(IN)TANGIBLE HERITAGE(S)

A conference on design, culture and technology
- past, present and future

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(IN)TANGIBLE HERITAGE(S): Design, culture and technology – past, present, and future

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INTRODUCTION

(IN)TANGIBLE HERITAGE(S): Design, culture and technology – past, present, and future

The buildings, towns and cities we inhabit are physical entities created in the past, experienced in the present, and projected to inform the future. The same can be said of the artefacts we use daily: designed furniture in the home, the mobile devices in our hands, the vehicles we see on our streets. However, each of these places, buildings and products had, at their inception, social and cultural roles beyond their 'object' status. They continue to have them today. What we understand a designed object to be then, is a complex question of material and social import, and an intricate play of the tangible and intangible identities. Increasingly, it is also a question of hybrid experiences and overlaid histories. This conference addresses the range of issues connected to this scenario.

The complexity described above is even more pronounced in the case of digital artefacts and experiences such as computational design, VR simulations of ancient buildings, mobile apps, digital photography or virtual exhibitions. Intangible at the very moment of their inception, such designed artifacts not only blur the difference between the object and the experience, but, increasingly, the past and the present. Computer generated imagery creates 'life like' reconstructions of historic sites. Laser scanning gives archeologists glimpses of pasts erased long ago. Computational design gives designers instant recordings of their work in progress. Coupled with digital cataloguing, it gives us the instant asynchronous design archive.

Considered in this context it is not surprising that recently questions about the nature of heritage and design have opened up to redefinitions of the tangible and the intangible. In responding to this scenario the work of the authors collected in this publication present a diverse range of perspectives from various fields including art, architecture, design and cultural studies, to name but a few. They present reconsiderations of 'heritage' as both a tangible and an intangible concept and overlay our notions of the digital, on ideas of heritage and concepts of physicality and the present.

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SPATIAL IDEATION: AN INTERIOR DESIGN APPROACH TOWARDS ARCHITECTURAL HERITAGE CONSERVATION

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INTRODUCTION

The City of Johannesburg in South Africa throughout its brief existence does not have a proud record of architectural heritage conservation. Johannesburg was established as a town in 1886 following the discovery of gold.[1] During the following one hundred years, Johannesburg developed rapidly, undergoing a number of cycles of rebuilding, driven by capital gain, and with little sentimentality given to the historical significance of the built environment.[2] Since the onset of democracy in 1994, more importance has been placed on heritage preservation, as epitomised by the National Heritage Resources Act (NHRA), 25 of 1999, legislating "the management and conservation of sites and artefacts of historical significance."[3] Included in the NHRA are policies and regulations regarding the identification, assessment, and management of architectural heritage. However, despite the aims of this Act, and the authorities meant to regulate it, there are a number of abandoned, dilapidated, and vandalised architectural heritage sites in the city.

Contextualised strategies for architectural conservation

The purpose of this paper is to contribute towards the discourse on architectural heritage conservation from an interior design creative praxis position. Ironically, these neglected sites present ideal opportunities for the implementation of "adaptive reuse" as an interior approach to architectural conservation.[4]

Students from the University of Johannesburg (UJ) often research these sites for their honours degree studies. Students are required to propose creative ways to "revitalise"[5] these sites, using interior design to make them contextually relevant. We call this strategy "transformation", as beyond the most obvious change of function (integral to adaptive reuse)[6] may be the need to change the "meaning" of these spaces. This is due to many of these sites being inherently "contaminated"[7] by the racially segregated spatial development policies of the past. Examples of these discriminatory laws are the Natives Land Act by the Union Parliament in 1913, which restricted black people from buying or occupying land;[8] the Group Areas Act of 1950, which assigned racial groups to different residential and business sections in urban areas;[9] and the Separate Amenities Act of 1953, which enforced the separation of whites and non-whites in all public places and vehicles.[10]

Aiding this transformation strategy is the use of new visualisation technologies that change the ways of relating to and addressing context,[11] and contribute towards emerging architectural heritage conservation approaches: "Ones that are perhaps less attentive to context, social relations and

materiality, and hence to the real world setting beyond the screen."[12] These technologies are useful in creating spatial meaning, and to communicate the possibility of transformation of a site's historical cultural significance into one of contemporary cultural significance. The authors suggest that in this context, the transformation of obsolete architectural heritage sites is imperative for their conservation.

The urban context: Johannesburg then and now

Most heritage sites chosen by the students for their studies are located in the inner city of Johannesburg. The spatial plan of the inner city dates back to 1896, and functioned as the central business district for almost one hundred years. Johannesburg underwent a number of rebuilding phases that corresponded with economic boom times. This was most noticeable in the 1960s and 1970s. During this period, numerous international-style skyscrapers and brutalist commercial centres were constructed in the inner city, forming the city's skyline as it appears today. However, all major property development came to a halt in the 1980s, with the imminent onset of a new democratic dispensation, and the inevitable rescindment of the Group Areas Act.[13] The inner city soon spiralled into urban decay, caused by, among other dynamics, disinvestment, decentralisation, and an influx of poor black unemployed people, soon to be followed by slum lording, hijacking of buildings, disregard of by-laws, and the collapse of municipal services.[14] Many of the city's significant heritage sites became victims of this process. Some sites managed to avoid vandalism by being vacated and bricked up, and still remain in that state today.[15]

In recent years, the demographics of the inner city have completely changed. Numerous office blocks have been converted into residential units and the majority of businesses (with a few exceptions) are informal and cater to a lower-income market.[16] There are a few examples of successful inner city renewal projects, through the adaptive reuse of mostly industrial buildings, resulting in trendy mixed-use cultural, residential, and educational precincts.

The recent transformation of the inner city is of significant importance to the position taken by the authors of this paper, and the fundamental reason for the need to reconsider architectural conservation approaches.

CURRENT HERITAGE CONSERVATION CONCEPTS AND LOCAL HERITAGE LEGISLATION INFORMING THE STUDY

Conservation, according to the Burra Charter, entails "all the processes of looking after a place so as to retain its cultural significance." This may include "maintenance, preservation, restoration, reconstruction and adaption, or a combination of these approaches."[17] The practice of adaption, also referred to as adaptive reuse, is an essential architectural heritage conservation paradigm.[18] Adaptive reuse entails "wholeheartedly altering" a building, where "the function is the most obvious change", but other alterations may be made and include the introduction of new materials. There are different strategies to this approach, namely insertion, installation, and intervention, which are elaborated upon by Graeme Brooker and Sally Stone.[19] Adaptive reuse advocates for a building to function as part of society rather than being an empty "sculpture", even if at the expense of authenticity. It is also considered "a method of expanding or extending a building's social functions by modifying the structure … while keeping significant features."[20] Adaptive reuse is also used to describe interior architecture/design interventions in existing buildings.[21] It is also considered an urban regeneration strategy when used to "conserve existing buildings (sometimes heritage) or districts by putting them to good contemporary use and reconnecting them with society."[22] Adaptive reuse as a means of "recycling" buildings equally supports sustainability theories.[23]

Associated with adaptive reuse is the concept of *genius loci* or "sprit of place", as coined by Christian Norberg-Schulz, [24] to describe the "immateriality in the experience of architecture." Ellen

Klingenberg[25] suggests that the term could also be used to describe the immaterial values of "experience of meaning and activity of people in an 'interior' place."

Architectural heritage conservation in South Africa is legislated by the NHRA, and administered by the South African Heritage Resource Agency and National Heritage Council on a national level, and the Provincial Heritage Resources Authority on a local level.[26] The NHRA states that any structure over sixty years old may not be demolished or altered, and is considered a heritage building.[27] The Burra Charter was highly influential in the development of South Africa's heritage policies. Of notable similarity is the emphasis placed on cultural significance, defined as "aesthetic, architectural, historical, scientific social, spiritual, linguistic or technological value or significance."[28]

Graeme Brooker[29] discusses buildings that have a "history or narrative, or previous use that is disagreeable or objectionable." He uses the term "infected interior" to describe a place that is contaminated by "political, ideological, or an odious previous function." In certain instances, controversial narratives may be selectively edited out of heritage sites. However, Nino Sulfaro[30] reminds us that injustices of the recent past, such as discrimination against religions, gender, and race, "often represent still-open wounds for nations and communities."

THE EDUCATIONAL CONTEXT AND STUDENT PROJECT

The year-long BA honours degree in Interior Design at UJ is structured around independent research and associated practical projects. Students are encouraged to focus their studies on the Johannesburg urban milieu, to identify a spatial problem, and to use interior design to address social, economic, and environmental issues that confront the users of the city.

The majority of "solutions" presented entail adaptive reuse of an existing building or structure. A significant number of sites have heritage status (being older than sixty years), and some are protected national or provincial sites. A number of these heritage sites are abandoned, vandalised, and in a state of neglect and decay.[31]

The honours programme requires students to ideate ways, using interior design, to revitalise these sites and in turn to contribute to larger inner city renewal objectives.[32] In order to formulate adaptive-reuse proposals, a contextual understanding of demographic, ecological, and economic challenges, and governmental policies, is required. This requires students to thoroughly research the "current contextual transformation", because, according to Karen Lens and Koenraad Van Cleempoel,[33] "a complex and widespread set of symptoms and effects, mark these processes in the spatial and social environment of people", and it therefore is critical to define the real problem. The research findings are translated into design criteria and used to develop design proposals. A "proposal" is presented in the form of plans, elevations, computerised 3D renders, scale models, and construction detail drawings. The student's project used for the following case study is a result of this process.

RESEARCH DESIGN AND METHODS

This qualitative research design is ontologically interpretive and epistemologically subjective, and falls within the constructivist paradigm. The authors present their research bias in terms of being facilitators of the interior design programme.

An initial review of literature was conducted to align the study with current heritage conservation theories and strategies, mainly adaptive reuse and revitalisation. Cultural significance is recognised as the key concern of heritage preservation and legislation, as evident in the Burra Charter and the NHRA. *Genius loci* plays an important role in conservation practice and can be problematic in politically or ideologically contaminated sites.

The Drill Hall is considered an endangered heritage site. After undergoing a rigorous conservation process in 2004, it subsequently fell back into a state of neglect,[34] and was identified by the student as

the "spatial problem" for her study. A comparative case study method was used to compare the architectural approach initially implemented to the student's proposed interior approach. A mixed-methods approach was used for data collection, including an analysis of the current site and surrounding demographics. Data were collected in the form of sketches, notes, and photographic documentation. Textural data were obtained from the architect's conservation project manifesto. Data in the form of scale models, architectural-type floor plans, and sections of the student's design proposals are analysed. This proposal was selected because it clearly illustrated the learning outcomes of the educational programme, and used new visualisation technologies to ideate new purpose and meaning for the revitalisation of this heritage site.

The two approaches are compared according to a list of topical heritage conservation criteria used to determine spatial meaning-making; both material and immaterial. The findings are presented in the form of an analytical framework in which each criterion is rated as low, medium, or high, as interpreted by both authors. We acknowledge the limitation in the research design in that an actual installation is being compared to a digital spatial representation.

THE DRILL HALL COMPARATIVE CASE STUDY AND FINDINGS
Architectural approach

The Drill Hall, built in 1904, is classified as a Grade II heritage site.[35] It is located in the Johannesburg inner city and served as the headquarters of the Transvaal Volunteer Corps during the Anglo-Boer War, and as a military base until the 1980s. The building fell into a state of neglect from 1994 to 2002 when significant portions of the building were destroyed by fire.[36]

Michael Hart Architects undertook the conservation project in 2004, with the objective of providing "freedom of access, democratization of space and multiple uses", while maintaining the integrity of the original building.[37] Hart's adaptive-reuse strategy aimed to integrate physical conservation with the socio-cultural heritage of place, and the "reconciliation of a past history, a celebration and a remembering."[38] He applied principles of place-making in order to transform the internalised site into one that enabled "the memorialization of events, ideologies and personalities to express the layered history of Johannesburg." The Drill Hall is currently in a state of neglect again, and in the process of transfer of ownership to the City of Johannesburg.[39]
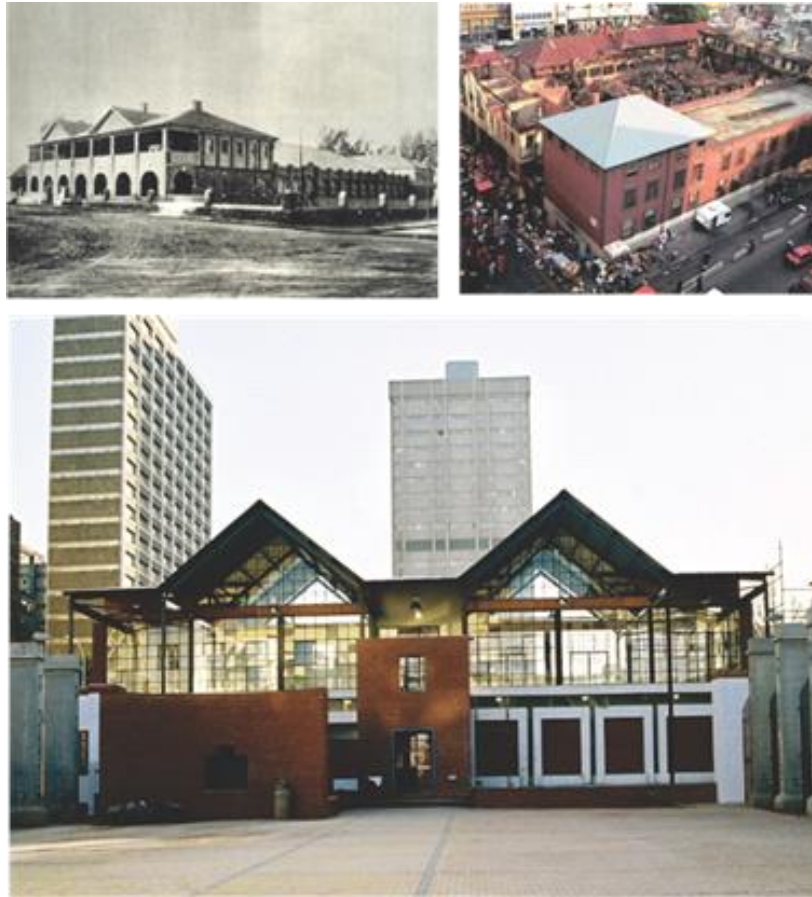
Figure 1. Views showing original, destroyed, and reconstructed Drill Hall

The reconstruction of the Drill Hall was executed with extreme sensitivity, as is evident in Figure 1. The new steel and glass structure elegantly mimics the geometry and profile of the original structure's roof line. The extensive use of glass creates an interior that is transparent and flooded with natural daylight, allowing views in all directions. The open-air public courtyard provides a reprieve from the busy surrounding streets. However, the purpose and use of the space always remained vague and obscure, which is worsened by the absence of signage or information boards, resulting in what must appear as a "sculpture" to the passer-by.

The interior approach

The aim of the student's study was to produce a design proposal for the revitalisation of the Drill Hall heritage site in its current underutilised and neglected state. The student conducted research to fully understand the "current contextual transformation" and to identify a problem that exists within the urban context. The student identified "a lack of access to a safe and reliable source of clean and fresh produce"[40] as a problem that many of the residents of the inner city experience. Interpreting this into a spatial problem, the student conceptualised a fresh produce market as a revitalisation strategy for the site. This strategy addressed multiple objectives by contributing towards urban renewal, heritage conservation, and tangible connectivity to the community.

Figure 2. Various views showing a proposal for adaptive reuse of the Drill Hall

The student's proposal presents potential for new meaning and place-making, as it meets a current and critical need. Furthermore, the design elements, characteristics, and forms communicate a sense of identification and belonging, inspired by the local context. It presents a sensory connection and experience, which stimulate dialogue within and about the space. The proposed purpose and use of the space are communicated clearly to the user. The design language is extended to the exterior of the building. The student readdressed the façade, as can be seen in Figure 2, to bring a sense of community belonging and pride, through the colour palette and detailed patterning. This rich, sensory, and cultural layering of the façade creates a possibility to meet Hart's intention of community belonging. Furthermore, the student carefully considered a change in the spatial functioning and meaning by, for example, allowing the market to spill out of the building into the courtyard, which activates a previously underutilised space. These design strategies are aimed at promoting a sense of place for the local community and users, meeting their functional and behavioural goals, and enriching their experience within the space, with potential to become an attraction in the city and to contribute to urban renewal through adaptive reuse.

Findings and discussion

We present our findings using an interpretive theoretical framework as presented in Table 1, in which we compare an architectural "intervention" approach to the interior "transformation" approach, for the adaptive reuse of the Drill Hall heritage site.

	CONSERVATION CRITERIA	ARCHITECTURAL			INTERIOR		
	Criteria	High	Medium	Low	High	Medium	Low
Immaterial / Intangible	User sensory experience			●	●		
	Socio-political heritage of place	●					●
	Contemporary cultural significance			●	●		
	Ideological and political significance	●					●
	Genius loci ("spirit of place")		●				●
	Contextual place-making		●		●		
	Enhance quality of life / community connectivity / social impact		●		●		
Material / Tangible	Physical / structural preservation	●				●	
	Functional legibility			●	●		
	Materiality significance		●				●
	Meet current community needs			●	●		
	Revitalisation potential			●	●		
	Authenticity of original building		●				●
	Compliance with building / heritage regulations	●				●	

Table 1. Framework for comparison of conservation emphasis

The findings demonstrate a significant divergence in emphasis for all criteria analysed (both material and immaterial), and completely opposing for half of the criteria. The findings can be used to theorise how the interior approach differs from other existing architectural approaches in general, and how this transformation strategy differs from intervention, insertion, and installation. The most critical conservation principles extrapolated from the findings that differentiate this transformation strategy are as follows:

• In addition to the change of function, imperative to the adaptive-reuse approach, is the need to change the spatial meaning.

• Students, liberated from the negative socio-political meanings often associated with heritage sites, approach them as rich, interesting, and captivating spaces with the aim of integrating the urban materiality of the past with the present.

• Through research, specific contextual (community) problems are identified and required to define a clear new purpose. Spatial functioning and meaning-making create a sense of place with which the new audience can identify, and which stimulates a sense of belonging to support regeneration.

• The proposed interior approach is conceptualised in terms of integrating the current urban fabric and identity into the space, while still ensuring the sustainability of the structure through a consideration of its economic feasibility.

Reflecting on the student's design proposals raises the question as to whether students are better positioned to adaptively reuse the selected heritage buildings because their focus is on the identified contextual problem, rather than primarily the "conservation of the heritage building", as appears in many architectural approaches. Students' present persuasive proposals for the revitalisation of the spaces that are generally more temporary in form than that of the architectural approach. The interior approach can be likened to a veneer that can be peeled away and reapplied to accommodate future "transformation" required to remain contextually relevant.

CONCLUSION

Every city in the world is faced with its own unique combination of urban challenges that require context-specific solutions. Johannesburg is no different, and the challenges are exacerbated by the need to redress the spatial injustices of the past. It should be no wonder that heritage conservation is not a priority. It is also evident that no amount of excellent policy and legislation will guarantee the conservation of architectural heritage.

Based on information released in media reports and heritage blogs, it seems that all parties, including public and private property owners and government authorities, are equally to blame for the "shocking state of the city's heritage stock."[41] Reading between the lines, it seems that within the current landscape, a building with heritage status is experienced as a liability rather than an asset.

Our interior design studies have demonstrated that there is no shortage of creative possibilities for the adaptive-reuse and revitalisation of functionally obsolete heritage sites. Students use new digital technologies to communicate the possibilities to transform these spaces and make them contextually relevant. This visual imagery can open up a debate with the different stakeholders involved in projects of adaptive-reuse, such as regional or local administrations, heritage societies, (future) owners, (future) users, people living or working in the neighbourhood, and others, depending on the particular situation or building type.[42] It is now essential to develop a new mechanism of consensus for the conservation of these places, "for without any attribution of collective value, they will become obsolete."[43]

NOTES

[1] John R. Shorten, *The Johannesburg Saga* (Johannesburg: John R. Shorten Pty Ltd, 1970), 56–57.

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[3] South Africa, *National Heritage Resources Act 1999: Act No. 25 of 1999* (Cape Town: Government Printers, 1999).

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[18] Plevoets and Van Cleempoel, "Adaptive Reuse", 2.

[19] Brooker and Stone, *Rereadings: Interior Architecture*, 79–128.

[20] Hong Kong Institute of Architects, *Conservation and Revitalization,* 13–14.

[21] Brooker and Stone, *Rereadings: Interior Architecture*, 11.

[22] "Conservation and Revitalization", 7.

[23] Gillian I. Foster, "Circular Economy Strategies for Adaptive Reuse of Cultural Heritage Buildings to Reduce Environmental Impacts," *Resources, Conservation and Recycling* 152 (2020)

[24] Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli, 1979), 5–24.

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[26] South Africa, *National Heritage Resources Act*, 26; 34.

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THE WOOD SCULPTORS WORKSHOP or A STORY IN SIX CHAPTERS: AN ART BASED EXPLORATION OF SITE AS HERITAGE

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INTRODUCTION

In 1908 PJ Carlsson opened a wood sculptors' workshop in a town called Tranås in rural Sweden and it stayed untouched for more than hundred years. The work stopped but the place endured. The narration below tries to capture what the place means upon coming across it for the first time in 2018. This paper is a testimony of the first experience of a place that had fallen out of its own time: a workspace, a time capsule, a cultural center in its modesty or maybe in some sense a museum. It will explore the significance of such a place but not just the place, it will take into consideration the human aspect and intangible heritage as well as the "affective bond between people and the place or setting."[1] As the American scholar Yi-Fu Tuan himself explains it, this may sound rather romantic but there is no other way of describing this emotional bond so he had to coin the term himself: Topophilia.

"We who believe in the preservation of not only wilderness but also (say) an older neighborhood that is threatened by the bulldozer have no convincing language with which to present our case to people and their political representatives. Topophilia is not such a language, much as I would like it to be. However it does perhaps for the first time present a general framework for discussing all the different ways that human beings can develop a love of place."[2]

First there is the perception and understanding of a place, even though we are living in a very visually dominated society, people sense a place not just through their eyes. The other senses; touch, scent, sound help the perception more than one thinks.[3] The first encounter with PJ Carlsson's workshop is always a strong experience, even one has seen photographs before visiting the studio. The pictures do not do any justice to the experience. It's sepia, it is wooden, it is dusty and it smells of wood withered with age. Something that might appeal to a historian, but in this case was being explored by a visual artist.

Background and History

I first heard about PJ Carlsson's workshop from the local librarian Magnus Grehn who has an unending enthusiasm and curiosity for local history. He showed a book titled *Inte Bara en Verkstad* (Not just a workshop)[4] on the cover was the view I myself came to record many times later, a shot of the workshop in its messiness, notations, tables, working tools and models. From the outside the building which houses the workshop is a typical Swedish three-story building with a courtyard where residents still live but the ground floor contains a two room apartment which is locked and can only

be entered using a key borrowed from the local municipality: Tranås Kommun. Once you step into the workshop, you are suddenly transmitted to the beginning of the 20th century. Nothing has really changed since 1908 apart from the windows. I learnt this from the building's former landlord Lars Gärskog. I learnt it through a series of interviews I made with people later that year when I discovered there were people in the town who had spent time, working, chatting and rehearsing at the workshop over the years.

PJ Carlsson's workshop or Bildhuggaverkstad as it is called by the people of the town was first opened by PJ himself but later on his sons Åke and Tor took over the family business. PJ used to take design classes from the nationally renowned and local painter, Hermann Norman who used to live in Tranås after spending time in Paris and Stockholm. During the time of Åke and Tor the place became almost a cultural center in the town, Åke and Tor were both musicians, Tor also painted. There were lots of craft makers at the workshop carving not furniture but the decoration to embellish them. Artistic discussions took place and music rehearsals. The place was full of "originals" (as they were once called) who worked, lived and enjoyed the place until its closure in 1982.

Figure 1. Bildhuggarverkstad, the Wood Sculptors' Workshop

When one first enters the workshop, one easily notices the colors of wood. The floors, the ceiling, the tables, the objects are wooden. Little light comes in through the two windows. Surprisingly, in later years when the electricity arrived, people at the workshop did not want to have it. They were happy with the candles but eventually they gave in. There are no plugs in the room, cables are out in the open, the electricity was brought into the room from somewhere else. Plumbing is visible and old, from time to time you can hear the water coming from the upper floor. I remember seeing this room many times in photographs before, in Torbjörn Skobe's book and in newspaper clippings. One could almost imagine the two brothers playing music, not seen but heard through ones imagination, the music fills the room. The working sounds, the carving and sanding as well as music. The little light coming in through the windows as one's eyes try to adapt to darkness around, one wonders how it was preserved through the years in such an untouched state and about its seclusion as a well kept secret.

Figure 2. The Wood Sculptors' Workshop

The walls are covered with old photos, exhibition invitations and caricatures of town folk. Two workbenches are close to the window covered in papers, notes and designs. Woodcarving tools are hung just across the wall when you first enter the room. A table leg lying on top of a smaller desk, as an example of their exquisite craft making. The various chairs upon which they would sit and play their instruments after long working hours. An old telephone and a violin in a corner, some cassettes they used to listen to; Beethoven, Bach, folk music and polska. There are unfinished paintings in the room, left in a corner: half painted landscapes, charcoal drawings of portraits. Musical notation, letters from friends in the cupboards, business cards, empty turpentine bottles. Things one can discover by touching each object, because the room is dark and it is chaotic, each object needs attention.

More than a hundred years later, I, as a visual artist initiated a research project about this workshop. My main idea was to try excavate the space to try and make sense of what remained there. I assumed the place would contain paintings, some old photographs and letters and such other memorabilia.

AN ARTISTIC ARCHIVE AND A RESEARCH BASED ARTWORK

The first difficulty was my inability to speak Swedish and because the most important source of information on Bildhuggarverkstad was written and self published by a local artist called Torbjörn Skobe. I had to google translate the book in order to get a first impression about the place's history. I learnt the names, the artists, the works. I noticed the book was first printed chapter by chapter in the local newspaper, with some help I found people who used to read these anecdotes of life at the workshop every week, eagerly waiting for that week's special column in the newspaper: Tranåsposten. My first assumptions of working as an artist in the mode of an archeologist trying to find a dead remnant, a ruin, immediately shattered. I was not only exploring historic objects, old letters, fragile paintings; I needed to meet people, get in contact with them and have a conversation about the workshop. I was not dealing with a forgotten museum, on the contrary I was communicating with a group of people living and cherishing the memory of what Bildhuggarverkstad once was and still is.

Lokalen var enkelt inredd med fyra arbetsbankar, zinkho, gjutjärnskamin och några hyllor. En låda på väggen tjänade som kontor. För ytterkläder och arbetsrockar fanns en liten avbalkning till höger om kaminen.

Från vänster: PJ Carlsson, Kaleb Stille, Arthur Pettersson, Hjalmar Carlsson och Ansgar Almquist.

Figure 3. Image from Torbjörn Skobe's weekly column in Tranåsposten

The first encounter with the workshop is quite unique, one has to deal with not just with its touching beauty and uniqueness but also its inherent sense of seclusion from the outer world. A lot of thoughts stir in one's mind: What is this place? Is it a museum? It does not carry the museological categorization, the informational notes, the glass panels and vitrines usually associated with a museum. It is only preserved in this state because it was allowed to be left alone and forgotten in time. However, if it is not a museum, who owns it? The municipality? It belongs to a housing corporation; Tranås Böstader, partially owned by municipality ever since Lars Gärskog sold it. Then who pays the bills? Again there is a curious agreement between the housing corporation and the municipality.

Standing in the doorway looking into the Bildhuggarverkstad one feels that one is looking into a time capsule, a frozen moment in history. "It's beautiful and everything appears to be shades of brown. Brown like an old photo."[5] One can easily feel the sense of nostalgia, "as if the guys left the workshop just to get a lunch or something. And they never came back."[6] The workshop still looks like a place which is functional. Although it is somehow cleaned and tidied up a little and some of the working tables were sent to a local museum, it is still messy. The studio is known to be a place where lots of discussions took place, artistic, cultural and political. "Thinking about it, some, what should I say, "originals" used to go there in the winter. I also have visual memories of one [person] with a big hat over his face sleeping. They would sit in front of the stove and keep warm. It was a safe place in some ways. A place that was always there. Also there was that smell of wood as you walked in. It was very particular. It is almost as if I can feel it. And when I was a little younger I wanted to dust the place but of course I wasn't allowed to. 'It's completely useless' my father would say." Catherine Bolehed, the daughter of Tor Carlsson explained at an interview after mentioning it was too painful for her to go and visit the place now. [7]

Each time after the interviews I felt this sudden urge to go and visit the place again, to try and understand it better. It was not a touristic place which can change with urban renewals or city developments. True, one day it might be demolished but at the moment the room is still of little importance to developers or everyday tourist; just too much off the beaten track, forgotten after neglect and preserved until now thanks to its seclusion. James Clifford in his text "Palenque Log"

describes how visiting the same ancient historical site at different times changes its understanding, first during its discovery then after years effected by the touristic boom with its visitor center, gift shops and tour buses.[8] PJ Carlsson's workshop is not such a place that has changed with time, it is the kind of place that challenges time. There is something curious about visiting the workshop each day after picking up new fragments of information. The place is not just a room with sepia colors and working tools; it is its everyday, the conversations that took place there, the friendships founded, the arguments, the memories, the jokes, the music rehearsed, played, listened and recorded, it is the smell of the wood. Going to the workshop and 'digging' into the memories of people was certainly a part of the setting. It took me a year to collect their thoughts and somehow my research became also a collection of micro histories, an oral narration of the memory of a place. Soon I noticed I had to collect everything in a structured manner; I wanted to create some sort of archive, not least in gratitude to the many people who I met and who helped me understand the workshop. After a year of research I compiled my research material at a website with the project name; *Bildhuggarverkstad or A Story In Six Chapters* which functions both as an artistic archive and a research based artwork. [9]

Challenges

As an artist and researcher from Istanbul who happened to be working in a rural town in Sweden I always felt that I had the position of an outsider. A person who cannot share the heritage of such a place. I also never wanted to be "a hit and run artist." Someone who just got interested in a locality or certain group of people for a short time and then move on to the next such thing. After the project was completed I did not want to abruptly end the emotional contact I had with the people I had met in the process. In fact this paper might be considered evidence of my continuous interest in the place and the people. I have also been commuting to Tranås over the years as a cultural worker.

Another thing the workshop carried with it was a sense of nostalgia, something which I initially wanted to avoid but somehow embraced. The word nostalgia sounded just too romantic or poetic as "attachment" or "love" for a place. According to Svetlana Boym nostalgia is, "a mourning for the impossibility of mythical return, for the loss of an enchanted world with clear borders and values; it could be a secular expression of a spiritual longing, a nostalgia for an absolute, a home that is both physical and spiritual, the edenic unity of time and space before entry into history." [10] However the sense of nostalgia which I was unable to avoid was not just about the room but about the comfort of the place, a place I longed for, a place of friendship, honesty, community and arts. I did not live in Tranås, I did not really know the people who I interviewed and there was always the strangeness of an alienating camera between me and the interviewees but I did visit the place many times, remembering what I had heard from the many people I had talked with. The place was not my heritage, I thought, I was not Swedish I was just a passer by, yet I met a lot of people who resided in the city without knowing the existence of the workshop. When I first saw the workshop I thought I would approach it as an artist with the guise of an archeologist. Through working on this project I became more aware of what heritage is or what it represents: "…there is a fundamental difference between archeological remains and cultural heritage. Archeological remains comprise a tangible thing -whether places or artefacts. Cultural heritage is not a thing. Heritage is something we have ourselves invented as a construct to facilitate the management and presentation of specific (often archeological) things. In that sense heritage does not exist. Heritage is a matter of perception."[11] One makes the heritage, chooses to remember it, keep it and preserve it. In that sense heritage belongs to everyone.

I remember asking local people about the future of the workshop. Some were idealists and thought nothing could damage the workshop and because it somehow belongs to the city "all hell will break loose"[12] if they tore it down or "they will fight for it"[13] as they put it. But one of the most reasonable yet perhaps sad answers was from Per Tidman, the nephew of Åke and Tor and a musician who

rehearses at the workshop on Thursdays: " I think it is a question of generations," he said, " we are a group of musicians and most of us are fifty years old or older. When we are gone, I don't think the workshop will remain. When time passes it will also disappear, the memory of what it is. Visiting the workshop today is only interesting if you know the history behind it. But if you don't know anything about what it was then it is just a messy room and not much else."[14]

CONCLUSION

I spent two years researching what Bildhuggarverkstad is and was always surprised by the lack of interest from the local community which made the place even more fragile. The possibility of losing the workshop may not be so alarming for many local inhabitants who don't know the place, but for the ones who do, it causes despair. The workshop was not just a messy room. Torbjörn Skobe wrote about the room's history, I read his words in an effort to begin to understand Bildhuggarverkstad. I also knew it was almost a home to some. Åke never stopped going there even when the business was not bringing in any money anymore with no one working there. Peter Read says "The loss of a loved place sharpens perceptions of what is most valuable in the shaped and fashioned space. The affection for a home in western cultures, is the point where griefs for lost countries, towns, properties, gardens and suburbs seem to meet. Home is the ultimate focus of all lost places."[15] One can easily feel very sentimental when it comes to losing a home but people learn how to live with the loss. Personally I found some consolation when I interviewed Sven Karlsson, a local painter who used to visit the workshop for the artistic discussions and friendship. He was not at all nostalgic even though of course he missed his old friends. His words taught me something really important about Heritage:

"For me the place is about the people who were there. It is Åke and Tor and Torbjörn. These are the three people who left traces within me. The space itself definitely comes second, that is just the way it is." [16]

Places are things we make whether emotionally or physically. All around the world people are busy in place making.[17] Craftmakers, artists, musicians and composers made PJ Carlsson's wood sculptor's workshop a working space, they also made Bildhuggarverkstad what it is; a safe place, almost a home for some and an important cultural center. They became emotionally attached to this little room full of wood, it brought out its own legends. Years later a sculptor and historian Torbjörn Skobe wrote the chronicles and somehow reconstructed the workshop. I read what Bildhuggarverkstad was from him and tried to get in touch with the people who used to spend time there. "'Finding a fitting place for oneself in the world is finding a fitting place for oneself in the story.' The story is composed of mythologies, histories, ideologies -the stuff of identity and representation."[18] Slowly, I learnt it was not my position as an outsider that perceived the place, but rather it was Sven Karlsson, Catherine Bolehed and Lars Gärskog, the people who made the place.

NOTES

[1] Yi-Fu Tuan, *Topophilia* (NY: Columbia University Press, 1990), chap. 8, Kindle.

[2] Yi -Fu Tuan, *Topophilia*, chap.9.

[3] Yi Fu Tuan, *Topophilia* (NY: Columbia University Press, 1990), chap. 2, Kindle.

[4] Torbjörn Skobe, *Inte Bara En Verkstad*, (self-pub., Co-Print, 2008)

[5] Margareta Holgersson, in discussion with the author, May 29, 2018.

[6] Peter Lundberg, in discussion with the author, May 02, 2019.

[7] Catherine Bolehed, in discussion with the author, December 16, 2018.

[8] James Clifford, *Routes* (Massachusetts: Harvard University Press, 1997), 224-225.

[9] Seher Uysal, Bildhuggarverkstad or A Story in Six Chapters, accessed January 24, 2022, http://www.bildhuggarverkstad.com

[10] Svetlana Boym, T*he Future of Nostalgia*, (NY: Basic Books, 2001), 8.

[11] John Scofield, "Heritage Expertise and the Everyday: Citizens and Authority in the Twenty-first Century" in *Who Needs Experts: Counter-Mapping Cultural Heritage*, ed. John Scofield (Surrey: Ashgate Publishing, 2014), 3.

[12] Lars Gärskog, in discussion with the author, June 12, 2018.

[13] Claes Sjökvist, in discussion with the author, August 24, 2018.

[14] Per Tidman, in discussion with the author, August 25, 2018.

[15] Peter Read, *Returning to Nothing* (NY: Cambridge University Press, 2009), 102.

[16] Sven Karlsson, in discussion with the author, June 03, 2018.

[17] Tim Creswell, *Place, A Short Introduction* (MA: Blackwell Publishing, 2005), 5.

