycling of ideas* is well suited to emphasise how the so-called 'Circular Economy' is about more than closing material loops. The metabolism of materials can only be altered if you also enable ideas to metabolise. In addition to well-known tactics like urban mining, history mining could make a further contribution to achieving more sustainable product-service systems by closing information loops of different time horizons. Looking at history becomes a way of "mental window shopping" (Simon 1985, 188) for approaches that are to be reactivated and transformed. Everything that already exists or ever existed becomes both a resistance to and a potential for transformation processes.

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Evaluation of Aesthetic Perceptions of Public Buildings' Façades by Design Professionals

Abstract

Visual assessments are very relevant in the study of architecture since this is a profession that relies immensely on the visual sense of humans. This study contributes to the understanding of visual perceptions, as well as to the wider field of environment and behaviour studies. The main aim of this study was to evaluate the aesthetic perceptions of public buildings among design professionals with a view towards understanding the mindsets of different design professions towards façade designs. The study considered three types of design professionals: architects, engineers and industrial designers/artists. Two hundred questionnaires were analysed using a mixed methods approach. The variables used in analysing the façades of public buildings were roof design, façade colour, entrance design, fenestration arrangements and innovation in building form. Twelve images of public office buildings in Alagbaka in Akure, Nigeria, were selected for study using random selection and cluster classification methods. A photo-interviewing analysis method was adopted for analysing visual images of the buildings: first-hand visual data were obtained from the study site using digital photographs of each building, and questionnaires were then administered to respondents regarding the images. Data were measured using five-point semantic differential scales, and relevant information obtained through this method was analysed using descriptive statistics, such as frequencies and percentages. Also, inferential statistics using the Kruskal Wallis test was used to determine whether there existed significant differences within the groups of design professionals. Findings from the quantitative analysis showed that there were no significant differences among the groups, although qualitative interview sessions did reveal that while architects and industrial designers/artists exhibit similarities in aesthetic perceptions of public buildings' façade designs, the perceptions of engineers differ slightly. While these results need to be treated, interpreted and considered with care, design professionals can learn from these subtle differences in the results. The views of each design profession are important during a design process as the final outcome of the design is greatly dependent on the collective contributions of individual professions due to their peculiarity.

Introduction

Aesthetic experience has been defined as a subjective pleasurable encounter with objects or settings (Liu and Chuang 2014). While all the human senses are involved in the experience of architecture, the process is primarily visual in nature. Although there are exceptional cases where hearing, smell and tactility are more pronounced than vision (Meiss 1997), it is nevertheless undeniable that non-visual experiences of architecture and the environment are completely different. 'Architecture is image only in a drawing or photograph, but as soon as it is built, it becomes the scene and sometimes the scenario of comings and goings, of gestures, even of a succession of sensations' (Meiss 1997). Reber, Winkielman and Schwarz (1998) conceptualise aesthetic experience as a function of the perceiver's processing dynamics and further affirm that 'the more fluent the perceiver is capable of processing an image, the more positive will be such aesthetic response.' Zhang and Lin (2011) posit that visual elements are capable of directing or commanding attention within the visual field and might also influence perception. Perception can be defined as the experience of an event by means of the human sense organs (Motloch 2001).

During an aesthetic experience, physical stimuli stir up or awaken the senses of the perceiver, leading to a process of aesthetic judgment. Such stimuli could be environmental, building features or within the landscape. Motloch (2001) explains that the senses perceive visual form, colour, light, texture, audible tone, speech, smell, taste, tactile sensations and movements, while the mind processes information from these stimuli into complex perceptions. The mental images formed in the mind are information that helps the designer decipher what aspects of a composition to use in design in order to appeal to the senses of observers – this is the real deal when it comes to designing, and designers ought to understand form and the meanings attributed to such. The study of aesthetics might focus either on extrinsic or on intrinsic factors, or on both. Extrinsic factors include: layouts, relationships, efficiency, function, meaning, suitability for site, and climate. Intrinsic factors, on the other hand, are those relating to visual contents and character (Goldman 2001). This study considered only intrinsic factors in studying aesthetic perceptions through the visual sense. The aim of this study is to evaluate aesthetic perceptions of the façades of public office buildings among design professionals with a view towards determining whether the same perceptual patterns are observed among different design professionals, or whether these patterns differ between groups.

Perception and stimuli

Aesthetic perception is an occurrence of an experience which usually ends in pleasure being elicited in an observer. Perception is usually triggered by external physical settings called stimuli that activate the human senses and bring about images in the minds of observers. The built environment contains and is

continuously transmitting non-verbal messages to observers (Uji 1994). However, perceiving and interpreting the physical environment is a complex process involving the interaction of human physiology, development, experience, and cultural sets and values with outside stimuli. In making sense of the visual world, a number of physical characteristics which define objects and their relationships in three-dimensional space are relied upon (Sanoff 1991). Although most physical methods involve a certain degree of personal judgment, there are situations that require the use of human judges to assess features of the visual environment. To be effective, the scales of measurement should refer to the attributes of the environment rather than to subjective experiences. Cuthbert (2006) defines an aesthetically pleasing environment as one that provides pleasurable sensory experiences, a pleasing perceptual structure and pleasurable symbolic associations. Cuthbert posits that there are three different levels of aesthetic perception: sensory perception, cognition and meaning. Personal experience plays a vital role as it helps in processing aesthetic stimuli and developing cognition, thereby creating meaning from the environment, part of which is the built environment.

One of the first steps in perceptual processes involves comparing new information with what the brain has stored up through previous experience as mental images (Smith 2003). Varela, Thompson and Rosch (1999) opine that perception and cognition both have central roles to play in subjective human experience, especially in visual aesthetics.

Subjective quality measurements

Karam, Ebrahimi, Hehami, Pappas, Safranek, Wang and Watson (2009) have observed that traditionally, subjective tests are usually carried out through visual quality assessments that use human subjects to rate subjective perceived visual quality of displayed media according to a provided quality scale. These assessments can be completed either with or without visual media as stimulants. Karam has further set out how numerical scores are assigned to subjective quality metric scales and individual ratings are summed up or pooled in order to produce a single numerical score for each of the rated cases: an average resulting in the mean opinion score (MOS). These subjective metric scales have been proven to reliably predict perceived visual quality. Marchesotti, Perronnin, Larlus and Csurka (2011) posit that the objective of image quality assessment is to create methods that are capable of predicting the image quality of objects or sceneries as perceived by observers.

Different authors have used different methods in assessing aesthetics in objects and sceneries within environment-behaviour studies (EBS). EBS methodologies usually involve an observer or observers making assessments by ordering or ranking displays of interest. Kaplan (1985), as well as Palmer, Schloss and Sammartino (2012), affirm that the average rank order for the displays is taken

as a measure of the relative average perception measurements for such displays. Ratings are set by the researcher in discrete measurements, bipolar ratings and/or semantic differential scales (SDS).

Previous assessments of visual perceptions in the built environment

This literature subsection details previous assessments that have been carried out by other researchers on the subject of visual perceptions in the built environment. One study examined visual perception and judgment of urban streetscapes in Australia using a methodology of survey responses and focus group discussion (Gjerde 2008). Two principal factors affecting visual perceptions of urban settings were identified. These were, firstly, stimulation that piqued people's interest and, secondly, a clear sense of order. Gjerde recommended that the study might assist designers and development control authorities in rating the quality of street scenes, which could then inform the design process and boost the visual impacts of projects. In a related study, Castro-Lacouture and Ramkrishnan (2008) evaluated a set of buildings by measuring their building quality using the fuzzy logic method. The results showed how quality in buildings can be quantified, although the methods used for determining quality may affect the outcomes produced. The work of Casakin and Mastandrea (2009), furthermore, involved the study of aesthetic emotions and their relationship with architectural styles. Specifically, they studied university students' perceptions of Renaissance and contemporary styles using a semantic questionnaire containing bipolar rating themes. The findings of the study revealed that Renaissance design style was perceived as more relaxing, simpler, familiar and easy to understand, while contemporary styles were perceived as more interesting and were most liked. Ghomeshi, Nikpour and Jusan (2012), finally, identified the different aesthetic qualities of building attributes as perceived by architects. A quantitative questionnaire was used to determine values for each building attribute, with the results showing that architects attach different levels of value to different building attributes. While they have a strong liking for triangular elements and metal cladding, they strongly dislike circular window designs.

It can be concluded from the foregoing that different evaluation settings are capable of eliciting different outcomes for different visual settings or sceneries in different locations. What matter most in such evaluations are the objects to be evaluated and the subjects making the evaluations.

The present study

As previous studies have consistently pointed out, there has, to date, been little attention devoted to research in environmental aesthetics (Nasar 1983). Omale (2017) has noted the significantly

greater number of EBS studies that have been carried out by psychologists (Duffy, Bailey, Beck, and Barker 1986; Delvin and Nasar 1989; Delvin 1990; Purcel and Nasar 1992) than by researchers in core design or professional designers such as architects, engineers and industrial designers. In light of the illustration by previous researchers of the significant differences that exist in aesthetic perceptions and evaluations of the environment and everyday objects between experts and laypeople, the present study sought to determine whether there might also be significant differences between and among different design professionals. Such differences might be expected to arise as a result of variations in the procedures of drafting and visual analysis typical of each design profession. Architects, engineers and industrial designers/ artists were selected as subjects for study, and five architectural features/cues were employed as variables. These latter were chosen because of their capacity to excite or stimulate visual aesthetics in observers. They are: roof design, fenestration design, façade colour, entrance design, and innovation in building form. Visual data in the form of digital photographs were used alongside questionnaires for quantitative analysis – also known as photo-interviewing analysis. The study adopted photo elicitations due to the suitability of such materials for measuring sceneries compared to live settings (Leder 2001; Leder et al. 2004; Li and Chen 2011). Among the participants, twenty design professionals were also interviewed so as to gain insights into the meanings involved in aesthetic perceptions.

The following null hypothesis was investigated: "There is no significant difference in the aesthetic perception of visual quality of public office buildings among design professionals."

Method

Study site

This study was carried out in the Alagbaka area of Akure in southwest Nigeria. Figure 1b shows a map of Akure, while Figure 1a offers a closer view of Akure's central area, including the Alagbaka study area. Alagbaka-Akure was selected for the study due to its high number of public office buildings. The area has well-tarred roads, good quality facilities and attractive buildings. It also has a very large number of well-finished private hotels and residential buildings. It is a government reserved area (G.R.A.) that accommodates both government offices and private residences. Thirty-nine public office buildings were sighted within the study area, among which twelve were randomly selected for this study using a cluster classification method. This method involves dividing the area into four concentric clusters and randomly selecting three buildings within each cluster, resulting in a total of twelve building samples (Figure 1a). The buildings within the sample were spread across 16 streets within Alagbaka.