[18] Lucy R. Lippard, T*he Lure of the Local*, (NY:New Press, 1997), 33.

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AN APP TO MAKE VISIBLE THE CINEMATOGRAPHIC ECOSYSTEM OF VALLADOLID, SPAIN.

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INTRODUCTION

Who hasn't ever toured a treasure map? Even, many will have drawn it, incorporating data, information, references of the territory, keys, in short, to go along a road. Every treasure map was drawn by someone whose intention was to transfer the route to someone else to reach the ultimate treasure through an informational process we would now call geolocation.

We are in the process of developing an IT App for mobile, which will be operational in July 2022, so that, during individual or group visits, so that, during individual or group visits, you can practise screen tourism, using geo-location systems, and discover the cinematographic ecosystem of our city, Valladolid, where cinemas, many of which have already disappeared, and the films filmed there interweave a history of material and intangible culture powerfully linked to cinema.

We have produced the necessary information for this, texts, plans, maps, renders, infographics, edits, storytelling, image retrieval, movies fragments, to feed the database, which we have called FilmcityDB, which will support the App, which we have called CineMAPP. The user experience of the possible routes of this ecosystem will allow access and enjoy the cinematographic history of the city of the last century and face some reflections on cinema, media, and new technologies, such as the relationships between the physical and the virtual, the understanding of time and the dialogue between past and present, the immaterial culture and the new technologies and the reactivation of the past through new practices from the cinema and the digital technology[1].

THE COMPRESSION OF TIME AND NEW TECHNOLOGIES

We can discover several treasures with the use of CineMAPP, the city of Valladolid, its cinemas, its film locations, and we can make different tours along its interactive, physical and virtual map, and we will understand that the tours will not only be in space but, and perhaps most significantly, in time, making visible places and buildings that may not exist today or are not presented to us as they were in their day or were represented in their respective shootings. Through the new communication and multimedia technologies and with the use of this WebApp we can compress time at our convenience: "I am always surprised that my contemporaries, who believe they have conquered and transformed space, ignore that the distance of centuries can be reduced at our whim".[2]

The city is a palimpsest whose many layers built up are not always easy to read. Immersing oneself in the traces that can facilitate its historical complexity is a goal of this project. These cinematographic traces are more than mere vestiges of a cultural past, as in many cases they are strongly linked to the urban development of the city. They emerged with its urban evolution, disappeared for different

reasons (fires, obsolescence, urban transformations, etc.), and, in a certain way, left their mark on the city.) and, in a certain way, left discontinuities in the sentimental history of its citizens whose absence we will be able to restore in their memory through CineMAPP to recompose the idea of "unity of time" of which Zambrano speaks when she refers to the idea of "unity of time" to the need of "... linking of the relativity of the past and the future ... living the present like a fragment of a time current: perceiving movement ".[3] We will be able to visualize the Colegio de San Gregorio in Valladolid in a fragment of the film *Mr. Arkadin*, directed by Orson Welles in 1955, with the transformation suffered in its filming and, simultaneously, see its current state or visualize the disappeared Cinema Pradera through augmented reality while we are right in front of its location next to the Campo Grande in an exercise of maximum temporal compression called simultaneity, which supposes "the possibility for two or more events to enter into a single and instantaneous perception".[4] We have reflected elsewhere on the idea of the depth of time in this game of transparencies, overlapping, and temporal simultaneities and its use in some memorable architectural projects of modernity,[5] but it is undoubtedly the Cinema, with its particular use of locations, their transformation, and representation, the art that has best deployed the creative and formative potential of the compression of time. CineMAPP wants to pay a fitting tribute to Cinema and its most recent developments in the moving image.

Figure. 1. The CineMAPP WebApp from GIRAC.
Figure. 2. GIRAC members. From left to right: Sara Pérez-Barreiro, Eusebio Alonso-García, Rubén Vega-Balbás, Daniel Villalobos- Alonso, Iván Rincón-Borrego.

The reactivation of the past. New practices from cinema and architecture

Our research group has been developing for years several studies about the crossed relations between architecture and cinema, exploiting the combination of the tools that both disciplines, architecture and cinema, currently offer us for the analysis of contemporary visual culture. This is why the coexistence of both disciplines in academic research centres is becoming more and more frequent, through the

Centres of Architecture and Visual Arts or similar in the Centres of the Schools and Departments of Architecture, as they are more comprehensive entities of interests and use of research tools that until a few decades ago were considered separate.

The cinema and the moving image, in general, constitute a spatial experience that today extends to *digital production*. The relationships between the physical and the digital are increasingly present in the design of architecture and public space and in the everyday practice of the city. The city is configured as a space of relationships and the new media satisfy unprecedented information needs that enhance the social interaction of urban space. The new technological development has created its own terminology. The *media city* is a formal product and a conceptual finding that refers to and delimits, in a differentiated way, a precise urban form specific to our contemporaneity. The new digital culture has spread to the different human scales, the personal area of perception, the private space of the home, the collective space of public buildings and the urban landscape of the city.[6] In recent decades, the most recent advanced architecture is picking up the results of these investigations. Specialized critics have warned of the risks of a use of technology that oscillates between mere spectacle or responsible use, a new didactic and social phenomenology[7], but have also analysed the social opportunities it brings.

Figure. 3. GIRAC: shooting of an edit for the WebApp at the Broadway Cinema in Valladolid, July 2020. Daniel Villalobos, below in the front row, in the role of José Pradera, contemplates on screen an image by Jacobo Romero of the Cinema Pradera in Valladolid, 1932.

The real and the virtual: fiction and reality on the same plane.

Two films exemplify this issue well. There is a scene in the film *Things to come,* directed by Cameron Menzies in 1936, where the grandfather shows the girl urban images of the past on a TV screen, prior to her post-war and post-pandemic situation. There is a moment in *Cinema Paradiso,* directed by Giuseppe Tornatore in 1988, where Alfredo directs the camera projection into outer space, where the people who have just been expelled from the cinema are, and continues projecting the film onto a façade of the square. A neighbor comes out of a window to silence the screams in the square; his real image overlaps and intersects with the fictional image of the film. Reality and fiction are superimposed on the unusual screen of the neighbouring façade. Alfredo has taken cinema to the street and has given back to his fellow citizens the space of weekly meeting and collective dream. It is an example of crossed relations and overlapping appropriations between cinema and architecture, fiction and reality, image and public space.

Both scenes intertwine some themes that we see as opportunities for research and transfer through specific technological developments: social education, collective memory, cultural visibilization, interdisciplinary visual culture, the image as informational support, development of visual culture as social knowledge, significance of the social history of a place.[8] At the same time, between these two

scenes, a curious paradox arises that is offered to us as an opportunity for technological development for our social environment: the scene that is more distant in time, that of the film from the 1930s, which tells us of a post-apocalyptic future, indicates one of the ways for the development of new technological supports to teach and *make visible urban routes and places linked to their use as locations*, both exterior and interior, in film production, in particular, and audiovisual production, in general, carried out in our city.
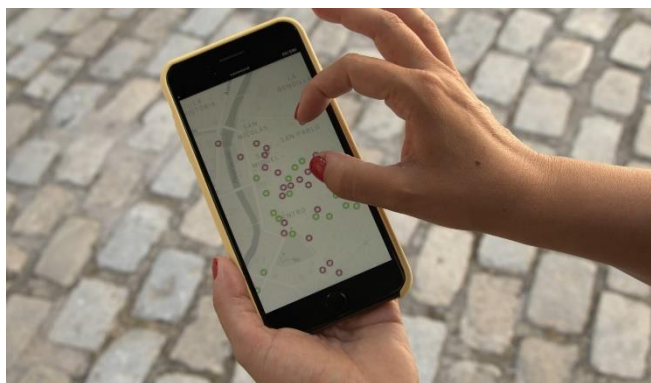
Figure. 4. CineMAPP. A journey through the cinematographic treasure map of Valladolid.

METHODOLOGY, TECHNOLOGY, MANAGEMENT, TRANSFER AND EXPERTISE

The research project "*Cinematographic Ecosystem of the City and Transfer with New Technologies*" is materialized in the design and implementation of two products. On the one hand, the WebApp CineMAPP, limited to the geographical area of Valladolid and on the other hand, the graphic database FilmcityDB, which brings together not only the information that feeds the WebApp, but also numerous data capable of articulating cross-sectional and specialized research, beyond the aforementioned geographical area.
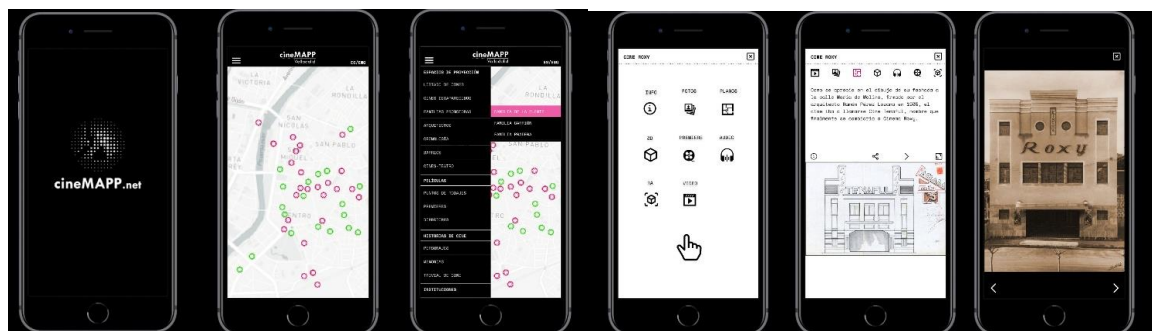
Figures. 5 and 6. CineMAPP, two images from the Frontpage.

Methodology

The research project is based on the project resolution methodology: needs analysis, response study, content preparation, and design of virtual and physical information support through specific technological development. This methodology is guided by a general objective, stated in the title of the project OG - *City Cinematographic Ecosystem and Transfer with New Technologies*, which in turn is divided into three specific objectives: OE1 - *Development of contents*; OE2 - *Transfer of contents and technological development*; OE3 - *The city as an extensive and daily Medialab*.

The *OE1 - Development of contents* allows us to carry out a study of both films and architectural sites for projection and filming. This archaeological work on the evolution of film culture allows us to

analyze how architectural themes, the city, the landscape, urban spaces, lifestyles and social customs have been treated through film and audiovisual production in each era. The recognition of the current landscapes in the city of Valladolid that appear in the films and their transformation consolidates the identity of the place in the personal and collective memory of its citizens; the contrast that results when comparing the images referred to in different periods reinforces the temporal dimension of its city and its neighbourhoods in the citizens' conscience.

The OE2 - Content transfer and technological development is a priority objective of the project. It consists of transferring to society the results of the research carried out for the reasons stated above. The acquired awareness of one's own history and culture, in this case, linked to cinematography, has local implications, in particular, and on contemporary visual culture, in a broader sense. The objective also serves as a promotion in the audiovisual sector, in general, and not only cinema; enhancing the attractiveness of the city for the audiovisual industry; empowering the neighbourhoods and the city and identifying its urban fragments in some examples of cinematic history; and, finally, building a visual and cinematographic ecosystem that pushes and encourages the city towards the physical and conceptual structuring of an extensive *Medialab*. This necessarily requires the combination of theoretical and researches support and the development of advanced technologies that contribute to its dissemination and social transfer, which are embodied in CineMAPP and FilmcityDB.
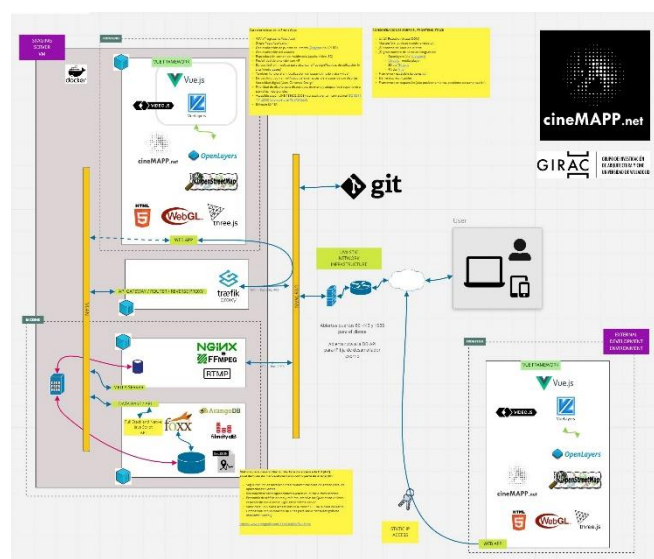
Figure. 7. CineMAPP. Technological structure of the application.

Technology, data management and transfer

From a technological point of view, the design and implementation of both FilmcityDB and CineMAPP require the cataloging, production, and indexing of a large amount of digital data for their proper functioning. The general objectives of the project define, *per se*, that the construction of a "*Cinematographic Ecosystem of the City*" implies the collection of data that will serve to produce the elements and the code that articulates the WebApp. We refer to data on the films shot in the city, directors, actors, production..., to data related to its scenarios, to the screening venues, names of buildings, architects, year of construction, etc... Therefore, most of the data with which the research project works are reference data, derived and/or compiled in various formats such as Graphics: jpeg, pdf, png, tiff, dwg, stl/ Texts: docx, pdf, txt/ Video: mp4, h264/ Audio: flac, mpeg-4. Much of this data has been obtained and produced by the research work carried out by GIRAC in recent years and its collaboration with the *Municipal Historical Archive of Valladolid*. The data serves as a working

baseline, not only for the WebApp, but also to produce scientific publications to disseminate the results.

The data are organized using an open source, multimodel graphical database provided by the ArangoDB technology. The files are structured in terms of project, ID, figure and file names. The naming system used is the appropriate to the semantic version control scheme, <ExampleURL>. The same idea is applied to datasets.

Multimedia, simultaneous and extrapolated experience

The moving image and the new audiovisual technologies offer in contemporary architectural practice and in other disciplines new conceptions of public and private space, a line of research in which the present project is installed. Considering the technical paradigms that Anthony Townsend establishes as attributes of media architecture[9]: "*visualization*", based on the number and proliferation of screens in the urban environment; "*communications*", based on wireless networks that change the way in which the user relates to the built environment; "*positioning*", referring to mobile technologies and their infinite possibilities in this sense; and "*documentation*", which would speak of the computer mapping of the city through geographic information systems (GIS), all these aspects are at the basis of the project "*Cinematographic Ecosystem of the City and Transfer with New Technologies*". To respond to them, the proposed WebApp can be consulted in two modes. On the one hand, an interactive mode, we could say, in which the user follows his own route through the screen of his mobile device, as he walks through the city and the application returns *inputs* from its geolocation. And on the other hand, a ubiquitous mode, from any device connected to the Internet, although without accessing the content offered by geolocation, such as augmented reality.

The social, economic, and environmental impact sought by this project, intimately linked to the city of Valladolid, does not hide, however, the possibility that its approach and technology will be progressively exported to other locations. It is a fundamental and foundational criterion of GIRAC itself, as reflected in the declaration of its lines of research, that its reflections and theoretical research be involved in social reality.[10]

Figures. 8 and 9. Headquarters of the FilmCityDB database in the server of the Science Park of the University of Valladolid.

GIRAC. Culture, tourism, industry, and cinema

In 2019 Valladolid was distinguished by UNESCO with the "*Creative City of Cinema*" distinction. This is the recognition of great work carried out by different organizations in the city. One of the most important is, without a doubt, the Valladolid Film Commission, Valladolid Film Commission | Portal Web del Ayuntamiento de Valladolid . GIRAC began its collaboration with this public technical office in 2017. One of the main activities of the Film Commission is to search for potential film locations. Our knowledge of the city, as well as the needs that a project of this type requires, allows us

to identify emblematic, historical, contemporary, and modern locations that will capture the viewer from the screen.

GIRAC looks for suitable locations, manages the permits with the owners of the property, and makes a file where the most important data is collected: planimetric and photographic documentation, bibliography. In this way, those who are interested in filming in Valladolid can see an extensive catalog of possible filming locations on the Film Office's website. Periodically, GIRAC, with the collaboration of students, looks for new locations to complete the offer to production companies. GIRAC has been extending the relationship between architecture and cinema through teaching practices and research during the last decades, serving as a stimulus for the realization of its own artistic practices and audiovisual installations for different events, collaborating in some of them with the International Film Week SEMINCI.[11]
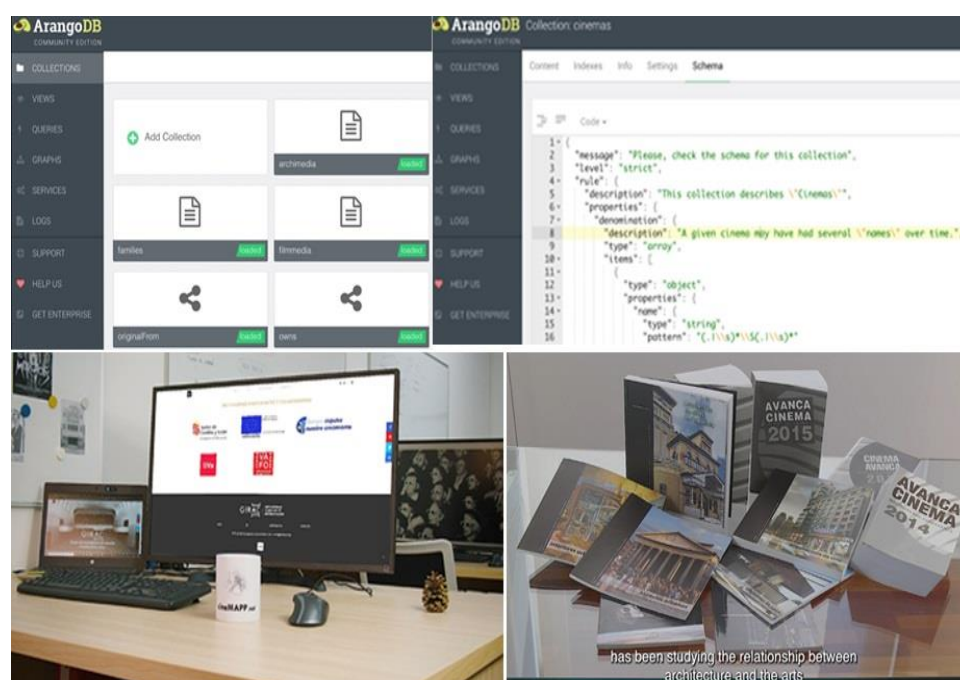
Fig. 10. Arango programming system (a-b). CineMAPP: GIRAC and collaborating and participating entities and institutions (c). GIRAC Publications (d).

CONCLUSIONS. VISIBILIZING THE ECOSYSTEM: FROM THE TANGIBLE TO THE INTANGIBLE

Throughout its history, the city of Valladolid has had more than 70 buildings for cinemas, theaters, multiplexes, cinemas associated with schools[12]. Many of these buildings have been destroyed, modified, and no longer have the cinematographic use for which they were designed. Citizens have many memories associated with these places. Walking around the city without these emblematic spaces does not mean that we have forgotten them, but rather that we remember them with nostalgia for those movie afternoons.

One of the main objectives of the WebApp we are developing is the possibility of restoring the presence of those lost properties. Through the use of Augmented Reality AR, we allow the user to recreate those places. From the cell phone, the user can see and understand how the urban environment was defined by the presence of that neighbourhood cinema. A fundamental element in city life and leisure. In this way what no longer exists becomes present in a clear way allowing the user to enjoy that lost architecture.

The appropriate transfer of this knowledge will bring added value to the city in social, cultural, and economic terms. The city and its neighbourhoods will reinforce their image from the knowledge of its history, in this case, linked to the cinema. The transfer of this information, through the app as an innovative and specific task, will serve as the main support for film tourism in this ecosystem.

NOTES

[1] This work has its origin in the Research Project funded by FEDER and Junta de Castilla y León (Regional Government of Castilla y León) "Cinematographic Ecosystem of the City and Transfer with New Technologies". GIRAC 2020-2023, Ref. VA234P20, whose principal researcher is Eusebio Alonso-García. Previously, GIRAC developed another Research Project funded by FEDER and Junta de Castilla y León (Regional Government of Castilla y León), "Audio-visual Landscapes in the Media City". GIRAC 2018-2020, Ref. VA127G18, whose principal researcher was Daniel Villalobos-Alonso. CineMAPP and FilmCityDB are scientific results of the GIRAC Recognised Research Group of Architecture and Cinema of the University of Valladolid and specifically of the I+D+i Project "Cinematographic Ecosystem of the City and Transfer with New Technologies (VA234P20 – Eusebio Alonso García - IP; Daniel Villalobos Alonso; Ivan Rincon Borrego; Sara Pérez Barreiro; José Mª Jové Sandoval) co-financed by the Junta de Castilla y León and the European Regional Development Fund (FEDER). The management team of CineMAPP and FilmCityDB is composed of Eusebio Alonso García, Iván I. Rincón Borrego and Sara Pérez Barreiro. For the development of the project there are three postdoctoral contractors in charge of the budget of the I+D+i Project (VA234P20): Doctors Rubén Vega Balbás and Mª del Camino Gallego Santos, who have a crucial role in the technological, audiovisual and documentary development of the project; and also, Doctor Marta Labad Arias, who participated in the first steps. On the other hand, Silvia Cebrián Renedo, Alberto López del Río and Boris Aparicio Tejido, members of GIRAC, also actively collaborate in the project.

[2] Marguerite Yourcenar, *Memorias de Adriano* (Barcelona: Edhasa, 1982 (*1951*)), 248.

[3] María Zambrano, *Los sueños y el tiempo* (Madrid: Siruela, 1992), 85.

[4] Henri Bergson, *Durée et simultanéité* (París: Quadrige, 1992 (*1922*)), 43.

[5] Eusebio Alonso-García, "Giuseppe Samonà. Concurso de la Cámara de Diputados. La profundidad del tiempo". *ZARCH* 14 (2020): 70-85.

[6] In the fifties and sixties, architects and scenographers such as Josep Svoboda or Charles and Ray Eames experimented with projects and installations multiscreen, whose performances from some universal exhibitions are a fundamental reference: Josef Svoboda, *Laterna Magika. In the Secret of the Theatrical Space*, trans. Jarka Burian (New York: Applause Theatre & Cinema Books, 1993); Beatriz Colomina, "Enclosed by Images: The Eameses' Multimedia Architecture," *Grey Room* 2 (2001): 7-29; María Nieto Sanchez, "Beyond the Screen. Dynamic, Multiple and Transformable Spaces." In *Avanca Cinema. International Conference 2016*, ed. Antonio Costa and Rita Capucho, (Avanca, Portugal: Ediçôes Cine-Clube AVANCA, 2016), 1099-1107. In the nineties, the digital started to develop an increasing influence which was reinforced by the works of different authors and the creation of the Medialabs: Nicholas Negroponte, Nicholas, *Being digital* (New York: Vintage Books, 1995); Eusebio Alonso-García, Sara Pérez-Barreiro, Iván Rincón-Borrego, Daniel Villalobos-Alonso, Daniel; José Mª Jové Sandoval, "Mediatic Unbracullum. Architecture, Cinema and Multimedia Systems", in *Watch This Space: Exploring Cinematic Intersections Between the Body, Architecture and the City*, eds. Howard Griffin and Maciej Stasiowski. (Intellect Books, 2022); Iván Rincon-Borrego, Sara Perez-Barreiro, Eusebio Alonso-Garcia, Daniel Villalobos-Alonso, Jose M. Jove-Sandoval, Silvia Cebrian-Renedo, "The image as matter and material. Advanced architectures and audiovisual experimentation from the inclusive view of Herbert Bayer", *Arte, Individuo y Sociedad* 34, 1, (2022): 335-350. https://dx.doi.org/10.5209/aris.74210; Ivan Rincon-Borrego, Eusebio Alonso-Garcia, Sara Perez-Barreiro, Daniel Villalobos-Alonso, "Screen architectures in the information age. Notes on media walls and new paradigms", *Estoa*. 11, 21 (2022):127-140.. https://doi.org/10.18537/est.v011.n021.a11

[7] Umberto Eco, 1965. *Apocalípticos e integrados* (Barcelona: Lumen, 1965).

[8] Eusebio Alonso-García, "Windows in Cinema, Art and Architecture," *Avanca Cinema, International Conference,* 2017 (2017): 359-369.

[9] Anthony Townsend, "Digitally mediated urban space: New lessons for design," *PRAXIS: Journal of Writing + Building*, 6, 102 (2004): 100

[10] WEB del GIRAC: http://girarquitecturaycine.uva.es/

[11] Sara Pérez-Barreiro, Iván Rincón-Borrego, Eusebio Alonso-García. Daniel Villalobos-Alonso, "A Dios pongo por testigo que la forma sigue a la función. Aprendizaje de la arquitectura a través del cine", in *La ciudad en el cine. Recorridos, encuadres, secuencias y montajes*, ed. Antonio Pizza, (Madrid: Ediciones Asimétricas, 2022): 224-239.

[12] Daniel Villalobos-Alonso, *Arquitectura de cines en Valladolid* (Valladolid: GIRAC and Universidad de Valladolid, 2020).

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Nieto-Sanchez, Maria,. "Beyond the Screen. Dynamic, Multiple and Transformable Spaces." In *Avanca Cinema. International Conference 2016*, edited by Antonio Costa and Rita Capucho. Avanca, Portugal: Ediçôes Cine-Clube AVANCA. (2016): 1099-1107.

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NO STRINGS ATTACHED:
DISENTANGLING ARCHITECTURAL HERITAGE FROM CULTURAL HERITAGE AS A STRATEGY FOR THE ADAPTIVE REUSE OF HERITAGE BUILDINGS

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INTRODUCTION

Architectural conservation in Johannesburg, South Africa, is governed by the National Heritage Resources Act 25 of 1999.[1] The implementation thereof is administered by the South African Heritage Resource Agency and the National Heritage Council on a national level, and the Provincial Heritage Resources Authority, on a local level. The Burra Charter,[2] was highly influential in the development of the Act, outlining principles and guidelines for architectural heritage, with emphasis placed on "cultural conservation". In addition, an abundance of literature describes architectural approaches to conservation, but there is far less from an interior design perspective, to which this paper aims to contribute.

Students in the fourth-year interior design degree programme are required to identify and research a dysfunctional heritage site and propose an interior design solution as a means to "revitalise the site and make it contextually relevant". This theoretical positioning of heritage conservation underpinning the study, supports the current approach to architectural heritage and cultural conservation in Johannesburg. A selected design proposal, completed within this programme, is presented in the form of computer-generated visual imagery and modelling to describe and illustrate the repurposed spatial functionality and transformed spatial meaning, using interior strategies. The student's personal response to the problematic heritage site and subsequent design proposal reveals an obvious shift from historical cultural significance to a proposed new-use value and contextually relevant cultural significance. This is in stark contrast to the interior approach advocated by Klingenberg,[3] where significant emphasis is placed on maintaining the original "genius loci" or spirit of the space. The authors suggest this departure is due to many local heritage sites being contaminated by history or narrative that is disagreeable or objectionable, therefore requiring greater adaptation of functionality and cultural significance, to harmoniously integrate the past with the future and preserve our architectural heritage.

LOCAL APPROACHES TO HERITAGE CONSERVATION

The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance, 2013, more commonly known as The Burra Charter, has been highly influential in developing heritage conservation legislation and policies in South Africa.[4] The Burra Charter shifts the concept of conservation away from the material to the wider cultural significance of a site or a place, by

recognising the different nature of what is considered heritage by indigenous peoples. It places the conservation of cultural heritage as its main objective, where conservation means all the processes of looking after a place to retain its cultural significance. "Cultural significance is therefore embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects".[5] This contrasts with more traditional western approaches, by accepting that "conservation is not just about keeping a place in a particular state".[6]

The National Resource Heritage Act (NRHA) 25 of 1999[7] was written into law in South Africa to allow for the management and conservation of sites and artefacts of historical significance. The influences of The Burra Charter on the formulation of the NHRA is noticeable in how the term cultural significance is synonymous with cultural heritage significance and cultural heritage value, as is evident in the following clauses. Conservation of heritage resources implies "the protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance".[8] In the Act, the term heritage resource is used to mean "any place or object of cultural significance",[9] and cultural significance is used to mean "aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance".[10]

DEFINING THE TERM CULTURE AND ASSOCIATED PROBLEMS

To understand the complexities surrounding the meaning of the word culture, we refer to Raymond Williams's[11] three divergent meanings, defined as: culture as a process of intellectual, spiritual and aesthetic development; culture as a groupthink, or a group's particular way of life; and thirdly, culture as a record of human activity, evident in a body of intellectual or artistic work. Within emerging heritage paradigms, there is no attempt to separate Williams's divergent meanings of culture, but rather to embrace them all, and justly so. The Burra Charter pioneered this holistic conservation approach by focusing on cultural significance, making it synonymous with cultural heritage and cultural value. The complexity of this combined definition is, however, likely to increase the difficulties in objectively determining what is of cultural significance and what is not. Additionally, it increases the possibility of aspects of cultural heritage being perceived as disagreeable or objectionable. The Burra Charter does, however, allude to the possibility of culture, having negative connotations, by stating: "[C]ultural significance may change over time and with use" and, "[U]nderstanding of cultural significance may change as a result of new information".[12]

ADAPTIVE REUSE AS A CONSERVATION STRATEGY AND THE "SPIRIT OF THE PLACE"

Adaptive reuse is synonymous with remodelling, retrofitting, refurbishment and adaptation. It describes the process of "wholeheartedly altering" a building where "the function is the most obvious change, but other alterations may be made to the building itself".[13] Different adaptive reuse strategies are classified according to the relationship between the old and the new. They can be either; a) Intervention – where the new and old are completely intertwined, b) Insertion – using autonomous elements whose dimensions are dictated by and are contained within the confines of the existing, or c) Installation – the old and new exist independently, where the new may be influenced by the existing, and the new does not permanently alter the old. The Burra Charter's recommends a cautious approach towards adaptive reuse by stating: "Adaptation is acceptable only where the adaptation has minimal impact on the cultural significance of the place".[14] Adaptation should involve minimal change to significant fabric, achieved only after considering alternatives,[15] and advises that "[A] place should have a compatible use".[16]

Adaptive reuse is considered a useful method for cultural heritage conservation, where it is defined as "a method of expanding or extending a building's social functions by modifying the structure…,

whilst keeping significant features".[17] Adaptive reuse advocates for the building to function as part of society rather than being an "empty sculpture", even if at the expense of authenticity.[18] Concepts of adaptive reuse also support urban regeneration strategies, when used to "conserve existing buildings or districts by putting them to good contemporary use and reconnecting them with society".[19] Adaptive reuse of a building may necessitate certain additions, demolition and the introduction of new materials.[20] These changes may "influence not only material, but also immaterial values",[21] and therefore have the potential to destroy the original genius loci of a place, and its cultural heritage value. The term genius loci (spirit of place) was introduced by the Norwegian architect and theoretician Christian Norberg-Schulz [22] to describe the "immateriality in the experience of architecture". According to Ellen Klingenberg,[23] the term could equally apply to the interior as place, to identify the immaterial social values linked to "the experience of meaning and activity of people in an interior", and therefore also its cultural significance.

Brooker and Stone[24] highlight the challenge for the designer, when proposing adaptive reuse by stressing that "[T]he relationship between the existing and a new remodelling is dependent upon the cultural values attributed to an existing building". This can prove problematic if the existing building has a history or narrative, or previous use that is disagreeable or objectionable. Graeme Brooker[25] uses the term "infected" interior to describe a place that is contaminated by political, ideological, or an odious previous function. Conservation strategies must acknowledge that injustices of the past, such as discrimination against religions, gender and race, often represent still-open wounds for nations and communities.[26] Unfortunately, many of South Africa's heritage sites are inherently contaminated by the racially segregated land-use and spatial development policies enforced by both colonial and apartheid laws. For example: The Natives Land Act by the Union Parliament in 1913, restricted black people from buying or occupying land;[27] The Group Areas Act of 1950, which assigned racial groups to different residential and business sections in urban areas;[28] and The Separate Amenities Act of 1953, which enforced the separation of whites and non-whites in all public places and vehicles.[29]

THE EDUCATIONAL CONTEXT, PROCESS AND OUTCOMES

Students in the fourth-year programme are required to identify current spatial problems confronting the city's inhabitants and propose interior design solutions to address them. Most design interventions propose the adaptive reuse of existing buildings. Many of these are heritage sites that are abandoned, vandalised and in a state of neglect. Students are required to ideate ways, through interior design, to revitalise these sites and contribute to broader urban regeneration initiatives. Context analysis is the primary research method used, as "[T]he plan or programme is discovered within the analysis of the place".[30] Students are required to extend the site analysis to include, spatial, demographic, ecological and socio-economic challenges to understand the "current contextual transformation", because "[A] complex and widespread set of symptoms and effects, mark these processes in the spatial and social environment of people".[31]

THE PHYSICAL CONTEXT AND THE STUDENT'S INTERPRETATION OF THE SITE

Building eighty-five – eighty-seven Commissioner Street was identified by the student as the underutilised and neglected heritage site for her study. This building, formerly the headquarters of Barclays Bank in South Africa, is located in the heart of Johannesburg's historic central business district. This building was designed in 1938 by Gordon Leith, one of Johannesburg's leading architects and academics of the time.[32] The student describes Commissioner Street as one that has "magnificent historical associations"[33] and contains a number of significant architectural heritage landmarks. This building is indicative of many similar heritage buildings erected in this district of Johannesburg between the 1930 and 1940s. The building boom of the time was driven by the gold

mining fortunes made as a result of South Africa abandoning the international gold standard. Many buildings were heavily influenced by an eclectic mix of European historical, Modernist and Art Deco styles. The interiors displayed a generous use of expensive materials and excellent craftsmanship.[34] Unfortunately, many of these buildings now stand underutilised or abandoned due to the spaces no longer being able to accommodate current business practise and have therefore become functionally obsolete. The abandonment of many of these historic buildings was further fuelled by decentralisations from the inner city, taken by many large corporations, that initiated a spiral of inner-city urban decay.[35]

Figure 1. A view of the Barclays Bank headquarters, built in 1938, and designed by Gordon Leith

Figures 2a and 2b. Left: a view of the existing banking hall in 85-87 Commissioner Street 2019; right: the proposed new spatial use 2019

THE REVITALISATION STRATEGIES ADOPTED BY THE STUDENT

The student identified a lack of up-market hotel accommodation as a current and contextual spatial problem in Johannesburg's central business district. The student justified their choice of location as one that presented the possibility of attracting cultural tourists because of its impressive historical and

heritage associations. She rationalised her response to the building as one designed and built in the architectural style of the modern movement, presenting art deco style characteristics. Our analysis of the student's response raises some thoughts for reflection. Through the student's reading of the building, the basis of the argument for the intervention approach for the adaptive reuse of the space is evident. Intervention, in this sense, implies a process of transformation in which the new and the old become intertwined and completely dependent upon each other.[36] The benefit of this adaptive reuse strategy is that it enables the past to become a "package of sense" of built-up meaning that is accepted and maintained either through transforming the building or suppressing it within the form.[37] The student considered the former grandiose style of the building and used it as inspiration for her proposed design.

THE STUDENT'S CONCEPTUAL DEVELOPMENT

The student's design proposal was strongly influenced by her research and analysis of the architectural characteristics of the original building. She also conducted an in-depth building analysis to identify, analyse and interpret the building's existing architectural features and style. From a literature review, the student gained an understanding of the Art Deco style of the period enabling her to link specific characteristics to the building. These included characteristics like clean shapes, the layering of reflective surfaces, repeating or overlapping images, bold and strong contrasting colours, such as black and white, symmetry, expensive materials, geometric features, stepped forms and a streamlined look. She also likened the quality of the finishes and craftsmanship in the building to art deco's associations of wealth, boldness and affluence. She identified Art Deco as a style aimed to create a sleek and elegant look and feel that symbolised wealth and sophistication.