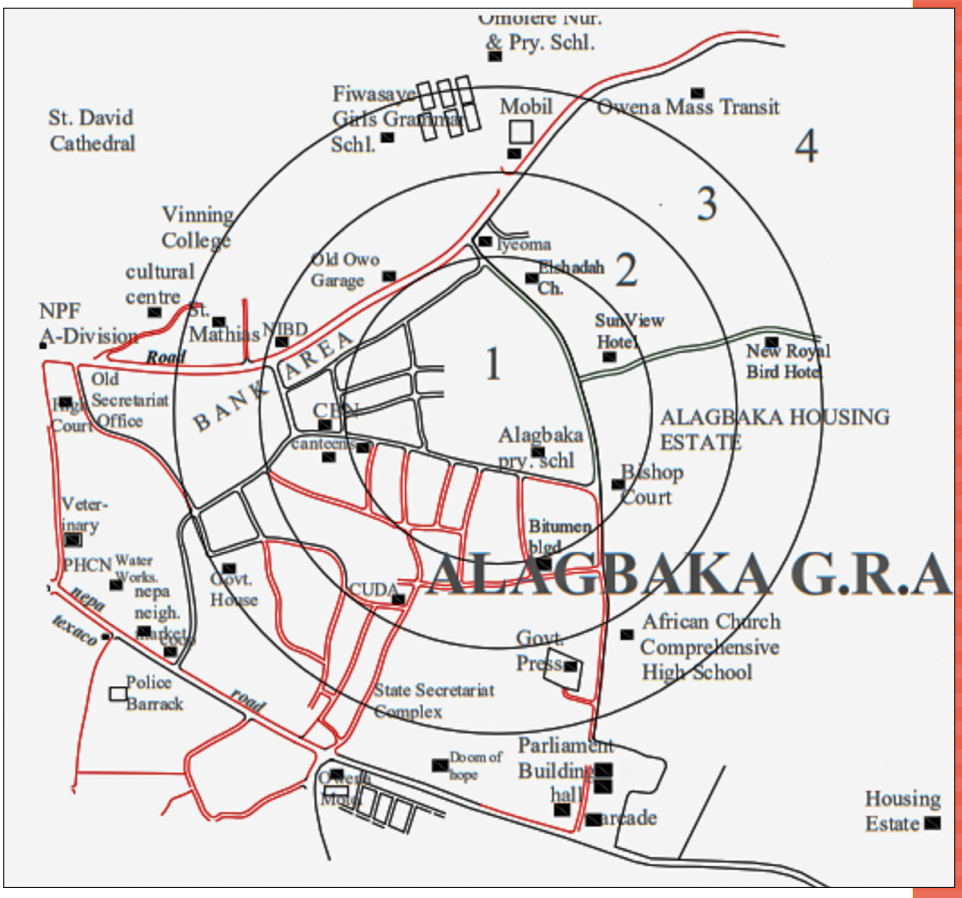

Figure 1a: Extracted map of Alagbaka showing the four concentric zones, various buildings And the areas road networks. Source: Researchers' fieldwork 2016

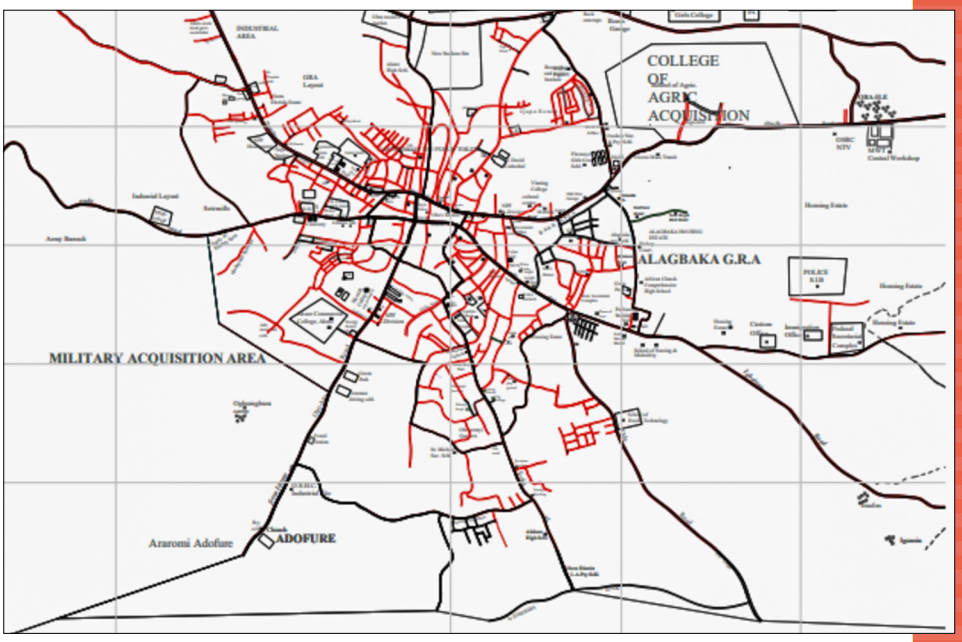

Figure 1b: Map showing Akure road network and the study area of Alagbaka. Source: Ministry of Housing and Urban Development, Akure (2014)

Design

This study adopted a mixed methods approach, employing a combination of survey and observation methods within a questionnaire to collect quantitative data, as well as an interview schedule that was structured to elicit relevant qualitative information from respondents. The purpose of the interviews was to obtain deeper insights into respondents' opinions. In order to stimulate visual interest and elicit aesthetic responses, images of twelve modern public office buildings were captured using a digital camera and the captured images included within the questionnaire. Groat (1988), Nasar (1998) and Stamps (2000) have demonstrated a strong positive correlation between visual assessments made on the basis of 2D representations in photographic form and assessments made through on-site observation, while a negative correlation has been found between the latter and assessments based on original paintings and sculptures (Joshi, Datta, Fedorovskaya, Luong, Wang, and Luo 2011).

Measures

Five architectural features were factored as variables to be assessed by design professionals using semantic differential scales (SDS). Introduced by Osgood et al. (1957), the semantic differential scale or method is an established measurement scale that is commonly used in visual perception assessments (Hanyu 1997; Hanyu 2000; Nasar 1983; Wong and Domroes 2005) and the perception of objects (Himmelfarb 1993). A five-point SDS was adopted for each variable, itself varying according to the variable to be assessed. The SDS for each variable measured are presented below:

Roof design. 1 = not appealing, 2 = least appealing, 3 = undecided, 4 = appealing, and 5 = very appealing

Fenestration arrangement. 1 = no harmony, 2 = less harmony, 3 = undecided, 4 = harmony, and 5 = great harmony

Façade colour. 1 = not attractive, 2 = less attractive, 3 = undecided, 4 = attractive, and 5 = very attractive

Entrance design. 1 = not welcoming, 2 = less welcoming, 3 = undecided, 4 = welcoming, and 5 = very welcoming

Innovation in building form. 1 = not interesting, 2 = less interesting, 3 = undecided, 4 = interesting, and 5 = very interesting. The purpose of this last variable was to verify how interesting innovation was brought into building forms.

A five-point measurement scale was used for all the variables measured so as to maintain consistency in the responses to the questions, speed up completion time, reduce confusion among participants and simplify data entry and analysis on the SPSS. SPSS version 19 was used for data analysis within this study.

Participants

Design professionals were the target group for this study. This group comprises architects, engineers and industrial designers, as well as artists. Since previous studies have shown a divergence between the opinions of experts and those of laypeople, the present study opted to collect expert opinions only. Design professionals were contacted through their respective professional bodies (these were the Nigerian Institute of Architects [NIA], the Nigerian Society of Engineers [NSE] and the Society of Nigerian Artists [SNA]) using individual email addresses provided by the professional bodies. For this study, 225 participants were contacted. A total of 200 adequately-completed questionnaires were returned and used for analysis. This represents a 88.9% return rate, which is high and appears to indicate a positive response. A total of 20 respondents were administered questionnaires for an initial pilot study, and the results from this study were similar to those obtained through the full-scale study. This is an indication of the reliability and consistency of the instrument used. Twenty participants (comprising seven architects, seven engineers and six industrial designers/artists) were also interviewed through face-to-face interview sessions, with the questions asked focused on eliciting the meanings behind participants' choices.

Results

Demographic characteristics of participants

The participants in the study consisted of 168 males and 32 females (N=200), aged between 21 and 60 years. The higher proportion of male (84%) compared to female (16%) respondents suggests that this is a male-dominated profession. Forty-eight per cent of participants were architects, 29% were engineers, and 23% were industrial designers/artists. The highest academic qualification reported by 74% of respondents was a Master's degree, while 17% had PhD degrees, and 8.5% had a Bachelor's degree only. This suggests that respondents were knowledgeable on the subject of aesthetics in design. The economic status of respondents showed that design professionals are financially buoyant, with 86.5% earning over 100,000 NGN per month.

Perceptions of visual aesthetic quality among design professionals

Participants assessed five variables of visual aesthetic quality by looking at images of twelve buildings. The variables assessed were: roof design, entrance design, fenestration design, façade colour, and innovation in building form. Calculated mean scores were very useful for making within-data comparisons. However, stronger comparisons could be achieved using percentage scores for each variable within the 12 building images. Joshi et al. (2011) posit that when a photographic scene is rated by observers on a merit scale on the basis of its aesthetic qualities, the average score can

be thought of as an estimator for its intrinsic aesthetic quality. This view is further supported by Karam et al. (2009) and Marchesotti et al. (2011). Palmer et al. (2012) develop this, affirming that the average rank order for such displays can be taken as a measure of the average perception measurement. These four positions form the basis for the perception measurements and perceived averages shown in Table 1, where a descriptive summary of responses is presented. This shows the average median distributions of participants' perceptions of roof design, fenestration design, façade colour, entrance design and innovation in building form for each of the 12 buildings.

Table 1: Average median distributions of perceptions of the five variables for each of the 12 building images assessed, and overall rankings.

Building Image	Roof Mean	Design Rank	Fenes. Mean	Design Rank	Façade Mean	Colour Rank	Entrance Mean	Design Rank	Inn.in Mean	Form Rank	*Overall Average*	Overall Rank
Building 1	2.44	11	3.46	8	3.14	8	2.73	10	2.11	11	*2.78*	**11**
Building 2	4.45	1	3.85	4	3.85	3	3.08	7	4.36	2	*3.92*	**2**
Building 3	3.01	8	2.75	12	2.98	10	3.19	6	2.53	9	*2.89*	**9**
Building 4	2.61	10	3.49	6	2.67	11	3.00	8	2.29	10	*2.81*	**10**
Building 5	3.20	7	3.21	11	3.25	7	3.80	2	3.02	7	*3.30*	**7**
Building 6	3.45	5	3.69	5	3.51	6	3.76	3	3.53	4	*3.59*	**4**
Building 7	3.21	6	3.22	10	3.52	5	3.48	5	3.22	6	*3.33*	**6**
Building 8	2.68	9	3.48	7	3.14	8	2.48	11	2.72	8	*3.00*	**8**
Building 9	2.05	12	3.25	9	1.95	12	1.96	12	2.08	12	*2.56*	**12**
Building10	3.63	4	3.98	3	3.61	4	2.91	9	3.46	5	*3.52*	**5**
Building11	3.74	3	4.28	1	4.01	2	3.49	4	3.96	3	*3.90*	**3**
Building12	3.83	2	4.01	2	4.06	1	4.18	1	4.49	1	*4.11*	**1**
Average	**3.19**		**3.56**		**3.31**		**3.17**		**3.15**		**3.31**	

From the averages of the mean values shown in Table 2, it can be deduced that fenestration design, with a score of 3.56, was the most important variable in terms of participants' perceptions of aesthetic quality. Façade colour ranks 2nd (3.31). Roof design ranks third, with an average score of 3.19. Entrance design ranks 4th among the five variables studied, with an average of 3.17; and innovation in building form ranks 5th (3.15). A total average of 3.28 for all the five variables means that fenestration design (3.56) and façade colour (3.31) both rank above the average score (3.28). These results offer a clear indication that roof design, entrance design and innovation in building form have low perception scores among design professionals.

Table 2. Summary of total average rankings for building features.

Building Feature	Average Score	Rank
Roof design	3.19	3rd
Fenestration design	3.56	1st
Façade colour	3.31	2nd
Entrance design	3.17	4th
Innovation in building form	3.15	5th

Statistical analysis of hypothesis

A Kruskal Wallis test was employed in analysing the study's hypothesis so as to verify whether there existed significant differences in the perceptions of visual aesthetic quality of public office buildings among design professionals. The distributions are reported in Table 3 for the null hypothesis. The test was carried out at an alpha level of 95% confidence and 0.05 significance.