At a fourth-year level, students are required to reflect on and demonstrate an understanding of the broader context aligned with current social, political and economic transformation. Thus, the student further contextualised her concept for the proposed hotel by creating links between the Art Deco style characteristics and the most spoken indigenous group of languages in Johannesburg, which she identified as the 'Nguni' group of languages, consisting of four main languages namely; Zulu, Xhosa, Ndebele and Swati. The traditions and symbols, associated with these cultural groups are geometric, bold, vibrant colours, triangles, beading and weaving and leopard skin or cowhide of the Nguni cattle. The student also considered current African design trends that embrace the love of nature's raw materials reflecting Africa's tough climate and textiles with the motives of plants and animals reflecting the country's natural beauty. She used African design language, characterised by bold patterns, bright, colourful fabrics, wildlife print and indigenous art (figure 3), as a tribute to the continent and its diverse cultural traditions, which she felt would appeal to her target market, the cultural tourist.

Figure 3. Proposed material and colour palette for selected areas of 85-87 Commissioner Street 2019

RECONCILING HISTORICAL, CULTURAL SIGNIFICANCE WITH CONTEMPORARY CULTURAL SIGNIFICANCE

Through our reading, the student bases her design decision on her personal interpretation of the site. Accordingly, she proposes a new Johannesburg-inspired contemporary Art Deco style that aims to give cultural tourists a unique and contextualised experience and attract them back to the inner city.

Figure 4. A view of the proposed design for the ground floor lobby 2019

In order to achieve this, she has designed spaces inspired by the Nguni group cultures, interpreted into an Art Deco style using different symbols of cultural significance and incorporated them into design in the forms of: geometric shapes, finishes, African patterns and colours, beading and weaving styles, layering of different materials and the use of animal prints and skin (figure 4). The student describes the intention as "giving the spaces a sense of Johannesburg's history and meaning whilst paying tribute to the different cultures and people that live within the city".[38] She suggests that using this concept will appeal to the cultural tourist by providing a contemporary and contextual environment with mixed-use facilities that symbolise wealth and opulence, in order to respect and form connections to the history and characteristics of the building's architectural heritage.

Furthermore, the design elements, characteristics, and forms communicate a new sense of place and belonging, inspired by the local context. The student's interpretation of this eclectic building, and the associations she made with art deco enabled her to develop a design concept that related to indigenous Nguni languages (figure 5). The proposed design solution presents the possibility of creating a contemporised and contextualised cultural significance through the mixing of old and new culture and the past and present.

Figure 5. A view of the proposed design for the ninth-floor penthouse lounge 2019

CONCLUSION

The design proposal presented above serves as a useful exemplar of how interior design practice can contribute towards the discourse on architectural heritage conservation. The intervention strategy adopted, does not in any way alter the building's exterior façade, spatial organisation and load-bearing structure. The interior spatial qualities, features and materiality are retained, leaving much of the past untouched. This interior approach can be likened to a veneer that can be peeled away and reapplied to accommodate future transformation of function and meaning, required for the site to remain contextually relevant.

Students will approach each of these sites in a unique way and produce original solutions to the spatial problems they have identified. Students, in general, liberated from the negative socio-political meanings often associated with heritage sites, approach them as rich, interesting, and captivating spaces with the aim of integrating the urban materiality of the past with the present. These neglected sites present ideal opportunities for the implementation of adaptive reuse or remodelling as an interior approach to architectural conservation and creating contemporary cultural significance.

Johannesburg has its own specific and wide-ranging urban challenges, which are exacerbated by the need to redress the spatial injustices of the past. It is also evident that no amount of excellent policy and legislation will guarantee the conservation of architectural heritage. Cultural heritage significance and cultural heritage value will always be contested; therefore, heritage conservation must be considered as a "process that needs to be negotiated afresh again and again",[39] making it essential to develop new mechanisms of consensus for the conservation of these places, "for, without any attribution of collective value, they will become obsolete".[40]

NOTES

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FAIR-DATA ARCHITECTURE – STUDY, PRESERVATION AND DIFFUSION OF ARCHITECTURAL DOCUMENTARY HERITAGE FROM THE TWENTIETH CENTURY, IN PORTUGAL

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INTRODUCTION

"Fair-Data Architecture" is the title of a Research Project developed at the University of Coimbra, and presented to the Foundation for Science and Technology, in Portugal, in the form of an application for funding, in April 2020. And it was designed to use digital tools in order to study and disseminate the work of a group of architects who worked in Portugal in the twentieth century.

"Fair-Data Architecture" is based in a research method that implies the collaboration of two scientific areas, Architecture and Information Science; and within this disciplinary intersection model, 5 main study cases should be analyzed, starting from 5 original and unpublished Architectural Collections – Étienne de Gröer[1] (1882-1974), Architect-Urbanist; Carlos de Almeida[2] (1920-2009), Architect; Armando Alves Martins[3] (1922-2015), Architect and Visual Artist; "Solum"[4] construction company (1964-1989); Jorge Figueira[5] (b.1965), Architect and Critic.

The selected study cases allow a great representativeness of the main architectural and historiographic phenomena present into Portuguese Architecture of the twentieth century – different project scales, (from single-family housing to urban plans for entire cities); different ways of understanding the disciplinary limits of Architecture (Visual Arts, Theory of Architecture, Urbanism); different chronological periods (first half of the twentieth century – Étienne de Gröer; transition and second half of the century – Carlos de Almeida and Alves Martins; end of the century – Jorge Figueira).

Likewise, in relation to the scientific area of Information Science, the selected study cases allow a great representativeness of the problems of archival description and classification that can be found in the activity of an Architectural Archive, and which distinguishes it from other Archives with other types of documentation – original handmade drawings, blueprints, photographs, three-dimensional documents (models), documents in digital format, etc.

THE WORK PLAN

The defined work plan organizes the study cases in three groups, allowing to distribute the schedule of a set of actions, scientific meetings, and forms of dissemination, over the three years of the Project duration. Each of these groups of study cases will be analyzed over one year.

According to this plan, for each one of these groups, or cycles, a team of researchers will be created, and will apply an identical work model. The Architectural Collections will be organized by the Information Science team, responsible for their archival description and the scanning of a significant part of it. Simultaneously, the team of Architecture researchers will work on the study of these Collections, preparing the organization of a Colloquium, or a Seminar; the installation of an Exhibition, created from this original documentation; and the publication of a monograph that brings together the studies developed and part of the documentation dealt with.

At the intersection of the work developed by researchers from the two scientific areas, each of these cycles ends with the online publication of the knowledge produced on one web platform of the University.

It is not just the inventory and archival description of the Collections studied that will be made available online. All the knowledge produced on the study cases analyzed – Exhibitions, Colloquia, and Publications – should be published online in open access.

"Fair-Data Architecture" was designed to be implemented by twelve researcher, eight from the Area of Architecture, and four from the area of Information Science, for a total budget around two hundred thousand Euros.[6]

THE CREATION OF AN ARCHITECTURAL ARCHIVE

For this Research Project to be possible, and for this research to continue to be possible in the future, an important part of the work that needs to be done is the preservation of the documentary heritage that will serve as a basis.

The University of Coimbra started the creation of an Architectural Archive about four years ago.

In its origin was the informal initiative of some UC Professors, motivated by the need to safeguard some Private Archives, owned especially by Architects from Coimbra, who worked during the twentieth century, and which were in danger.

In general, the Collections gathered by the University and selected as study cases in this Project were received from their original holders – the authors themselves, or the direct heirs. The only exception is the Collection of Étienne de Gröer. In any case, they were all kept by private individuals, and not by public institutions.

The creation of this Architectural Archive was a crucial step for the design of this Research Project, and the University of Coimbra remains determined to proceed with the constitution of this Archive.

The cultural mission that the University embraces with the creation of this Archive can be compared with the work developed by other important institutions in the country – like the National Archive of the Institute for Cultural Heritage, installed in the "Fort of Sacavém", and the Calouste Gulbenkian Foundation, both in Lisbon; or the Marques da Silva Foundation, and the "House of Architecture" (Casa da Arquitetura), in Porto. Or by institutions with unquestionable international recognition such as the Canadian Centre for Architecture (CCA), and the Netherlands Architecture Institute (NAI), which have associated their research activity in Architecture with the preservation and dissemination of architectural documentary heritage. In both cases, also largely focused on the twentieth century.[7]

A brief context

In the early 1980s, recognizing the importance of Architectural Archives as irreplaceable records of the cultural heritage of humanity, and being aware of the specific problems that these documents posed to Archivists and Institutions, the International Council on Archives (ICA) created the Committee on Architectural Records.

In September 2000, during the International Congress on Archives, held in Seville, Spain, the Committee on Architectural Records was officially converted into a new Section – The Section on Architectural Records.[8]

Although the awareness of the specificity of Architectural Archives, and the concern with the way to preserve these documents, was already previous, in the 1980s, the discussion among specialists about how to inventory and describe them, and to make this information accessible, gained a greater dimension on an international scale.[9]

Until the end of the 20th century, Archivists were mainly concerned with how to deal with the large size, and a certain fragility, of documents related to Architecture Records. However, from the 1990s onwards, with the progressive replacement of analogical media by digital systems, the concern of specialists with Architectural Records has changed profoundly.[10]

With the beginning of the digital age, documentary records were transformed, but above all, a new horizon of possibilities was opened on how to access information and knowledge. During the second decade of the 21st century, the need to rule the circulation of information on the World Wide Web also awakes the debate about the new possibilities for the production of knowledge, and for the access to that knowledge.

It is in this context that the principles of Open Science and FAIR-Data begin to be discussed.
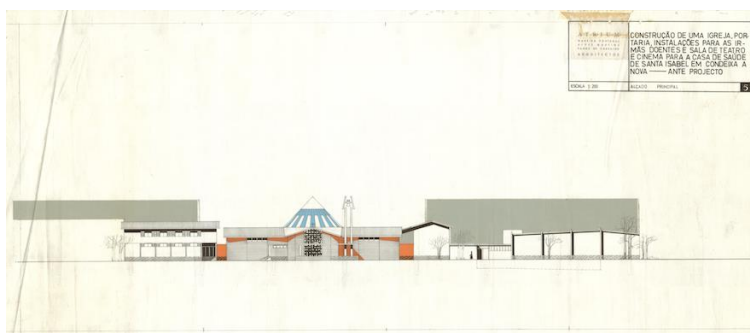
Figure 1. Project for a religious building in Condeixa-a-Nova, designed by Alves Martins
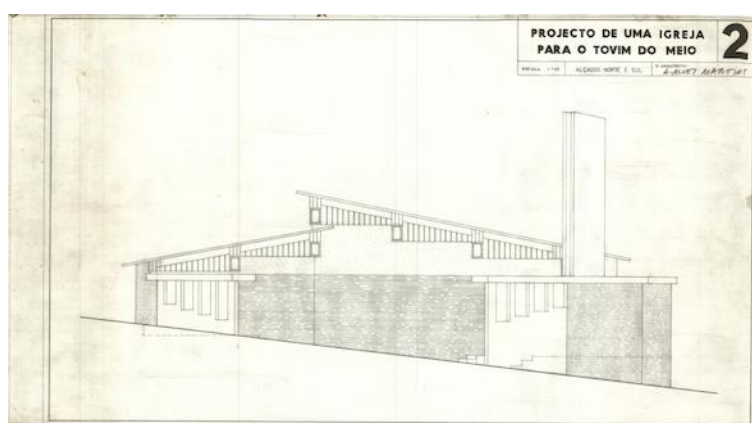
Figure 2. Project for a Church in Coimbra, designed by Alves Martins

FAIR-DATA PRINCIPLES

The design of this Research Project is inspired by the "Fair-Data" principles, which were originally presented in a document signed by a large group of scholars mainly from Natural and Biomedical Sciences, but it applies to all fields of knowledge – Humanities, Arts, etc. – and propose that all academic knowledge production must be – Findable, Accessible, Interoperable, and Reusable.

In this Research Project we take these principles and apply them to the analyzed study cases of Portuguese Architecture from the twentieth Century.

Findable

The study of these selected cases should bring together a series of experts for each of the three defined annual cycles.

For each group of Collections treated and studied, three main actions will be implemented in order to produce original knowledge, and with the purpose of disseminating it – a Scientific Meeting (a Colloquium, or a Conference, depending on each theme); an Exhibition (addressed to a general audience and installed in spaces of great exposure, in association with public institutions); and the publication of a monograph that will register the knowledge produced.

Each of these events intends to deepen the knowledge of the selected study cases, and to contextualize them in relation to the history of Portuguese Architecture.

This deepening and contextualization, can be summarized in a series of themes, or topics, that are recognized as crucial for these subjects, and can be converted into some kind of "Keywords" that can be used for the research that will be done in future.

And if this series of Keywords can be useful to an experienced researcher, they are certainly essential, especially for an inexperienced researcher. It is, therefore, the knowledge produced during each cycle of the Research Project published online and converted in summaries, or "Keywords", that makes it more "Findable" to the general public.

Accessible

In addition to this production of knowledge, a large part of the existing documentation on the Collections will be scanned and made available online. But the information made "Accessible" is not limited to digitized documents. Since one of the essential points of the Project is the diffusion of the knowledge produced through the holding of Exhibitions, Colloquia, and Publications, all scientific work developed by the research team should be published online, in order to assure that its consultation remain "Accessible" in the future.

Interoperable

The creation of this online access systems for the knowledge produced during the research also aims to promote the greatest possible comparison with the studies that have already been done on each case.

As all the work of archival description and organization of existing documentation is developed simultaneously with the work of the researchers in the scientific area of Architecture, not only its description and classification can be more accurate, but this method also makes it possible to create an information network that allows connections with other online platforms that already exist, related to each of the study cases.

In addition to the archival treatment, and the historiographic study, the research team proposes to include in the database created for the consultation of the Collections all the relevant digital links already available online, for each of these 3 sets of study cases analyzed.

Reusable

Considering that an important part of the existing documentation in the Collections, and also all the knowledge produced by the research team, will be available for consultation online. The combination of these two circumstances allows us to declare that the information provided by this Research Project will be indeed "Reusable".

This information is "Reusable" not only because it is available, but mainly because the knowledge produced is available both in the form of primary and secondary sources. This combination of primary and secondary sources is crucial for the continuation of any research related to these study cases.

FAIR-DATA ARCHITECTURE APPLIED TO A SPECIFIC CASE

To consider a specific example of how "Fair-Data Architecture" can be applied to one of this study cases we will take as reference the Collection of Étienne de Gröer.

Étienne de Gröer (1882-1974) is an Architect-Urbanist originally from Poland, with French nationality, who lived in Portugal between 1940 and 1951. During that period, he worked on numerous Urban Plans for the expansion of many Portuguese cities.

Figure 3. Drawing by Étienne de Gröer, Plan for Lisbon, 1939

The Collection of this author consists of around thirty filing boxes, about five linear meters of shelves, and it is quite representative of the documentation associated with the activity of an Architect who worked in the mid-twentieth century – original drawings, blueprints, drawings of the work process, descriptive memories, manuscripts of theoretical nature, mail letters, photographs, articles of his authorship published in national and international books and magazines, etc. And since this author had also developed work outside Portugal, his Collection also gathers documents related to Projects developed for France, Sweden (Stockholm), Tunisia, Brazil (Rio de Janeiro), and Monte-Carlo.

Although, as happens with most of the Collections gathered in our Architectural Archive, this one does not contain the entire work developed by the author over a lifetime.

This Collection keeps documents related to the development of his works, and it also keeps some final drawings, but, as a rule, the final drawings of the Plans were delivered to the official Institutions which ordered them.

With the implementation of the Project "Fair-Data Architecture", one of the main goals is to convert this Collection of documents in a starting point to access information and documentation related to this author. And to use the database associated with this Collection like a guide, to lead each researcher in the pursuit of a series of sources located in independent Institutions, and sometimes, in very different geographical locations. In the case of Étienne de Gröer, his work extends over three Continents (Europe, Africa and America), for more than three decades.

Many of the Plans developed by De Gröer for Portuguese cities are not complete in the author's Collection. But some drawings of those plans are available to be consulted online on the website of a Governmental Department for Territorial Planning (Direção Geral de Ordenamento do Território).

We may not have those drawings in our Archives, but we can identify the location of them on that Governmental Department website, and when we have permission, we can publish the link that directs the user to them.

We also may not have the complete Plan that Étienne de Gröer developed for Coimbra, in 1940. But that set of drawn and written documents exist in the City Council Archives.

Those documents are not scanned yet, but they will be soon. And once they are, they can also be accessible online. And we can provide that link to the "Fair-Data Architecture" users, when we have permission.

That is something we can do with primary sources. But we can do almost the same with secondary sources. We can identify a very extensive list of publications related with the work of Étienne de Gröer.

Only in the Department of Architecture in the University of Coimbra, we have already concluded two Master Thesis related with the Collection of this Author.[11] All the Master Thesis presented in our University are accessible online, and available for download. In the case of these Thesis all we have to do is to give information about them to the users of our database.
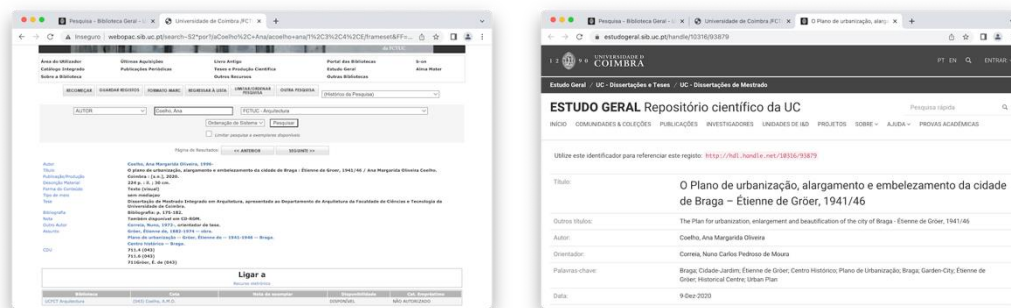
Figure 4. Master Thesis related with the Collection of Étienne de Gröer available online

De Gröer has published a very important text in a Governmental edition, in 1945.[12] Naturally, that edition is already sold out, but it is available in the same official Governmental website. Likewise, all we have to do is to give information about it to the users of our database.

That can be applied to a long list of relevant bibliographic sources that it is easy to identify to someone who is researching one subject for about one year. And that is what we have described as "Interoperable".

Figure 5. Article published by Étienne de Gröer in 1945 available online

CONCLUSION

Unfortunately, the Project was not selected for funding, but the research team is determined to find other ways to implement this program.

We are now preparing the first Exhibition produced by the Archive. Like we had planned, we will also hold a Colloquium connected with the program of the Exhibition. We will also publish a Catalogue, and for that publication we will scan a large set of drawings. All that work of digitization, it is already a step forward in the way of making those documents accessible online.

At a time when it seems inevitable to place the discussion about the sustainability of cities at the centre of the architectural debate, the Curators of this Exhibition intend to draw attention to the importance of the work of these authors for the Architecture built in Portugal during the 20th century, but also to draw attention to the need to reuse existing buildings.

And if that necessity of "reuse" seems undeniable, than it is important to be critical. To distinguish what is essential to keep from those buildings being reused, and what can become available to be transformed. And, of course, the first step to do that in a more conscious way is to deepen the knowledge about the buildings that we will adapt to the new uses.

After the original development of the Research Project "Fair-Data Architecture", in 2020, our Archive of Architecture have received four important Collections more – Vasco Cunha (b.1933), José Santiago Faria (1943-2010), João Eduardo Marta (b.1944), José António Bandeirinha (b.1958).

All of these authors were born and worked in Coimbra. And, since the Archive keeps its focus on the work of Architects from Coimbra, its Coordinators are working with the Direction of the City Council Archive in order to identify the existence of important documentation related with the Collections of this Architects.

The Coordinators of this Archive of Architecture created in the University are aware that it is crucial to continue this dialogue with other institutions of the city, and to draw attention to the urgency of protecting this Documentary Heritage.

ACKNOWLEDGEMENTS

NOTES

[1] Étienne De Gröer was born in Poland on January 4, 1882, and was one of the most important urban planners working in Portugal in the first half of the twentieth century. He was deeply influenced by the Garden City concept. He lived in Portugal between 1940 and 1951, and developed Urban Plans for many Portuguese cities.

[2] Carlos de Almeida was born in Coimbra and his architectural work in the city is very extensive. He belongs to the second generation of Portuguese Modern Architecture, a generation that remained faithful to the most radical spirit of the Modern Movement, even after the end of the second World War, when the international debate already admitted the need to review some of its formal principles, expressed in the Athens Charter and the International Style.

[3] Armando Alves Martins developed his professional activity in the field of Architecture, especially between the 1950s and 1990s, but at the same time he maintained a relevant activity in Visual Arts. In addition to the very relevant and recognized production in the field of Painting, he published three books of poems, and devoted himself for several years to amateur cinema.

[4] The construction company "Solum" was created in 1964, with the intention of urbanizing an important area of expansion of Coimbra. Over almost three decades, the company built more than two dozen blocks of collective housing, and two important commercial blocks. The construction of the "Solum" neighborhood was the most relevant modernist urban gesture in the growth of the city throughout the twentieth century.

[5] Jorge Figueira is one of the most prestigious Portuguese critics currently in activity. He has played a leading role in the architectural debate of the late twentieth and early twenty first centuries, with an extensive list of publications, and a regular activity in the Curatorship of Architectural Exhibitions.

[6] The research team is constituted mostly by UC researchers, and the management of the Project is assigned to two main organic units from UC – the CEIS20 Research Centre, and the Department of Architecture (DARQ). It is also assured the involvement of other organic units of the UC and other Research Centres, inside and outside UC – The Archive of the University, April 25th Documentation Centre, Humanities Centre (CHAM – FCSH / UNL), and Arnaldo Araújo Research Centre.

[7] Both the Canadian Centre for Architecture (CCA), founded in 1979 in Montreal, and the Netherlands Architecture Institute (NAI), created in 1988, and located in Rotterdam since 1993, have their own archives, which are constantly updated, and which are open to the scientific community. In addition, both produce their own research, which they disseminate through Exhibitions and Publications, always very relevant in the international debate.

[8] M. Daniels, and D. Peyceré. editors, *A Guide to the Archival Care of Architectural Records, 19th-20th centuries*, (ICA, Paris, 2000).

[9] Mary Ison, "Architectural Records.", Journal of the Society of Architectural Historians, vol. 44, nr.1 (March 1985), 75-77.

[10] Nicholas Olsberg, editor, *The American Archivist*. Journal of Society of American Archivists, vol. 59, nr.2 (Spring 1996).

[11] Marina Galvão. *Étienne De Gröer e o Plano de Almada* (Master Thesis, University of Coimbra, 2019), and Ana Coelho. *O Plano de Urbanização, Alargamento e Embelezamento da cidade de Braga, Étienne De Gröer, 1941/46* (Master Thesis, University of Coimbra, 2020).

[12] Étienne de Gröer, "Introdução ao urbanismo". in *Boletim da Direção Geral dos Serviços de Urbanização*, (Lisboa, 1945-46), 17-86.

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ODDS AND ENDS IN EXPERIENCING HERITAGE

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INTRODUCTION

Before discussing further the validity of digital technology applied in the heritage field, a reflective discussion on how well the parameters of existing architectural heritage are sought and registered in conservation authentically along with a proper assessment of their contexts. Especially in architectural heritages that are not monuments, the distinction between the tangible and the intangible is questionable, and it is hard to assess their existential value. Is architecture tangible or intangible?

What if the complicated interplay between tangible and intangible is triggered by distinction, no matter what virtual reality is or not? Also, the tangible could be merely an instrument to secure the intangible. The effort to the tangible conserved in a perfect condition aims to entertain the present generation or tourists? As digital technology amplifies the degree of integration, can it be a tool to increase accessibility to the heritage for ordinary people? Without the proper knowledge, the tangible heritage can be manipulated as an ideological tool. Though built forms comprise various factors, the intangible and the tangible, is it certain that all built form factors are conserved equally in VR simulation that relies heavily on one sense, a vision? Can experiencing heritage be unfolded in VR, as Elia Rasmussen questioned the plan and section in experiencing architecture? The heritage is perceived as an object cut out of its cultural, geographical, and transitory context by omitting data set in VR.

Experiencing time on and where heritage stands still as a part of time-space in the given geographical context would be actual and real with oddments that cannot be predicted and generated by digital technology. It would be an act of integrating the tangible and intangible of the past and the present digitally and manually. Alternatively, it will generate a new data set, memory in odds and ends as one proceeds.

Heritages and centers in Riyadh

When there is a balance between heritage and intangible heritage, the proper recognition of the very peculiar living structure can be shared globally. When a built environment is named a heritage, it becomes public since all global citizen carries appreciation and responsibility in dignity for coming generations. Where the graphic presentation of tangible heritage is intense, relatively intangible heritage seems lost and neglected. It demands proper attention for the feeble parameters to reach out to various factors that might have been lost. Especially, intangible heritage is apt to be formless, since it has emerged ordinarily from free will forming one's centers[1] in motion in time and space. Instead of dictating visual and superficial values of heritage, the ordinary living structure carrying the odds and ends of experiencing architecture should be shared, discussed, and documented. The solidarity of

heritage imbues collective confidence. We might call it, pride or identity. Furthermore, it makes it difficult to recognize the genuine value of intangible heritage sustained from an intangible culture that embodied the tangible heritage when they are presented following tangible heritage criteria.[2] *(Figure 1)* This paper aims to document and register intangible heritage in iconic heritages. Furthermore, how the intangible heritage is continued and detected in new forms with centers that have been the core of living structure in Riyadh.

Figure 1. At-Turaif and Musmak Past and Present

Tangibles Heritages in Riyadh

Riyadh, the gardens in Arabic and the capital of the Kingdom of Saudi Arabia, is located 600m above sea level in the centre of an-Nafud desert. There are two iconic heritages representing the national identity. One is At Turaif town in Diriyah and another is Masmak in Ad Dirah. Both sites are getting more public attention by staging various national events. With the huge population influx and Vision 2030 agenda, both heritages are highlighted as the core of the national identity challenging the sustainable future. Literally, in the middle of the hot rid region, the ruins of At-Turaif district demonstrate the remarkable living structure inscribed in UNESCO in 2010 backboned by Wadi Hanifa, a valley in Najd region that runs for a length of 120 km from northwest to southeast.[3] *(Figure 2)*

While Masmak fort represents the modern establishment followed by the unification of Saudi Arabia by King Abdulaziz bin Abdul Rahman Al Saud in 1902. Both are of Najd architecture style that was built in clay walls, mudbricks walls and stone drum columns laid on limestone foundations spanned by palm tree trunk beams. Walls are rarely punctured with tiny openings in geometrical shapes. The internal wall surface is coated with white plaster and engraved with geometrical patterns at the edges as if in a sheer fabric. Doors were usually made of palm tree planks decorated with geometric patterns in primary colors framed in white plaster. The UNESCO inscription brief recognized the remarkable building method, Najd architecture that sustained human settlement in a desert as well as the origin of a religious community. The building method is documented clearly in Executive Summary: At-Turaif District in Ad-Dir'iyah: Nomination Document for the Inscription on the UNESCO World Heritage List. However, it detailed mainly construction and conservation methods.[4]

Figure 2. Topological Condition of Diriyah adjacent to Wadi Hanifa, an Extruded Land

The building remains and rigorous restoration efforts open up an investigation on traditional architectural values. However, if the visual representation of fragmented building elements of heritage supersedes the inexplicable sense of being there, the follow-up architectural investigation on how it sustained the specific community, would be undermined and compromised as a set of images. The overwhelming sense of relief and comfort at At-Turaif and Masmak fort requires architectural thinking to externalize the parameters of the living structure, intangible heritage sustained by the built environment, and tangible heritage.

INTANGIBLE HERITAGES OF LIVING STRUCTURES

Air movement is viable as a force in tension in the paths of At-Turaif. When one visits and wanders around the site, the constant interplay of sun and shadows sweeps visitors' motion in the constant breeze. Then, the visual moment of vastness from the series of massive mono-material façades seems to fade away instantly. The massive but seamless external mud-plastered surface is an effective device for the relative air flows and shadow generation around the building mass. The extremely hot and dry weather is controlled and manageable with the building elements arranged in a certain rule to function as wings for airflow as if the water in Wadi Hanifa.

Figure 3. At-Turaif Exterior and Interior

The extension of the land structures with the different depths of space; the mono clay walls generate different tones of shadows and shades. It develops wind pressure that initiates air movement in different velocities. The path seems to be formed by the wind flows not for human interest, since the intricate road network coincides with the wind rose diagram of Riyadh. There is an interplay of condensation and expansion of heat by sunlight. The size of openings seems to be related to the heat, not the light. Holes rather than openings in the walls let the light come in as well as the heat. The perception of the light is not warmth, but deadly scorching heat in Riyadh.[5] Consequently, the dispersion of the sunlight means the dispersion of heat and air. It is not optional for fulfilling visual aesthetics but mandatory for containing thermal comfort. The specific location of openings is determined by the interplay of forces, heat and air. The internal doors tend to be located at the corners; the condensed and darkest area of space, to maintain air and heat flow constant. However, they are framed in white plaster bands expanding transitory moments of human presence in which intricate geometrical patterned wood planks are decorated with primary colors at the coolest, darkest, but air stagnation area. Human motion; walking and pulling and pushing the doors, seems to be designed for the constant airflow with an invitation of colorful surfaces framed in white bands. The corners are turned into the brightest and busiest area. *(Figure 4)*

Multiple layers of architectural elements are applied to form a center, the courtyard, where also the massive scale and weight drew by a single material is broken down to light pieces close to human scale. The central area is surrounded by white columns forming a porosity enacted as a spatial sponge of light, heat, and air. It contains the hottest air but a weightless area immaterialised by intense sunlight, white color. *(Figure 3)* The white-washed space by white-coloured columns and walls shifts spatial experiences dramatically from the heavy to the weightless. The contained but transitory air, light, and heat are dispersed and absorbed into rooms around it filtered by shades and shadows of columns. As the contained hot air goes up, the massive abode walls seem lifted up, while people appear and disappear into the walls as if wrapped in a sheer white fabric and colored doors. Forces; air, heat, and light in action are designed as one against gravity. Rather it seems like wind takes form on a human scale. A series of architectural investigations for the living structure underneath of the morphological invariants was set to find centers in Riyadh.

Figure 4. a Sand Block in Doxiadis Grid and Porosities at Diriyah and Musmak

Back to the Porous from the Amorphous

The urban sprawl leaves many empty plots in Doxiadis' grid of 2km x 2km. Due to the gird lines cut off the natural desert topography, the empty plots are left as a chunk of sand sliced with a rectangular biscuit cutter.[6] *(Figure 4)* The porous town fabric from At-Turaif was transplanted to one of the amorphous plots waiting to be flattened. With the recognition of pedestrian wind comfort at At-Turaif, the partial area was directly implemented for a residential design studio of 5 students.

Figure 5. A Skin Graft and Path Axis laid on Wind Rose of Riyadh
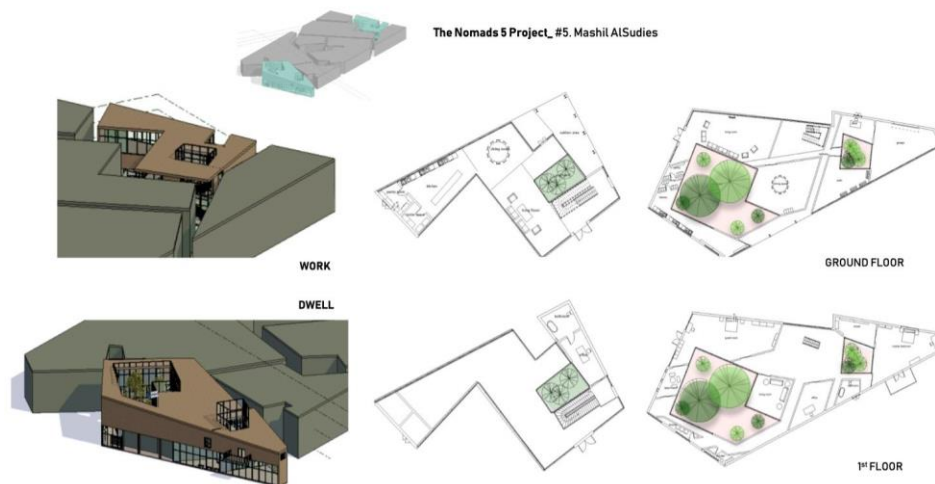
Figure 6. Number 5 House from "Nomads 5" Residential Design by Mashil AlSudies

It is called, a skin graft, which dictionary definition is a surgical operation in which a piece of healthy skin is transplanted to a new site of the damaged skin area to restore its skin function to the body.

A plot of 60m x 120m empty land near Digital City in Riyadh is selected for the experimentation on how to revive the amorphous leftover land with the porosity of At-Turaif town texture which allows air, heat and light deep into the massive homogeneous building mass backboned by the path optimizing wind flows. The physical profile of the path was fixed as the main design instrument utilizing the flows and motions working with the porosity of the building mass.[7] *(Figure 5)*

By accepting the reality that the land would be flattened, students were asked to document the original topography; the land feature, in order to keep its dynamic profile as the reference for spatial volumes of residential program units. However, the dynamic form-making was the main concern instead of locating porosity to integrate the flows of forces and motions of users' dense activities that combined living and working. *(Figure 6)*

New Centers Realizing Intangible Heritages

In order to explore students' own design narratives and processes, students were asked to bring a historical fact whether it is tangible or intangible and consider it as a design tool to confirm the unit design for a pavilion in front of Masmak. A student started with her memory of palm trees and tents. Her narratives on sharp-edged shadows under palm trees led her to select a 2D triangle shape for her unit. In the process of forming the pavilion, the motion of the palm tree leaves was translated to the

joint design which was a disk shape that kept a distance between units like slits and allowed the motion of units. The form of the pavilion that would be determined by the characters of gatherings or events was presented as a cube, the zero condition. [8] *(Figure 7)*

Figure 7. Musmak Pavilion by Mashil AlSudies
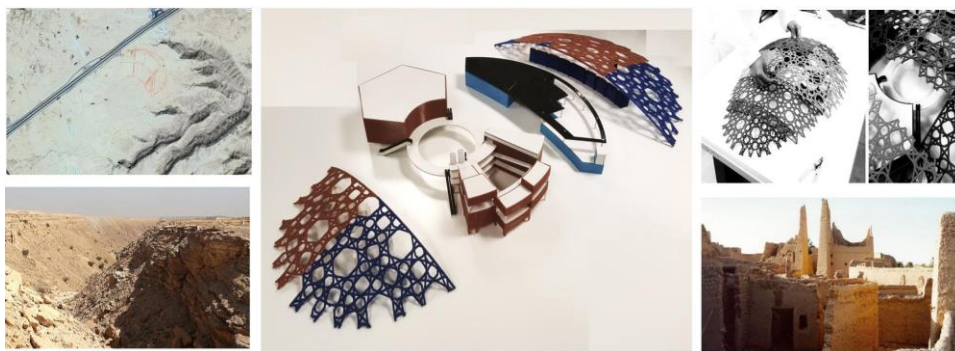
Figure 8. WASM, by Salman Bin Abdulaziz Bin Ayyaf, King Saud University

A white column was placed at the cube's centre with the memory of the post in a tent. The white color was selected for the joints and the post as in the color of columns and wall plaster in Masmak. The unfolding process envisioned centers in a new formation.