Table 3. Result from Kruskal Wallis test.

N	Grand Median	df	Test Statistics	Asymptotic Sig. (2-sided Test)	Decision
200	3.546	2	67.028	0.487	Accept null hypothesis

Note: Significance level is 0.05.

An asymptotic significance value of 0.487 is higher than the accepted 0.05 significance level, meaning that no significant difference was found in design professionals' perceptions of visual aesthetic quality in public office buildings. Therefore, the null hypothesis is accepted, while the alternative hypothesis is rejected. This result indicates that there are no significant differences in the manner in which design professionals perceive visual aesthetic quality in public office buildings.

These quantitative findings, however, are complemented by qualitative results obtained through face-to-face interviews with 20 of the study's respondents. Participants in the interview sessions were asked what visual aesthetics in buildings meant to them based on their individual experiences and their particular professional practice. Responses to the question "*What does visual aesthetics in buildings mean to you as a designer, especially in your discipline?*" reveal that for architects, perception of visual aesthetics in buildings means "*features of the façades of buildings that are unique and exciting.*" For industrial designers and artists, such perception focuses on "*features of objects that are pleasing to the senses*", while for engineers, the emphasis in perception is on "*structures that appear sturdy and safe.*" However, most of the engineers (67%) opined that even sturdy appearance may not necessarily amount to the depiction of beauty and that there were other relevant factors to be considered, such as the nature of the materials, preparation of mix and technical knowhow. From the qualitative interviews conducted, perception of visual aesthetics appears to be a complex phenomenon among engineers, whereas architects and industrial designers/artists attach similar meanings to it. Combining the responses of architects and industrial designers/artists together, they appear to suggest that "*the perception of visual aesthetics in buildings has to do with building features that are unique, exciting and please the senses.*" This definition seems close to that offered by Moshagen and Thielsch (2010), and to that suggested by Tractinsky and Eytam (2012), which latter states that "aesthetics is the property of an object that produces a pleasurable experience in observers."

During the interviews, respondents were asked: *"What building features constitutes beauty on a building's façade as it relates to your profession?"* Results, based on responses, show that, for architects, three features constitute this beauty. These are: *roof design*, *façade colour* and *innovation in building form.* However, while over 54% of architects are of the opinion that roof designs in public office buildings should be kept simple rather than pronounced or exciting, and should even be hidden using parapet walls, the other 46% are of a contrary opinion, emphasising that roofs should be prominent and expressive, and not simple or hidden. For industrial designers/artists, *façade colour* and *façade treatment* featured prominently in the responses received, while for engineers, beauty in buildings has to do with the *"presence and arrangement of columns*, *pillars and beams."* The responses show that architects and industrial designers tend to have similar preferences in relation to the elements that constitute beauty in buildings, whereas those of their engineering counterparts differ somewhat. The prominence of façade colour in appreciations of beauty appears to be common among both architects and industrial designers/artists.

In comparing both quantitative and qualitative results from the study, it can be deduced that differences really do exist among design professionals' perceptions of building features, as becomes clear in the results of the qualitative analysis.

Discussion

The average scores and rankings of architectural features displayed in Tables 2 and 3 illustrate that both objective and subjective assessments of visual quality are possible in the evaluation of building facades. This study has also demonstrated the ways in which designers use architectural features or elements to appeal to observers' perceptual senses, which supports Motloch's (2001) position that "designers are sensitive to visual language of communication and use the forces inherent in its basic vocabulary such as points, lines, forms, colours, and textures to convey perceptual and associational meanings because they are concerned with physical characteristics of the environment". The organisation of this visual language of communication into perceptual combinations helps in bringing about associations and meanings in the minds of observers, which are then reflected in their responses.

This study found that among the five variables studied, innovation in building form and façade colour appear to exert the most substantial effects on the visual perceptions of observers, as can be seen through comparing the scores of the top three highest-ranked buildings (Buildings 12, 2 and 11). However, façade colour was more highly rated compared to innovation in building form, which scored lowest among all five building features in participants' perceptions of visual aesthetic quality. This suggests that architects

should pay more attention to this variable when designing public office buildings, and supports Canter's (1969) findings on the importance of innovation and pushing architectural boundaries.

Findings from this study further reveal that design professionals, especially architects, have performed averagely in terms of rating the visual quality of their designs through the building images that were studied. This was exemplified through their use of fenestration designs and façade color as the pilot study earlier carried out corroborates this fact. The average mean values are also an indication that design professionals have performed averagely in their overall assessments of public office building designs. In summarising both numerical and textual data, it can be deduced that differences exist among all the three design professions' perceptions of visual aesthetic quality in public office buildings. This finding supports Meiss' (1997) contention that the principles of perception can be applied to architecture and the graphic arts as they all originate from empirical experiments on vision. It also affirms Gann et al.'s (2003) argument that discrepancies may arise in perceptions of quality between, and also among, experts, clients, contractors, and designers. In this case, there appear to be discrepancies in the manner design professionals perceive aesthetic quality in public office buildings' façade designs.

As Weber (2015) explains: "the differences lie in the background of experiences gained over the years of design education, professional experiences and socializations, leading to differences in professional cognitive states."

Conclusion

This study has attempted to use a mixed methods approach to evaluate perceptions of visual aesthetic quality among design professionals. It has been shown that façade colour and innovation in building form are two architectural features that elicit visual aesthetic perceptions in observers of public office building façades. However, while façade colour was consistently rated highly by participants, innovation in building form was the least-perceived architectural feature. It nevertheless stands out as a highly-rated feature in each of the three highest-rated façades. In designing the façades of public office buildings, design professionals are therefore urged to balance innovation in building form with continued use of aesthetically pleasing colours. The importance attached by designers to fenestration arrangements, furthermore, highlights opportunities to include large, symmetrical, low-energy windows in tropical designs: hence sustainable office designs. Meanwhile, entrance designs stand in need of improvement to make them more welcoming, both for users and to observers. Roof designs, finally, achieved average scores and may need to be stepped up so as to increase their visual impact, though architects remain divided on what kinds of roof designs are most suitable for public office buildings.

This study has highlighted similarities in the aesthetic perceptions of architects and industrial designers/artists, whereas more significant differences of perception exist between these and their engineering peers. This is in line with the findings of a study by Gifford et al. (2000) that attributes differences in professionals' perceptions to their different trainings and background experiences. The similarities in aesthetic perceptions identified among architects and industrial designers/artists can be attributed to similarities in design education (Omale and Ogunmakinde 2018) Members of both professions encounter similar elements and principles of design throughout their study and practice and come to visualise building façades as exhibits and building features as elements of design. Future studies might profitably examine the aesthetic perceptions of other stakeholders in the construction industry, including builders, estate surveyors, clients and contractors.

The visual quality of public office buildings in the study area can be made better as there is room for improvement. Most times when carrying out quantitative and qualitative analyses, one usually corroborates or emphasizes the other. However, when the results are in opposite directions, it shows that more attention is required in the details of the findings.

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APPENDIX 1. Building images in study sample

Building image 1

Building image 2

Building image 3

Building image 4

Building image 5

Building image 6

Building image 7

Building image 8

Building image 9

Building image 10

Building image 11

Building image 12

Finding Space for Shared Futures

Exploring methods for co–evaluation in urban co–design projects

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Abstract

Reflecting on the challenges and experiences of delivering a public co-design project during the Covid-19 pandemic, we use this paper to make an argument for greater experimentation with and attention to the evaluation methods used to assess and justify co-design projects. Evaluation is often treated as a final, retrospective, and—too often—last-minute step in delivering a design project. In reality, practices of evaluation characterise every step of participatory design. Formal evaluation processes often dismiss the practical techniques and criteria that participants use to decide whether a design is good for them or their community, however, relying instead on narrowly-defined methods and criteria established a priori by professional 'experts'. The tensions that arise between participants' lived practices of evaluation and formal accounts of evaluation can lead to differences of opinion and diverging decisions—and concerns about 'inauthentic' or 'shallow' co-design. Finding techniques to carry forward participants' everyday evaluations into the formal methods and evaluations of project reports should therefore be treated as a crucial concern for participatory design. In this vein, we reflect on both the methodological experiments and challenges involved in our effort to find better possible, agreeable and shareable futures in our co-design project "Future of the High Street" by examining the *spaces of evaluation* created within co-design projects in order to spark further debate about the possibilities of co-evaluating the projects and spaces we share with others. Drawing on ethnomethodology, a sociological school of thought focused on the study of the everyday and mundane methods used by people to organise, make sense of and act in their social world, we argue that such spaces of evaluation are sites where designers and participants create and negotiate shared grammars of accountability and justification of their work together. Recording and sharing these exchanges is one way to better align the formal evaluation of co-design with the situated and shared evaluations through which participants decide whether and how participation in a project is worthwhile or empowering. This, however, requires a shift from treating 'methods' as means-to-an-end and toward an understanding of methods as experimental practices that designers and participants alike might use to occasion reflection on how to think, act and design together.

Introduction

A head nod, a sticky note, a confused look, a pointed email, a compromise—over the course of a project, designers and participants employ a diverse range of methods to evaluate ideas, possibilities and risks together. Some are technical—a workshop, a survey—but many are thoroughly mundane. An exaggerated eye-roll, for instance, can be a sharp and succinct method for calling a suggestion into question and contesting its viability for a project's community. Through a messy, interactive and contingent process, project participants make and manage evaluations time and again as they work to decide what to do next *together*.

Such a meandering and uncertain process keenly contrasts the clear and definitive assessments offered within formal project evaluation to justify and qualify project outcomes. By invoking well-defined metrics, indicators and deliverables, formal project evaluation can make claims of project rigour, impact and success, but in doing so may conceal uncertainties, debates, mistakes and adjustments that make up the collaborative work done to get there. Used in such a way, formal project evaluation becomes a form of 'method talk', a claim to "the best and technically robust account of reality"— treating certain procedures and criteria as definitive 'facts' about reality and masking the more tentative work done to *produce* them (Law 2004, 9). It enacts what sociologist John Law (2002, 7-8) calls 'projectness', a tendency to represent the social world as 'linear, chronologically chained, and more or less centrally and teleologically ordered' by reducing complexity and dismissing multiplicity.

When methods and metrics are used to shore up a 'conclusive' evaluation of project success, they pre-empt other perspectives. By aiming to settle a project's success once and for all, they obscure the contexts and interactions in which their own methods and metrics become provisionally and practically good enough—and consequently the reasons they might be productively challenged, adjusted or learned from later on. For participatory and co-design projects in particular, such approaches to formal project evaluation risk excluding not only the plurality of perspectives and interests in projects, but also the techniques and interactions participants used to work together despite and thanks to their differences.

In light of these tensions, discussion is necessary about how to carry forward participants' everyday methods and criteria for participation into formal project evaluation to keep formal assessment accountable to participant and community interests: how we can co-evaluate our project with others. In this paper, we reflect on our own attempts at creating space for participants' evaluations within the design process and formal evaluation of our recent project, "Future of the High Street". We draw on ethnomethodological studies of design (Button et al. 2015, 135), which examine the ways people "go about analysing and displaying their understandings of the social in their everyday affairs", to analyse how designers and participants publicly evaluate a shared

project in and as their work together. By viewing evaluation as an ongoing, contingent and situated process, we identify and discuss three spaces of co-evaluation from our project to reconsider how we might use formal project evaluation as an active part of ongoing project decision making to create better and shared possible futures.

Doing design together

Although design projects tend to begin with a detailed plan and timeline, over the course of the actual project work, all manner of surprises—even global pandemics—carry the designers and participants in unexpected directions. These emergent challenges and opportunities are even more pronounced within participatory design, where designers hope to learn from stakeholders' practical and tacit knowledges as future product-users (Bjögvinsson et al. 2012), but also to empower stakeholders by giving them a voice in decisions about their own lives (Kensing and Blomberg 1998; Sanders and Stappers 2008; McKercher 2020). The democratic aspirations of co-design make the design team accountable to the interests and agendas that participants bring to the table (Manzini 2019), even though this can subject the project to appropriation by outside interests or give rise to conflicts between participants (Del Gaudio and de Oliveira 2020). Participatory designers aspire to facilitate exchange between participants, enable connections and spark new ideas (Trischler et al. 2018, 91), but as designer Jens Pedersen (2016, 181-182) argues, tensions, conflict and changed plans are also important elements of co-design if "the ideals of participation and democracy in design could be regarded not as a priori principles, but rather as sketches to be prototyped, revised, re-designed, re-imagined": troubles and uncertainties are part of "codesign practices in-the-making", and reflection on how ideals like participation and plurality are realised in practice enables us "to evaluate and discuss the pragmatics and the politics of codesign more fully".

Thus, while co-design calls for development and experimentation with formal evaluation methods (Taffe 2018; Drain et al. 2021), its attention to the interactive and dynamic process of designing together calls for their *situated* appraisal in relation to specific values, needs and relationships. Moreover, this entails recognition of the ways participants themselves enact and communicate project evaluations, design decisions and modes of working. In their work together, participants and designers alike use material objects and mobilise situated knowledges in 'heterogeneous design-games'. These involve the aligning and contesting of interests, criteria, plans and understandings of success in order to shape project possibilities—and find whether and how participants and designers can share and value those possibilities together (Ehn 2008).

Rather than proceeding along a straightforward and clear path, participatory design interactions call for an 'expanded'

understanding of design projects as complex, dynamic, non-linear and contradictory *environments* in which shared practices, values and cultures are ongoingly (re)created (Manzini and Rizzo 2011, 199-215; see also Escobar 2018, Ch. 6). Although project plans, deliverables, ideals and methods may be specified in advance, they are evaluated and used in different ways in particular contexts—and these contexts are identified by participants through their interactions. Following feminist STS scholar Lucy Suchman (2002, 96), participants collectively develop 'located accountabilities' of the project and their participation in it. Participants' responses to one another, to events, to the formal methods introduced by designers create the 'locale' within which certain possibilities and processes are assessed for practical and provisional purposes: they negotiate the terms of their collaboration along the way, determining whether a project is good, useful or democratic for them in situated *spaces* of evaluation.

Formal project evaluation should therefore attend to project members' mundane methods for working together to understand a project's community—and their actions—in their own terms. Within the sociological approach of ethnomethodology (Garfinkel 2002; 1967), everyday interaction is understood in terms of 'members' methods' for organising, making sense of and working to change their lived environment. Ethnomethodologists' study of 'the practical "composition" of sequences of action' and everyday problem solving resonates with designers' interest in *how* a social situation works—and might be changed for the better (Sharrock and Randall 2004, 191; Drish and Button 1998). Rather than appealing to theoretical concepts or a priori analytical frameworks to understand the meaning and nature of social interaction, ethnomethodologists pay attention to the embodied, interactional and in situ ways that community members create and contest their social worlds in practice (Button 2012, 679; Smith et al. 2021). Viewed thus, the activities of designers and participants in a co-design project can be seen as negotiating the terms and values of their contingent community. They offer situated and pluralistic evaluations of how diverse people might co-design together.

This shift in perspective resonates with contemporary experiments in methods of co-evaluation within projects like CoLab Dudley[1] and Beyond The Castle (Cruickshank et al. 2013), where experiments in 'social infrastructure' and 'scaffolding' approaches aim to produce more flexible and dialogical co-design processes. Being *responsive* to evolving participatory insights as part of the co-design process is a common thread found in each project, as is the creation of key values and principles defined through exchanges between team members and community participants. The creative and experimental 'methods' used by these projects, like exploratory 'prototyping' and 'detectorism', do not promise straightforward means to an end, but rather direct attention reflexively to the *processes* of exchange and ideation, critique and disagreement that proceed from a 'leap of faith' at the start of a co-design project (Cruickshank et al. 2010, 50).

1 See: https://dudleyhighstreet.uk/about/

Rather than evaluating a co-design project solely in terms of its 'end' via pre-established metrics and indicators, this invites discussion of what project success comes to look like in practice, time and again, given the challenges, possibilities, concerns and other factors that participants find themselves 'up against'—their collective and situated sense of "how to bring it about from a here-and-now future[s]" (Garfinkel 1967, 97). As a "community of practice", designers and participants make their shared project "answerable to the distinctive interests" introduced by members in and as their work together (Goodwin 1994, 606). This results in a form of collective 'vision', in which members hold each other accountable to—and thereby create and contest—the 'proper perception' of their activities and surroundings (Goodwin 1994). This proper vision is not defined a priori, but is shaped and evaluated along the way as participants attune to one another's voiced interests in variously receptive, constructive or confrontational ways.

Within a co-design project, the diverse participants and designers, by virtue of their work together, must also develop some kind of shareable 'project vision'—practices and criteria for understanding and evaluating their activities together. This makes the question of 'good' design an ongoing and open-ended question to which *all* participants might offer evaluations: recognising the plurivocality of evaluation that shapes a co-design project commits evaluation to future-facing questions. In the following section, we reflect on some of the challenges and possibilities for reconceptualising formal project evaluation within a critical framework that connects ethnomethodological attention to the ongoing, local accomplishment of 'community', with theories of co-design that reconceptualise the 'projectness' of projects: rather than providing a conclusive evaluation of our own methods, we aim to recount the processes of mundane and practical evaluation that drive co-design. By framing methods as *spaces of evaluation*, we suggest a pivot away from understandings of methods and projects as means-to-an-end and toward their use as open-ended, situated occasions for learning how to work and think together with others.

The Future of the High Street - A Case Study

The Future of the High Street was a six-month urban design project that combined citizen engagement and co-design with urban data and research to identify, discuss and respond to challenges facing high streets during and following the Covid-19 pandemic. Due to the short time-frame and uncertain pandemic conditions, the project focused on small-scale rapid prototyping of ideas and a flexible, dialogical approach to decision making. A project team within the Edinburgh Futures Institute at the University of Edinburgh led the research and data-driven insights, including two Public Life Studies to contribute spatial insights into project decision making and pilot assessment, regular public-facing blogs, monthly Advisory Board meetings, and project reporting. The research team adapted Jan Gehl's tools for surveying public life to

produce base-line reports for local organisations and government, and which enabled comparable results when the prototypes were in place (Gehl and Svarre 2013). Community engagement and design work conducted by New Practice architects included workshops and youth activities via a co-design process to refine a toolkit of six 'high street tweak' ideas responding to common high street challenges and opportunities identified in collaboration with stakeholders (see Figure 1). Two low-cost, short-term pilots tested two of these ideas on two different high streets, leading to plans for long-term interventions in each area, including public seating and a 'tactical urbanism kit' resource library.

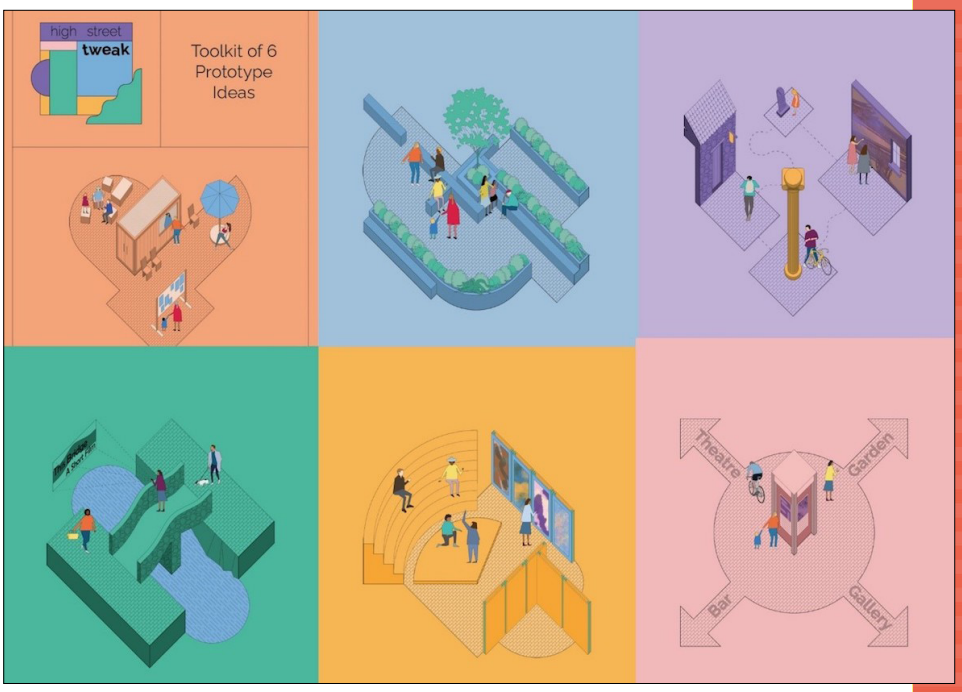

Figure 1. Toolkit of 6 ideas for small scale interventions to tackle common high street challenges, developed through digital co-design workshops, surveys and conversations with local businesses and other stakeholders.

Evaluation was a key interest from project inception, as a way to reflect on and course-correct decisions while the project developed — with the aim of improving outcomes and impact. To do this, we developed an evaluation framework built around five continually evolving indicators and an adjustable list of possible metrics derived from comments, suggestions, concerns and values that participants offered throughout the project, a process that we referred to as Collaborative Evaluation. In the following sections, we examine three of our methods for co-design as *spaces of evaluation*. Looking closely at the processes involved in these methods, while reflecting on Manzini's conceptualisation of projects as 'environments' and Suchman's attention to 'located accountabilities', can help show how participants' mundane evaluations of projects contribute to and productively challenge formal evaluation practices, opening up space for more flexible, dialogical and ongoing methods of evaluation in future co-design projects.

The Prototypes: Evaluating objects of co-design

At the project's heart was the design of six prototype ideas, and the construction and temporary installation of two of these as pilots for possible long-term project legacy. Through a public survey, youth engagement and online workshops, the design team facilitated a process of co-design with local stakeholders and business owners to understand their perceptions and inform the realisation of pilot prototypes. In this sense, the prototypes were what Ehn (2008, 94) calls "design devices", which enabled various shared "design-games" between designers and participants. Workshop conversations and discussion involved a great deal of evaluation of both prototype ideas and the co-design process, with participants expressing opinions about whether the engagement process was open, participatory or democratic enough and why.

Figure 2a. Prototypes: Tactical Urbanism Kit pilot in Dalkeith

Figure 2b. Seating pilot in Gorgie-Dalry (image credit: Jenny Elliott)

Figure 2c. Window Illustration pilot in Gorgie-Dalry (image credit: Julia Brookfield)

The prototypes enabled spaces of co-evaluation as the participants came to terms with each other and with the expressions of identity, relation, affiliation, experience and opinion that they brought to bear on the project. The prototypes also provided context for shared evaluations when trialled in the street, serving as attention-grabbing street-side engagement opportunities, allowing the design team to share project information with passers-by and solicit their opinion (see Figures 2a, 2b, 2c). By conducting one of the PLS research days concurrently with the pilots' installation, the research team also observed a far wider range of reactions – serving as practical evaluations of the prototypes' presence within the high street's public space. When a family sat down on one prototype bench, researchers recorded the positive assessment of the bench based on its use—the decision that it was a desirable and usable place to sit. Conversely, when interviewing another passer-by, her response that the prototypes "were a nice start" introduced a degree of scepticism, followed by criteria that would persuade her of the project's value: if the benches were more stable, if placed in a nicer location further from traffic, if more of the street were pedestrianised so that it wasn't so loud.