A student proposed a conventional center next to King Abdulla International Garden, the largest eco-centre in the world. The site is located in the south and west of Riyadh along the edge of Wadi, a valley. The design inspiration was multiple in the beginning; the moon path in the sky, the water drop, and the dome in Dubai Expo. None of those was dropped intentionally. At the end, the project was organised by itself with the momentum of forces; a moment of a drop of water hitting a sandy ground. *(Figure 8)*

King Abdullah Financial District is comprised of 52 high-rise buildings on a plot of. It brings a similar spatial impact with At-Turaif in a new form that hardly finds a reference from the past. Oddly, it didn't claim heritage. However, the fluid dynamics detected KAFD at the middle of Doxiadis' grid that generates a sense of nowhere, delivers the same spatial experience of living structures, a sense of community, interplayed with forces in action sprung out and stood by its context as of At-Turaif and Masmak fort. *(Figure 9)* These three projects questioned the notion of heritage since they have none of the tangible heritages in Riyadh as the formal reference but deliver the same sense of place of heritage sites. The intangible heritage was found in the first project which is togetherness around a fire and festive ground by broken shattered sunlight and lightness with rigid units in fluid motion by white-coloured elements. None of their elements designates tangible heritage, but the wholeness delivered the same atmosphere and moments of festive gatherings as in At-Turaif and Masmak.
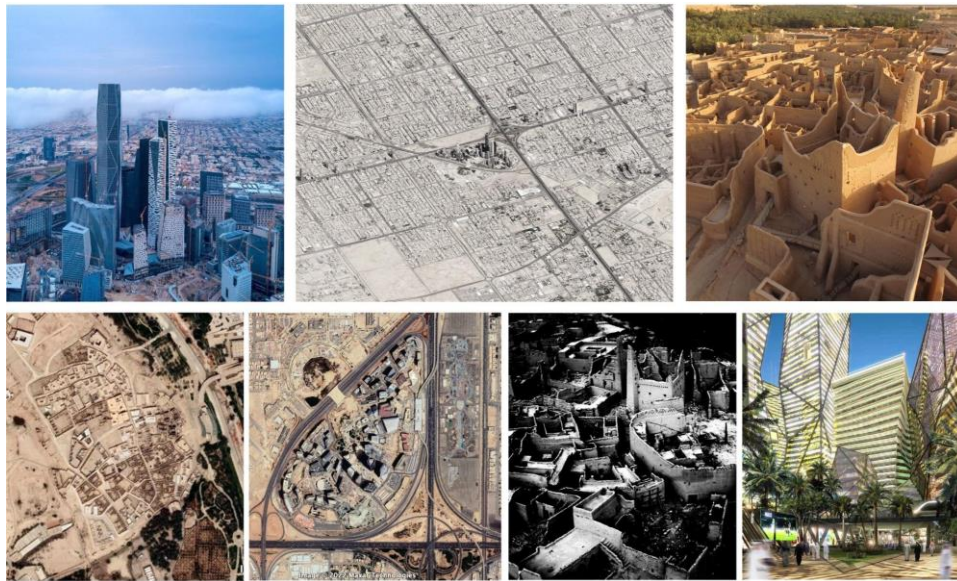
Figure 9. Topological Similarity between KAFD and Diriyah

The project presented a way of seeing heritage in Riyadh with situational and experiential simulation without formal resemblance. *(Figure 7)* Another intangible heritage found in the second project is the response to the valley as in At-Turaif. Though it is a linear organization, the interplay of intensity, condensation, and dispersion of programs, volumes, and building masses presents the experience of the intricate path network of At-Turaif. The central area of the project is empty but the heaviest occupancy with theatres and deepest with overlapped shadows from circumscribed building units. It simulates the spatial experience of flows in the valley as well with the interplay of forces; depth, intensity, and weight, not with the formal and symbolic images of the deep valley. Accidently, the different degrees of intensity generated by the overlapped shadows and shades brought an optical illusion on levels as if there is the lowest area though there is no level change on the ground level.[9] *(Figure 8)*

Both centers that students generated didn't seek any definition of heritage intangibly or tangibly. Both students didn't show any interest in any symbolic images of Saudi heritage but were able to show how their projects could be connected deeply to the place and the moment. Their highly ordinary sense of space and time alerts the danger of imposition on any form-oriented symbolic design that would leave their centers sharing intangible heritage overlooked. Both projects demonstrated an identical form-making process of porosity. Both started with a fixed form, a basic geometry which functioned as their zero fields to form porosity that allowed motions or forces to interact together sequentially.

A similar existential value was found in the compact high-rise buildings of KAFD delivering an experience of walking along the deep valley where one can see the section of the land of layers of textures and move forward against the heavy but intermittent gush of wind diverted by the formation of rocks unexpectedly. The complex with diverse building facade treatments and dynamic building masses brings various different tones of shadows causing air pressures as if the interplay of forces in At-Turaif adjacent to Wadi Hanifa, the valley. *(Figure 9)*

CONCLUSION

The cultural and environmental parameters in the web of forces in action which are detected at At-Turaif and Masmak initiate a new search for experiencing tangible heritage in intangible culture. The morphological invariants, the multi-layered interplay of solid and void by forces and effects sustained a living structure with many centers of habitats.[10]
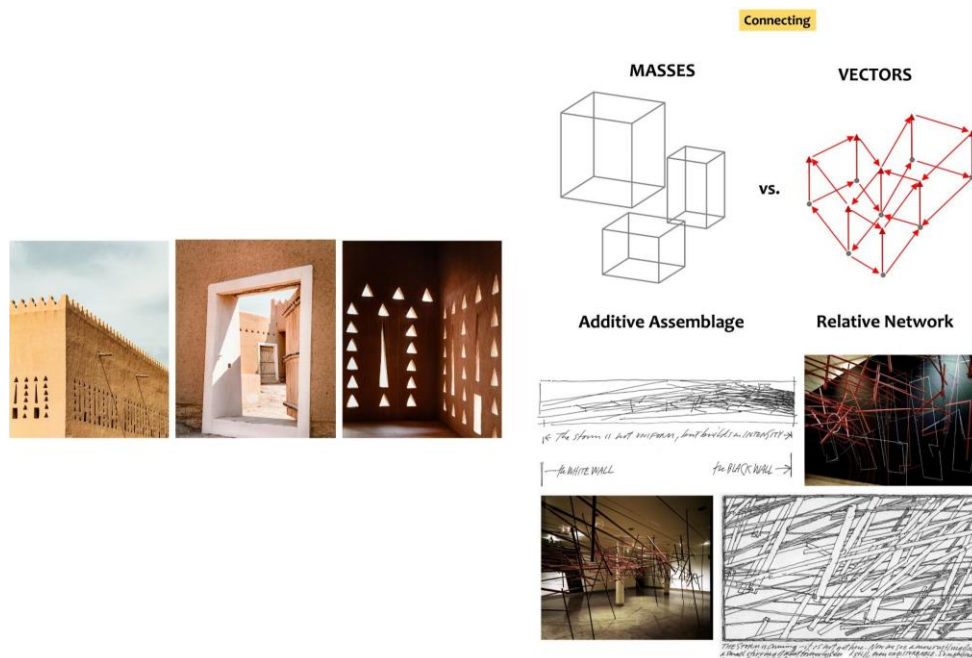
Figure 10. Force Oriented Regional Design Parameters (Author), Storm Watch by Lebbeus Woods

A set of parameters of centers that emerged in tangible heritage should be documented as intangible heritage as physiological factors ordering tangible heritage, the morphological invariants. How to unfold it beyond any formal and definite representations is critical to envision intangible heritage back into tangible heritage as a wholeness; cultural identity and pride. However, if heritage is viewed and managed by modern minds that are overly focused on superficial images to capitalize, it might risk being impartial and misguided as it a dead but exotic object, especially where tangible heritage might have been a shell of the effects of forces. Simply, the morphological invariants might have not been established for visual aesthetics but for staging the constant interplay of forever transitory forces to tame the harsh land to be habitable. *(Figure 10)*

Here in Riyadh, the collective recognition of the formless but genuine intangible heritage will enrich architectural education in depth to uncover architectural thoughts and languages whether they are tangible or intangible, which are embedded under peculiar living structures. Students who modestly related themselves to the land and people based on their own experiences of the place and moments were able to find their centers with new forms. They let themselves explore their affinity to them with architectural language instead of imposing prescribed and conventional images of heritages.

Less dictated to let them see and sense their own space and time that amplifies an existential value, not a property, more fulfilled because (in)tangible heritage has been a concrete and ordinary instrument accommodating forces and facts on the challenging land. Then, (in)tangible heritage would continue to enliven existential cores; centers fetching new architectural environments indefinitely instead of fabricating romanticized images, so it goes beyond us, our possession.

NOTES

[1] Christopher Alexander, "Vision of The word, Book III," (Berkely: Center For Environmental Structure, 2005) 75-77. "Centers" here is mentioned by Christopher Alexander that generates living structures for communities. It is another expression of his Pattern Language. The same meaning is applied to this paper.

[2] Vision 2030, "Projects" Many mega projects have been launched to encourage social, economic, and cultural diversification. Without proper public consensus process, many of them rely on an entrepreneur approach that misguides the public on heritage as the national identity.

[3]. Aramco Archive, "Saudi Aramco World : A Wadi Runs through It" It mentions the historical importance of Wadi Hanifa for the foundation of KSA.

[4] Executive Summary. At-Turaif District in AD-Dir'iyah (SCTA:2009) UNESCO nomination report. The detailed technical report on its conservation process and method shows the lack of architectural investigation on intangible heritage.

[5] Victor Arqueta, "Types of Optical Prisms" The extreme contrast between the external surface and the internal surface treatment is related to an environmental adjustment related to scale and intensity. Since the light is intense, it is able to be diffused and stayed on surfaces. The prism light effect reflects a collective desire to humanize the immense light.

[6] ARAB news, "Saudi Housing Ministry to Levy Fines on Non-Fenced Vacant Land from July 1" Saudi Housing Ministry orders the fence around the empty plots in Riyadh. Doxiadis' grid seems the cause of the urban sprawl leaving many empty plots. Ironically, it becomes the reminiscent of the original topography.

[7] Diriyah Gate Development Authroty, "Explore | Diriyah Gate Development Authority."Students are affected by the massive images on Diriyah It was challenging to divert their visual approach.

[8] Wayne Easten, "Bedouin Lunch with Shammar" When students were asked about their childhood memories related to the heritage, students could elaborate its architectural settings and elements.

[9] Christopher Alexander. 450-454, The unfolding process seemed to be actualized by the student's design process with a series of model making and investigations on the physical settings in details.

[10] Lebbeus Woods, "Stormwatch" Experiencing At-Turaif and Musmak in person would be explained by the comment; "The idea of transformation in a tension field is linked with inter-dependence of the elements in the field, and, more accurately, to their inter-connectedness. The field changes as an integrated whole, whatever its size or scale. And it performs as a space.

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INTANGIBLE HERITAGE:
A TAXONOMY OF STORYTELLING

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INTRODUCTION

The current fast paced information economy relies heavily on built environments to meet the developmental needs brought on by socio-political factors. In the contemporary context, globalisation aided by digitised systems have broken down the ways in which users co-exist and interact with the spaces around them. This has not only led to decentralised ways of working, but also revolutionised the ways in which knowledge is generated and consumed. These new systems have, therefore, moved the focus away from manufacturing products towards curating and building experiences. This is particularly visible in areas such as heritage management, where there is an urgent need for redefinition. These new models not only redefine the value associated with these disciplines but also engage heavily in developing new norms of heritage experiences, especially those that can test the boundaries of sustainability. This paper introduces a future mode of designing cultural experiences through holistic engagement with the space as well as the community, with the aim of guiding preservation and sustainability of endangered cultural traditions, practices and spaces.

Positioning heritage in the built environment

In the human-built environment, development is largely associated with industrialisation, architecture and transport. It is, therefore, of no surprise that there is a rapid degeneration of heritage and its intrinsic value. This has led to a gradual shift of requirements in terms of how the field of heritage management and consumption are defined and measured. Heritage is no longer perceived as merely the physical space within which it exists; it is now viewed as a coordinated process.[1] Thus, in the built environment, these spaces serve a critical link between the past, present and the future. A refocus on defining tangible and intangible heritage helps to assess the relevance with which they were created in the past, their value in the present, and the possibility of survival in the future.

Designing for heritage experiences

The survival of this complex ecosystem can be resolved through emphasis on the visuality and consumption of heritage. In a study by Watson and Waterton in 2010, the materiality and the power of the visual in cultural heritage is dissected. The materiality, as they describe it, lies in carefully selecting, beautifying and representing artefacts for consumption. This systematic direction not only helps to mediate favourable discourses but also redefines what heritage means to the community through meaning-making and the realisation of value.[2]

The application of this theory and the careful comprehension of the existing methods of heritage consumption strengthen the need for alternative methods of collaborative problem solving. Design

opens up interdisciplinary approaches, such as storytelling and or the use of visual taxonomies, to bridge these gaps and challenges brought forth by the merging of past, present and the future. The method of involving multiple disciplines and perspectives provides alternative ways of understanding a subject. [3]

The design interventions deriving from interdisciplinary methods embody all essential properties of tangible and intangible heritage and collectively help in redefining experiences for sustainable heritage. In today's world, the use of new digital technologies aid in the creation of new experiences and interventions to involve local communities and reach new audiences. This is proposed as a means to aid the curation of the heritage experience, influencing different behaviours and levels of engagement.

Curating information through taxonomy

Currently, much of the knowledge about heritage in India is available in the form of traditional texts or complex semiotics and is not easily understood or appreciated by the local population. Hence, there is an urgent need for a revised selection, categorisation and simplification of traditional knowledge for contemporary consumption. One possible solution to this gap lies in developing a design taxonomy to classify information through the curation of implicit and explicit details about heritage spaces.

Digital storytelling in heritage

Once information is selected and categorised, the method of communication must also be chosen carefully, especially as the aim is to capture attention and achieve a growing interest towards heritage. Subsequently, storytelling provides new avenues to merge tangible spaces with intangible characteristics. Stories have been a large part of cultural heritage, doubling as a medium to share the morals, values and beliefs embodied by the local culture. In this study, this age-old association with storytelling was harnessed and used as a vehicle of inquiry in research. [4] Collectively, experimenting with the two design approaches of taxonomy-building and storytelling have aided the potential to create value and new norms of experiences.

FOCUS OF THIS STUDY

This study explores the application of design approaches and its inherent interdisciplinarity to test the possibility of building sustainable heritage within the scope of temple architecture in Tamil Nadu, India. In Tamil Nadu, like most cities with endangered heritage, the management lies in the hand of small groups of experts who determine how the physical space is interpreted and consumed. The sanctity of these spaces calls into question the conflict between monumentalisation or religious functioning. These differing perspectives hinder and threaten the opportunity to attain more flexibility to reimagine traditional temple architecture, thereby making it unfavourable for wider appreciation. [5] Additionally, the iconographic and semiotic meanings associated with these spaces are only available in the form of complex texts and videos which rarely simplify information for rapid consumption. This also severely restricts audiences, particularly younger generations who have the responsibility of carrying this cultural identity and knowledge forward. Keeping these challenges in mind, unexplored techniques such as taxonomy-building and trans-media storytelling have been employed using digitised mediums such as virtual experiences and User Interfaces to gather insights into new forms of heritage experiences.

RESEARCH METHODOLOGY

Owing to the complexity of the context, religious sentiments and socio-political realities, the research focused on qualitative methods in order to deeply probe cultural associations and expand on the scope of knowledge. The use of design approaches for data collection facilitated a stronger understanding of

the perceptions of the community as well as insights into the impact of curated experiences in heritage practices. The participants chosen were between the ages of twenty to thirty-five, having little or no knowledge about temple architecture. The study was conducted remotely in two phases, each with its own areas of focus. The research methods, listed in the table below, have been discussed further in the following sections.

PHASES OF STUDY	DATA COLLECTION TOOL	RESEARCH METHODS
Understanding perceptions and on-going temple experiences	ONLINE PROBE KIT (21 Nos)	CULTURE PROBE (sculpture key + virtual tour) IN-DEPTH INTERVIEWS (post-activity with participants)
Selection, representation and curation	DESIGN PROTOTYPES (60 Nos)	QUESTIONNAIRES
		QUALITATIVE CONTENT ANALYSIS

Table 1. Research methods and tools

Phase 1 – Understanding perceptions and on-going temple experiences

An online probe kit was designed in the first phase of research for primary data collection, and to ensure that the outcome remains grounded in social realities, thereby reducing any biases or preconceptions.[6] The hypothesis used to design this kit was that the modification of visual culture from passive to active consumption could be achieved by facilitating true understanding of the elements that make up these spaces.[7]

Keeping this in mind, the probe consisted of three parts:

1. A two-dimensional virtual tour of Gangaikondacholapuram and Kailasanathar temple (figure 1)

2. A sculpture key with classifications of the various sculptural and iconographic elements (figure 2)

3. An activity sheet with small clues which the participants were to use to answer the questions (figure 3)
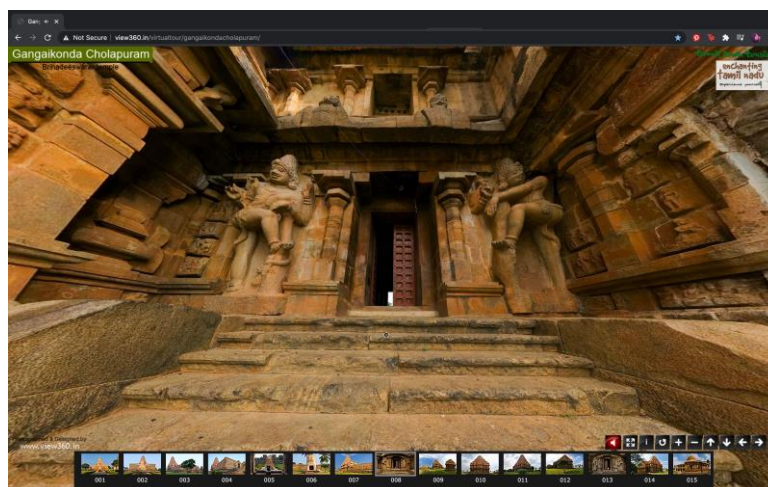
Figure 1. Part One – Two-dimensional Virtual tour

Figure 2. Part Two – Sculpture key with classifications
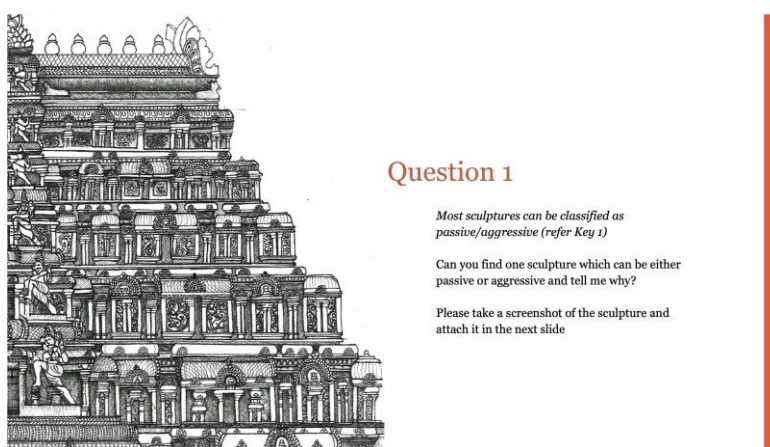
Figure 3. Part Four – Activity sheet with open ended questions

The objective was for the participants to explore the two-dimensional tour of the two spaces, identify and document the sculptures which contained some of the elements mentioned in the sculpture key (figure 4). After the completion of the probe, post-activity interviews were also conducted remotely, where these participants were asked to reflect on their experiences and articulate their thoughts and emotions, by engaging in casual informal conversations with the researcher.

Figure 4. Identification using sculpture key

Insights from Phase one

Redefined meaning of temple spaces in the backdrop of the pandemic

The most significant insight was the redefined value of these spaces as an offset of the pandemic. Typically, the spatial features in the architecture are available for the participants to touch, feel and explore; an act that is supplemented by social interactions with friends or family. At the time of this study, this access to the physical space was terminated indefinitely. The activity, therefore, prompted the participants to confront the impact that these temples have had in their lives, establishing nostalgic values. The probe exploration, though only virtual, brought out feelings of yearning and desire in the minds of the participants. Some participants also went one step further and revealed that they experience gave them a momentarily feeling of being 'at home'. These reactions not only emphasise the magnified value of heritage during times of crisis but also clarifies the implicit role that these spaces play in their day-to-day lives.

Interactive modes of experiencing the space

Heritage consumption by the means of an interactive tool kept the participants interested in learning and exploring the space. This could be because of the noticeable shift from passive to active consumption of both the tangible and the intangible elements. In this fast-paced information economy, the participants were more eager to learn under conditions that promoted engagement and interaction with the temple.

Absence of the element of storytelling

Lastly, an important revelation was the common feeling that they did not learn anything from just recognising and documenting the sculptural elements. Most of them thought that, although the key helped them identify various elements in the sculptures, they were unable to decipher these anthropomorphic sculptures and the subsequent stories or symbolisms they carried. Having being exposed to these mythological stories at earlier stages in life, their interest was revived with renewed appreciation for their culture and heritage.

For the researcher, these insights provided proof of the role these spaces played in their socio-cultural life, reiterating the need to capitalise on these urges for the sake of preservation. Additionally, it legitimised those aspects of temple architecture (artistic, historic or iconographic) which could help mould favourable responses and ultimately act as a catalyst for redefined heritage experiences.

Phase two – Selection, Representation and Curation

Based on the insights from phase one, three prototypes were developed, staying true to design's inherent attribute to solve a problem through synthesis [8]. These three tools were conceptualised using two design approaches – design taxonomy and design in storytelling. The curatorial role of design was to bring harmony between the tangible and intangible elements in temple heritage, the idea being that the relevance of the physical space cannot be forgotten despite the use of new technologies for heritage experiences.

Prototype one – 360-degree virtual experience

A holistic 360-degree virtual experience demonstration (figure 5) was designed to test the efficiency of trans-media storytelling [9] . Here, the mythological stories sculpted on the walls of Gangaikondacholapuram in Tamil Nadu were shared using recorded sound, narration, music and visuals. Each of these digitised elements were curated to create a sense of drama, convey an emotion and evoke a pleasurable memory, all the while epitomizing the space.
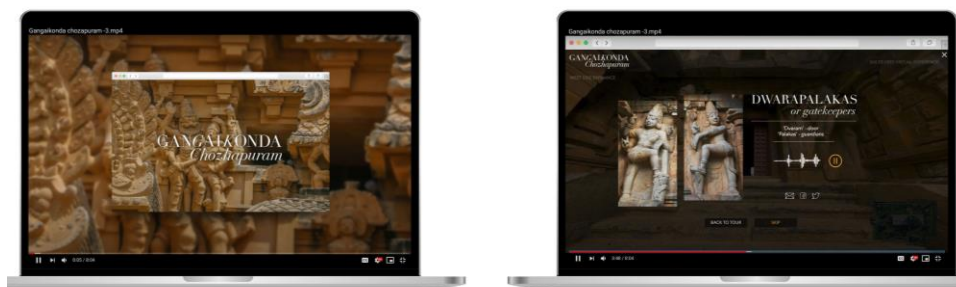
Figure 5. 360-degree virtual experience

Prototype two – Living realities of temple heritage

The second prototype included a website and a social media page (figure 6) oriented towards awakening the participants to the living realities of temple heritage today, the aim was to share personal narratives of the people who run their businesses in and around the temple areas, indicatively sharing their daily activities, touching upon their dependency on daily wages. Implicitly, these stories were written and designed to remind the participants that these spaces continue to be relevant to other (often ignored) sections of the society. As a part of the design process, these stories were collected and rewritten to evoke favourable emotional responses, while ensuring the authenticity of the content.
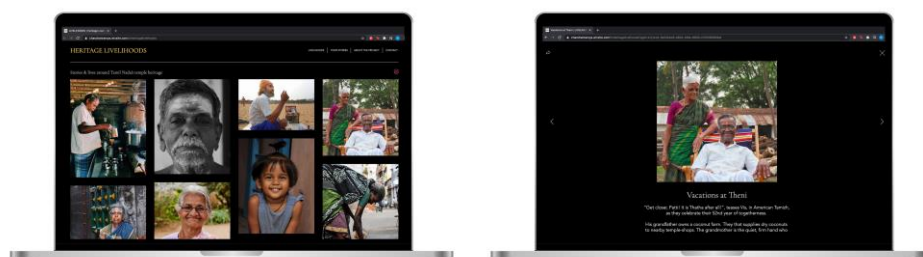
Figure 6. Narratives of Heritage livelihoods

Prototype 3 – Digital app for taxonomy

The last prototype was based on a design taxonomy, classifying and simplifying elements of iconography and semiotics in temple architecture (figure 7). The source for this simplification was derived from the archaeological analysis by R Nagaswamy in his book *Gangaikondacholapuram*[10] and the four volumes of TA Gopinath Rao's *Elements of Hindu Iconography*[11]. The two broad categories were the sculptural elements and the anthropomorphic figures.
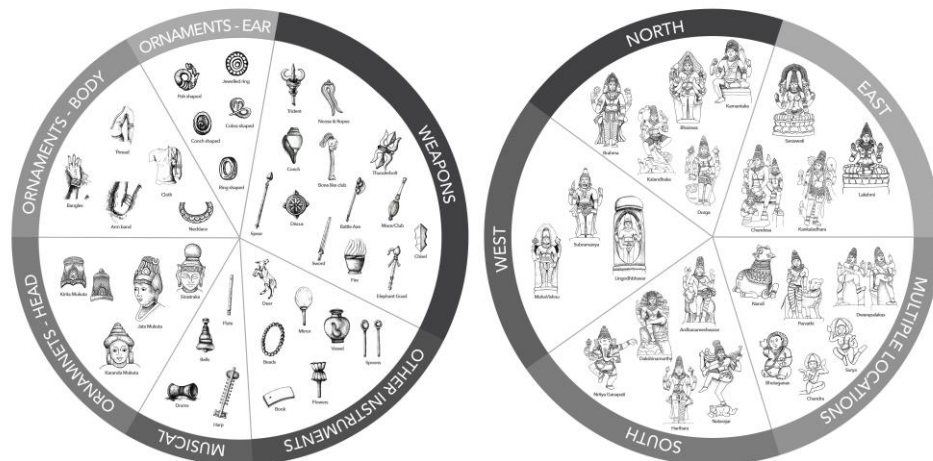
Figure 7. Taxonomy of iconography with sculptural elements (left) and figures (right)

These were then implemented and digitised in the form of a digital application (figure 8) which could be used by the user on site as well as virtually, to break down and understand the symbolism and stories behind each sculpture.
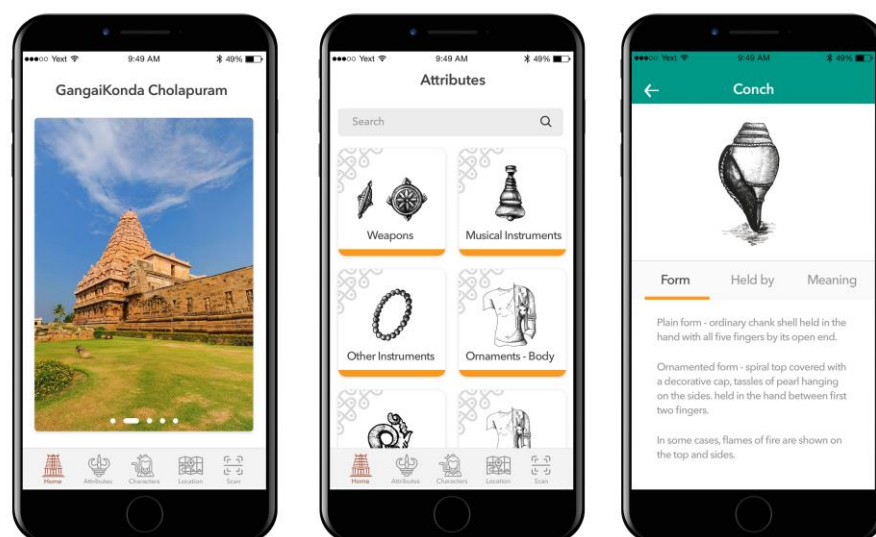
Figure 8. Digital app for taxonomy

Insights from prototyping

Semiotics through storytelling

To most of the participants, some of the architectural elements were found to be familiar through cultural immersion but they were unaware of the reasons behind why the symbolism came to be. Hence, this form of structured storytelling remained true to its purpose and engaged the participants to explore the spaces both on-site and virtually. Cumulatively, trans-media storytelling using digitised technology not only aid in highlighting the aspects of ancient culture that are still relevant today but also unite the past with the present. It must also be pointed out that confronting living heritage through personal narratives brought forth a sense of responsibility in preserving heritage and traditional livelihoods.

Value of simplified information

Mending the vastness of the ancient knowledge bank by using a taxonomy was unanimously found to be appreciated. The interaction with the taxonomy app, with relevant and simplified information about the complex structures, kept the audience curious and helped in producing a means for rapid heritage consumption. However, the challenge here lies in finding the right balance between interaction with the physical and digital spaces. Fortunately, the ability to touch, feel and experience the architecture ensured that the importance of tangible heritage is not forgotten.

Meaning-making through nostalgia

A significant observation was the retrospection of the memories built in association with the tangible space. Active engagement with the personal narratives as well as mythology caused the users to reflect on their previous socio-cultural interactions, implicitly determining their interest in preservation. Their descriptions of these recollections and the emotions evoked explicitly communicated a certain commonality and strongly signified the role that heritage played in their cultural identity and social lives. Above all, these design tools not only bridge the gap in heritage consumption but also merge their own pasts with their present, challenging the audience to adopt new goals to learn and explore during future encounters with the space.

Relevance of hybrid experiences

When enquired about the likelihood of using these tools as a part of future experiences, most participants responded positively but also emphasised where each prototype would be best applied. According to them, while the virtual tour would be useful to experience the spaces from their homes, the journey would still remain incomplete without visiting the tangible space. They also specified that the taxonomy app would be more appropriate for on-site visits, with the virtual experience being an additional feature. Moreover, there was a strong notion that these new experiences would be the best teaching tool about cultural heritage to younger generations, who rely heavily on digital learning. For this ecosystem to be reinvented holistically, these prototypes need be integrated at different levels in order for familiarity and to maintain interactivity, ultimately strengthening the relevance of hybrid heritage experiences.

CONCLUSION

The learnings from this research can be seen as a gateway into the varied possibilities in heritage preservation, particularly with the use of digitised technologies. These tools, contextualised to other endangered heritage, also have the capability for cultural revitalisation. Furthermore, the value created through curated engagement could also open up new possibilities in collaborative working, allowing for the integration of various disciplines towards the goal of sustainable development of heritage. This renewed and purposeful form of heritage management has the ability to strengthen the sense of cultural identity and pride within a community and mould a favourable discourse that drives positive action. At a macro level, this conscious and curated use of interdisciplinary design has the potential to redefine heritage and, above all, contribute towards building a sustainable future.

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IF THESE WALLS COULD TALK

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INTRODUCTION

In practice and theory, the search for the intangible nature of cultural significance is grounded in an evidence-based forensic approach to understanding the values of a heritage asset. This case study focusses on the philosophical approach to the repair, refurbishment and seeking a long-term sustainable and viable use for Wilton's Music Hall. It demonstrates where the building is today; to be understood and appreciated as a palimpsest of all that has befallen it. The project represents a commercially conscious conservation strategy, providing a visually legible aesthetic of loss and it is as 'if these walls could talk to us' of the past. After many years under the threat of demolition, the conservation approach undertaken enabled the public to establish an emotional link with the building and its fate and provided an effective marketing tool to enhance viability. This case study contributes to knowledge in terms of the complex relationship of tangible building fabric to intangible cultural associations and demonstrates how the methodology can inform and support differing conservation led approaches and a successful outcome.

Wilton's Music Hall

Wilton's Music Hall in Tower Hamlets, London, is listed Grade II* and is the oldest surviving mid Victorian grand music hall[1] in the world and has global significance due to its rarity.[2] The predecessor to the Music Hall was the Prince of Denmark pub first licensed in 1828.[3] In 1850, John Wilton created a concert room.[4.] His 'architect' was Jacob Maggs of Bath.[5] It was essentially a big bar/concert hall presenting mainly vocal entertainment with notable performers such as George Leybourn – the original 'Champagne Charlie'.[6] Wilton's Music Hall is architecturally sophisticated internally[7] with a shallow apsidal end, the plaster ornamented balcony supported on barley twist helical columns, the barrel-vaulted ceiling etc.[8] It represents an advance from the less ambitious halls and defines enrichment which became common to the theatres which followed. Following a devastating fire in 1877[9] only the brick walls, the iron columns and part of the balcony were left standing.[10] A subsequent refurbishment re-built the hall as a Grand Music Hall; re-opening in 1878.[11] The Hall closed its doors to the public in 1880.[12]

Figure 1. Wilton's Music Hall

The late 19th and early 20th century: Methodist Mission Hall

The building was subsequently used by the East End Mission for Sunday services and then purchased by the London Wesleyan and Methodist mission in 1888[13] to 'clean up' the venues and the acts[14] as part of the temperance movement.[15] The Mission remained in the Hall until 1956. This pastoral use required no significant changes, except for removal of offending bar fittings and tables. The form and decorative features of the hall, the domestic scale accommodation and the catering facilities suited their community needs and the building was well maintained.[16] The ethnically diverse neighbourhood in the area benefited from the community use for over seventy years. The building became both historically and culturally significant for providing a social centre, particularly during the Dockers strike of 1889 (feeding 2000 workers a day) and The Battle of Cable Street 1936 (supporting the local Jewish community and providing the anti-fascists with a haven) also during the Second World War as a community Centre.[17] After the Second World War, records show, Wilton's was not bomb damaged, but the adjacent areas were. On 29th November 1963, The London County Council made a Compulsory Purchase Order under Section 68 of the Town and Country Planning Act 1962 for the land and buildings in Graces Alley.[18]

Figure 2. Graces Alley looking West

The area had been subject to compulsory acquisition and slum clearance as within the County of London (Stepney and Poplar) Declaratory Order 1947, for new housing and light industrial use. As the lease was due to expire and the neighbourhood was under threat of re-development; the social focus of the mission inevitably changed. Both the ongoing dispersal policy of the LCC[19] and the move to the concept of a welfare state were key factors. The mission decided to end their residence at Wilton's in 1957.[20]

The mid-20th century: rag warehouse to film set

The building became a warehouse for Coppermill Ltd; rag dealers.[21] The intervention caused damage recorded in photography in 1967, as rags were pushed up over the balcony frontage on conveyor belts. It was not until 1963, that the plight of Wilton's first became a public campaign to safeguard its future. The newly founded British Music Hall Society protested at the proposals for demolition.[22] On the assurance that the building would be retained in any regeneration of the area, the Society withdrew its objection.[23] At a public inquiry in 1964[24] both Sir John Betjeman[25] and John Earl gave evidence. As a result of the campaigning, the building was successfully listed Grade II in 1964. The inquiry concluded that the building would not be demolished for the time being.[26] The LCC became the Greater London Council (GLC) in 1965[27] and proceeded to make a compulsory acquisition of the area including Wilton's in November 1966. Demolition to the surrounding area proceeded. In 1967, the Historic Building Division of the GLC records that '*the possibility of retaining and making some appropriate use of the Music Hall is being investigated, but this presents considerable problems*'[28]. In the late 1960's and early 1970's John Earl recalls that GLC re-development plans to build a new road through the site, caused a paper blight to Wilton's and effectively prevented a successful tenancy being achieved. As the building lay empty, it inevitably deteriorated; various ad hoc 'emergency' works were undertaken. The building was subject to compulsory acquisition by the Greater London Council (GLC) in November 1966. However, the fate of the building was not secure for another forty years, with successful funding for its repair and refurbishment. It continued, through obsolescence in the 1970's. It was listed Grade II* in 1971 and photographed to record the status at listing.

The late 20th century: the search for a suitable tenant

A caretaker was engaged to look after the building in the early 1970's. The GLC then re-opened protracted discussions with the Half Moon Theatre Company, a radical local theatre company (whose play 'Grand Larceny', depicting the slum clearances in the area, was staged in the building).[29] These negotiations failed due to a change in the political administration at the GLC from Labour to Conservative, in 1976. From 1979 – 1989[30] a series of well-intentioned repairs were undertaken as emergency repairs when sufficient funding had been raised from public donations from the campaigning to safeguard the building. Some of the work was started, but not completed due to ongoing funding issues. Contemporary correspondence in the LMA archives relating to the GLC Historic Building Division[31] demonstrate that the focus was not on an academic survey and understanding of the building, but on 'mending' the notable defects as they occurred. Throughout the building nearly all the internal wall and ceiling plaster was stripped in a bid to resolve dry rot. Much of the internal character was lost through works carried out in the 1980's. When the GLC was abolished in 1986, its function was undertaken by the London Residual Body (LRB). The freehold of Wilton Music Hall and No. 17 Wellclose Square passed to The Wellclose Square Preservation Trust and the lease to the London Music Hall Trust in 1998.[32] During the late 1980's and early 1990's the Trust sought funding for works to the buildings, maintaining the building in a wind and weatherproof condition. A very small income was generated from intermittent film location hire and lectures. In the late 1990's, the Trust was in a precarious financial position with expenditure exceeding income;

running down reserves to finance their deficit. The building was not being maintained and the legacy of the 1980's repairs were evident in Julian Harrap's report[33] on the condition of the building. Words and phrases such as '*particularly unsympathetic*', '*extremely clumsy*' proliferate. In 1997, Wilton's re-opened for the first time as an entertainment venue with Fiona Shaw poignantly reading *The Waste Land* by T.S Eliot.[34] The building was partially in use; the gallery area was not accessible due to fears about its stability. The audience were advised to bring warm coats as there was no heating. In 1999 Broomhill Opera, '*a self-styled radical opera company*'[35] took a ten-year lease and a viable new use appeared to be emerging.