Installed publicly, the pilots provided bases for spaces of evaluation to develop between the project team and local residents—common criteria and experiences with which to reason through the final development and delivery of the prototypes. Even though these final stages were necessarily managed by the design team without direct engagement with residents, the criteria proffered during the trial enabled a process of co-evaluation to continue. The design team aimed to maintain accountability to the *collaborative* nature of this evaluation work by providing brief 'idea histories' alongside each prototype in their online toolkit: to communicate how that idea came about and to be selected as a 'good' one dialogically with local residents. The interviews, participant observation and other

research activities did not gather a range of 'objective' facts about the high streets and their communities, but rather facilitated situated and collective reflections that supplied a workable grammar for subsequent study and development of project prototypes.

The Advisory Board: Evaluating projects of co-design

The Advisory Board was a series of monthly meetings between project team members and a group of practitioners and public space professionals engaged in related work from over 20 other organisations. Participants were provided with regular updates on project progress and invited to offer feedback, raise questions or express concerns, as well as deliver presentations about their own work connecting with various monthly themes, such as evaluation and digital engagement (see Figure 3). The Advisory Board was thus a space for discussion about the project, but also provided opportunities for the exchange of ideas, tools and resources relevant to the members' other work: enabling the formation of a broader community of interested individuals who could respond to and evaluate project progress.

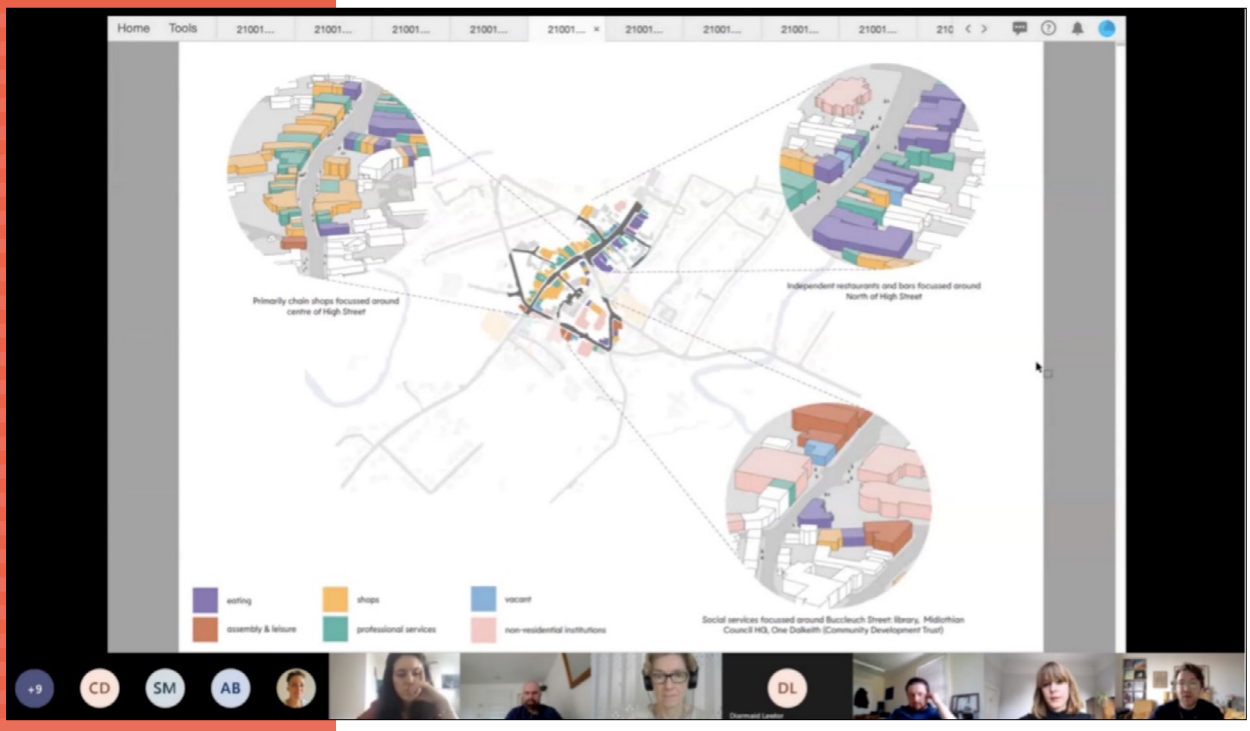

Figure 3. Presentations and discussion at the monthly Advisory Board meetings

The Advisory Board was a key site for experimenting with the generation of working indicators and metrics to use in our final Evaluation. By documenting and recording points raised and decisions queried, we assembled factors that we could use to examine and appraise the successful design of prototypes, workshop results and other findings. Rather than taking these indicators as final and definitive proof of the success (or not) of

the project, they served as useful ways of seeing aspects of the project and raising questions about whether anything should or could be done to address a particular concern. For example, when one Advisory Member posted that a successful project would involve acknowledging "those who weren't in the room", this became a useful point for shifting the frame of understanding about how engagement should take place when online workshops wound up with fewer participants than hoped. The project team studied previous consultations and surveys to connect the project's findings and reasoning with opinions and observations offered by community-members beyond the project, often collected via alternative in-person methods not possible for our project at the time given pandemic restrictions. As a working indicator of success, the project team used this criterion as something by which to recognise successful project traits and 'good co-design' in their own decision making, in this case by making their own co-evaluations accountably located in a wider ecology of consultation and evaluation in the local communities.

Likewise, the Advisory Board played an important role in putting our own criteria of evaluation in conversation with those developed by other contemporary co-design projects. Rather than focus solely on the Future of the High Street project, members were also invited to present their own work, allowing us to learn from and alongside their own experiments in developing co-evaluation methods. For example, a presentation from members of CoLab Dudley proved a fruitful occasion to share not just evaluation criteria, but also the processes and experiences that fed into their co-creation with local communities. CoLab Dudley use a 'principles-focused evaluation' approach to respond to the changing, dynamic needs and interests of local communities instead of pre-defining rigid evaluation criteria; their 'GUIDEing principles' are intended as adaptable and negotiable points of reference for team members and community to respond to (Prescott 2020). Discussions about commonalities and differences between the projects, such as a shared interest in mixed-methods approaches or significant differences in project duration, were crucial, situated negotiations of how lessons could be learned between communities in dialogue with other members and stakeholders. Thus, as a 'live' conversation throughout the project, such conversations allowed the team to critically review other contemporary projects in response to particular local questions and challenges—to put the values and principles of different communities in conversation with one another rather than 'parachuting in' prescriptive criteria 'out of nowhere'.

In this vein, the Advisory Board also served an unexpected role as a space of evaluation when it became a meeting that other potentially interested parties could be invited to attend. This included members of local organisations and government bodies, as well as other designers working on similar projects. Not every individual invited ultimately attended Advisory Board meetings, but the *invitation* to attend became a useful technique for managing the project's relationship with others beyond the traditional group of designers and workshop participants. Thus, having the Advisory Board as a

resource for organising and sharing the project also enabled spaces of evaluation to develop when interested parties gave their reasons for attending (or not). The Advisory Board facilitated co-evaluation of specific questions and possibilities within the project, but also about the project's relationship to external organisations and other projects. It became a way for practitioners to assess to what extent their interests, priorities and work aligned—whether they could work together within this project or on future ones.

Backwards Flow-Diagram: Evaluating experiences of co-design

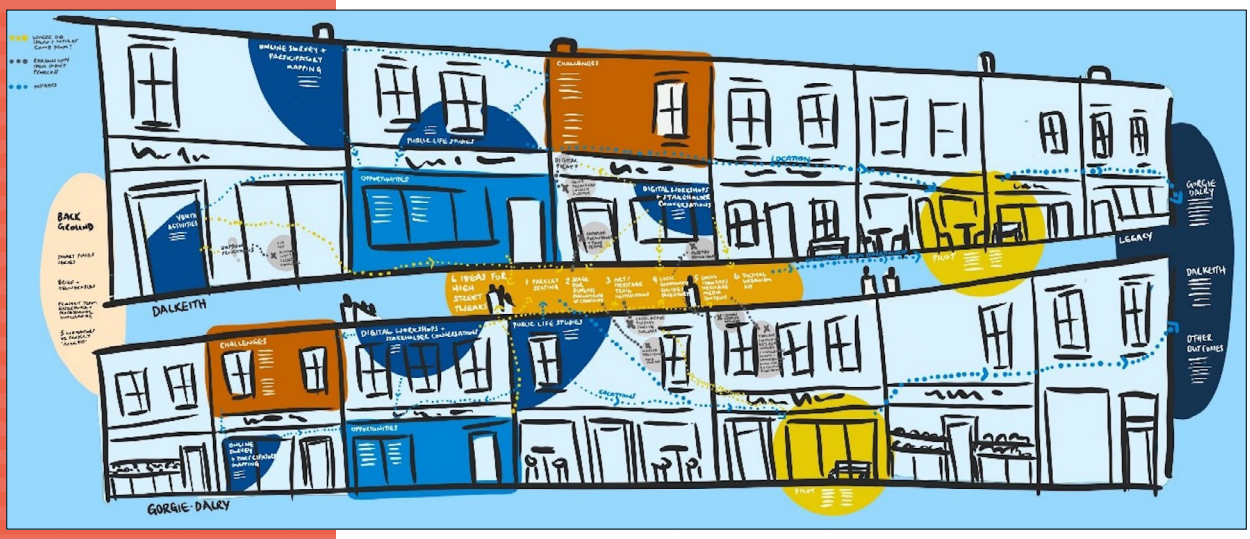

Figure 4a. Initial sketch by Project Lead (Jenny Elliott) of the Backward Flow Diagram

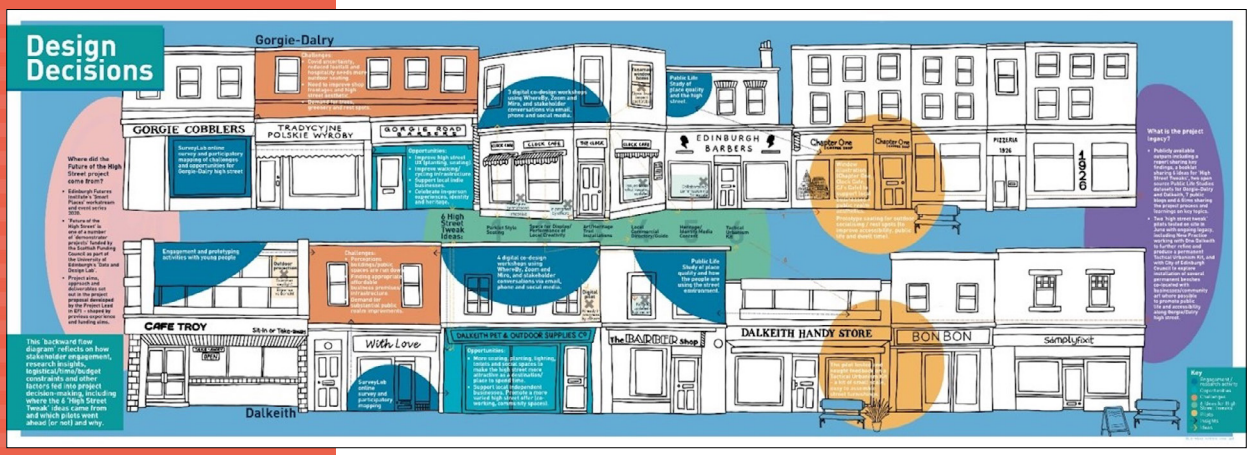

Figure 4b. Final illustrated version of the Backward Flow Diagram (illustration by Victoria Rose Ball)

The 'Backwards Flow-Diagram' (see Figures 4a and 4b) was an effort to trace back the processes, key decisions, challenges and other factors that shaped project outcomes. As one team-member put it, the diagram was a way to show and share "the story of how we got to where we are". The project team decided such a diagram would be useful for explaining how different project activities, insights, threads of stakeholder conversations and other events fed into the project process and decision making. As a reflexive document, the diagram is a way of 'locating' the project's accountability (Suchman 2002) by sharing and situating decision

processes with other interested parties: it shows what the project's process and success 'looks like' to the project team in the context of emergent problems and surprising opportunities (Garfinkel 2002, 202). Thus, in the diagram, challenges like the unexpected introduction of a second UK lockdown provide *accountable* commentary on subsequent adjustments to prototype design and a shift toward investing in long-term project legacy—like pilot-testing locations for new public benches—over short-term project deliverables. Likewise, the diagram demonstrates how the idea for more public seating is linked to the stakeholder-engagement workshops where the idea was first suggested: public seating is presented accountably as a shared and collaborative 'good idea'. In this way, the diagram also demonstrates how the project as a whole was assembled as ongoingly evaluated, *situatedly* good co-design. Nonetheless, while some factors like the lockdown were easily represented, the team had to discuss others more carefully to find a summary that they were content with.