The early 21st century: the search for a viable use

In 2000 English Heritage supported Broomhill Opera with a grant for a feasibility study and urgent repairs were undertaken. Lighting and heating were renewed, and a temporary licence obtained for public use. However, Broomhill, were more interested in the 'as found' potential of the building than in a full-scale refurbishment. English Heritage took a positive view to the process of '*opening first and restored second…crucial to [the] buildings survival under Broomhill Opera Company*'[36] They funded a condition report by Tim Ronalds Architects in 2006 and working with John Earl, the Conservation Plan was revised. In 2007, the building was described in the press as '*a shell*' and '*un-useable*'.[37] It still however, maintained a licence for 300 seated patrons. The building was still at risk; recognised in 2008 by the World Monuments Fund as one of a hundred most endangered sites due to structural instability. The economic climate of recession in 2008, meant that donations were scarce and repair work inevitably fell further behind. The same year[38] the building had returned to the top of the Theatre Buildings as Risk Register, because of the failed application for Heritage Lottery Funding. The building was described as '*derelict*' and '*a crumbling shell*'[39]. It was Frances Mayhew, the Director of the Trust who John Earl credits with turning the tide of inactivity, to one of seeking any available proactive viable use. She recognised it was losing money; she was excited by the building and set about putting in place events and lettings; to enable essential maintenance and get people to visit. The HLF initially declined funding on the basis that the proposals in 2011 were not broad enough for the wider public. Match funding was achieved from other sources, including a substantial donation from the SITA[40] (who ironically gain monies from landfill tax). It took a third application to secure HLF funding in 2013; by which time the building opened to the public and had a viable use. It remained on the Heritage at Risk Register until 2015.

Figure 3. "Genuine' state of finishes to the Mahogany Bar

Was the building a ruin?

Julian Harrap feels that Tim Ronalds has treated the building as a ruin and as defined by Woodward.[41] Not having the heart to do this himself, he was asked twice to get involved with a potential restoration and declined; he felt that the building was in such a mess.

Before we fully understood building pathology in conservation, the removal of plaster (in seeking to eradicate dry rot in the buildings) in the 1980's exposed the building archaeology. This upheld the sense of the building as a ruin in the romantic and the aesthetic sense.[42] Leaving it in this 'state' retains the narrative of past exploits, engaging emotional attention and forms part of the conceit enjoyed by the new users; that the building has 'just' been rescued. Harrap is complimentary about the recent work undertaken. He feels that Tim Ronalds has endorsed the 'mess' and gained value from cruelty, mistreatment, and mutilation. Similarly, Harbison[43] aptly references T S Eliot's The Waste Land [44] in which the ruin embodies the incongruities of '*debris treasured but despaired of*'.

What is understood by 'arrested decay'?

At Wilton's Music Hall the repair strategy and methodology has been archaeologically focussed on essential repairs to the structure, in contrast to restoration of fabric,[45] which might leave the building '*frozen in timelessness*'[46.] John Earl warned that a full restoration would only result in '*the illusion of authenticity*'[47] There is a markedly different scenario with regards to the internal fabric; previously exposed brickwork and painted plaster remain 'as found' with no 'treatment' to prevent further 'decay'. The results retain a sense of incompleteness[48] giving the appearance that nothing has changed since the moment of 'discovery'.

What is understood by 'as found'?

The principle for 'arresting decay' is now an established conservation approach, for structural repair, and as an aesthetic concept for the presentation of the asset. Wilton's Music Hall 'as found' is a palimpsest '*...which conveys important and complex messages from the past.*[49] In terms of its presentation, Frances Mayhew was keen to preserve the state of dereliction and capitalise on the '*…air of decadence giving the venue a unique atmosphere*'[50]. Ironically the reason why Broomfield Opera wanted to be based at Wilton's was the theatrical fashion[51] for performance[52] in 'as found' spaces[53] '*…reinforcing the impression of a forgotten building*'[54]. The qualities which inspired them, resulted in their further intervention with stage craft, distressing internal finishes particularly to the auditorium which has superficially 'blurred' the academic legibility of the interior of the Hall. They were not greatly concerned with maintaining the building fabric and paradoxically left the building in a worst state of 'as found' than when they 'found it'. Michael Wright, writing in Culture[55] discerned that it was '*…not always clear which bits of rubble belong to the venue and which to Broomhill Opera's austere stage*'. John Earl was clear in his guidance in the Conservation Plan that:

…the 'found space' of Broomhill Opera could sit comfortably with a conservation philosophy of minimum intervention, but a single-minded adherence to a particular production fashion could result in relegating rather than revealing the historical interest'[56]

'*To set it back to a supposedly 'original' form to some arbitrarily selected time in the past could be positively destructive if it erased evidence of the hall's later history*' [57]

Evidence of a divergence from a restoration strategy, to one of a more influenced by strategy of dealing with a 'ruin', is found in the extent of residual fabric left within the building. John Earl encouraged this approach:

'*...resist the temptation to impose order by removing every inexplicable or inconvenient oddity…changes should reveal rather than dilute what is special about the building*' [58]

and that the peculiarities of plan form should '*remain readable…curiosities of construction should be*

retained'[59] and provide '*a tangible record of historically interesting changes*'[60]. A great deal of the 'atmosphere' perceived in the present state of the building is or was contrived by Broomhill Opera. The public have fallen in love with this and bought into the conceit. John Earl recognises that if the ambience and the performance transport you to a different kind of reality; that you willingly join in the creation – as well as acceptance of an illusion, then you are experiencing good theatre. However, he fears that evidence of earlier decorative schemes was almost certainly destroyed in the process.

Figure 4. The auditorium with theatrical 'distressing'

Our perception of the new interventions is that they are either: hidden, 'ad hoc', a contemporary yet reversible solution, neo vernacular or of an improvised pragmatic aesthetic, representative of the special character of this historic building.

CONCLUSION

The work to repair, consolidate and adapt Wilton's Music Hall for a viable 21st century use, has become a paradigm for an approach to conservation philosophy. It suits a particular set of circumstances; theatrical buildings or places of social gathering which are identified as 'heritage at risk' and/or lacking a viable use. A new use, premised on changing attitude to the past, seen in the aesthetic principles referred to 'as found', 'arrested decay' and minimal interventions can match available funding and attendant expectations. This approach successfully unites an intangible emotional connection to the past fate of the building, in a new viable presentation. In this respect Wilton's Music Hall sets a particular milestone in the evolution of conservation. The architect and client team allowed the building to 'talk to them', rather than enforce new stylistic interventions. Philosophically, it is at the pragmatic end of conservation and markedly contrasts to a paradigm of a full academic restoration based on forensic archaeological evidence. This would have undeniably led to a very different result, to the recreation at some selected point, in its history. In this building, with so much original evidence already lost, it could only have been a speculative approach; less appropriate or justifiable. There has been little recording at Wilton's archaeologically which might inform or justify a greater degree of intervention. Although the resulting outcomes have retained a great deal of the exposed archaeology, the approach was not that of an archaeologist in intent. The 'arrested decay' undertaken at Wilton's is straightforward 'honest repair' based on necessity and now largely unseen. The emotional connection with a building, the intangible nature of cultural significance, and its fate, was first understood, at the official re-opening production of The Waste Land[61] in 1997; when the building was in an ambiguous state of semi dereliction. A growing awareness of the building has influenced a commercially conscious conservation strategy, providing

an effective marketing tool to enhance viability. The public plea is 'please don't change anything!'; they have fallen in love with it and bought into the theatrical deceit of contemporary distressing. There is a strong desire to 'hold' the moment of 'discovery' and 'rescue', guiding the principle for the conservation. The 'as found' aesthetic and the combination of the theatrical and conservation philosophy of minimal intervention, is the result of three key parameters. Firstly, the implications of the struggle to effectively secure sufficient funding for maintenance and repair; leaving it vulnerable to further deterioration and resulting in works that were often not completed. Secondly, to evidence of the impact of inappropriate interventions and repairs, which were the result of a less advanced scientific understanding, within the conservation profession in the 1980's. Thirdly, it can be seen as a continuation of a theatrical fashion. It is how Broomhill Opera 'found it', paradoxically, it is how they left it. Their tenancy, however, inevitably influenced the next stage in the building's history. These historical events and circumstances have made the greatest impact on the building fabric, ironically more than in the preceding one hundred years of its history.

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THE PRODUCTIVE VILLAGE: VERNACULAR FORMS OF PRESERVATION AND REUSE IN SUBURBAN VILLAGES, WENZHOU, CHINA

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INTRODUCTION

At the height of the industrial revolution, in his seminal essay "The Modern Cult of Monuments,"[1] Austrian historian of art Alois Riegl theorized the new values that heritage was getting according to two categories: commemorative values and present-day values. Commemorative values included age, historical, and deliberate commemorative values; present-day values were use-value and newness value. If most of these values were indeed born during the 19th century, use-value existed before the industrial revolution. Twentieth's century preservation theory focused primarily on the new values of heritage and led preservation policies according to these criteria. Vernacular forms of preservation, however, were still driven by use-value.

In his 1966 *The Architecture of the City,*[2] Aldo Rossi described the dynamic of urban artifacts prioritizing the preservation of form beyond function and setting the conceptual premises of adaptive reuse. His description of urban artifacts as "the multiplicity of functions that a building of this type can contain over time and how these functions are entirely independent of the form" emphasized the use-value of heritage.

Our study builds on Alois Riegl's use-value and Aldo Rossi's urban artifacts to emphasize the pragmatic dimension of preservation, particularly its economic value. If we look at heritage as a commodity, we could use Marx's use value and exchange value and see how it relates to Riegl's value system.[3] We are looking at the forms of preservation in the Wenruitang valley, Wenzhou, south of Zhejiang, from 1980 to 2020, from the Chinese economic reform and opening-up to the 21st century's economic mutation into the service industry. Wenzhou was known in the early 1980s for its entrepreneurial rural communities and household industry, leading to a private economic reform known as the Wenzhou model. In a state-driven economy, this small-scale bottom-up model, qualified by Liu Ya-Ling as "reform for below,"[4] contrasted with the top-down *Sunan* model in South Jiangsu based on the privatization of national companies. Our research looked at the impact of this economic mutation on the built environment. It focuses on two villages located on the urban fringes of Wenzhou and known for their depopulation from emigrants going to Europe and the Americas. In the first village, Wangzhai, we are looking at how the productive agricultural landscape muted to a hybrid rural industrial landscape and how local villagers have been using abandoned or existing buildings for the new economic needs in the 1990s and 2000s. Wangzhai's case will be understood as a vernacular form of preservation or preservation from below, driven by pragmatic needs and economic use-value.

We are also looking at how interstitial spaces have been used for industrial insertions on the urban and territorial scales. In the second village, Shangen, we understand how the development of commemorative values and preservation policies have influenced heritage value from being a mean (Use value) to being an end (historical and cultural value) through the development of the service industry, particularly tourism, in the late 2010s. How does the historical value change heritage economic value from use value to exchange value?

THE PRODUCTIVE AGRICULTURAL LANDSCAPE

The Wenruitang River plays a vital role in flood control, drainage, water supply, irrigation, and landscape in Wenzhou. It is the central irrigation and drainage river for 482,0 hectares of farmland in Wenrui Plain and is the primary source of domestic and industrial water for residents along the river.

The Wenruitang structures the settlement pattern in the Wenzhou territory. It gave the Wenzhou landscape its territorial logic. Wenzhou is mountainous, so most of the agriculture and villages in Wenzhou are distributed along the river. The urban morphology of the settlements also follows the basic distribution form of the water system of the Wenruitang river.
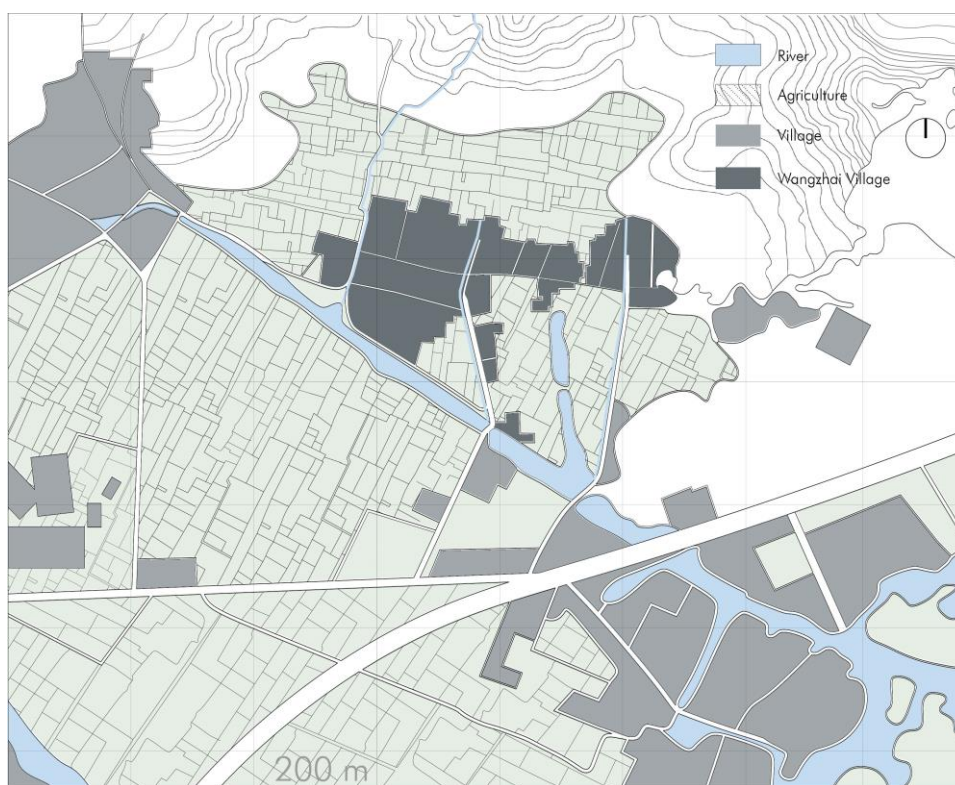
Figure 1. Wangzhai village (in the center) and the agricultural land, 2012 (map by Nuoying Cai)

Wangzhai is a village located in the south of the Ouhai District. It is a typical example of how rural villages nest between the water source and wind protection of a mountain and near a river for transportation in Wenzhou. Its urban structure follows the north-south irrigation streams which structure the farmland and the northwest-southeast direction of the Wenruitang branch, the Litang river. Thus, the Wenruitang River in the south of the village and the water from the mountain become the primary water source for agricultural irrigation in Wangzhai Village.

According to the interview with local inhabitants, each household in Wangzhai Village owns its farmland. To understand agricultural production, we selected a one-hectare sample and analyzed its crops, plot size, and pattern. Based on the value of the percentage of planted area in the table, the

main crops grown in the fields are scallion, potato, pea, and taro. Besides, these common vegetables can satisfy the villagers' daily consumption. Some villagers will also transport some crops to the market to sell, but it is not their primary income anymore.

On a smaller scale, we observed some techniques used by villagers to help grow crops. Through interviews, we found that people's farming methods in this village are not specifically trained but rather acquired through practice and previous experience. Therefore, some local villagers know how to build shelves to help plants grow and use plastic film to insulate their crops.

Figure 2. Agricultural plots map sample (map by Nuoying Cai)

PRESERVATION FROM BELOW

Wenzhou's rural household industrialization was responsible for the city's initial economic development[5]. This economic mutation impacted village production and, consequentially, its built environment. According to Liu Yia-Ling,[6] agriculture production shifted from 63.4% to 29.8% of Wenzhou's gross production output between 1978 and 1986. In addition, the 1980s saw many rural villages losing their population as people left for Europe or moved to large cities, following the Chinese opening up and loosening up travel restrictions[7]. By the early 1980's household industries absorbed about 75% of labor. Following this economic mutation and the partial abandonment of their built assets, the 1970s reform led to a form of adaptive reuse in Wenzhou rural villages, where industries replaced or extended the existing settlements.

During its industrialization, Wangzhai village mostly followed its existing urban footprint by transforming and adapting existing housing. Before the 1980s, Wangzhai village was functionally homogeneous, primarily residential, with a school built in the 1970s, a couple of public pavilions, and small shops. The transformation into industries is based on the original housing typology. Initially, these courtyard houses were two-story houses with load-bearing outside brick walls and inner wood structures. Their size ranged from one bay to six bays, depending on the family's size and wealth. Based on the span allowed by local wood beams, the bay is three and a half meters wide and organizes a grid system in which the different functions of the houses were inserted.

From the 1970s to 2017, with the gradual implementation of household industries and emigration, some village houses were converted into factories or leased to outsiders. Based on our architecture and urban survey, there are four main types of industrialized incremental adaptions, ranging from the complete destruction to the total retention of the structures and forms. With the change in programs, the initial stage of industrial transformation keeps the house as it was built originally. For example, a house was leased and adapted into a primary school as the owner migrated to the city. On the other end of the spectrum is the total reconstruction of housing to a new program and structure. In the case shown below, a five-bay house with two stories and a loggia has been rebuilt within the footprint into a doors factory but retained the original five-bay division on its façade. (Figure 3).
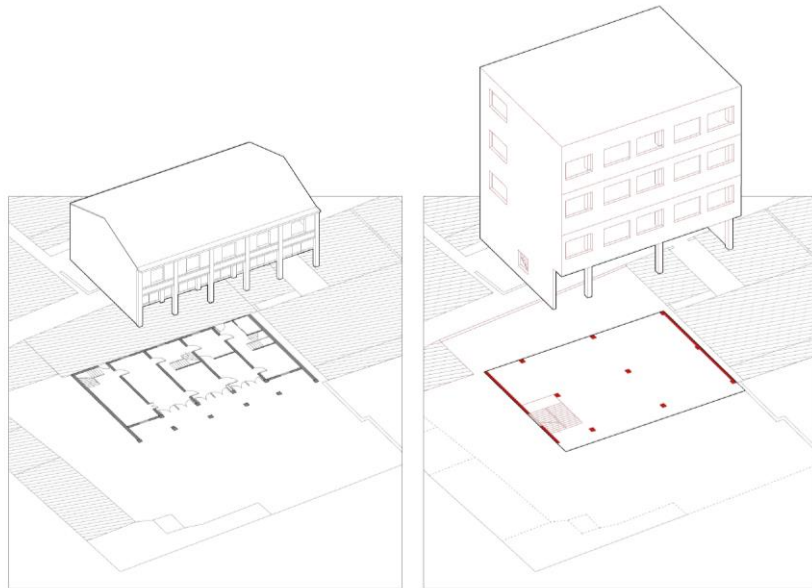
Figure 3. Construction of a factory on the footprint of a residential building (drawing by Ruzhen Zhao)

Between total preservation and complete reconstruction, some houses expanded to adapt to the factory's needs, affecting the house's original structure and usage. One could also preserve the house's basic composition but add room for factory storage. Very often, the south courtyard has been filled and covered with a lightweight structure, as in this electric components factory done by filling the courtyard space while preserving the house's original function for the worker's housing. The new space fits the factory's needs, allows more storage space, and enables forklift trucks to transport products. In another case, the users retained the original plan but adapted the back courtyard wall as the foundation for an L-shape extension attached to the original house. As for the previous cases, it is not just a matter of increasing the usable area with some form of plug-in strategy but of adapting the original typology to industrial use. The transformation from a primary school into a furniture factory illustrates this approach. The courtyard is covered with a plastic roof supported on the existing roof of the two wings to create a large manufacturing space. In one of the wing, a large door is opened to allow vehicle access to the central area from which each room is accessible. The original window wall is transformed into large double doors, and the eastern wall is demolished to get easier access to the courtyard. Additionally, some bays of the covered corridor were enclosed to create larger painting booths. (Figure 4)
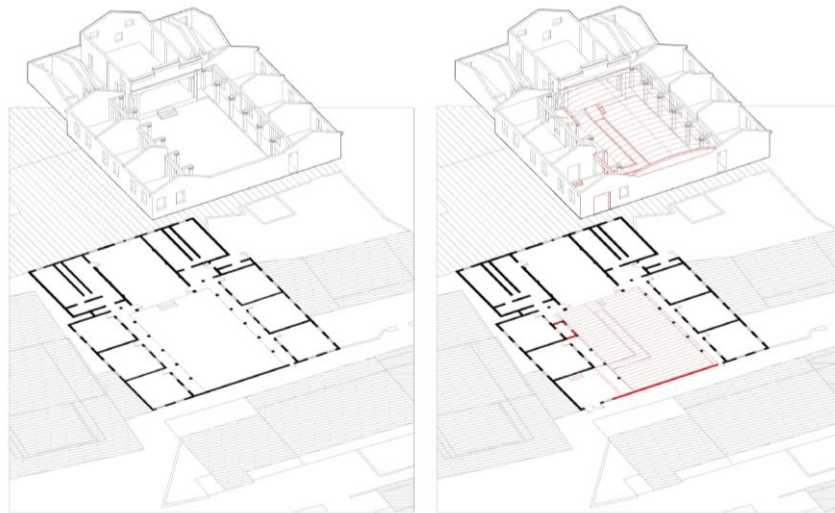
Figure 4. Adaptive reuse of a primary school into a furniture factory (drawing by Ruzhen Zhao)

The transformation and adaptation into industries of original housing typologies show their flexibility and embody the history of household industries in Wenzhou.

Industrialization Pattern

The industrialization pattern visible in Wangzhai happened throughout Wenzhou and intensified at the end of the 1990s beginning of the 2000s. If we look a the evolution of the proportion of agricultural and industrial land between 2000 to today, we can clearly observe this phenomenon. Agricultural land is shrinking and being replaced by rapidly developing industry and housing. Many farmers gave up traditional farming and turned their eyes to business. Most of them rented their unused farmland to others, leading to the reduction of agricultural land.[8]
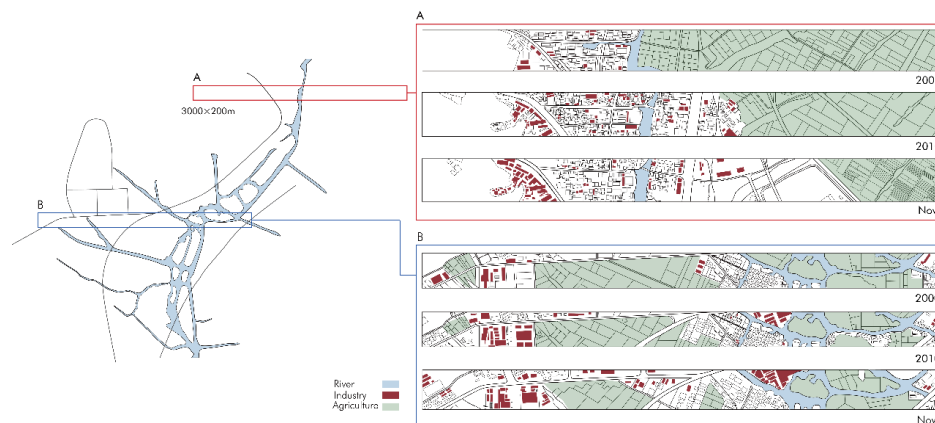
Figure 5. Industries and agriculture map in Wenrui valley (drawing by Yanqi Li, Xuting Yuan and Jinyu Li)

We can also see industrialization progress and pattern differ in the north sample, close to the city core, and in the south, in rural conditions (Figure 5).In urban conditions, industries are planned by the local government and organized in clusters. In rural settings, we observe a more bottom-up phenomenon were individuals transform unused land or existing structures into industries. If we look closely, we can observe different patterns of industrialisation within the existing fabric. We selected six typical villages to show different forms of relationship between industries and settlements. The patterns can be divided into three types according to the boundary between industry and residence: type1, distinct

boundary, organization of industrial clusters; type 2, blurred boundary and type 3, no boundary, industries are inserted punctually in the urban fabric.
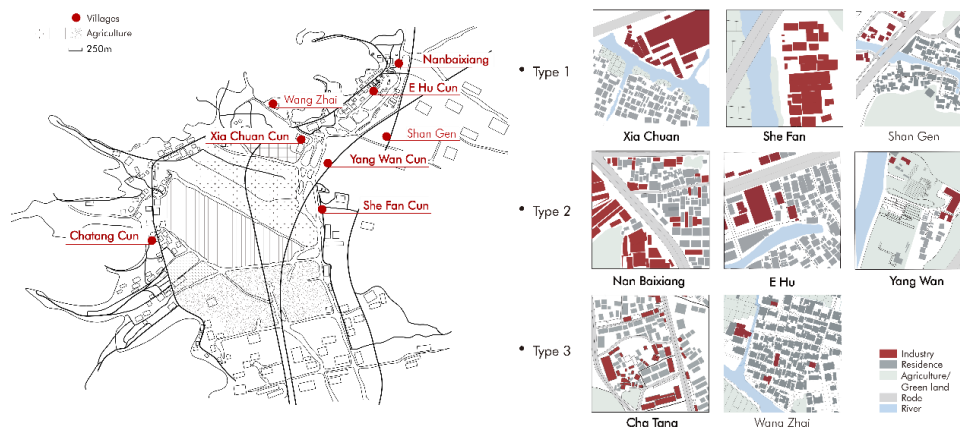
Figure 6. Industries insertion types in the Wenrui valley (drawing by Yanqi Li, Xuting Yuan and Jinyu Li)

Type 1 can be seen in Xia Chuan and She Fan villages, with obvious boundaries like a river or wide road. Nan Baixiang, E Hu, and Yang Wan village represent blurred boundaries between industry and residence. In those villages, some overlaps happen between industrial land and residential areas, but they are generally clustered in similar functions. Cha Tang village is a typical example of type 3, where industrial land and residential areas almost overlap entirely, factories being interspersed within residential buildings.

As shown before, many small factories are inserted inside residential buildings called Jiating Gongchang or household factories. This factory type is usually dominated by the light industry, producing some industrial products in two-story residential buildings, such as manufactured industrial parts and raw material processing.

FROM PRODUCTION TO CONSUMPTION

Shangen village is similar to Wangzhai in terms of distance from the center and its inhabitants' expropriation date (2017). The architectural fabric of the village remains mostly intact, preserving local settlements' typical morphology. At the same time, new roads surround the village, bringing convenient access to visitors.

In 1960, Shangen Village was a tiny settlement with only a few houses and large farmland surrounding it. Houses were concentrated in a dense group form, not spread in the agricultural land. When industries started to be implemented, they were never inserted in the village but along the Wenruitang for better access to the main transportation. But the most critical transformation happened between 2014 and 2016 when the land was transferred from its rural to its urban status leading to complete redevelopment. The large agricultural land in the north has been planned to create new housing towers to relocate Shanghai villagers, while the smaller parcel in the east has been used to build temporary relocation housing. Shanghai historical settlement was decided to be preserved given a large amount of building qualified as ancient (Gutai),[9] i.e., estimated to be built during the Qin dynasty (before 1911). Urban preservation in China started relatively late comparing to its industrialization,[10] starting after the cultural revolution, and Wenzhou had to wait until 2005 for its first urban preservation plan which protected only part of its historic core [11] after large scale demolition in the 1980s and early 1990s. In rural area, besides the famous historical villages in Yongjia district, very little have been done for preservation, particularly those in the urbanization

frontline, the suburban villages.[12] It Shangen doesn't benefit from a thorough preservation plan, the decision from local authorities not to tear it down as most of the suburban villages between Shangen and Wenzhou downtown, it a stepping stone in the conservation of these historical settlements.

In 2017, a local real estate developer who specialized in urban refurbishment, Mr. Jin, started to redevelop Shangen Village into a service industry, a mixed-use of touristic activities (rural boutique hotels, galleries, craft stores), and urban commercial spaces (restaurant, bars ...).
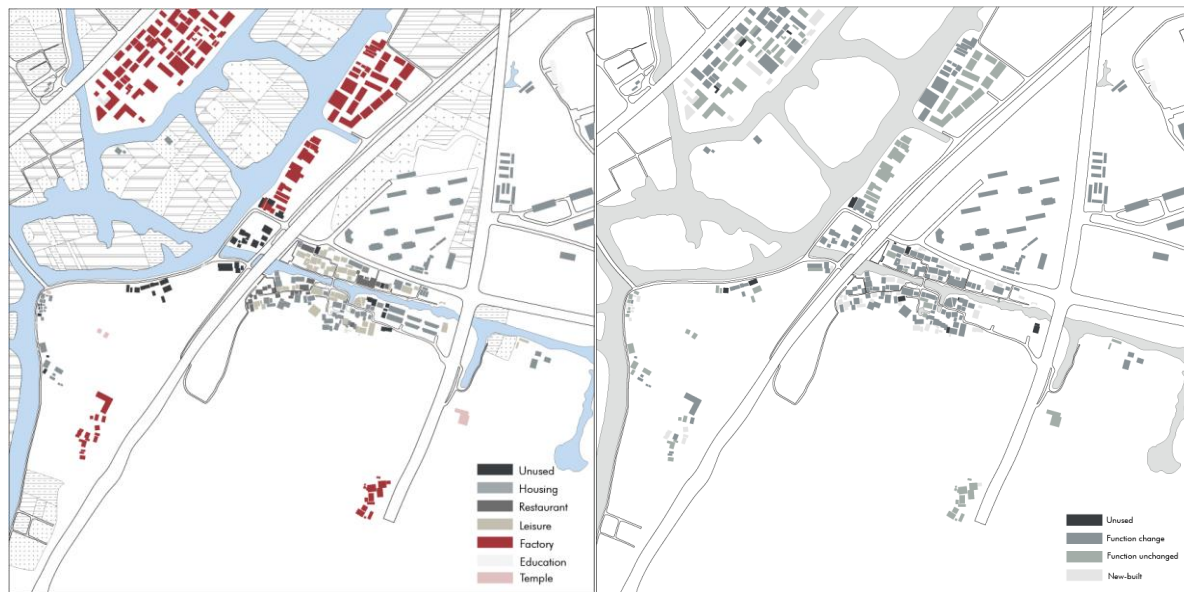
Figure 7. Adaptive reuse diagram of Shangen (Left: Existing Functions, Right: Function Change)
(Maps by Jiawei Dou and Yuxuan Zhang)

In 2020, Shangen Village have been largely renovated. All residents have moved to resettlement houses. The agricultural land on the hillside and the island of the Wenruitang are still being used, while new towers for the villagers have been completed. Industrial land has been reduced, and some factories have been relocated.

Compared to its the original function distribution, the new programs are now more diverse. The map shows that most houses have been changed into leisure functions, some close to the original usage, such as hotels, and others being further from their intended use, such as this restaurant being built into a former pigs' farm (Figure 7). The diagram below shows the progressive transformation of Shangen village from 2007 to 2020. Each building has been transformed by their individual tenants, however, the company in charge of the village redevelopment have adapted some strategic houses in the village in order to create its image and attract developers. The case shown in the figure 10, demonstrates how the buildings have been transformed to appear older, the central section being teared down to recreate a Qin dynasty looking wood construction while the side parts' windows have been redesigned and covered in grey bricks, fitting what the developer assume the visitors will imagine as an "old village" (Gu Cun).

Figure 8: Evolution of Shangen Village 2007-2022 (Maps by Jiawei Dou and Yuxuan Zhang)

In figure 9, we show the degree of transformation of the existing structure based on a scale from one to five, with one being a building keeping its form and function while five being a new building with a new function.

New: completely new structure/materials/elevation/function
(dimensions/height, etc. refer to the original building)

Deep: Demolition or reconstruction of part of the structure / façade with new materials and significant change in function
(compared to the original building function / building combination form adapted to the new function)

Moderate: Structure/materials/façade/function changed
(based on the original existing building with slight changes)

Minor: Similar in function, but with slight changes in structure or materials or façade
(largely maintains the original appearance of the building compared to the original building function)

Unchanged: No change in structure/materials/French/Function

Figure 9: Degree of transformation in Shangen Village (Map by Jiawei Dou and Yuxuan Zhang)

During the restructuration of Shangen village, the local inhabitant moved from their historical houses to temporary housing and then to new high-rises. As most of the younger generation moved out, the main population affected by these changes was elderly, which affected them particularly. In addition to the loss of their houses, they also have lost their means of production, paddy fields, orange trees orchards, and their mode of living. The compensation they received for their expropriation doesn't cover the new housing price and the loss of their daily income. This led to a form of social polarization. Many residents cannot adapt to this change. But some residents maintain a positive attitude towards moving into new apartments and finding new jobs in the village, either as security guards or housekeepers in hotels.

The new business and employment opportunities also attracted a new population to Shangen village The development of the new neighbourhood in the north provided residence and education facilities for this new, young population. The area's renovation has eliminated old housing functions and agriculture, but it has created a new economy that renewed its aging population. However, some

business tenants in the village said that the Shangen renovation is not perfect and doesn't attract the tourist population yet to make their investments profitable. They look forward for the improvement of the access, the creation of a dedicated interchange in the highway to enter the village, and the completion of the light rail, which will link Shangen to Wenzhou downtown.
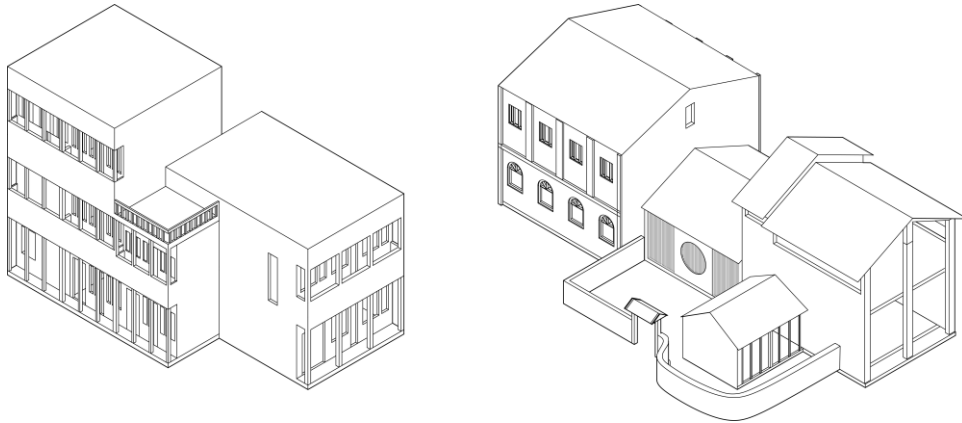
Figure 10: Example of adaptive reuse in Shangen Village (Drawing by Jiawei Dou and Yuxuan Zhang)

CONCLUSION

By comparing Wangzhai and Shangen, we have looked at how preservation shifted from a use-value to an exchange-value model during the economic mutation of Wenzhou over the last forty years from agriculture to service industry, passing by small-scale industrial production. But is the future of these villages to become commercial strongholds and touristic islands in order to be preserved, or is there a way to preserve productive landscapes?

The case of Wangzhai has been the object of much speculation, from tearing it down to replicating the Shangen commercial model. Our studies on the relationship between the Wenzhou economic model and the transformation of the settlements stressed the historical value of these suburban villages.

However, the stakes around the village, between economic speculation, political decisions, and environmental policies, leave the village's future uncertain.

ACKNOWLEDGEMENTS

NOTES

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PLURAL AUTHENTICITIES: HOW CAN DIGITAL REPRESENTATION ENHANCE, EXTEND AND EVEN RIVAL THE ORIGINAL OBJECT?

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INTRODUCTION

The nature of authenticity is being tested. Variously described as a "will-o-the-wisp", or "magical", [1] while being simultaneously associated with the concept of original, authenticity is increasingly under pressure from the ease with which historic objects and surfaces can be replicated. Further, drawing on the work of Sian Jones, authenticity may be considered not a fixed property of a heritage artefact, but an emergent and distributed one; the phenomenon of authenticity arises from the network of the relationships between people, places, things and their representation. [2] Importantly, if the replica is considered a form of representation (which should not be controversial), it is therefore an important element within the system in which authenticity emerges.

Authenticity is dynamic, fluid and plural - a property that emerges within the space between the immutable attributes of the material object and the constructed narratives that accumulate around it. Such plurality is set within the context of heritage as verb rather than noun; what David Harvey describes as heritage being a process or instrument. Harvey makes room for subjectivity, as well as human action and agency. [3] I will return to agency later, with reference to the utility of a term little used in architectural circles since Ruskin – that of "voice".

Already, then, we can see that authenticity can be widely defined, and relative. Along with the related term aura, authenticity embody qualities such as originality, legitimacy, truth, credibility, wonder, essence, enchantment, values, biography, what Cornelius Holtorf calls "pastness" or what Melanie Duval et al have called "heritagity" [2019]. [4] Jones, drawing on Bruno Latour and Adam Lowe, who in turn consider a 2007 facsimile of Veronese's painting *Nozze di Cana*, argues persuasively that aura or authenticity has the capacity to migrate from the original artefact to a high quality replica. [5] I agree; certain authentic characteristics of an original artefact – such as form, meaning and biography – can indeed be extended, enhanced and interpreted through the replica. Such authentic characteristics or content may even be replaced by the replica. However, I would also argue that this is not a one-way street. Authenticity does not always flow from the original to the replica; it can also flow from the replica to the original artefact. Therefore, the analogy of migration ought, really, to be replaced by that of murmuration – less a movement of authenticity from one location to another, but rather a continually flowing cloud of qualities and meanings, shifting in emphasis within a network of human and non-human participants across fields of physical and cultural contexts.

BATH ABBEY

Bath Abbey is the second of such buildings occupying a site between the river Avon and the hot spring that is the prime reason for this site being settled. The Roman city of Aqua Sulis was followed by a smaller Saxon settlement; the Saxon church was replaced by a grand Norman-era Abbey which was largely demolished in the 1490s and replaced by a smaller one completed more than a century later, though subject to many changes since. [6] Significantly, both Abbeys lacked an external cemetery, and all funerals concluded with burial beneath the Abbey floor. This explains two things: firstly, that the Abbey floor is composed almost entirely of "ledger stones", horizontal burial markers recording the details of those buried beneath; secondly, the recurring problem of subsidence, caused by repeated excavation as well as the decomposition and compression of the human remains and coffins placed beneath the stone floor.

Intra-mural burial ceased in 1840, and the floor and its sub-surface was entirely remade in the 1860s by George Gilbert-Scott to rectify subsidence. This process involved the removal of all ledger stones to undertake sub-floor works; notably, the ledger stones were returned to the floor but not in their original locations – these original locations are not, in fact, recorded. Further, the laying of hot water pipes and floor-level grills caused many stones to be trimmed in order to fit the reduced surface area, while the introduction of timber plinths and pews obscured much of the remade floor anyway.

A century and a half later, the floor was subsiding once again, prompting what was to become the ambitious £20 million "Footprint Project". This involved addressing not only subsidence but introducing an underfloor heating system which draws heat from the nearby thermal spring; in addition, new underground facilities such as archive space, choir rehearsal rooms and a visitors' centre were created (completed 2022). [7]

This project necessitated the removal of the oak pews and their plinths, revealing many ledger stones for the first time in 150 years, most of which had acquired a rust-coloured band from the tannins caused by close and prolonged contact with timber. Many stones had degraded through delamination (the flaking away of upper layers which had once, in geological time, settled to form sedimentary stone; Figure 1). Of the stones which had always remained visible, many had become eroded through footfall, and badly fractured. The building works required, once more, the floor to be removed in its entirety, further damaging those already damaged stones – some of which have been repaired and returned to the floor; others of which have not. Stones have not always been returned to their post-1860s location, while some have been repositioned closer to where it's thought they may have been prior to those Gilbert-Scott works. Some ledger stones were deemed too damaged to repair; others considered too fragile, or too degraded, to return to the floor and are now in long-term storage.

Figure 1. Example of ledger stone, with signs of delamination, by David Littlefield

There is no question concerning the authenticity of the Abbey floor. It is authentically a floor, composed (in the main) from authentic ledger stones, although these stones no longer represent the location of the bodily remains whose names are inscribed upon them. In fact, those remains have now been gathered, blessed and reburied in the cemetery acquired by the Abbey in the 1840s. The changes to the floor are the result of authentic process – both the deliberate process of planned intervention and the inevitable processes of long-term human occupation and geological change. It is not that the ledger stones are inauthentic; it is that they are differently authentic than they used to be.

Dynamic authenticity

There is an authenticity at work within the floor of Bath Abbey, though it is difficult to define exactly *where* or *what* that authenticity is. Authenticity, here, is plural and dynamic, appearing wherever one chooses to find it. Authenticity also emerges within the digital replicas of the most vulnerable ledger stones, created from data prior to their repair or permanent removal. The floor might be considered a good example of what Catherine Malabou calls "destructive plasticity" - there is no underlying essence or real self beneath the metamorphosed form; the fundamental nature or identity of the form has undergone profound and permanent change. [8] However, in terms of the Abbey floor, it is authentic change; and the story which emerges through the timeline of change is authentic also.

Figure 2 shows the ledger stone to Frances Jolliffe who died in 1802, widow (described in the stone as the "relict") of William Jolliffe; the stone is shown as recorded through photogrammetry, in February 2019. Figure 3 shows the stone as it appears remade as part of the Footprint conservation project.

Figure 2. Photogrammetry model of Jolliffe ledger stone, prior to conservation, by David Littlefield
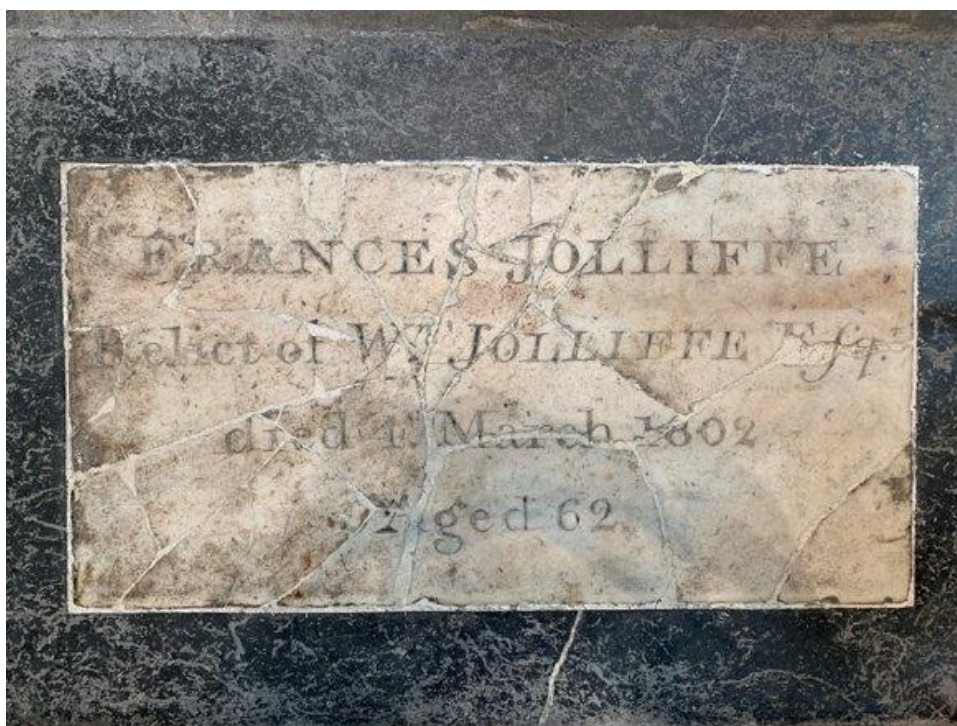
Figure 3. Photograph of Jolliffe ledger stone, after conservation, by David Littlefield

In comparing the two representations, a number of observations can be made:

- the artefact is now set within a different frame - a blank backing stone rather than immediately adjacent to other ledger stones;
- the fragments have been cleaned, including the almost complete removal of the rust-coloured band revealing the stone's former location beneath a timber plinth;

- the ledger stone is now flat, having had its unplanned topography, the signature of time, smoothed out;
- and the closer alignment of the fragments combine to make this composite artefact slightly smaller than it was in 2019.

The Jolliffe stone has undergone profound change, and the digital replica creates a visual and spatial biography of that stone. The replica provides a benchmark against which the reworked stone can be measured and compared, revealing something of its history that is barely evident within the artefact itself. Both manifestations of the stone through time (that of 2019 and 2022) are authentic, as are their representations. Crucially, the biography revealed by the replica illustrates the value judgements by which individual stones have been conserved. These judgements concern the nature of the *undesigned* – that which was not part of the original designer's or maker's intention, but which manifested itself nonetheless. Here, the undesigned might have been considered what Ruskin described as "superinduced and accidental beauty" or "the golden stain of time". [9]

What emerges is an authenticity that is both indeterminate and dynamic. The replica provides an information point against which the "original" (if that is the right word) can be better understood. Though it is also arguable that the stone illustrated on the right, now restored and repositioned, is not the original at all, and that qualities of origin are most effectively embodied within the digital record. Between them, the replica and the stone combine to produce what Sian Jones and Sally Foster call a "composite biography" and "extended object". [10] Though in this case, the replica replicates the stone not as it is but as it was. The replica extends the authenticity of the object; it is an authenticity that bifurcates, and becomes plural.

Let us now consider another category of stones: those which have been removed and not returned to the floor, either because of their condition and unsuitability as a floor surface, or because the degree of fragmentation made repair unviable. Shown below (Figures 4-7) are replicas of four ledger stones, or their fragments:

- one recording the burial of Walter Borlaise, created prior to its removal from the floor;

and three further examples recorded after they had been removed from the floor in June 2019. These three comprise:

- the delaminated ledger stone to Margaretta Georgiana Herbert;
- the stone, in three pieces, to Lieutenant Colonel Boland;
- and a crest depicting a phoenix on a 5-pointed crown.

Figure 4. Digital model of Borlaise ledger stone, by David Littlefield
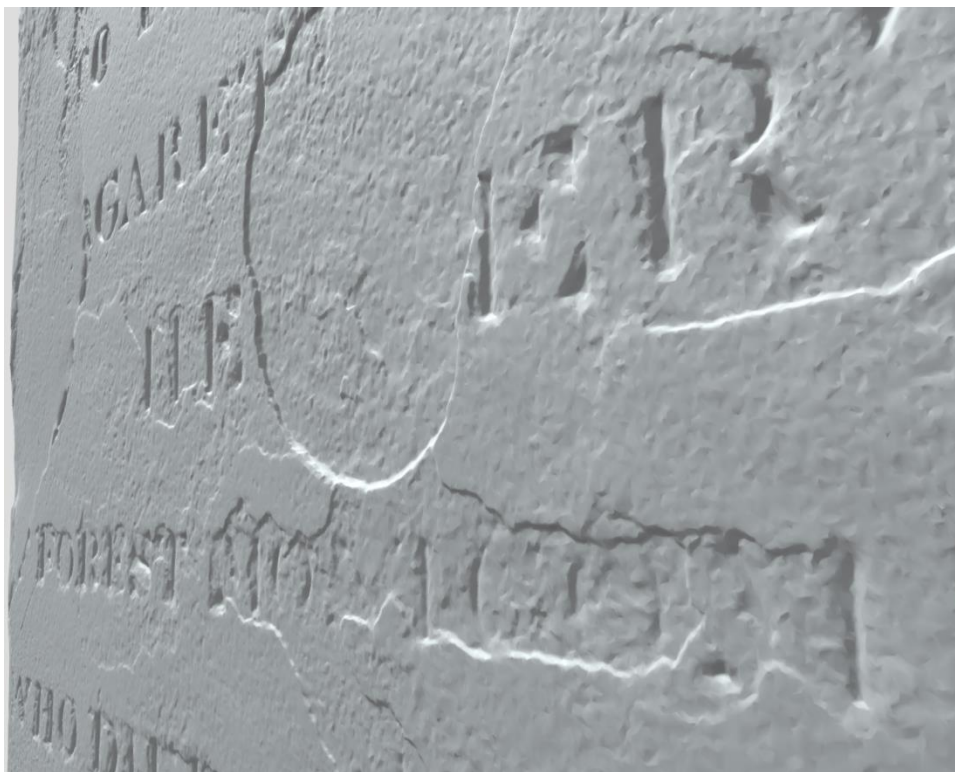
Figure 5. Digital model of Herbert ledger stone, after conservation, by David Littlefield

Figure 6. Digital model of Boland ledger stone, by David Littlefield

Figure 7. Digital model of phoenix on a 5-pointed crown, by David Littlefield

That these are replicas of stones no longer be found in the Abbey floor alters their status in regard to purpose and authenticity – certainly in comparison to those recording merely a different state to stones which have been restored and returned. Absence, or loss, in this case amplifies the purpose and meaning of the replication: "the replica acquires and aura and authenticity because it replaces something important that has been lost." [11]

"Thing power"

Jane Jacobs argues that objects, or the nonhuman, ought to be considered more than the passive material backdrop to human life. Objects, she argues, embody "thing power" - the "ability to make things happen"; "to produce effects, dramatic and subtle"; to surprise us, provoke us, or suggest a possibility. [12] If the replicas to those stones which have been returned to the floor have any "thing power" - that capacity to provoke a human response - surely, then, the "thing power" of replicas to stones no longer present is enhanced? What these replicas do, is make present what is absent.

When the original artefact and its replica exist side by side, there is the potential for comparison, for the calibration of degrees of change and for any sense of authenticity to zig-zag between them; any experience of truth, origin or wonder emerges from the extended object, or assemblage, of the stone and its replica. Without the original, though, the replica stands alone, although it is clearly a replica of something – the assemblage is preserved, though that zig-zag of emergent meaning bounces between the fact of the replica and its absent source. The replica, indeed, *becomes the source* – the origin of the sense that something was there, that there is a story to be told. What these replicas do is provide a benchmark against which change can be observed and measured; they also speak to absence, in that they record something not there was once there (whether a condition or characteristic of the stone, or the stone itself). A timeline becomes implied, which in turn implies story, or biography.

Voicefulness

Towards the beginning of *The Stones of Venice*, Ruskin lists the three "branches of architectural virtue" which define any building: that it functions as intended; that it pleases us; and "that it speak well, and say the things it was intended to say in the best words". [13] Ruskin then quickly goes on to write that, in terms of the building speaking well, no general law can be established, and that no one

can be forced to feel this "architectural rhetoric"; so he remains largely silent on voice for the rest of the book, and focuses instead on the principles of construction and Gothic aesthetics.

Ruskin had already deployed the term "voicefulness" four years earlier, in *The Seven Lamps of Architecture*. [14] He also described historic buildings as "witness" to the passage of time. Walter Benjamin, too, used the term "witness" in his 1935 essay *The Work of Art in an Age of Mechanical Reproduction*. Here, Benjamin defines the "genuineness" of a thing as "the quintessence of everything about it since its creation that can be handed down, from its material duration to the historical witness that it bears". [15] The same term later appears in the opening sentence of the 1964 Venice Charter, which describes historic monuments as "as living witnesses of their age-old traditions". [16]

The idea of architectural "voice" then - whether explicit in voicefulness or implied through witness and testimony – has a certain heritage of its own. I suggest that voice is a useful companion to authenticity, which has become over-burdened with content; authenticity is arguably in danger of becoming so inclusive and agile a concept that its meaning becomes uncertain. Authenticity, in its various manifestations as a materialist or constructed phenomenon, as a fixed property and an emergent one, as a tangible and/or intangible condition, might be better understood if voice were to substitute for some of those harder-to-pin-down dimensions or perspectives. To be clear, there is no literal voice; the building or artefact does not speak. It is our own voice we hear; but to understand that, we need to consider agency.

Bruno Latour, pre-figuring Bennett's "thing power", defined agency as the process by which a state of affairs is modified, by which a thing makes a difference to a situation [Latour 2005]. [17] Things can indeed provoke and produce; Latour described how kettles "boil" and knives "cut". However, we should treat such logics with caution; knives do indeed cut, though any agency surely resides in the human operator of the knife? What the knife does is make a difference to a situation. Frederic Vandenberghe argued that when agency appears to be the property of an object, it is illusory – the agency is an emergent property of a social system in which people and things are embedded. For the purpose of this paper, I suggest that agency is considered within these terms, whereby objects make a difference as if their transformative role is an inherent, dynamic, active property of the object itself. "The root of the trail leads eventually back to humans… at the end of the day, it is humans who encounter nonhumans and endow them with meaning, use or value". [18] Voice or voicefulness is part of that social system.

CONCLUSION

Within these terms, voice emerges from our encounter with buildings and their representations. In the case of Bath Abbey, authenticity is no doubt present, but it is plural, indeterminate, flighty. Voice, though – with its association of telling, of story, of witness – is perhaps more credible. Knives do not cut; we do the cutting though the knife has made a tangible difference to the situation of something needing to be cut. Buildings do not speak; we conjure the voice through an encounter with the evidence before us. It is through us that the agentic properties of stone and digital replica play themselves out and through which a voice emerges. At Bath Abbey, authenticity is almost absurdly complex - repaired and repositioned stones might, in fact, be considered as replicas composed of authentic fragments. Voice, though, is clearer. At Bath Abbey, the testimony of stone and replica suggests a story of erosion, repair, change and transformation; nothing is quite what it seems, but that is consistent with the nature of the story and its telling. Perhaps we ask too much of the concept of authenticity. I suggest we are in danger of overloading a useful term, which seems to be the subject of a sort of technocratic volleyball. Within specific contexts, such as Bath Abbey, replicas push against the limits of authenticity and may genuinely be considered more authentic than the originals; replicas

locate and extract authenticity and offer it up as a cloud of possibilities. It is enough to prompt great reflection and even doubt. Voice, though, offers a more certain pathway.

The location of authenticity within the Abbey and its artefacts is uncertain, mercurial and moot; voice, though, is more securely located in that it requires the observer or participant to do some work, to become aware of their own process of encountering the evidence before us. While authenticity can rightly be considered an emergent phenomenon arising from an assemblage of people, places and things (to which I would add the representation of those things) there is still that nagging sense that authenticity is something measurable and quantifiable. Voice, though, is more explicit in terms of the subjective relationship any observer creates with the material at hand.

I understand why Ruskin raised the importance of voicefulness. I understand, too, why he never really developed it - certainly not to the extent of his ruminations on the nature of Gothic. I suggest the heritage sector reflects further on the concept of voice and, in so doing, relieves some of the burden on authenticity to try and ensure it the term remains meaningful.

ACKNOWLEDGEMENTS

NOTES

[1] David Lowenthal. "Authenticities Past and Present". *CRM: The Journal of Heritage Stewardship.* 5, no. 1 (Winter 2008).

Also see Sian Jones. "Negotiating Authentic Objects and Authentic Selves: Beyond the Deconstruction of Authenticity". *Journal of Material Culture.* Vol. 15:2 (2010): 189, doi: 10.1177/1359183510364074.

[2] Sian Jones. "Negotiating Authentic Objects and Authentic Selves: Beyond the Deconstruction of Authenticity". *Journal of Material Culture.* Vol. 15:2 (2010): 198, doi: 10.1177/1359183510364074.

See also Jill Morena. "Definitions of authenticity: a study of the relationship between the reproduction and original Gone With The Wind costumes at the Harry Ransom Center". In *Authenticity and replication : the 'real thing' in art and conservation: proceedings of the international conference held at the University of Glasgow, 6-7 December 2012,* edited by Gordon R et al. (London: Archetype Publications, 2014), 122.

[3] David Harvey. "Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies". *International Journal of Heritage Studies.* 7:4 (2001): 327, doi: 10.1080/13581650120105534.

[4] Cornelius Holtorf. "On Pastness: A Reconsideration of Materiality in Archaeological Object Authenticity". Anthropological Quarterly, 86:2 (Spring 2013): 431, https://muse.jhu.edu/article/508126

See also: Melanie Duval, et al. "'I have visited the Chauvet cave': the heritage experience of a rock art replica". *International Journal of Heritage Studies.* 26:2 (2019): 2, doi: 10.1080/13527258.2019.1620832.

[5] Bruno Latour and Adam Lowe. "The migration of the aura or how to explore the original through its face similes," in *Switching Codes*, ed. by Thomas Bartscherer (Chicago: University of Chicago Press, 2010), 9.

See also Sally Foster and Sian Jones. "Concrete and non-concrete: exploring the contemporary authenticity of historic replicas through an ethnographic study of the St John's Cross replica, Iona." *International Journal of Heritage Studies.* 25:11 (2019): 10, doi: 10.1080/13527258.2019.1583272.

[6] Kenneth Hylson-Smith. *Bath Abbey, a history* (Bath: Friends of Bath Abbey, 2003).

See also David Littlefield. **"**The living and the dead; an investigation into the status of erasure within the floor of Bath Abbey", *Interiors: Design, Architecture, Culture.* 7.1 (2016): 4, doi: 10.1080/20419112.2016.1163957

[7] The Footprint Project is a £19.4 million project, part funded by the UK's Heritage Lottery Fund, to correct subsidence and add new facilities to Bath Abbey, while adding a new underfloor heating system drawing off the city's natural hot spring. Works completed autumn 2022. "Making a mark", Bath Abbey, accessed 27 July, 2022. https://www.bathabbey.org/footprint/

[8] Catherine Malabou. *Ontology of the Accident: an essay on destructive plasticity.* (Cambridge: Polity Press, 2012).

[9] John Ruskin. *The Seven Lamps of Architecture*, (Project Gutenberg EBook #35898: 1849).
https://www.gutenberg.org/files/35898/35898-h/35898-h.htm. See sections X and XVI; Ruskin develops the metaphor of the "golden stain of time" in section XVI by writing: "I think a building cannot be considered as in its prime until four or five centuries have passed over it".

[10] Sally Foster and Sian Jones. "Concrete and non-concrete: exploring the contemporary authenticity of historic replicas through an ethnographic study of the St John's Cross replica, Iona." *International Journal of Heritage Studies.* 25:11 (2019): 9, doi: 10.1080/13527258.2019.1583272.

Foster and Jones develop the theme of the role of replicas in their guide *New futures for replicas; principles and guidance for museums and heritage* (first published July 2020, available online: https://replicas.stir.ac.uk/principles-and-guidance/). In this guidance, Principle B declares: "Replicas are distinctive as 'extended objects' with 'composite biographies' that link the lives of the copies and original".

[11] Sally Foster and Sian Jones. "Concrete and non-concrete: exploring the contemporary authenticity of historic replicas through an ethnographic study of the St John's Cross replica, Iona." *International Journal of Heritage Studies.* 25:11 (2019): 12, doi: 10.1080/13527258.2019.1583272.

[12] Jane Bennett. *Vibrant Matter: a political ecology of things.* (Durham and London: Duke University Press, 2010), 5-6.

See also Diana Coole and Samantha Frost. *New Materialisms.* (Durham & London: Duke University Press, 2010), 29.

[13] John Ruskin. *The Stones of Venice*, ed JG Links. (Cambridge MA: Da Capo Press, 1960), 29.

[14] John Ruskin. *The Seven Lamps of Architecture*, Project Gutenberg (EBook #35898). 1849.
https://www.gutenberg.org/files/35898/35898-h/35898-h.htm.

[15] Walter Benjamin (2009). *One-Way Street and Other Writings.* (London: Penguin Books, 2009), 233.

[16] *The International Charter for the Conservation of and Restoration of Monuments and Sites (the Venice Charter).* ICOMOS, 1964, accessed 28 July 2022, https://www.icomos.org/charters/venice_e.pdf

See also *The Nara Document on Authenticity,* ICOMOS 1994, accessed 28 July 2022, https://www.icomos.org/charters/nara-e.pdf

[17] Bruno Latour. *Reassembling the Social: an introduction to Actor-Network-Theory.* (Oxford: Oxford University Press, 2005), 71.

[18] Frédéric Vandenberghe. "Reconstructing Humants: A Humanist Critique of Actant-Network Theory". *Theory, Culture & Society.* 19, 5-6 (2002): 55, doi:10.1177/026327602761899147.

In this paper, Vandenberghe is scathing in his criticism of Actor-Network Theory which has a tendency to imply that any agency which resides in objects is the equal of the agency deployed by humans. Vandenberghe argues, convincingly, that inanimate objects (the nonhuman) may appear to have agency; however, he goes on (p56) to argue that objects should more properly considered as mediators, enabling humans to communicate and encounter each other: "Non humans only intervene to start or to renew the cycle of reciprocity between humans. Humans are interdependent and their reciprocal interdependency is maintained through the exchange of inalienable symbolic objects."

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DIGITAL REPRESENTATION OF HISTORICAL MONUMENTS AND ARCHAEOLOGICAL SITES AS A TOOL TO IMPROVE VISITORS' APPROACH TO ACCESSIBILITY AND READABILITY

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INTRODUCTION

The term *historical monument*[1] refers to all elements of human activity which have survived through the ages, of which, among others, are buildings. These buildings of the past are, in many ways, the most prominent heritages, not only as cultural assets on account of their archaeological, historical or aesthetic value, but also from a functional and technological perspective, owing to the impact that the development of material culture and building techniques has had on human communities. In contemporary culture, the concepts of research, rescue and conservation have been greatly developed with the aim of providing protection and maintenance to these buildings, irrespective of what their function was. The need for this actually arose in the 19th century when their demolition first began. The intense urbanization of that period, as a consequence of the industrial revolution, meant that the rapidly growing residential needs had to somehow be met.

Besides individual historical buildings, the concept of *architectural heritage* encompasses all elements of the human-made environment that present a special historical, urban, architectural, social, folk and aesthetic physiognomy and value, examples of which include: residential complexes, traditional settlements, the historical centres of cities, and archaeological sites. An *archaeological site* refers to a physical place, where past human activity and remains are evidenced, such as settlements, caves, camps, ritual centres or sanctuaries, temples and burial sites or cemeteries. Sites which had particular functions are also included, such as emporia, military installations, quarries, mines, workshops, port facilities, etc. An archeological site may not actually have any building remains, but may fall into another category of data, such as movable finds (artifacts) and organic remains from the natural environment, which are directly or indirectly related to ancient cultural behaviour, or any combination thereof.[2]

The present paper deals with the exciting possibilities which digital representation models of historical monuments and archeological sites offer, when used (i) as a essential tool to attain a better understanding of Cultural Heritage, (ii) to improve the readability of these monuments and sites, and (iii) to facilitate visitor accessibility.

Observing the changes that have taken place in the conceptual development of museums and archeological sites through which the visitor comes into contact with cultural heritage, we understand that their evolution is in direct dialogue with the society itself, in which these organisations exist. The museum as an institution has notably been radically revised, focus has been shifted onto the visitor,

where, gradually, from a space that allowed access to a select audience -an elite society, so to speak- it has effectively thrown open its doors to a wider audience. Continuing its evolutionary course by directing the greater part of its interest to benefitting the public, the museum, has, thus, become plainly human-centred,[3] the result of which is that the old "passive" visitor is evolving into a new "actively engaged" museum-goer.[4] This has been supported by current educational methods that tend to adopt constructivist approaches.[5]

On the whole, being accessible to all,[6] the main objective of representations is to foster public awareness, allowing for a deeper understanding and greater enjoyment of archaeology and art, in parallel with research.

REPRESENTATION

A characteristic of human thought is that it applies various representations to the same concept, and has the possibility to resort to multiple representational systems.[7] In today's social and educational reality, how knowledge is represented in order to construct mental images and conceptual schemes is becoming increasingly important.[8] Several sciences, including Art, Psychology, Pedagogy, and Mathematics have each grappled from their own perspective with the difficult and ambiguous concept of representation. In the present paper, the term *representation* refers to the visual or graphic representation of an event or construction that no longer exists or that no longer has the form it had, and that can be comprehended through five interrelated facets:

- o as a substitute for the object represented,
- o as a discussion on the way we think about the world,
- o as a fragmentary theory of thought,
- o as a means of organizing information in ways that are useful for drawing conclusions, and
- o as a means of expression.[9]

Representation in architecture refers to the domain where architectural creation takes place through the ongoing friction of the conceivable with the material, the ideal with the realistic, the elusive with the formed.[10] Humans do not merely wait for the effects of their environment to be imprinted on their mind, instead, they actively attempt to interpret and understand it. Thus, they produce images which constitute hierarchical and coded compositions of information, whose function is communication. For this reason, virtual representation comprises a non-specular imitation of reality, and is thus, an otherness in relation to reality. It is this virtual otherness -through multimedia- that causes the viewer to feel either attraction towards or repulsion from it. In so doing, they are forced to review their -mainly conscious but also subconscious- knowledge base. In this way, representations transform the knowledge we have of the theory and history of art into a re-examination of our life experience -or at least some sections of it.[11] More specifically, to understand what representations of architectural remains are, how they function as codes of communication, what their relation is to their viewers and to reality, we could compare them to photographs and/or drawings. For instance, visual representations are closer to architectural drawings than to photographs of historical remains, because there is a much more complex and creative production process in both representations and drawings than there is in the relatively mechanical reproduction of reality that is present in photographs.

In order to conceive the fragmentary remains in their entirety, the missing parts need to be hypothetically filled in, and initially, this is done through drawings, which lead us to making representations –now, all the more often through the process of the preservation and restoration of these ruins.

In architectural representation, the historical remains are combined with other elements of the archaeological-architectural study and are supplemented in such a way as to present the complete form of the historical monument or the archeological site. The study of each surviving element produces the corresponding research with the line drawings.[12]

In addition, as the design is autonomous in terms of the external reality that it represents, it can be recombined with other representations and in so doing produce scientific discourse.

DESIGN PRINCIPLES

Having acquired the role of object, and, in order to fulfill their purpose as such, representations need to be judged according to the four basic principles of objects. This is in terms of:

- o authenticity,
- o materiality,[13]
- o aesthetics, and
- o broadness in relation to educational goals.

In particular, it is necessary to establish a *protocol*, whose objective is to reach an understanding of the cultural heritage object through representation. The purpose is to formulate the rules that govern the design as well as the use, management, dissemination, archiving and interoperability of the representation. One of the most important concerns regarding the rules of designing *cultural heritage* visualisations is the concept of transparency.[14] The term *transparency* corresponds to the degree of reliability of the graphic representation. Like any scientist, the architect who reconstructs historical monuments and archeological sites should not be affected by untenable hypotheses. Conclusions reached for creating the representations of the physical nature of things of the past need to be substantiated and based on sound reasoning. This is achieved by examining and comparing similar monuments, artifacts, works from the same period or region, information from ancient writers and travellers, all of which contribute to filling the gap of missing information, and at the same time reflect the methods and practices of the traditional science of archeology.

These principles, together with the good practices that govern archaeology, form a framework which helps to confine the architect's imagination when creating an architectural composition. Even when there is a relatively high degree of certainty as to the graphic representation of a monument or site, it is necessary to make it clear that this represents only one aspect, one moment of the past. For example, a building is a living organism which has been built by and inhabited by humans. Its representation can depict the monument as it had originally been built by its creator, as well as the most important changes that it had undergone during its use. It is impossible, however, to render in the representation all the changes -the damages, the minor alterations caused by human presence or by natural disasters- which took place over the course of time. For every faithful representation there are infinite others that can be created, each focusing on a different perspective or taking a different approach, but all of which are likewise correct.[15]

Transparency is also defined by:

- • the model's source and its state of preservation,
- • how the *paradata* were collected,[16]
- • the relationship between the prototype and the model, i.e., the ratio reality to artistry,[17]
- • the tools and design method,[18] and
- • the ability of other specialisations to be able to validate the model.

By adhering to the above, we can arrive at the implementation of not only one, but several models, which are the bases for all critical, selective and specialized *meta-analyses* and processing.

HISTORICAL EVOLUTION

The visual representation of ancient buildings and their environment is not new. The first Renaissance travellers, and later those of the 18th and 19th centuries, discovered and became familiar with the antiquities, mainly, of Egypt, Italy and Greece. The artists, landscape painters, and architects who accompanied them on these travels sketched the ruins of ancient monuments, which in essence were

the first attempts at *image-based representations* of ancient civilizations. The missing sections of the ruins were added, placed in their natural environment, also colour was added, as well as decorative objects, such as votive offerings and statues. Thus, contemporary people acquired their first complete picture of these ancient civilizations.[19]

Of great significance is the fact that these engravings and drawings had immense power on the consolidation of people's perception of the architecture of ancient buildings, despite the fact that many of the added elements were purely fictional, constituting the artistic inventions and interventions of their creators.[20]

Archaeologists and architects followed in the travellers' wake and began to systematically excavate ancient cities, temples and shrines covering all of ancient Greece --from Southern Italy to the depths of Asia Minor. The publications they produced were excellent in terms of accuracy, and were supplemented by extensive plans and designs of the construction phase of the cities' completion – and, in accordance with the opinion of the status quo, possibly their most glorious phase. In essence, these were the initial two-dimensional representations.

Today, the advent of sophisticated computer programs, along with the use of multimedia and advanced graphic design software for the three-dimensional representation of cultural data, have given new impetus to representations, thus, creating the field of *virtual archaeology*.[21]

THE DEVELOPMENT OF ICT[22]

One of the most important fields of research, which enables all agents involved in culture to exhibit and promote their work in multiple new and dynamic ways, is that of visual representation and the dissemination of digital information. At the same time, important aspects of the design process have undergone change as a result of the predominance of digital representational media. In addition, this state of affairs is gradually establishing a new norm of visual awareness and perception of reality. Digital media have introduced new concepts and possibilities of space management, as well as allowing more complex formatting approaches, thus, more effectively bridging not only the divide, but also the gaps between design and construction. For instance, digital survey models attain an accurate analysis of monuments and archeological sites. Their reliability is especially useful when the state of preservation of structures has deteriorated resulting from corrosion or due to incorrect interventions. In such cases, a highly detailed replica of the ancient construction, viewed correctly through reverse modeling applications, can provide useful evidence for an accurate and scientifically based representation.[23]

NEEDS AND POSSIBILITIES, OBJECTIVES AND RESULTS

Besides the usefulness of representation models for scientific purposes,[24] there are numerous incentives for the 3D reconstruction of cultural objects and monuments, which include the following:
   o to salvage data through the recording, documentation, and analysis of historic constructions,
   o study through distance research, involving a larger number of interdisciplinary specialists,
   o to document and enter the information in a database, and
   o interpretation: as in the future the advancement of archaeological 3D computer models will not be merely virtual environments used as visualization tools, but interpretive tools, which will be used more in the progress of the excavation process and the restoration of ancient buildings.

This paper focuses on improving visitors' readability and accessibility of monuments and archaeological sites through the following:
   o the creation of educational material for researchers and students of history and culture,
   o the virtual reconstruction of historical monuments and objects that no longer exist or exist in part,[25]
   o virtual 3D rendering of archaeological excavations,[26]

- o the representation of spaces from perspectives that are impossible to view in the real world due to size or difficult location,
- o interaction with cultural objects (in a virtual environment) without fear of causing damage,[27]
- o promotional applications of cultural inventories, e.g., virtual tourism and virtual museums, and
- o meeting educational programme requirements, by focusing on the added didactic value through visualisation and the experiential approach.[28]

From a pedagogical viewpoint, the use of representations is based on the theories of constructivist learning and sensory ergonomics, which attach great importance to the experiential acquisition of knowledge and the enhancement of the student's experiences.[29] This is in contrast to current Greek teaching practice which does not help students to reconstruct an image of the ancient world through its material remains in order to formulate a clear, overall perception of life in antiquity. The consequences are well known, and is one reason for students' reluctance to visit museums and archeological sites, as well as the devaluation of cultural heritage.