"I don't know how you capture pessimism," one designer quipped as the team discussed the reasons for deciding against one prototype idea proposed during workshops. "My first thought on hearing it was 'Aw, not really a good idea'." As the conversation continued, the designers shared several reasons why the particular idea was not feasible despite popularity with some participants: poor value-for-money; little potential for longer-term legacy; bad experience on previous projects; incompatibility with Scottish weather. "I can attach all these rationalisations to it," he shrugged, going on to explain that they nevertheless only offered a rough sketch of his initial *sense* that the idea wouldn't work well. However, *by* attaching these rationalisations in the diagram, the designer provides a rough sketch of his reasoning in terms of the kinds of criteria that both he *and other project participants and stakeholders* shared for evaluating project decisions. The document thus becomes a practical tool not because it 'proves' that the project is a successful instance of 'good co-design', but because it circulates publicly a grammar of criteria—a common language that can be used to corroborate, contest or critique the team's rationale behind decision making, and claims about the project's success.

As a practical tool—and challenge—for sharing their own understandings of their project's good co-design with a wider public, the Backwards Flow Diagram creates a space of evaluation in which the project team work out together how to evaluate their project for public scrutiny. The benefit of thinking about the Backwards Flow-Diagram as a space of evaluation does not, however, come from treating it as a static representation of the design process: rather, in doing the work to make an accurate and sufficiently detailed "local history" of the project as a *practical* concern, the project team undertake the reflexive task of making explicit their own senses of "good enough" justification, "sufficient" detail and "workable" summaries. Additionally, subsequent circulation and discussion of the document can enable further practical evaluations if used by others to work out how to do co-design well in other contexts. It

is the practical utilisation of the document to think about this and other projects that makes it a notable space for evaluation, and which shows how the terms of 'good co-design' come to be defined and shared by communities that extend beyond participation in a given project.

Conclusions

Each of these examples illustrates one type of situated *space of evaluation* in our project and the practical work our community of designers and participants did to find ways of working together. While prototypes, the Advisory Board and the Backwards Flow-Diagram are themselves formal methods that, we hope, other designers may borrow and adapt in their own work, sharing stories about their situated use throughout the project highlights ways in which we have tried to root our own formal project evaluation in the mundane evaluation practices that participants used to coordinate their own shared 'vision' of project success. This learns from Law's critique of linear and monological 'projectness' by reconceptualising formal project evaluation itself as an interactive and *forward-facing exercise* through which a project's community may work and communicate with others. Rather than treating methods as 'short-cuts' (Law 2004, 10) to a good design project, we consider the ways in which participants *use* methods to create spaces of decision making and co-evaluation: how they identify and work on better possible futures together.

The concept of *spaces of evaluation* aims to show how designers and participants can and do form shared grammars of accountability and justification in and as their shared work of making and thinking together. Rather than advocating our specific techniques or collaborative evaluation framework, we hope this serves to spur discussion among designers about the practical work of making formal project evaluations accountable to the mundane evaluations we conduct with communities along the way—and critical reflection on the ways that we account for the reasoning behind our decisions. These examples illustrate something we may know intuitively, but often gloss over: participants, passers-by, acquaintances and strangers make their own evaluations of our projects, forming their own conclusions about what makes participation "meaningful" or impact "successful". There is need for further discussion in co-design about how to transform formal project evaluation—too often seen as the end of a project—into a useful space of co-evaluation for ongoing and future collaborations.

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Commoning Landscapes from Home

Building queer ecological commons online at a time of COVID–19

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Abstract

The coronavirus pandemic has limited the ability to undertake *in situ* ethnographic fieldwork. Digital methods have instead proven popular with researchers gathering qualitative data over the course of the pandemic. Digital methods nevertheless present challenges for studies that have traditionally relied upon experiencing landscapes *in situ*.

This paper traces some of the epistemological, methodological, and ethical shifts that have taken place within my PhD project as a result of the global pandemic. Within my project, I am investigating how contemporary queer communities have established and maintained inclusive and sustainable commons landscapes. Originally, I had envisaged using i*n situ* ethnographic methods to research experiences of commoning landscapes amongst case study queer communities; however, I have instead embraced a queerly scavenged combination of oral history interviewing, autoethnographic methods, and digital community archiving to meet my original research aims.

Within this paper, I highlight how commoning can shift from a research focus to an ethical and methodological approach at times of community precarity. In doing so, I question the resilience of an *in situ*/remote binary when researching commoning landscapes. I argue that my new research positioning has enabled this research project to lie more clearly within the theoretical tenets of queer and feminist commoning—particularly in destabilising dualistic patterns of thinking. I contend that digital methods can support commoning landscapes; however, I also raise some of the challenges of using digital methods in the context of researching more–than–human landscape ecologies.

This paper adds to the emerging literature that extends feminist new materialisms and queer ecologies towards commons and landscape studies. I ultimately advocate for researchers to not only consider methodological feasibility when in times of crisis, but to reconsider what role the research(er) has in future world–making.

Introduction

For the past two–and–a–half–years, I have been researching queer commons landscapes from my Edinburgh flat. When I began my doctoral research project in 2019, I was unprepared for the transformations that my research would be forced to undergo to remain viable in the wake of the global coronavirus pandemic. And yet, despite the methodological challenges triggered by the pandemic, my research aims nevertheless remain the same. The ongoing pandemic has instead catalysed a series of significant epistemological, methodological, and ethical transformations within my research. These transformations have led me to scavenge a new set of methodological approaches in collaboration with multiple queer commoning groups, including community–based archiving, oral history interviews and autoethnography. These new methods are used with the same intention of supporting queer groups wishing to further common their landscapes and equally, for groups wishing to queer their commons landscapes.

This article traces some of the conceptual shifts that have occurred when trying to satisfy my original research questions without the opportunity to engage with traditional *in situ* ethnographic fieldwork within commons landscapes. This paper also highlights how restructuring the project has allowed my new methods to destabilise dualistic patterns of thinking around what it means to research *in situ* or remotely. Through questioning this binary, I contend that this research further resides within the theoretical tenets of this project's focus—'commoning landscapes'. Whilst I argue that digital methods can support new ways of commoning landscapes, I also emphasise some of the challenges of using digital qualitative methods when researching more–than–human ecologies. This paper adds to the emerging literature that extends feminist new materialisms towards commons and landscape studies, and ultimately advocates for researchers to not only consider methodological feasibility when in times of crisis, but to reconsider more broadly what role the research(er) has in future world–making.

Queer ecology, commoning and *in situ* methods

Within my doctoral research project, I am examining how the exclusion of gender and sexual minority groups within mainstream environmentalism can be overcome at a time of climate change. Guiding this research is a combination of two energising yet hitherto distinct fields of study, commons studies and queer ecology. I aim to identify practical 'commoning' patterns (Helfrich 2015) utilised by LGBTQ+ communities in order to aid the development of a more inclusive praxis for the sustainable restructuring of landscapes. As I shall explain in more depth, I have associated inclusive praxes of reshaping landscapes — where landscapes are understood as both cultural and natural forms — with the phrase 'commoning landscapes'.

Over the past three decades, 'commons' have been suggested as a 'third way' of negotiating economies outside of private and public property regimes (Feeny et al. 1990; Huron 2018), and the term continues to inspire new ways of responding to social inequalities and climate breakdown. Traditionally, commons are understood as community–based economies that support resources to be co–managed by all individuals within a group. 'Commoning' rather describes the active 'doing' of the commons—of maintaining relationships with shared understandings of value, needs and production (Linebaugh 2008). Commoning is a relational process that centralises mutualism (Linebaugh 2008), reciprocity (Esposito 2010) and redistribution (Susser 2017) within cultural reproduction (Hansen et al. 2016, 11). Despite the political momentum that commoning has garnered amongst academics and activists, commons scholars have emphasised that it is nevertheless "an undertheorized concept" (Helfrich 2015, 53), due to a lack of clarity around how commoning is practiced and structured by communities every day.

My research investigates one gap within cultures of commoning, specifically LGBTQ+ inclusive practices of commoning landscapes. Within this project, I am drawing upon the body of theory known as 'queer ecology.' Queer ecology combines queer theory and environmental studies to challenge heteronormativity within environmentalism (Mortimer–Sandilands and Erickson 2010). Utilising 'queer' as both a noun and a verb, queer ecology applies queer theory's deconstructive critical focus to ecology. In doing so, queer ecology challenges the socially mediated process of naturalisation and its associated socionatural exclusions. Cultural geographer Matthew Gandy has suggested that through 'queering' ecology, scholars and activists can develop new understandings of how materiality and metaphors are experienced and offer spaces where "different kinds of cultural or political alliances might emerge" (2012, 740). In the context of commoning, queer ecological approaches appear to offer opportunities for challenging political exclusions; thus, through bridging these two fields, I ask how queer ecology could transform understandings and approaches to commoning landscapes.

To research how queer ecology might support commoning landscapes, I originally aimed to undertake *in situ* ethnographic fieldwork with a prominent countercultural queer group called the Radical Faeries. Radical Faeries are eco–friendly groups of queers who live in permanent communes or come together at temporary gatherings. Founded in the 1970s in the Unites States by gay men inspired by lesbian separatist movements and New Age spiritualities, Radical Faeries have been suggested by queer ecology scholars as presenting interesting intersections between intentional eco–communities and queer countercultures (Sandilands 2005, Bauman 2019). Whitney Bauman has suggested that groups such as the Radical Faeries give "more chances to think about different possibilities for becoming" (2019, 117) in the context of emerging queer ecologies. Fascinated by how these 'different possibilities' could inform the practicalities of commoning landscapes, I had

intended to use ethnographic methods to investigate what lessons Radical Faeries could offer for communities wishing to undergo a more inclusive commoning.

Ethnographic fieldwork was chosen as a result of methodological precedents within commons studies, landscape studies and queer ecology. Ethnographic fieldwork has been utilised to highlight the ways in which communities shape and are shaped by the surrounding environment through everyday life. My fieldwork was to involve a year–long period of multi–sited ethnographic engagements (Marcus 1995) with Radical Faerie landscapes. These would have included the organic farm in Somerset and the estate in Northumberland, complete with eleventh–century castle, that are rented for temporary UK gatherings, as well as the group's permanent French 'sanctuary', which is set in several hectares of land within a nature reserve in the Vosges mountains. Through ethnographic fieldwork, I planned to become familiar with what Malinowski famously termed the "imponderabilia of actual life" (1961, 18) that sustain these queer ecologies/commons landscapes —a quotidian perspective that has been suggested by Hansen et al. (2016) as critical for the location and cultivation of commoning.

My conviction of the appropriateness of *in situ* ethnographic fieldwork as a methodological framework was also reinforced through my reading of the associated literature, especially studies that position ethnographic methods as offering an escape from dualistic ways of thinking that polarise Western thought to the detriment of socionatural ecologies. As with feminist critiques, queer positionings critique dualisms that reinforce normative hierarchies of value, such as 'culture/nature,' 'human/animal,' 'male/female,' 'mind/body,' 'reason/emotion,' and 'subject/object' (Plumwood 1993; Gaard 1997). Deconstructing dualisms is also central within commons research, and Mary Hufford (2016) has argued that when researching commons, methods must bridge the existing dualisms that "occlude" visions of commons and commoning (641). Hufford suggests that commons research requires a commitment to the phenomenological experience of "world-making from within" (641), a commitment that she argues can be reconciled through ethnographic methods. Ethnographic fieldwork, she argues, locates researchers and participants in common worlds that are established through participation and destabilise the mirage of social scientific objectivity that supports those subject/object dualisms at the centre of contemporary commons critique.

Engaging with landscapes: fieldwork and more–than–human ecologies

Although the commons have previously been discussed in relation to landscapes, what falls within the signifier 'landscape' is frequently unclear. Whilst landscapes have often been understood in visual and ecological terms, scholars have also emphasised the social means of producing distinct landscapes, particularly through processes, practices and embodiment. Landscapes have subsequently been

repositioned as co–productions of human and non–human agents —as living 'scenes' reflecting society (Swyngedouw, 1999; Tuan, 1977).

Beyond the physical geography and ecology of a landscape, geographer Kenneth Olwig (2002) has advocated for acknowledging the "substantive" legal and ideological compositions of landscapes that reciprocally inform the socionatural boundary–making practices that construct landscapes. These institutional interpretations of landscapes are heavily indebted to the Nordic–Germanic etymological origin of the '*Landschaft*,' whereby landscapes historically communicated the physical manifestations of customary social values, themselves instituted through common law within a community (Olwig 2002, 40). Olwig suggests that it is vital to recognise the political boundaries of a landscape: its constitution, governance and use rights (2015, 229). Through doing so, Olwig connects landscape ecologies with the socio–political parameters of the commons and argues for viewing a "commons *as* landscape" (2003, 15). Olwig contends that a landscape–based interpretation of the commons should incorporate the changing social relationships that bind conceptions of place, land, polity and community, alongside the ecological implications of these relationships.

Together with Olwig's recommendation to attend to the customary parameters of landscapes, my understanding of landscapes within this project has also resonated with Erik Swyngedouw's definition, where 'landscape' signifies socio–environmental relations that reflect historical–geographical conflicts and socio–spatial dimensions of power (1999, 461). Swyngedouw casts landscapes as living anti–dualist expressions of societies and ecologies. Like naturecultures (Haraway, 2003), landscapes collapse nature/culture dualisms through emphasising the ecological ramifications of social change and *vice versa*. Here, the spatial boundaries of a landscape are always in contention. The signifier 'landscape' suggests a constant process of land–shaping as much as it does a spatially situated object for analysis. Commons landscapes emphasise the active socionatural processes undertaken by assemblages of human and more–than–human agents that reciprocally shape a commons and the lives of its inhabitants, including the means through which identity, boundaries and everyday stewardship are conceptualised and concretised.

Following this anti–dualist interpretation of landscapes, it has been important within this project to engage the more–than–human ecologies that collaboratively shape the landscape. However, this simultaneous attunement to both human and more–than–human subjects is not without its methodological complications. Patrick Bresnihan (2015) has suggested the reason that everyday practices and relations underpinning commons have been under–researched is precisely because of the methodological inability to identify and describe socionatural commons relations within landscapes (96). However, Bresnihan praises those anthropologists using ethnographic methods for their ability to explore human and more–than–human sociality within commons. Through ethnographic

methods that were attentive to more–than–human sociality, I aimed to document the imponderabilia of community–living amongst different Radical Faerie landscapes and reveal some of the embodied *relata* that support quotidian practices of more–than–human commoning—the resource management, conservation and spiritual rituals situated within the landscapes (Bresnihan 2015; Nightingale 2019).

COVID-19: digital ethnography and commoning landscapes from home

Unsurprisingly, the COVID–19 pandemic severely disrupted my plans to investigate commons landscapes amongst the Radical Faeries through traditional ethnographic fieldwork. Despite a commitment to *in situ* research, the impossibility of ethnographic fieldwork alongside financial and time constraints led me to believe that I must reconcile the theoretical underpinnings of queer ecology and commoning landscapes with digital methods in order to complete my doctoral research from home. By the summer of 2020, many researchers had begun to engage in "anthropology from home" (Góralska, 2020, 50), and digital ethnographic methods had proven popular with researchers seeking to gather qualitative data over the pandemic. However, as Góralska and other digital ethnographers have described, digital fieldwork should not be seen as a "universal glue" (ibid. 50) to resolve the ruptures within fieldwork, but as an opportunity to open new spaces for researchers to engage with participants.

Prior to the global pandemic, I had ironically narrowed the scope of my research to avoid investigating how so-called 'digital commons' interact with commoning landscapes. Within a draft chapter I wrote: "[t]o reduce the slipperiness of the term 'commons', we will avoid strictly 'cultural' commons, such as 'digital' commons, but instead venture through articulations of the commons that have directly informed political shifts in conceptualising socionatural relationships within landscapes." Despite queer ecology's acknowledgement of the falsity of the nature/culture divide, the idea of engaging with digital commons remotely was just too 'cultural' and 'remote' for me. Instead, I wanted to experience participating with the human and more–than–human agents of the Radical Faerie landscapes—to observe and engage in the commoning of the landscapes and to see what technologies and ethics of inclusion and exclusion were at play. I was eager to experience the "embodied thrill" (Brown 2007, 2686) of participating within the raw material becoming of the landscape—I wanted to ground myself and my research, as Anne Galloway writes, "in the everyday lives of people, plants, and lands" (2016, 474).

When the lockdowns commenced in the UK and France in the spring of 2020, it was clear that I could not visit these Radical Faerie landscapes. However, neither could most Radical Faeries. Although there were a few stewards still living at the permanent French sanctuary, there were no gatherings, and visits were

not allowed. In the UK, all in–person activities stopped, and the gatherings in Northumberland and Glastonbury were cancelled. In their place, Radical Faeries began hosting multiple online gatherings and events each week to maintain community whilst people isolated at home. For me, equally stuck at home, I imagined that these digital spaces could become my new field, and I began to participate in some online activities. I supposed that I could use digital ethnography to research how commoning was transformed digitally through these online gatherings. This new direction would involve engaging with a history of queer digital ethnographies that have traced queer relationship–building, as Gieseking summarises, across the "material, physical, discursive, imagined, virtual, and metaphorical spaces" that are utilised for the purpose of survival (2020, 948). And yet, I began to question the extent to which the digital sphere would be able to satisfy my original research questions. How would digital commoning allow me to engage with the processes that common situated socionatural landscapes?

There are undoubtedly some exciting emerging directions for queer and more–than–human digital theories and methods (Galloway 2016; Lugosi and Quinton 2018); however, I remained sceptical of the potential for digital ethnographic methods to engage with more–than–human commoning practices within landscapes, particularly when these methods, as Galloway (2016) notes, are still very human–centred (475). Whilst many of the free, co–created online spaces launched by the Radical Faerie community enabled individuals to retain a sense of community–belonging and connected people who felt isolated and under considerable stress at the hight of the national lockdowns—these spaces were nevertheless divorced from the quotidian practices of more–than–human commoning within the landscapes that I had been excited to encounter. Equally, digital commoning remains highly contentious amongst commons scholars as a result of the proximity that digital methods hold with predominantly capitalist digital technologies (Ossewaarde and Reijers 2017). Within the Radical Faerie context, for example, many of these online community spaces were hosted by for–profit video conferencing services, and generous members would cover the associated monthly fees.

Despite these anthropocentric and anti–capitalist frictions, I nevertheless had to find an opportunity to use digital methods "in a framework of political action that itself surpasses the notion of digital commoning" (Reijers and Ossewaarde 2018, 824). The focus of my digital ethnography, I hoped, could express some broader attention to commons landscapes as the socio–ecological relations "from which we seek emancipation" (Alarcón 2016, 57). As commons activists continue to claim, "everything is about land" (Jameson 2015, 131 — quoted in Alarcón 2016, 65), and whilst *in situ* ethnographic fieldwork of specific commons landscapes was not possible for myself as a result of the ongoing pandemic, digital methods felt like the only option of researching from a place of possibility.

Action research and becoming a commoner

When trying to theoretically reconcile my methodological transformation towards digital methods, I was relieved to discover Anne Harris and Stacy Holman Jones' reflections on queer digital ecologies. Harris and Holman Jones contend that digital technologies help to further 'queer' the idea of ecologies and present new modes of human/non-human interaction beyond essentialist labels and towards degrees of material relationality (2019, 89). Through acknowledging the queer materiality of digital relations (the digital is inherently material despite dualistic virtual/reality narratives that occlude this), Harris and Holman contend that digital methods can be utilised to stretch through and shape multiple human/more–than–human ecologies beyond dualisms of mind/matter and in this case, remote/*in situ*. Through my computer and my smartphone, sat at home at my kitchen table, I became aware of the substantial material relationality that I held to aspects of the queer commons landscapes that I had wished to investigate. Following Mary Hufford's earlier suggestion that methods must bridge the existing dualisms that occlude visions of commons and commoning, no longer was I considering my new 'remote' positioning as the opposite to '*in situ*', but rather within a continuum of material relationality that stretched between my home and commons landscapes that I wanted to encounter. To reconcile the theoretical underpinnings of this project, I had to untangle and reconsider those *relata* that connected me with the materiality of these commons landscapes — the shared friendships, memories, knowledges, experiences and common aspirations. I had to situate myself, as with those Radical Faeries still working to maintain their commons landscapes digitally from their homes, phenomenologically *within* these spheres of relationality and translate digital commoning from a site of refuge into a relational method of inclusion within landscapes.

However, as I recognised my material entanglement within these commons landscapes through my growing relations with the communities who stewarded them, I was simultaneously confronted by the political and ethical implications of ethnographic research at a time of significant community precarity. At a time of prolific enclosure, using ethnography to research an intimately relational process like commoning quickly began to feel exploitative and unethical. Mirroring my own concerns, Ebru Yetiskin (2020) has argued that the increased enclosure of commons and commoning by both state and capital in the wake of the COVID–19 pandemic entails a correspondingly political demand on the researcher to engage in positioning and practice that actively subverts enclosure—a '*paratactic* commoning'.

Yetiskin's call is heavily indebted to the 'agential realist' research positioning developed by theoretical quantum physicist and new materialist feminist theorist Karen Barad (2007). Within an agential realist approach, Barad argues that epistemology and ontology cannot be thought of as separate branches of philosophy. Using developments in experimental quantum physics, Barad argues that the means through which agents aim to know one another

experimentally affects the ways in which these agents behave. Barad contends that it is therefore important for researchers choosing epistemological approaches to acknowledge that they are also heavily ethically entangled with their results. Researchers should think of themselves not as "self–contained and rational subjects" who are able to negotiate their mediating role through an act of 'self–reflexivity,' but rather as acting upon and within the inter- and intra-actions of a larger material configuring (Barad, 2007, 91). Research outputs from agential realist positions consequently recognise the *relata* that operate between and within their research processes.