A digital representation is able to compose spatial information in 3D models and to produce the image of the space which the student is called to mentally reconstruct (visualisation). At the same time, it focuses on student knowledge acquisition and the cultivation of cultural awareness, without disregarding the emotional processes involved. As a direct consequence of the photorealistic images incorporated in representations, a unique *experiential approach* to antiquities is offered the viewer, which can provoke an emotional response similar to being physically present at the actual monuments. The student receives a complete representation of the historic monument which includes the natural environment, as well as the movable findings; while simultaneously, the simulated 3D environment produces the impression of being in the space experiencing the past.[30]

The necessary conditions for representations to have a positive effect on the educational process is for the *protocol* to be adhered to as described previously, in regards to the fidelity of the 3D historical representation, the accuracy of the information, and the possibility of comparing and contrasting the reconstruction with the monument itself. One such example is the virtual tour of the Galerius Palace Complex in Thessaloniki,[31] which comprised an innovative initiative in the direction of the practical use of digital representations.[32]

CONCLUSION

It is due to the images of 3D digital representations that ancient civilizations are brought to life, allowing the museum visitor to witness the development of an archaeological site and learn its history. The museum that we want is one that cultivates deep ties to the community, offers many educational outreach programs, invites schools, researchers, local audiences, and all visitors to participate in events and activities, in order to discover their place in the past, present and future of the world.

The global experience of 'lockdown' on account of the COVID-19 pandemic, has brought it home that digital and computational media is no longer merely a possible extension of the physical museum's exhibition spaces. Thus, digital representations play a more active role as hybridity and mixed reality are becoming established, since it would appear that digital culture is probably the most effective way for a museum to be accessible to the public. Therefore, to conclude, it is of the utmost importance to follow the principles of design for the digital representation of historical monuments and archaeological sites, as discussed in this paper.

NOTES

1 Francoise Choay, *The invention of the historic monument,* trans. Lauren M. O'Connell (Cambridge [England]; New York, NY: Cambridge University Press, c2001), 1-16.

2 Renfrew Colin, and Paul G. Bahn, *Archaeology essentials: theories, methods, and practice,* London: Thames & Hudson, Seventh edition 2016, 177-178.

3 Sara Selwood Associates, "Making a difference: the cultural impact of museums", An essay for NMDC, July 2010, https://www.nationalmuseums.org.uk/media/documents/publications/ cultural impact_final.pdf

4 Walker K., *Structuring Visitor Participation.* (Digital Technologies and the Museum Experience Handheld Guides and Other Media, AltaMira Press, 2008).

5 The theory of constructivism was formulated by Dewey, Piaget, Vygotsky, and Bruner, and focuses on learning processes. The model introduced by Bruner and Piaget views learning as an ongoing and active process. In this sense, the constructivist movement is based on the idea that the dialectical or interactive process of development and learning, through the active synthetic ability of students, should be facilitated and encouraged by adults. (DeVries, Rheta, Betty Zan, Carolyn Hildebrandt, Rebecca Edmiaston, and Christina Sales. *Developing Constructivist Early Childhood Curriculum: Practical Principles and Activities.* Early Childhood Education Series. Teachers College Press, PO Box 20, Williston, VT 05495-0020, 2002). The student should seek knowledge or solve the problem on their own rather than be provided with knowledge and instructions about the problem (Mödritscher Felix, *e-Learning Theories in Practice: A Comparison of three Methods*, Journal of universal science and technology of learning, Vol. 0, No. 0, 2006, p. 3-18). Students should compose new ideas, structures, models and concepts and relate them to previous knowledge and mental models. Real experiences are important for the learning process. Thus, not only the content of the information is important, but also the broader context for constructive learning. Also: Hooper-Greenhill, E., *Thinking about museum education and communication in the post-modern age*, Αρχαιολογια & Τεχνεσ 72, 2011, 47-49, https://www.archaiologia.gr/wp-content/uploads/2011/07/72-11.pdf

6 John F. Cherry and Felipe Rojas, *Archaeology for the People.* Perspectives from the Joukowsky Institute, Oxbow Books, 2015 European Foundation Centre, Report: Heritage and culture becoming accessible, round table discussion, Philanthropy House, rue Royale 94, 1000 Brussels 12 September 2016

7 "Man, for many philosophers both ancient and modern, is the "representational animal", homo symbolicum, the creature whose distinctive character is the creation and manipulation of signs-things that "stand for" or "take the place of" something else." (Mitchell, W. 1995, "Representation", in F Lentricchia & T McLaughlin (eds), Critical Terms for Literary Study, 2nd ed., University of Chicago Press, Chicago).

8 Stephan G., Pascal H., Andreas A. (2007) *Knowledge Representation and Ontologies*. In: Studer R., Grimm S., Abecker A. (eds) Semantic Web Services. Springer, Berlin, Heidelberg. https://doi.org/10.1007/3-540-70894-4_3

9 Randall Davis, Howard Shrobe, and Peter Szolovits. "What is a Knowledge Representation?" *AI Magazine*, 14(1):17-33, 1993

10 Pérez-Gómez, Alberto, And Louise Pelletier. "Architectural Representation Beyond Perspectivism." Perspecta 27 (1992): 21–39. HTTPS://DOI.ORG/10.2307/1567174.

11 W. J. Thomas Mitchell, *What Do Pictures Want? The Lives and Loves of Images*, (The University of Chicago, 2005).

12 Vavouranakis G., The multifarious past: illustrating and understanding prehistoric architecture in Crete and Cyprus, 2008, A.P. McCarthy (ed.), Proceedings of the Postgraduate Cypriot Archaeology Conference, POCA 2006: Island Dialogues: Cyprus in the Mediterranean Network, University of Edinburgh Occasional Papers Series 21

13 Demetra Papaconstantinou, "THE MATERIALITY OF CULTURAL INFORMATION AND ITS ABSENCE: DIGITAL CURATION FROM AN ARCHAEOLOGICAL PERSPECTIVE", (paper presented at the annual Conference of CIDOC Athens, September 15 – 18, 2008).

14 Stefano Brusaporci, *The Importance of Being Honest: Issues of Transparency in Digital Visualization of Architectural Heritage*, Handbook of Research on Emerging Technologies for Architectural and Archaeological Heritage, Alfonso Ippolito, Sapienza University of Rome, Italy.

15 Yannis Kourtzellis, "A Critical Approach to Digital Three-Dimensional Representation of Monuments", Αρχαιολογια & Τεχνεσ 113,(2010):11-16, https://www.archaiologia.gr/wp-content/uploads/2011/07/113-12.pdf

16 The paradata of a survey are the process data which provide information about survey data collection. Mick P. Couper. "Measuring survey quality in a CASIC environment". Proceedings of the Section on Survey Research Methods of the American Statistical Association, 1998. For example, modern tools, such as portable digital technology, through systematic recording, facilitate the documentation, processing and distribution of data.

[17] The more detailed, elaborate, and photorealistic the representation is, the higher the likelihood that the general public will form a misleading impression of what the representation is trying to convey – this is especially so when it is has not been clarified which elements of the representation are based on hypotheses or which reconstructions have more than one theory of restoration. The outcome is that the visitor believes that what they see is absolutely right or the only truth.

[18] M. Gaiani, "Translating the Architecture of the Real into the virtual: Sever Years of Experimentation with Conservation and Representation", Conference of Cataloguing to Planned Presentation, Milan, 2000.

[19] Up until the 16th century the main incentives for travel were either trade or a pilgrimage to the Holy Lands, while another reason was to visit the capital city of the Ottoman Empire for diplomatic purposes. From the mid-17th century, travellers visited Western Asia Minor, while others who visited the islands also made their way to mainland Greece. In the 18th century the choice of itinerary was determined mainly by archaeological interests, causing the archeological discoveries to be deluged by archaeology and history lovers. "Travelogues" Aikaterini Laskaridis Foundation, http://eng.travelogues.gr/

[20] Indicatively see the work: William Rae Wilson, *Travels in Egypt and the Holy Land;* embellished with thirteen engravings. The second edition: *With a journey through Turkey, Greece, the Ionian Isles, Sicily, Spain*. London: Printed for Longman, Hurst, Rees, Orme, Brown, and Green, 1824.
http://books.google.gr/books?id=CT8GAAAAQAAJ&dq=Travels+in+Egypt+and+the+Holy+Land&printsec=frontco ver&source=bl&ots=PfmXIj4YmP&sig=BXLnOtDHyhiXJg2JVBjSu0mvAC4&hl=el&ei=6Z5MStSeFYfH_gbhtuy3B Q&sa=X&oi=book_result&ct=result&resnum=2

[21] The term was first coined by Paul Reilly in 1990 and refers to the representation of sites of archaeological and historical interest, objects and landscapes of the past with the help of computers and 3D graphics programs. Reilly P., *Towards a virtual archaeology.* CAA'90. BAR Intern.s. 1991, Vol.565:133–139.

[22] https://learningportal.iiep.unesco.org/en/glossary/information-and-communication-technologies-ict

[23] Alessandro E. Foni, George Papagiannakis, Nadia Magnenat-Thalmann, "A Taxonomy Of Visualization Strategies For Cultural Heritage Applications", University Of Geneva, Geneva, Switzerland, Journal On Computing And Cultural Heritage (Jocch), (2010), Jocch. 3. 1. 10.1145/1805961.1805962.

[24] Luca Cipriani (Alma Mater Studiorum Università di Bologna, Italy), Filippo Fantini (Alma Mater Studiorum Università di Bologna, Italy) and Silvia Bertacchi (Alma Mater Studiorum Università di Bologna, Italy) *3D Digital Models for Scientific Purpose: Between Archaeological Heritage and Reverse Modelling*, Handbook of research of emerging technologies for architectural and archaeological heritage, Alfonso Ippolito (Sapienza University of Rome, Italy), 2016.

[25] An example is the recent destruction of Palmyra that spurred the debate on the ethics of digital reconstruction (Khunti, Roshni, The Problem with Printing Palmyra: Exploring the Ethics of Using 3D Printing Technology to Reconstruct Heritage Studies in Digital Heritage 2 (1) (2018.):1-12, https://doi.org/10.14434/sdh.v2i1.24590.)

[26] It is now commonplace that field research, the study of excavation data, and the interpretation of archaeological remains are based on a paradox, i.e., although we excavate in three dimensions, recording systems are used that transfer the three-dimensional data into two dimensions. These, whether as conventional publications or traditional drawings, in an attempt to create a proportional or digital (re)presentation, are, in turn, used to convert the information back to the third dimension. With the process of converting three dimensions into two and two into three, a lot of data is lost, while other information which did not originally exist is added. Taking into consideration the problematic aspects of conventional methods used in excavations, a number of applications have been developed with the aim of, on the one hand, recording as much information as possible about the excavated material, and on the other, to better understand the three-dimensional nature of the sites. The Greek chapter of the international non-profit organization "Computer Applications and Quantitative Methods in Archaeology» (CAA-GR), https://gr.caa-international.org/

[27] Many archeological sites are closed to the general public to avoid possible damage (physicochemical pollution and tourist activity damage). The use of photorealistic 3D models and their presentation through virtual reality on the internet or on optical discs can significantly help in education and in the dissemination of knowledge to a much wider audience.

[28] John F. Cherry and Felipe Rojas, Archaeology for the People.

[29] Tasso A. Mikropoulos, "Design, Development and Evaluation of Advanced Learning Environments. An Overall Approach" (paper presented at the HERMES 1st Workshop and Seminar, "Advanced Systems for Teaching and Learning over the World Wide Web", Samos, 2000.

[30] Suzette Youngs. "Understanding History through the Visual Images in Historical Fiction." Language Arts 89, no. 6 (2012): 379–95. http://www.jstor.org/stable/41804361.

[31] The virtual reality video was completed under the project entitled: "Restoration, Preservation and Enhancement of the Apsidal Hall of the Galerius Palace Complex on Dimitriou Gounari Street, Thessaloniki", funded by the National Strategic Reference Framework (NSRF) 2007-2013

(https://www.youtube.com/watch?v=zQfgzExwC1Y&t=240s). Under the same project the Information Centre of the Galerian complex was created, where in addition to the projection of the video, various services are offered, such as an exhibition of supporting material, both printed and digital, interactive info kiosks, and mainly digital representations of the Complex's most important buildings: the Rotunda, the Triumphal Arch, the Hippodrome and the Palace. The Galerian complex website was designed and implemented along a common structure, layout and appearance with that of the interactive app. The website is accessible from browsers on fixed and mobile devices, regardless of platform (www.galeriuspalace.culture.gr)

[32] Fani Athanasiou, Venetia Malama, Maria Miza, Maria Sarantidou, "Virtual Access to Underground Galerian Complex – The Hippodrome", Proceedings of the 4th Biennial of Architectural and Urban Restoration (BRAU4), 537-547, 2018.

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HERITAGE AND MEMORY IN THE DESIGN OF EMOTIONAL WELL-BEING CITIES IN MIGRATORY PROCESSES

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INTRODUCTION

The plural and changing conception of the heritage of the built environment in contrast to the eternal monument constitutes one of the great changes in its definition in the 21st century:

This heritage cannot be defined in a univocal and stable way. You can only indicate the address at which you can be identified. Social plurality implies a great diversity in the concepts of heritage conceived by the entire community; at the same time, the instruments and methods developed for correct preservation must be adapted to the current changing situation, which is subject to a process of continuous evolution[1].

This heritage foundation points to the community and each of its members as responsible for identifying the values of said heritage; the spirit of the place, the attachment to the place, the emotion as well-known heritage values, call us to collect this new changing and interrelational situation in the methodological processes.[2]

These emotional assessment processes must inevitably go through experiencing them. This communication addresses our daily landscapes of domesticity, those non-exceptional landscapes, from the claim of their heritage value from the memory of the subject's own experience.

Loyalty to place runs through the history of human domesticity. The liturgical character of living is based on an intense vital and aesthetic experience of the space that we choose as a habitat, building a sensitive union with that chosen and domesticated nature.[3] These connections explain the preeminent role of the memory of those places that we inhabit on a daily basis, even though they do not have an apparent character. The exploration of this emotional facet of the daily experience between the person and the place[4] constitutes a new tool for the comprehensive characterization of the spatial experience. Despite being addressed more and more by various disciplines –sociology, psychology, geography and anthropology–, its study from architecture continues to be a little explored path. Architectural knowledge of living has traditionally been based on an irrefutable trust in reason and has almost completely excluded its emotional nature despite the fact that, since the beginning of the century, the discoveries from Neuroscience of the impossibility of authentic knowledge without the integration of reason-emotion,[5] endorse the need to characterize the environment from the emotions and the corporeal. The academic field, essentially the Anglo-Saxon, currently speaks of the existence of an Affective Turn in which a whole series of research fields converge that claim emotional factors in the social configuration of space[6]. Especially relevant for architecture, since it ensures its comprehensive characterization, diagnosis and regeneration.

Immersed in the force that the exploration of affect has recovered in the last two decades −the object of study of the philosophical tradition from Baruch Spinoza to Gilles Deleuze and Félix Guattari−, this communication focuses on the advances in scientific knowledge of tactics from the affective and from the emotions, passions and sensibilities to analyse a specific facet of domestic nature: that of the recognition of the landscapes of our memory in daily living.

For this, a methodology in two phases is proposed: a theoretical review and an analytical one. In the first place, in the theoretical phase, the advances produced in the scientific field of Environmental Psychology and Human Geography are analysed through the concept of attachment. In the analytical phase, the research focuses on the study of this concept in the processes of anchoring memory in the daily experiences of living.

THE CONCEPT OF ATTACHMENT IN ENVIRONMENTAL PSYCHOLOGY AND HUMAN GEOGRAPHY

The study of emotional knowledge between person and place is a field in which multiple branches of knowledge such as History, Anthropology, Sociology, Architecture, Geography or Psychology concur. However, these last two and specifically two derived from them, Human Geography and Environmental Psychology, have been the disciplines that have had the longest journey. The advances and intersections between them are key in the search for a better understanding of people's emotional ties to place. Human Geography and Environmental Psychology are new directions that offer a very useful scientific perspective for the investigation of the emotional in the architectural knowledge of living.

Among the emotional models of these two disciplines, the concept of attachment has established itself as one of the most ubiquitous constructs studied when measuring the connection between people and place.[7]

The origin of the research around this concept is found in the 1970s, when Human Geography led the studies of the emotional connection of people with the place[8]. However, it was not until the 1980s that he focused attention on the dynamic qualities and evolution of places,[9] helping to shape a new direction in the investigation of place and its mobile nature.

In that same decade, Environmental Psychology assumed the main thrust of research, centering it on the concept of attachment to place: presenting, discussing and debating its base notions.[10] In more recent decades, Environmental Psychology continues to lead research on place attachment[11] although, as Leila Scannell and Robert Gifford point out, it has focused attention on the process by which places acquire meaning in people; the study of the place itself remains the domain of geographers; while that of the person is that of other disciplines such as Sociology and Anthropology.[12]

In recent years, this transdisciplinary framework of place attachment research has moved from a qualitative concern with measuring the emotional intensity that people have for places[13] to a new emerging stage of practical application.[14] One of the most emerging focuses on mobility, migration processes and domestic journeys of memory and their importance in the emotional experience in new domestic landscapes.

ATTACHMENT IN THE NATURE OF COMMUTING

Place attachment has become an analytical tool used by psychologists and geographers to study the processes in which inhabitants undergo environmental changes and their agency to adapt, participate in, or resist these changes. Development-Induced Displacement and Resettlement (DIDR) directly affect more than 15 million people each year around the world,[15] whether they are forced evictions, housing eradications or socio-natural disasters.[16] His study has become the object of analysis by numerous researchers from different disciplines: the work of the psychiatrist Mindy Fullilove has

studied attachment in the context of serial forced displacement in the Afro-American community,[17] Environmental psychology studies by Héctor Berroeta, Laís Pinto de Carvalho, Andrés Di Masso and María Ignacia Ossul Vermehren for the case of housing policy in Chile have analyzed the adverse effects of the rehousing processes of certain sectors of the population towards social housing on the outskirts of the city during the nineties.[18]

Cases such as the above show the interest and originality of the study of the mobile nature of the experience of living through emotional knowledge and memory. As Scannell and Gifford[19] point out, experiences of a place are strongly informed by memories of that place –memory landscapes− and by comparisons with other places. Affect, cognition, and behaviour are infused as the dimensions of attachment processes present in them. This research delves into this field of knowledge from two approaches:

- on the one hand, the migratory processes in which the memory of the lost original nature stands as a construct of attachment to new places, those new found domestic natures;
- on the other hand, focusing on the domestic natures found in migratory processes, and how the proposals from the architecture of new urban factors of destination begin as alien, however, in the long term becoming determinants in the construction of new emotional ties.

To go through these two points of view, a methodology of two case studies is applied: the first case is representative of the first of the approaches; while the second responds to the second of them. The two cases correspond to different spatial fragments, but they share a common nature: they are places with no apparent character and anonymous, places in which the daily nature of their spaces has been shaped after the displacement processes of their citizens. The two cases stand as a crucible for the study of the processes of emotional displacement of the landscapes of memory. These two experiences emphasize the corporal facet, the temporal factors, the social dynamics and the cultural expectations through the particularity of the movement incorporated in the processes of change of place.

Case 1_Daily landscapes of rural memory[20]

Since the end of World War II, American cities have attracted large numbers of new residents from rural areas seeking employment opportunities in their main urban centres. Since the early 1980s, Atlanta, Denver, Houston, Las Vegas, Salt Lake City, and Phoenix have topped the lists of fastest growing urban areas in the United States.

The study of these experiences of living migrated from rural to urban culture, like the previous case, help to understand the construction of emotional links with places in light of the memory of past experiences. This first case study addresses the way in which inhabitants displaced from rural to urban areas face negative factors of the city by incorporating non-urban practices into their daily lives. As John A. Jakle argues, small-town rural places can offer a nurturing, family-like atmosphere where residents personalize their relationships and forge strong ties to the place.

In this framework of study, the geographer Jeffrey Smith has analysed the migratory processes of Hispanics from the north of New Mexico and the south of Colorado to the urban centres of Albuquerque, Phoenix, Denver, Pueblo, Española or Santa Fe.

Before the 1940s, these Hispanics were primarily self-sufficient farmers and ranchers. As Sarah Deutsch[21] documented, although many Hispanics took itinerant jobs in the potato and sugar beet industries of northern and central Colorado, they always ended up returning to their small village. However, in the 1940s, despite a deep attachment to home, Hispanic families began to move to regional urban centres that offered better-paying jobs, a trend that continued and became widespread in the mid-1960s.[22] Due to the deep feelings that Hispanics have for their family roots and for their people, many continue to own rural land, to which they return on weekends, holidays and vacations,

which denotes the maintenance of its rural ties. Smith has found in these migratory experiences a window in which to examine the links between rural and urban places. Hispanic culture is ideal for analysis because of the extraordinarily deep bonds Hispanics have with their hometown. These migrated domestic natures offer an opportunity to examine how the attachment to rural places is manifested in the new enclaves through various expressions of rural memory: painted murals, funerary preferences, popular music or even artistic recreations of ditches.

Murals. As Larry Ford and Enest Griffin argue,[23] ethnic groups personify their landscapes, emphasizing their shared identity. The creation of public murals is one of those forms of personification of Hispanic populations. As Daniel Arreola explains,[24] in the absence of written records, the creation of murals in public spaces is a means of cultural empowerment that strengthens group memory.

Many rural Hispanic communities use this type of artistic representation both in private homes and in public spaces. These types of scenes have migrated with the inhabitants from rural villages to the urban of the host cities. Like a window that connects with that longed-for landscape, the murals thus act as a trompe-l'œil, capable of transferring that emotion, but also that daily rural landscape to the urban space. These are the cases, for example, of the murals of San Luis, Colorado, painted by the well-known regional artist and sculptor Carlos Sandoval (image 1); or the Leopoldo Romero in the suburb of Atrisco, on Albuquerque's west side.
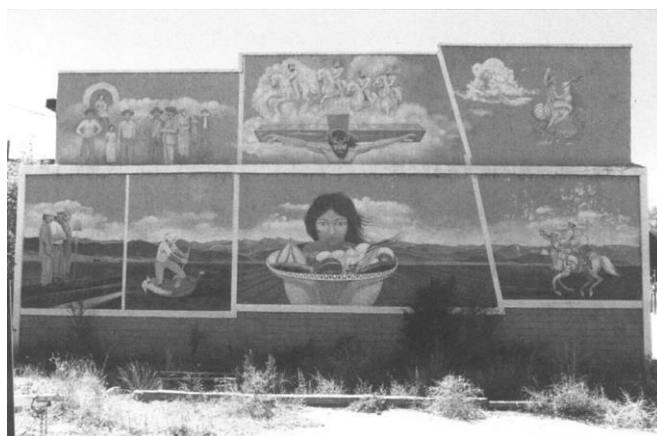
Figure 1. Mural by Carlos Sandoval in San Luis, Colorado, depicting various aspects of everyday life in the rural community. Photograph by Jeffrey S. Smith, 2000.

Funeral preferences. Graham Rowles and Malcolm Comeaux reflect on another way of valuing this mobile nature of dwelling.[25] that which occurs even after death. His studies show that, cross-culturally, people aspire to rest in places with which they have a special emotional bond, which in the case of the Hispanic population is usually the hometown. Through various interviews with local funeral homes, Smith[26] concludes that in both Española, Santa Fe, and Pueblo, Colorado, a high percentage of deceased are sent to their homelands.

Folk music. Music is one of the purest forms of cultural expression. Music plays an integral role in the expression of tastes, preferences, fears and fantasies. It serves as an effective means by which memories are consolidated in memory.

For many ethnic groups, music is a vital source of cultural identity. In traditional rural Hispanic communities, music accompanies local life. From melodious church hymns to ballads sung during parties and family celebrations, music elevates Hispanic culture. Hispanic rural communities have the custom of having small bands and groups in their rural towns that play music at festive moments. A particular musical type of this social group is common in them: the so-called corridos –popular

musical tales–. This type of music has moved today with migrants and intone the life of rural villages in the urban environment.

The public radio station KANW, in Albuquerque and Santa Fe, has echoed this situation and plays, with enormous audience success, songs that are representative of the music traditionally found in the towns of northern New Mexico.

Ditches. In the semi-arid climate of the southwestern United States, the water supply proved vital to the colonial Spanish. They quickly realized that ditch irrigation was one of the most effective means of diverting spring snowmelt and summer rains to farmland.[27] Today's crops are irrigated with the same ditches used by the Spanish ancestors. Thus, acequias have become an indispensable tool of agrarian life in rural Hispanic villages, allowing residents to cling tenaciously to an otherwise inhospitable environment.

These ditches have also somehow migrated from rural to urban with the displaced Hispanic population. In the urban areas of Española and Santa Fe, locals have commissioned artwork that reminds them of the role of acequias in Hispanic culture. This is the case, for example, of the Acequias Monument on the campus of Northern New Mexico Community College, in Española; or Tim Hooton's sculpture Acequia (image 2) in the governmental heart of the New Mexico Capitol Annex.

Figure 2. Acequia, a sculpture completed in 2000 by Tim Hooton and on display in the New Mexico Capitol Annex. It represents a man who opens the door of a ditch. Photograph by Jeffrey S. Smith, 2000.

Ultimately, the empirical evidence demonstrates that the mural paintings on the walls of the neighborhoods of the rural village ideal, the preference for burial in the hometown cemetery, the daily presence of local music in the new cities, and the recognition of rural ditches as a cultural element of the city, reinforce daily living by invoking the strong ties that Hispanics have for their small rural towns. These cultural expressions transfer their roots, reinforcing their identity in the new locations and giving them feelings of comfort, security and belonging.

Concrete creative expressions of a certain group constitute evidence of how memory can be incorporated into residential mobility processes. These types of practices can be applied to more complex urban experiences, in which an emotional approach to residential nature has a place.

Case 2_Non-exceptional landscapes of social neighborhoods[28]

These investigations are also pertinent in the European urban-architectural context. The second case study focuses on the period of rural exodus that occurred throughout Europe during the second half of the 20th century, which led to the proliferation of social neighborhoods in the urban peripheries under the standards of the Modern Movement. This period in Europe, like the previous cases, offers an opportunity to examine the emotional construction and deconstruction resulting from massive migratory movements.

In the case of Spain, since the early fifties, with the gradual international recognition of the Franco regime and the normalization of relations with the rest of the world, the country entered a period of progressive economic development. Many citizens left their homes in rural areas and moved to the cities in search of new job opportunities and better living conditions, giving rise to one of the periods of greatest migratory activity in the entire Spanish 20th century. Between 1940 and 1970 Madrid tripled its population and cities like Barcelona or Seville almost doubled it −Madrid went from 1,088,647 to 3,188,297 inhabitants, Barcelona from 1,081,175 to 1,745,142 and Seville from 312,123 to 548,072[29] −.

There is a vast scientific analysis of the social housing built in this period. Although these studies have been focused on analyzing its quality and aptitude parameters, assuming a substantial advance in a technical-objective sense,[30] they have barely explored its assessment from the emotional facet of knowledge. This research framework offers the opportunity to complete the technical studies with a new horizontal view from the emotional-patrimonial point of view in architecture, providing a new view from the mobile nature of housing. Through the analytical evaluation around affection and attachment and focusing on its methodological vector, the post-war social housing neighborhoods built between 1950 and 1970, allow us to characterize the emotional ties built in them after the arrival of the migrants, constituting a new social, architectural and heritage value.

In this context, the object of study is the neighborhood of El Carmen in Seville, which responds to the application in Seville of the *Francisco Franco Union Housing Plan.*[31] The body in charge of its materialization was the Home and Architecture Trade Union (OSHA), which became from then on the true protagonist of the construction of industrial estates throughout Spain.

The transdisciplinary study carried out by the Andalusian Institute of Historical Heritage in the _re-Habitar project, and specifically, the profound anthropological work[32] in it, reveals a unique possibility of delving into the emotional facet of knowledge in the study of the social neighborhoods.

Crossing the results of this work with the latest research on analytical studies of attachment to place, it can be determined that although the anthropological analysis does not specifically study the affection or attachment of neighbors, it can be implicitly deduced correspondences. From the conclusions of the Social History of the Neighborhood, it is concluded that the "transfers [were] traumatic to the neighborhood [as] a product of the neighborhood segregation of the historic neighborhoods." These migratory movements, as in the previous example, allow an analysis from the new trends of emotional knowledge. If the six types of places to which people feel attached according to recent research by geographer Jeffrey S. Smith are compared with the findings of the anthropological study on _re-HABITAR in Neighborhood Discourse Domains, many implicit relationships can be found that they denote the propitiousness of the study (figure 5). The following table compares the six Smith indicators with the direct conclusions of the anthropological study in the El Carmen neighborhood.[33]

Jeffrey S. Smith Place Attachment Indicators	Anthropological studies in project _re-HABITAR (IAPH)
Secure places	Assimilation of the neighborhood to a large family: support network and neighborhood cooperation.
Socializing places	Small square and park as great centers of daily activity.
Transformative places	Urban equipment where important events take place: theater and school.
Restorative places	Urban planning with easy access to two specific daily activities: Triana and city-centre; For its part, the park between schools and the park on Calle Jarana also become key elements of contact between the neighborhood and nature.
Validating places	Spaces detected by anthropologists: Triana, Centro, plaza, AA.VV. Our Lady of Carmen.
Vanishing places	The anthropological study concludes that the collective imaginary of the neighborhood offers great speeches of resistance to processes of socio-environmental degradation of the neighborhood.

Table 1

From this comparison it can be concluded that there are various urban-architectural components that have contributed and continue to contribute to the formation of emotional ties between the neighbors and the social neighbourhood. From the interviews carried out in the anthropological study to the so-called base neighborhood –the first to arrive in the neighborhood and who continue to live there today– it is found that the feeling of identity that was forged in the place alleviated the traumatic and difficult process of occupation of a neighborhood originally with many shortcomings and disconnections with the rest of the urban fabric of the city. Unlike the two previous case studies – where the memory of the past places was imposed on the urban reality of the places of destination– in the case of the occupation of the neighborhood of El Carmen, an introverted process was produced in which a new collective identity in a place with no previous memory (image 3). The new residents of the Barrio de El Carmen came from diverse local realities –there were no displacements of entire groups– which meant that the displaced domestic memories were individual and not shared. The collective memory of the neighborhood, originally non-existent and even starting from these individual memories, had to crystallize from the urban factors of the neighborhood.

Figure 3. Young people walking through the public spaces of the Barrio de El Carmen in Seville. Photography by Fernando Alda for the _re-HABITAR project of the Andalusian Institute of Historical Heritage (IAPH).

The neighborhood of El Carmen, like all the social neighborhoods of this period, constitutes a very interesting broth for the study of emotional knowledge in architecture and urban planning. The heritage value of this working-class residential fabric is increasingly recognized. However, its intangible value, which goes beyond urban planning and derives from the values of individuals who move, remains a field to be explored from the architectural field.

CONCLUSION

This trip through America and Europe, embarked on the approaches of different scientific fields to the exploration of the emotional facet of knowledge, highlights the role that memory plays in the processes of relocation and human settlement, throwing a new original look at living and patrimonial valuation: that of the memory of its daily landscapes.

As is evident, various disciplines are beginning to instrumentalize the capacity of memory to transfer the original domestic nature until it is implanted in a present habitat. Its analytical and methodological vectors begin to take hold as an emerging field of knowledge in disciplines such as Environmental Psychology and Human Geography. Its practical applicability, however, remains an unknown path. Architecture, a discipline that has remained practically on the sidelines of these investigations, must enter this field and can contribute to this third vector through creative processes that contribute to the incorporation of this emotional facet. It can be confirmed that the research carried out in this direction is focused on collective landscapes; the intimate landscapes of living, however, remain an exciting field of study to be tackled.

NOTES

[1] United Nations Organization, *Krakow Charter of 2000. Principles for the conservation and restoration of built heritage*. https://en.unesco.org/sites/default/files/guatemala_carta_cracovia_2000_spa_orof.pdf

[2] International Council on Monuments and Sites, *Declaration of Quebec on the preservation of the spirit of the place*, 2008. From its original version "Québec Declaration On The Preservation Of The Spirit Of Place", translation commissioned by the CMN, year 2013. Approved in Quebec, Canada, on October 4, 2008. https://icomos.es/wp-content /uploads/2020/01/13.DECLARACI%C3%93N-DE-QUEBEC.pdf

[3] Mar Loren-Mendez, *La Casa en Frigiliana. Manifiesto rudofskiano de la domesticidad contemporánea*, Bernard Rudofsky. Desobediencia crítica a la Modernidad, ed. Mar Loren-Méndez y Yolanda Romero, 30-52 (Granada: Centro José Guerrero y Diputación de Granada, 2014).

[4] The contents developed around the State of the Question are based on the investigations: José María Galán. "The production of architectural presence" (Doctoral thesis in Architecture. Higher Technical School of Architecture, University of Seville, 2017). and Mar Loren-Méndez "Teacher Research Project" (documentation presented on December 3, 2019 for the competition for access to the University Professors body, Architectural Composition Area, Resolution of the University of Seville on July 29, 2019, BOE on August 7, 2019).

[5] See at this point the scientific production of Juhani Pallasmaa, Harry Francis Mallgrave, Iain McGilchrist, Bruno Zevi and Steen Eiler Rasmussen.

[6] The term was coined by Patricia Ticineto Clough and Jean Halley, *The Affective Turn: Theorizing the Social* (New York: Duke University Press Books, 2007) and endorsed in the collection of articles of Melissa Gregg y Gregory J. Seigworth.

[7] See the analytical methods proposed in B. Bynum Boley et al., "Measuring place attachment with the Abbreviated Place Attachment Scale (APAS)", Journal of Environmental Psychology 74 (2021); Bernardo Hernández, M.Carmen Hidalgo and Cristina Ruiz, "Theoretical and methodological aspects of research on place attachment", in Place attachment: Advances in theory, methods and application, Lynne Manzo and Patrick Devine-Wright, ed., (New York: Routledge, 2014), 125-137; Adam C. Landon et al., "Psychological Needs Satisfaction and Attachment to Natural Landscapes", Environment and Behavior 23, vol. I (2020); Christopher M. Raymond et al., "The measurement of place attachment: Personal, community, and environmental connections", Journal of Environmental Psychology 4, vol. 30, (2010): 422-434; and Leila Scannell and Robert Gifford, "Defining place attachment: A tripartite organizing framework", Journal of Environmental Psychology 1, vol. 30 (2010): 1-10.

[8] Edward Relph, *Place and Placelessness*, (Londres: Pion Limited, 1976) and Yi-Fu Tuan, *Topophilia: A Study of Environmental Perceptions, Attitudes, and Values*, (Englewood Cliffs. NJ: Prentice Hall, 1974).

[9] See in this second period the scientific production of John Agnew, Mona Domosh, Doreen Massey, Robert Sack, Edward Soja and Nigel Thirft.

[10] See the investigations of Irwin Altman, *The Environment and Social Behavior: Privacy, Personal Space, Territory, Crowding* (Monterey, California: Brooks/Cole Publishing Company, 1975); Harold M Proshansky, "The City and Self-Identity", Environment and Behavior 2, vol. 10 (1978): 147-169; Harold M. Prohansky et al., "Place-identity: Physical world socialization of the self", Journal of Environmental Psychology 1, vol. 3 (1983):57-83; y Sally Shumaker y Ralph Bouncer Taylor, "Toward a Clarification of People-Place Relationships: A Model of Attachment to Place", in *Environmental Psychology: Directions and Perspectives*, Nickolaus R. Feimer y E. Scott Geller, ed., (New York: Praeger, 1983), 219-251.

[11] See research over the past two decades in Irwin Altman and Setha M. Low, *Place Attachment* (New York: Plenum Press, 1992); Silvia Ariccio et al., "Loving, leaving, living: Evacuation site place attachment predicts natural hazard coping behaviour", *Journal of Environmental Psychology* (vol. 70, 2020); Carren Clarke et al., "Place attachment, disruption and transformative adaptation", *Journal of Environmental Psychology* (vol. 55, 2018): 81-89; Maria Lewicka, "Place attachment: How far have we come in the last 40 years?", *Journal of Environmental Psychology* 3 (vol. 11, 2011); Per Gustafson, "Meanings of place: Everyday experience and theoretical conceptualizations", *Journal of Environmental Psychology* 1, (vol. 21, 2001): 5-16; Bernardo Hernández, M.Carmen Hidalgo and Cristina Ruiz, "Theoretical and methodological aspects of research on place attachment", in Place attachment: Advances in theory, methods and application, Lynne Manzo and Patrick Devine-Wright, ed., (New York: Routledge, 2014), 125-137; Leila Scannell and Robert Gifford, "Defining place attachment: A tripartite organizing framework", *Journal of Environmental Psychology* 1 (vol.30, 2010): 1-10; Carena J. Van Riper et al., "The antecedents of place attachment in the context of an Australian national park", *Journal of Environmental Psychology* (vol. 61, 2019): 1-9.