In light of Barad's agential realist positioning and Yetiskin's call for paratactic commoning, I further considered the ethical dimensions of my research design and questioned whether the onto–epistemological assumptions of traditional ethnography effectively destabilised power–laden researcher/participant dualisms within commons research at a time of global crisis, but equally, what broader implications this epistemological positioning would have on the world's becoming. My proposed ethnography felt insufficient as an act of queer and ecological mutualism, and I arrived at what has been described as an 'ethnographic limit'—a moment that marks a refusal within ethnographic research, where the answers to questions including 'where will this get us?' are not satisfactorily justified (Simpson 2007). In the wake of my ethnographic refusal, I was determined that my methods would paratactically common landscapes along with researcher/participant and *in situ*/remote dualisms. I wanted to make commoning an ethical priority and, as with Hufford, for commoning to no longer simply be my object of study, but my methodology (2016, 642). In order to become a commoner through my research practice, I turned to scholars who have used action research—a research paradigm that situates collaborative change-making at the heart of the research process —as a means of commoning research and researching commoning (Hansen et al. 2016).

In December 2020, reflecting upon anthropologist Audra Simpson's ethical provocation to allow the goals of participants to direct the methods used within research (2007, 68), I spoke with some Radical Faeries to ask for their help in finding a direction through which I could channel my aspirations to common landscapes through action research methods. I was told about some Radical Faeries who were in the process of setting up a charity to "provide funds, resources, training, and advice to support LGBTQ+ community projects that are committed to sustainability" (EcoQueer Foundation n.d.). Sensing the overlapping values of this organisation with queer ecology and commoning, they suggested that this group would likely welcome my support with the charity's registration with the UK Charities Commission. This group of Radical Faeries were also looking for some land that could be purchased through the charity and used as a space for LGBT+ inclusive recreation, health workshops and environmental education. Furthermore, the group had been concerned for some years about the need to record the experiences of queer/feminist/trans communities who have ventured to create new ways of living. They suggested my efforts

could be put to use by: 1) supporting the charitable registration process by helping the group to concretise their charitable objects; and 2) collating a DIY community archive of eco/feminist/queer communities who have built inclusive commons landscapes within the UK, which might in turn inspire and educate future queer commoners to build inclusive, sustainable landscapes.

The legal registration of this charity has prompted further exploration of the 'substantive' composition of landscapes within my project. Returning to my initial interpretation of landscapes as socionatural assemblages, the substantive aspects of landscape formation have become progressively more central within this emerging community archive. In addition to documenting memories and experiences of the *relata* that support quotidian practices of commoning within specific Radical Faerie landscapes—the resource management, conservation and spiritual rituals situated within the landscapes—this community archive also emphasises the institutional organisation of commons landscapes, particularly in relation to their legal/customary boundaries. In the face of accelerating enclosure, recording the historical legitimacy of queer commons landscapes has been prioritised within data–collection by both myself and participants. Through digitally documenting the means through which these commons landscapes have been governed, this community archive seeks to reclaim the legitimacy of queer commons landscapes as a viable means of sustainable and inclusive land stewardship.

Scavenging for commons

Two years on from my ethnographic refusal, and I am continuing to gather information for this community archive from my Edinburgh flat. I am now in contact with five queer communities who are committed to inclusive and sustainable commoning of landscapes: the before–mentioned charity, an online reading group focused on eco/queer community-building, an LGBT+–led urban food–growing group, a queer arts project and an eco–friendly queer housing cooperative. Three of these groups have been recruited through snowball sampling via recommendations from the EcoQueer Foundation, and two were purposively sampled through searching online for UK–based groups that identified as queer or LGBT+ and eco–friendly and were engaged in commoning.

To research their commoning practices, I have been adopting research methods that engage with each group on their own terms and which will be beneficial for the communities and their landscapes in the future. My methodological flexibility is very similar to the queer "scavenger" methodology that Jack Halberstam adopted in his 1998 study of female masculinity (2018). Such a methodology combines different disciplinary methods that may appear at odds with one another but are used with the aim of producing information on diverse subjects who have been excluded from existing studies (Halberstam 2018, 12–13). Examples within this project include using PhotoVoice to document and reflect upon commoning and enrich communities' own records, undertaking

remote qualitative interviews and oral history interviews which can later be used for their own purposes (including for internal strategy), and using autoethnographic methods whilst providing services such as assisting communities with fundraising or conservation activities. Each community is unique and demands a messy combination of approaches that paratactically reinforce their commons to avoid enclosure. There is not enough space here to flesh out the relationship between the choice of methods and each case-study community, and this research is currently evolving; however, I wish to draw attention to three methods that are currently at the forefront of this remote action research project and how they can support in commoning landscapes: oral histories, digital community archiving and autoethnography.

Oral histories have been used extensively within queer studies and also as a means of mapping how landscapes have been shaped and transformed through time within previous environmental research (Reeves, Sanders and Chisholm 2007). Like action research methods, oral histories have been positioned as democratising landscape research and interpretation (Arce–Nazario 2007). Of particular significance to this project, oral histories have been utilised as resilient methods for informing sustainable common resource management (Perkins 2019). As part of this action research project, oral history interviews will be undertaken amongst participants within queer commoning groups to highlight memories and experiences of how their commons functioned? How were they inclusive and/or sustainable? What were some of the challenges they encountered? How were socionatural boundaries made within the landscapes? How did these change over time? What lessons would they like to share with future commoners? These lessons and experiences will be shared within the community archive to provide future commoners with a toolkit of commoning methods.

Community archives have been positioned as a means of establishing 'knowledge commons' (Waters 2006), whilst also aiding community mobilisation (Allard and Ferris 2015) and empowering identities through accessing otherwise forgotten or excluded community histories (Giroux 2004, Crooke 2007). Digital community archives are perhaps most useful at reconciling the uneven power dynamics created by copyright and access to research data. I was particularly struck by Niamh Moore's motivations to digitally archive the oral history interviews of eco/feminist activists in order to "do justice" to the stories that had been shared "as a collective activity" (2014, 87). Moore's drive to archive accords well with Egmose's suggestion that action research methods for commoning demand that a researcher proclaim that "we don't own" the research (2016, 260). Whilst an ethnographic account of commoning landscapes may overlap with collaboration and action, the resulting data nevertheless would be governed by a single researcher and interpreted at the discretion of the researcher. In the interests of more effectively destabilising the power–laden practices involved in representing a community and opening any representations to critique, evolution and rearticulation, I hope that this community–based digital archive will become a resource for queering any 'authentic' accounts of commoning landscapes (including my own).

As a newly 'out' commoner, I have also redirected this research towards myself. I have been drawn to autoethnographic methods to document my own quotidian efforts to common for inclusive and sustainable landscapes. As with ethnographic fieldwork, autoethnographic methods focus on everyday life and how personal experiences are infused with meaning. Instead of seeking to write and represent the culture of queer commoning communities, I wish to place my own hybrid journey as a queer commoner in the context of this action research. I suggest the vulnerability and mutualism (Ellis 1999) implicit within this autoethnography as falling within action research methods for commoning. I intend for my autoethnographic account to be shared alongside the interviews, photos, oral history interviews and other data gathered within the community archive. Whilst my own autoethnography may not be geographically recognisable within any particular queer commons landscape, it nevertheless is presented as one of a series of stories to encourage other commoners to learn from the struggles and successes of forging frameworks of commoning landscapes from home — aspects of which some people may wish to replicate or further within their own commoning efforts.

These scavenged methods document and share some of the quotidian experiences of queer commons landscapes, including intersections with the more–than–human. However, it is true that there may be greater relational distance within some patterns of more–than–human commoning encountered through these methods than may have been experienced through long–term ethnographic fieldwork within the landscapes. For example, there is a different type of relationality fostered when reading an archived interview transcript which, for example, recounts the discussion of one year's mushroom growing amongst the urban LGBT+–led food–growing community than there is in the affective, multi–sensory materiality of harvesting the wood, inserting and sealing the mycelial plugs, maturing alongside the wood in the same environment, collectively forgetting about them, and then eating the few mushrooms together as a community. There will be times like these where my new methods will reduce the ability to engage with many of the imponderable *relata* that bring forth much of the affective queer materiality of a specific landscape. And yet, as I have discussed, many of these communities also haven't been able to experience these encounters due to the pandemic.

Within a shifting socionatural context of commoning brought on by the pandemic, queer ecology can transform understandings and approaches to commoning landscapes by acknowledging that landscapes and commoning practices are shaped by the relationality of agents geographically 'present' within a landscape as well as those not—both may have varying degrees of material relationality with the landscape, but it is a fallacy to suggest that landscapes are only shaped by those agents who are 'present.' One person who has stumbled upon the archive whilst cruising the web from their kitchen and reads the experiences of one group's mushroom–growing endeavours as a queer community–building exercise may be relationally affected enough to repeat this with another community, within another landscape, without ever

having met the interviewee, the mycelia or having physically been in this landscape, and yet there is a materially relational continuity between these events, between these geographically distant landscapes.

Conclusion

Although the coronavirus pandemic has limited degrees of material relationality with more–than–human agents within Radical Faerie landscapes, I have taken comfort from feminist, queer and commons theorists who have encouraged researchers to situate knowledge–making in the relational contexts in which they find themselves. I am reminded by Cristián Alarcón's caveat when writing about the future emergence of commons that thinking about emancipation "can only be thought about in relation to a specific historical time" (2016, 54-55). In the wake of further enclosure brought on by the global pandemic and the limited ability to relate with landscapes through conventional methods, these times demand situated strategies and tactical reconceptualisations of relational frameworks for action research for commons, sustainability and democratisation.

When Mary Hufford suggested that commons research requires a commitment to the experience of "world–making from within" (641), I assumed at the beginning of this project that this equated to a situated geographical presence within a landscape. However, in light of Harris and Holman Jones' anti–dualistic reflections on queer digital ecologies alongside Karen Barad's agential realist positioning, I have further questioned the remote/*in situ* and researcher/participant binaries that I perpetuated when conceptualising ethnographic fieldwork within landscapes.

I believe that this research project now further resides within the theoretical tenets of commoning landscapes as a result of its ability to challenge the existing binaries that hinder opportunities to common. Equally, I now prioritise the ethical consequences of my own participation within onto–epistemological world–making, and I have reconfigured my positioning and my methods in service of paratactically commoning landscapes. These methods resonate with my central aim for this project, to identify commoning practices that are utilised by queer communities in order to aid the development of a more inclusive praxis for the sustainable restructuring of landscapes. They take different approaches to studying commoning, but they nevertheless continue to centralise the core tenets of commoning within their approaches: mutualism, reciprocity and redistribution. Through utilising a community archive in particular, this project broadens access to knowledge–making to politically inspire and further queer interpretations of commoning landscapes (including my own). These new methods have the potential to stretch material relationality further than traditional ethnography in challenging and redistributing power within the research process amongst my fellow participants.

I recommend that researchers questioning methodological feasibility in times of crisis question the broader implications of their research. Instead of simply turning to practicalities, as I did, I suggest that these junctions are important moments to return to researcher ethics for guidance. As has happened in my case, the transformation of methodologies can follow a more profound 'onto–ethico–epistemological' shift within researcher positioning. As Jung et al. summarise when discussing research methods in the time of COVID–19, whilst the pandemic forces new trajectories in theory and methods, "it is not only about what you do but who you become in this process" (2021, 172), and I would add, how this shapes the world in its becoming.

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