[12] Referring to the triple "P" (Place, Person and Process) defined by Leila Scannell and Robert Gifford, "Defining place attachment: A tripartite organizing framework", *Journal of Environmental Psychology*, 1, vol.30 (2010): 1 - 10.

[13] See the works of Bernardo Hernández, M.Carmen Hidalgo y Cristina Ruiz, "Theoretical and methodological aspects of research on place attachment", in *Place attachment: Advances in theory, methods and application*, Lynne Manzo y Patrick Devine-Wright, ed., (New York: Routledge, 2014), 125-137; Maria Lewicka, "Place attachment: How far have we come in the last 40 years?", *Journal of Environmental Psychology* 3, vol. 11 (2011); Daniel R. Williams, "Beyond the Commodity Metaphor" (revisado: "Some Methodological Reflections on Place Attachment Research", in *Place attachment: Advances in theory, methods and applications*, Lynne Manzo y Patrick Devine-Wright, ed., (Londres: Routledge, 2014), 89-99.

[14] Leila Scannell and Robert Gifford, "Comparing the Theories of Interpersonal and Place Attachment, in *Place attachment: Advances in theory, methods and applications*, ed. Lynne L. Manzo y Patrick Devine-Wright (Londres: Routledge, 2014) , 23-36.

[15] Natalie Bugalski and David Pred, *Reforming the World Bank Policy on Involuntary Resettlement* (Washington: Inclusive Development International, 2013).

[16] Howell Baum, "Planning with half a mind: Why planners resist emotion", *Planning Theory & Practice* 4, vol. 16 (2015): 498-516, DOI 10.1080/14649357.2015.1071870.

[17] Mindy Fullilove, "Revisiting «The Frayed Knot»: What happens to place attachment in the context of serial forced displacement?", in *Place attachment: Advances in theory, methods and applications*, ed. Lynne Manzo y Patrick Devine-Wright (Nueva York: Routledge, 2014), 177-192.

[18] Studied extensively in the research of Michael Strong "Influence of memory on post-resettlement place attachment", in *Explorations in place attachment*, Jeffrey S. Simith, ed. (New York: Routledge, 2018), 19-32; Isabel Brain Valenzuela et al., "Vivir en Campamentos: ¿Camino hacia la vivienda formal o estrategia de localización para enfrentar la vulnerabilidad?", *EURE* 36, 109 (2010); Pía Mora et al., "Disyuntivas en la política habitacional chilena", *NOTAS PÚBLICAS* 3 (diciembre, 2014).

[19] Leila Scannell and Robert Gifford, "Defining place attachment: A tripartite organizing framework", J*ournal of Environmental Psychology* 1, vol. 30 (2010), DOI 10.1016/j.jenvp.2009.09.006.

[20] The contents developed here are based on the research of Jeffrey S. Smith, "Rural Place Attachment in Hispano Urban Centers", *Geographical Review* 3, (vol. 92, 2002): 432-451.

[21] Sarah Deutsch, *No Separate Refuge: Culture, Class, and Gender on an Anglo-Hispanic American Southwest, 1880-1940* (New York: Oxford, 1987).

[22] Richard Nostrand, *The Hispano Homeland* (Norman: University of Oklahoma, 1992).

[23] Larry Ford and Ernst Griffin, 2Chicano Park: Personalizing an Institutional Landscape", *Landscape* 25, vol. 2 (1981), 42-48.

[24] Daniel D. Arreola, "Mexican American Exterior Murals2, *Geographical Review* 74, vol. 4 (1984): 409-424.

[25] Graham Rowles, "A Final Journey: Post-Death Removal of Human Remains. Tijdschrift voor Economische", *Sociale Geografie* 78, vol. 2 (1987): 114-124.

[26] Jeffrey Smith, "Anglo Intrusion on the Old Sangre de Cristo Land Grant", *Professional Geographer* 51, vol. 2 (1999): 170-183.

[27] Jeffrey Smith et al., "La Cultura de la Acequia Madre: Cleaning a Community Irrigation Ditch", *North American Geographer* 3, 1 (2001): 5-28.

[28] The investigations of this second case study are based on the investigations carried out by the Instituto Andaluz del Patrimonio Histórico (IAPH), "Investigación histórica y obsolescencia urbana, el caso de la Barriada del Carmen (Sevilla): Criterios de intervención a partir del Manual de Buenas Prácticas", in Proyecto _re-HABITAR, Patrimonio Contemporáneo y Tecnología (Sevilla: IAPH y Consejería de Cultura de la Junta de Andalucía, 2018); and Instituto Andaluz del Patrimonio Histórico (IAPH), _re-HABITAR, Patrimonio Contemporáneo y Tecnología (Sevilla: IAPH y Consejería de Cultura de la Junta de Andalucía, 2018). Scientific and editorial coordination: José Luis Gómez Villa. Scientific coordination: Marta García de Casasola Gómez. Editorial coordination: Blanca del Espino Hidalgo. Historical studies on the proliferation of social neighborhoods in Spain start from the first; the second analyzes the anthropological study carried out in it.

[29] Data consulted in the National Institute of Statistics of Spain (INE), "Alteraciones de los municipios en los Censos de Población desde 1842" (Consulted 10th may 2018).

[30] Carlos García Vázquez and Elisa Valero Ramos, *Intervención en barriadas residenciales obsoletas : manual de buenas prácticas*, (Madrid: Abada Editores, 2016).

[31] The Trade Union Housing Plan, together with the Social Housing Plans, was two emergency initiatives approved in 1954 that came before the National Housing Plan of 1955.

32 Instituto Andaluz del Patrimonio Histórico (IAPH)._re-HABITAR, Patrimonio Contemporáneo y Tecnología, (Sevilla: IAPH y Consejería de Cultura de la Junta de Andalucía, 2018).

33 See at the same time the projects Jeffrey S. Smith, *Explorations in place attachment* (New York: Routledge, 2018) and Raquel Almodóvar, "Estudio Antropológico. Memoria fase IV _re-HABITAR", in *_re-HABITAR*, Instituto Andaluz del Patrimonio Histórico (Activos Digitales IAPH, 2018).

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ENCODING THE WHOLE-OF-ENVIRONMENT KNOWLEDGE: A COMPUTATINAL EXPERIMENT WITH THE HONG KONG MARTIAL ARTS LIVING ARCHIVE

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INTRODUCTION

Martial arts are treasures of human knowledge. Through the sustained creation and re-creation of diverse ethnic groups, martial arts have developed into region-specific schools and styles, many inscribed on UNESCO lists of **intangible cultural heritage (ICH)**. Amongst the groups, **Southern Chinese martial arts (SCMA)** is considered one of the most prolonged martial arts systems that maintain traces of traditional Chinese martial arts.[1] Hong Kong, especially, has acted as the centre for SCMA throughout the 20th century, first due to the city's role in harbouring refugees across mainland China - among them the greatest kung fu masters, and then the blossoming of kung fu movies produced by the Hong Kong film industry. However, contemporary issues comprising globalisation, urbanisation, and the ageing of masters have now put such globally famous practices at risk of being lost.[2]

The Hong Kong Martial Arts Living Archive

Various efforts have emerged to answer the urgency of heritage protection, counting knowledge annotation and transcription, scholar network construction, social media creation, and the production of exhibitions, to name a few. Aiming to preserve SCMA, the ***Hong Kong Martial Arts Living Archive* (HKMALA)** project embarked on capturing martial art performances while documenting the living traditions in collaboration with the elite masters.[3] This longitudinal research collaboration, launched in 2012, is considered one of the most lavish archival attainments to date and represents a comprehensive digital strategy for archiving and annotating ICH content.

HKMALA documentation examines plural state-of-the-art technologies, including full-body **motion capture (MoCap)**,[4] motion-over-time analytics, high-speed video camera, panoramic drone video, 3D reconstruction, etc. As a longitudinal investment, the HKMALA has produced the most lavish motion archive to date, spanning over 130 sets of empty-hand and weapon sequences (known as *taolu*) following a scrutinised analysis of the fundamental techniques, representing 19 styles where the numbers are ever-increasing. In addition, the archive has collated rich yet multimodal documentation, i.e., the biography and illustrations of the elite masters ("Shifu" or "Sifu" in Chinese), video recordings of rituals and traditions associated with the kungfu cultures, digitised records of historical martial manuscripts and codex accompanied by their reenactment, as well as the born-digital materials throughout the archiving process.[5]

The exceptional volume of HKMALA data has enabled various scholarly inquiries, generating a series of articles, books, artistic practices, exhibitions and pedagogical applications. Yet, the archive

also encompasses multiple modalities and complex intellectual properties, consequently challenging its public access and dissemination at scale. The need to unlock such a rich asset is urgent.

Computational archival science for (I)CH dissemination

Curatorial practices for **cultural heritage (CH)** materials are becoming increasingly data-driven. Yet it appears as a common frustration that many cultural archives, including the born-digital ones, remain "dark", which means that the archives perform as "a collection of materials preserved for future use but with no current access, or accessible only to its custodian".[6] As a result, though considered to be the essential audience with the right to access the materials in theory, public users rarely do so in practice.[7]

For unlocking the archives as programmatically accessible data assets, one significant challenge that CH institutions face today is to deal with scale. To this end, the emerging field of "computational archival science", also addressed as "computational archives", suggests a hybrid strategy of computational with archival thinking.[8] One favourable direction is integrating algorithmic intelligence (e.g., auto-processing and machine learning methods) with content-describing models (e.g., semantic technology and linked-data engineering) to support an effective, productive, and interpretive modality.

Recent advancements in artificial intelligence and computer vision have provided new pathways to "read" cultural materials, primarily textual-based.[9] Whereas the interpretation of ICH knowledge - inherently living, transmitted via embodied channels and warranting various immaterial aspects - entails using richer media formats in the documentation and more sophisticated interpretations through the meaning-making process incorporating plural factors. In terms of tackling the intangible dimensions utilising multimedia data materials, algorithmic detection, such as movement categorisation and pose recognition, has empowered a series of novel tools to analyse performance and bodily expression.[10] In parallel, as opening up the archives at the knowledge level requires a holistic approach to dealing with multimodal manifestation, semantic models have emerged as an instrument promising to enable ontology-based representation relating to discrete CH concepts and improve interoperability between heterogeneous data records. Therefore, there has been a rising momentum of scholarly inquiries about how to marry artificial intelligence with encoding strategies to reveal or amplify hidden knowledge in an automated yet meaningful manner.[11]

The research question

In response to the challenges, this research embarks on formalising the embodied knowledge of martial arts as a system and articulating the epistemological dimensions to fulfil the didactics of the body-mind practice with ICH interpretations. It investigates the use of computational methods – leveraging machine intelligence, semantic engineering, and interface design - in operationalising the elements of ICH so that the knowledge can be represented in a pragmatic, semantic, and exploratory manner. Precisely, the author raises the following research question.

RQ: Given a knowledge-specific encoding ideal, can a combination of contextual movement computing with ontology-based formal modelling - fine-tuned through knowledge expert inspection and assisted by machine intelligence, enable an effective, descriptive, and productive paradigm for representing embodied knowledge in ICH?

In practice, the project aims to address the question by inspecting a whole-of-environment scheme for encoding embodied knowledge in the ICH archives combining aspects of embodied experiences, motions, physical objects, persons, descriptions, and digital assets with the meaning of tradition. By showing a use case for the *Hong Kong Martial Arts Living Archive*, it explains further how to build a knowledge system based on this framework to empower explorative knowledge discovery.

ENCODING EMBODIED KNOWLEDGE IN MARTIAL ARTS

Traditional martial arts, inscribed on UNESCO's lists of ICH, have developed into groups of schools and styles, each with its own set of philosophies, concepts, techniques, and training methods, created and re-created through the sustained efforts of diverse ethnic groups. In eastern philosophy, martial arts are considered an essential colloquial "whole-person education" where the body becomes a multi-layered text for social-cultural discourses and incorporates mindfulness.[12] The notions converge with the nature of embodied knowledge for intangible heritage that the human body acts as a fundamental carrier by receiving and enacting the cultural vernaculars.[13] Treating martial arts as embodied knowledge thus becomes our essential rationale and requires exploiting both the representative and analytical traits in bodily performances.

Knowledge representation and conceptualisation

CH interpretation is formed through plural manifestations incorporating different aspects of materiality and immateriality.[14] Representing martial arts as a CH concept should potentially address all these facets. For this reason, **ontology** is an appropriate method, which features an interconnecting theory to describe a specific domain via a network of concepts, otherwise to formalise a concept by linking different domains.[15] With the intent of investigating the knowledge of martial arts as unities of conceptual entities, an initial ontology has been designed to represent the aesthetic, epistemic and social traits following the requirements of being modular, inference-able, and grounded. The ontological model involves three modules potentially indicating a phenomenon of cultural contact: kinaesthetic, stylistic, and social, as demonstrated in Figure 1.[16]
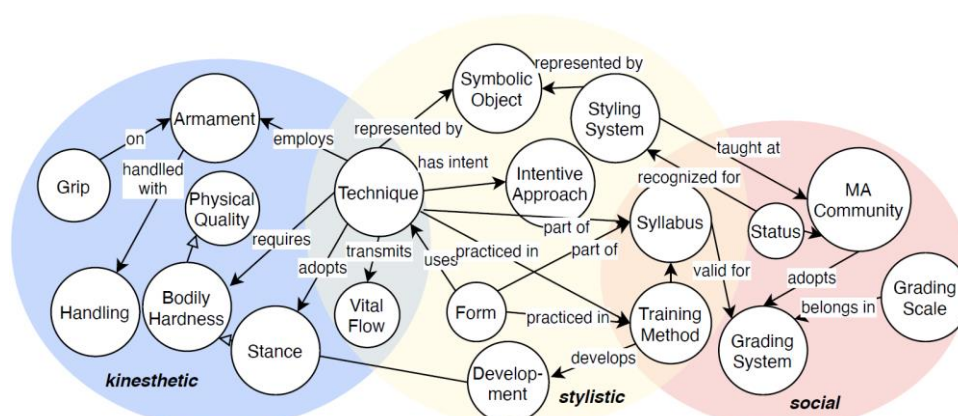
Figure 1. An ontological conceptualisation of the cultural facets in martial arts.

Respectively, the **kinaesthetic** module describes the articulation of the human body in a technical move, including the stance, footwork, handwork, and bodywork, in addition to the grip on armament and physical qualities. The module also includes culture-specific concepts, such as *qi* (氣): the breathing method otherwise perceived as a flow of vital energy, and *jin* (勁): the manipulation of body strength and power. These facets are not necessarily quantifiable but represent the strategic philosophy of a martial style. The **stylistic** module describes how the kinaesthetic features culminate and distinguishes a system of techniques, a set of forms, and a symbolic system that conveys through choreography its theoretical ideal and accordingly aids knowledge transmission. Lastly, the **social** module primarily addresses how a martial art style is taught, learnt, influenced, assessed and disseminated in what environment(s) and by whom. These are distinguished via the training methods, the norms or grading methods to evaluate the technical mastery of a practitioner, and the social agents where knowledge transmission takes place - what we call the Martial Arts Communities.

The ontological structure forms the basis of organising archival content in the HKMALA to allow knowledge access through the linkage of concepts. It also allows identifying patterns of cultural relevance in combination with inference models (i.e., rule systems and reasoners), especially when being bridged to the established tools and standards from the established ecosystem of CH-related domain ontologies, for instance, the CIDOC Conceptual Reference Model (CRM), Europeana data models (EDM), and International Image Interoperability Framework (IIIF).

Operationalization of body movements

The rise of computational inventions has lifted CH analytics toward a combination of digitisation, digital transformation, and datafication.[17] Among the trends, **operationalization** has emerged as a modern approach to augmenting cultural analytics. By *operationalising* theories in art history to computational algorithms, researchers have studied the image corpus in Renaissance paintings using computer vision.[18] Likewise, postures and body motions have become critical dimensions to augment cultural analytics. As a result, automatic detection of bodily information has gained popularity in dance analysis, notably through the categorisation of gesture-posture expressions. Several projects have also experimented with annotating those embodied elements using conceptual terms, such as the notational languages like the *Labanotation* and *Benesh* systems.[19]

In the context of martial arts, although conventionally perceived as codified sequence performances (*taolu*), Chinese martial arts have historically placed an equal emphasis on forms and combative training. Therefore, the assessment of martial arts typically considers the performance of technical stances, ballistic activities, and reaction to the opponent or surroundings. Visually discernible characteristics (e.g., posture, hardness, and smoothness) and mechanical parameters (e.g., kinematic structures and kinetic metrics like force and torque) are necessary to evaluate both qualitative and quantitative dimensions of a movement.[20]

Encapsulating metrics following these criteria, we suggest a feature model that encompasses body geometry, kinematics, and kinetic metrics that simulate the effects of physical forces and torques. As listed in Figure 2, the composition of features amplifies the practical application of motion, yet is compatible with the movement components defined by the *Labanotation* system. In terms of calculation, the model measures body movements in rotation angles instead of linear trajectories to avoid numeric distortion due to irrelevant factors in data capturing, such as body orientation and camera settings.[21]

Category	Feature	Description
Body Geometry	f^1	Left knee angle
	f^2	Right knee angle
	f^3	Left thigh angle
	f^4	Right thigh angle
	f^5	Left hip angle
	f^6	Right hip angle
	f^7	Left elbow angle
	f^8	Right elbow angle
	f^9	Left shoulder angle
	f^{10}	Right shoulder angle
	f^{11}	Head orientation
	f^{12}	Spine angle
Kinematics (calculated)	f^{13}	Head velocity
	f^{14}	Pelvis velocity
	f^{15}	Left-hand velocity
	f^{16}	Right-hand velocity
	f^{17}	Left-foot velocity
	f^{18}	Right-foot velocity
Kinetic (simulated)	f^{19}	Pelvis acceleration
	f^{20}	Pelvis angular acceleration
	f^{21}	Left-hand acceleration
	f^{22}	Right-hand acceleration
	f^{23}	Left-hand angular acceleration
	f^{24}	Right-hand angular acceleration
	f^{25}	Left-foot acceleration
	f^{26}	Right-foot acceleration
	f^{27}	Left-foot angular acceleration
	f^{28}	Right-foot angular acceleration

Figure 2. The proposed list of features to model martial arts movement.

A MACHINE-ENHANCED APPROACH

Large-scale multimedia datasets have acted as critical sites for computational exploitations. In the context of ICH archives, machine intelligence has gained popularity as the approach to operating "choreographic objects". Novel applications of machine learning algorithms have enabled new ways for scalable classification, semantic annotation, and sentiment analysis of human movement, and accordingly, upgrading digital access to such datasets from catalogue-based navigation to heuristic exploration.[22]

In this study, we examined the use of deep learning by encoding the multimodal data of martial arts performances with the intent to enforce data access through embodied dimensions. As demonstrated in Figure 3, the computing workflow starts with extracting data of body key points to construct a high-dimensional feature model encapsulating metrics of martial arts movement (Figure 2). It then identifies representative motion units through a deep learning training system and encodes the movement sequences into a descriptive yet compact scheme containing the distributive information of motion representatives. Eventually, a retrieval engine has been implemented by examining the efficiency of different algorithms in performing similarity calculations.
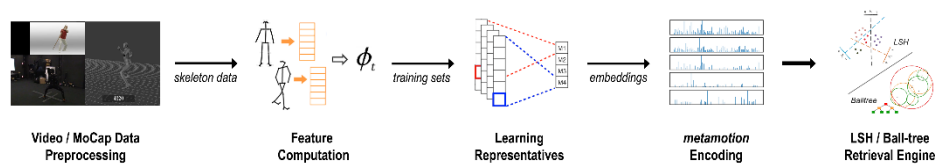
Figure 3. The proposed machine-enhanced workflow for processing the multimodal archival data.

Archival access via embodied cues

As one practical objective of this research is to enable explorative archival access, we instantiated an archival browser for the HKMALA that allows content search via embodied cues. The search operation requires an input sequence of movement to which should the results be similar and an integer K specifying the number of best results to be retrieved. The engine will compute the features into the encoding pipeline and return the retrieval results as a reference list identifying the top-K most similar segmented sequences.

Figure 4 shows an example where a MoCap sequence of *Hang Ze Paang* – the staff performance of *Lam Family Hung Kuen* is used to retrieve through a mixture of videos and MoCap data. The query is noted as Sequence B. Among the top-5 MoCap results, three segments get retrieved from the same recording, two from the empty-hand sequence of the *Lam Family* and one from *Hakka Hung Kuen*. In addition to delivering reliable results from the MoCap pipeline, the top-5 video sequences retrieved present a consistent pattern of staff-like performances. In particular, the top right segment captures the same performance as sequence B, though documented in different modalities.

As implied in the case above, sequences capturing weapon and empty-hand performances are retrievable by the same query despite their difference in visual features, e.g., the use of spears and type of armaments. The motion-based focus in similarity computation makes it possible to compare movement across genres, performing contexts, and recording formats.
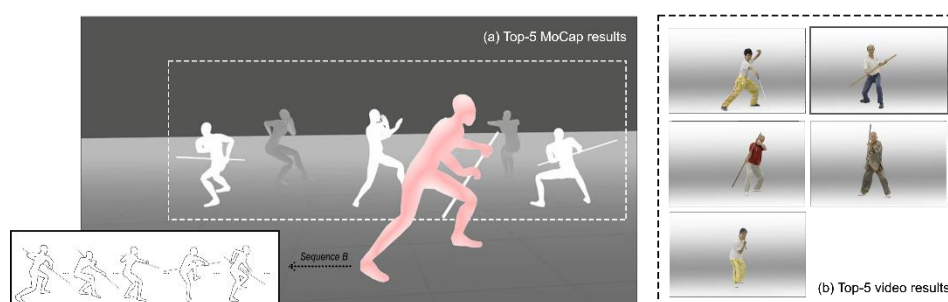
Figure 4. A demonstration of the similarity-based retrieval results in a search base mixing MoCap and video data.

Data linkage as a new source of knowledge

Cultural contact has been a fascinating topic that examines the rubrics of cross-cultural interaction leading to change in both systems or a process of acculturation, usually via the contact between social groups with different cultures. The reflection of contact also holds for martial arts, where a style gets manifested in techniques and forms, expressed through kinaesthetics and embodiment, transmitted across communities via oral and physical interactions, and influenced by partly traceable cultural changes. By relating various elements into a conceptual network, it becomes possible to detect the traits of contact via the linkage between techniques, forms, styles, artefacts, and so forth.

To this end, semantic web technologies have provided a new means for inference computation using data in graph formats. By re-engineering the HKMALA data into RDF datasets, the ontology of martial arts works with the inference rules to materialise interesting facts attesting to a potential cultural contact in the production of new knowledge concerning the evolution of a style.[23] As shown in Figure 5, a lineage diagram can be synthesised based on interpersonal data linkage among masters - such as the master-disciple relationship, parent-child relationship, and indirect relationships like residing in the same place. Specifically, this graph presents how the style of *Wing Chun* was transmitted - and possibly developed - through personal interactions among the practitioners (e.g., Ip

Man, Bruce Lee, amongst many others). This novel viewpoint was enabled by analysing data entries of each person recorded on *Wikipedia*, partially via the type and significance of the data links between one another.

Figure 5. A master-style lineage graph drawn on data linkage analysis of the concepts.

Designing a multipurpose interface

In real-world practice, annotating unstructured archival data is a labour-intensive process, consequently hindering archival access at scale.[24] In this context, we embarked on extending the interface from a search engine to an annotating tool with the assistance of the retrieval system. Correspondingly, Figure 6 illustrates the alpha version of an annotatable archive browser we developed using the HKMALA data. This multipurpose interface supports content search with data presentation, meanwhile allowing users to annotate the retrieval results interactively. Furthermore, such an integrated pipeline involves human knowledge in a semi-automatic process of metadata enrichment, which further helps facilitate archival access in a scalable manner.

Figure 6. The annotatable browser that allows users to search by motion similarity and annotate selected retrieval results in batches.

CONCLUSION: TOWARDS AN EXPLORATORY MOTION ARCHIVE

With the rise of digital archives in the cultural and heritage sectors, the quest for memory institutions dealing with moving images, audiovisual content and data in more complex forms (e.g., MoCap) has intensified daily. Computer scientists have invented a suite of tools seemingly convenient to handle a wide range of modern data that is fine-grained and carefully structured in line with some data standards. Nevertheless, real-world GLAM (galleries, libraries, archives, and museums) collections are complex in nature and require knowledge-specific inventions with practical effectiveness. In the meantime, as archivists today have suggested a new paradigm of "seeking the unknown", new ways for archival exploration are needed, with more freedom of manipulation, depth of understanding, and degree of granularity.[25]

A mindset shift has occurred, where archivists start to seek more holistic and future-oriented solutions to preserve their existing and potentially new materials. Furthermore, to bridge the gap between the archive and end-users.[26] Compared to traditional archive experiences offered by metadata catalogues, novel attempts have emerged for situated data models to cope with archival use on the content level, mostly sharing a common goal: to enhance **access** and **searchability**. In doing so, some are building semantic pipelines for extracting entities from the multimodal content or linking existing ones to a connected graph, while some are introducing fresh perspectives as a supplement to the descriptions.[27] The other theme of exploiting the application of an archive is its **descripability**. Different from the focus on creating a more accessible archive experience, these practices aim to create a meaning-making process to describe and explain the documented knowledge.

In this setting, this work suggests a unity of computational strategies, comprising machine intelligence, semantic models, and interface design, to accomplish scalable knowledge encoding for archives with little pre-annotation or notational structure via the integration of knowledge-specific modelling with algorithmic development. The machine-enhanced ontological encoding approach introduced in this article serves as experimentation on realising the two themes mentioned above: the model, in the form of a semantic network relating multidimensional elements descriptive of the "whole of environment", enables data exploration through a graph-based structure, which provides better connectivity and **discoverability** of the archival content.[28] A critical rationale behind the methodology is to process materials in a systemic mode yet meaningfully situated in their cultural context, and ultimately, to create an exploratory cultural user experience facilitating access to the specific knowledge, more than just data records.

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NOTES

[1] The dividing line between the northern and southern Chinese martial arts was traditionally perceived as the Yangtze River. A style can also be classified according to regional landmarks (e.g., a temple), cities, and specific villages. Southern Chinese martial arts, also referred to as Southern fist or Nanquan, generally feature low stable stances and short powerful movements that combine both attack and defence. In practice, Southern styles focus more on the use of the arm and full body techniques than high kicks or acrobatics moves. Therefore, there has been a famous adage "Southern fists and Northern kicks" (南拳北腿), which emphasises the difference between the two groups, however not absolute.

[2] See Hing Chao, Jeffrey Shaw, and Sarah Kenderdine, eds., *300 Years of Hakka Kung Fu: Digital Vision of its Legacy and Future* (Hong Kong: International Guoshu Association, 2016).

[3] "The Hong Kong Martial Arts Living Archive", Sarah Kenderdine, accessed July 1, 2022, https://www.ichandmuseums.eu/en/inspiration-2/detail-2/the-hong-kong-martial-arts-living-archive.

[4] Motion capture is the process of recording the movement of objects or people in the form of 3D positions. In a motion capture session, the performer wears markers near each joint to identify the motion by the positions or angles between the markers. The markers - either acoustic, inertial, LED, magnetic or hybrid markers depending on the technique used - are tracked plural times per second and at least two times the frequency rate of the desired motion.

[5] See Hing Chao, Matt Delbridge, Sarah Kenderdine, Lydia Nicholson, and Jeffrey Shaw. "Kapturing kung fu: Future proofing the Hong Kong martial arts living archive," in *Digital Echoes*, eds. Sarah Whatley et al. (Cham: Palgrave Macmillan, 2018), 258-259.

[6] The term "dark archives", as defined in the *Dictionary of Archives Terminology* by the Society of American Archivists, refers to an archive that is inaccessible to the public or accessible only to its custodian.

[7] See Lise Jaillant, ed., *Archives, Access and Artificial Intelligence: Working with Born-Digital and Digitized Archival Collections* (Bielefeld: Bielefeld University Press, 2022), 84-85.

[8] See Jaillant, in particular, "Afterword: Towards a new Discipline of Computational Archival Science (CAS)" by Richard Marciano. Addressing the potential for computational practises within archival and museological domains, Sarah Kenderdine discusses relevant trajectories in "Computational Archives for Experimental Museology" (paper presented at the RISE IMET 2021, Nicosia, Cyprus, June 2-4, 2021).

[9] The methodology is known as "distant reading" in literary studies: an approach that applies a range of computational methods to literary data to assist in the study purposes of literary history and theory. Similar approaches also include macroanalysis, cultural analytics, computational formalism, computational literary studies, quantitative literary studies, and algorithmic literary criticism. For an in-depth review, see Colavizza, Giovanni, Tobias Blanke, Charles Jeurgens, and Julia Noordegraaf, "Archives and AI," Journal on Computing and Cultural Heritage 15 (2022): Article 4.

[10] See Yumeng Hou, Sarah Kenderdine, Alessandro Adamou, Davide Picca, and Mattia Egloff, "Digitizing Intangible Cultural Heritage Embodied," Journal on Computing and Cultural Heritage 14 (2022): Article 55.

[11] See Hou et al., "Digitizing Intangible Cultural Heritage Embodied," in particular, section three.

[12] See Hing Chao et al., "Kapturing kung fu", 250. Allen also presents a philosophical discussion on *mindfulness* in martial arts practices, see Barry Allen, *Striking beauty*, in particular, chapters three and four.

[13] Wulf has provided a thorough analysis of the embodied nature of knowledge in intangible cultural heritage and cultural narratives, see Christoph Wulf, "Performativity and dynamics of intangible cultural heritage," in *Ritual, Heritage and Identity*, eds. Christiane Brosius and Karin M. Polit (India: Routledge, 2020), 76-94.

[14] See Tamara Nikolic Deric, "Intersections Bridging the Tangible and Intangible Cultural Heritage Practices," Volkskunde 121 (2020): 406

[15] Ontology, originally the philosophical study of "existence" or "science of being", has been adopted by computer science and information science as a way of representation by defining a set of categories, properties, and relations between the concepts, data, and entities that substantiate one, many, or all domains of discourse. More simply, it shows the properties of a subject area and how they are related, see "Ontology (information science)" on *Wikipedia* for a concise introduction.

[16] For a more detailed description of the Martial Arts Ontology, see Alessandro Adamou, Yumeng Hou, Sarah Kenderdine, Davide Picca, and Mattia Egloff, "Ontology-Mediated Cultural Contact Detection Through Motion and Style in Southern Chinese Martial Arts" (paper presented at the SWODCH 2021, Bozen-Bolzano, Italy, September 20-21, 2021).

[17] In *Conceptualizing 21st-century archives* (Chicago: Society of American Archivists, 2014), Anne J. Gilliland addresses the technological development within archival science, especially the lessons from computer-aided applications that have facilitated or inspired archival practices.

[18] Moretti's *Operationalization* refers to the "transcription of a concept from cultural history into a set of quantifiable operations", which has become the theoretical bedrock of computational literary studies. In his PhD thesis, Impett practises the framework by operationalising existing art-historical theories and concepts into algorithms to address research questions in the history of art and reflects on the considerations of scaling art-historical studies through the use of machine perception. See Leonardo Laurence Impett, *Painting by Numbers*, in particular, Introduction and chapter four.

[19] See Hou et al., "Digitizing Intangible Cultural Heritage Embodied," 6-7.

[20] Król and Mynarski have suggested two types of features necessary to assess both the qualitative and quantitative aspects of martial arts performances. These include visually discernible parameters (such as time, accuracy, rhythm, and smoothness) and measurable mechanical parameters that consist of kinematic structures (concerning trajectory, velocity, acceleration, and linear or angular displacement) and dynamics (concerning forces, torques, and state of energy). Correspondingly, an effective *operationalization* should encapsulate features in relevant categories.

[21] The model-design rationale follows the suggestion by Aristidou et al to be coherent with components in the Laban Movement Analysis system, see Andreas Aristidou, Efstathios Stavrakis, Margarita Papaefthimiou, George Papagiannakis, and Yiorgos Chrysanthou. "Style-based motion analysis for dance composition," The Visual Computer 34, no. 12 (2018): 1725-1737

[22] The *Terpsichore* project introduces a new approach to transforming folkloric performing arts into tangible "choreographic digital objects". For a detailed review of technical development, see Ioannis Rallis, Athanasios Voulodimos, Nikolaos Bakalos, Eftychios Protopapadakis, Nikolaos Doulamis, and Anastasios Doulamis, "Machine Learning for Intangible Cultural Heritage," in *Visual Computing for Cultural Heritage*, eds. Fotis Liarokapis et al. (Cham: Springer), 103-119.

[23] Resource Description Framework (RDF) is a World Wide Web Consortium (W3C) standard originally designed as a data model for metadata and is now widely used for data interchange on the Web. See "Resource Description Framework (RDF)," W3C, accessed July 25, 2022, https://www.w3.org/RDF/.

[24] See Anupama Mallik, Santanu Chaudhury, and Hiranmay Ghosh, "Nrityakosha: Preserving the intangible heritage of Indian classical dance," Journal on Computing and Cultural Heritage 4, no. 3 (2011): Article 11, 3.

[25] See Jane Winters and Andrew Prescott, "Negotiating the born-digital," Archives and Manuscripts 47, no. 3 (2019): 391-403.

[26] See "On a Collections as Data Imperative," Thomas Padilla, accessed July 1, 2022,
https://digitalpreservation.gov/meetings/dcs16/tpadilla_OnaCollectionsasDataImperative_final.pdf.

[27] See "The Digital Turn of Audiovisual Archives," Yuchen Yang, accessed March 28, 2022,
https://www.futurecinema.live/the-digital-turn-of-audiovisual-archives/.

[28] Kenderdine defines "whole of environment" digitization as the approach to the concurrent and integral linkage of many forms of digitised materiality through their interlocked and interoperable digitization. System thinking is needed throughout the processes of data capture, computational modelling, and algorithmic reenactment. Sarah Kenderdine, Lily Hibberd, and Jeffrey Shaw, "Radical intangibles: materializing the ephemeral," Museum and Society 19, no. 2 (2021): 256.

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SONIC HERITAGE – LISTENING TO THE PAST

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INTRODUCTION

History is so often told through objects, images and photographs, but the potential of sounds to reveal place and space is often neglected. Our research project 'Sonic Palimpsest'[1] explores the potential of sound to evoke impressions and new understandings of the past, to embrace the sonic as a tool to understand what was, in a way that can complement and add to our predominant visual understandings. Our work includes the expansion of the Oral History archives held at Chatham Dockyard to include women's voices and experiences, and the creation of sonic works to engage the public with their heritage.

Our research highlights the social and cultural value of oral history and field recordings in the transmission of knowledge to both researchers and the public. Together these recordings document how buildings and spaces within the dockyard were used and experienced by those who worked there. We can begin to understand the social and cultural roles of these buildings within the community, both past and present.

THE SONIC EXPERIENCE

Sound exists as an output of action. Activities create vibrations which are transmitted through materials and the air. And thus, through our lived experience we become conditioned to understand that sounds, in turn, have the power to convey impressions of activities. Even those long since silenced.

The technology of sound recording has enabled us to dislocate physical performance action from sonic effect. Almost all of the music we listen to is dislocated from us in either time or place (often both), but the perspective of recording often places us into proximal relationship with these captured sounds. The power of recorded music is that, when we listen to an album recorded 50 years ago and hear the voices of the musicians as if in real-time present in the same room, we become a part of this relived moment.

The sonic experience is therefore direct, personal, tangible, tactile and transcends both temporal and geographic limitations. One does not need to see the object to hear it and feel an affect from it. Sounds are not limited by visual boundaries.

This brings us to the question of sonic heritage. Many museums and post-industrial sites retain the architectural features of buildings made for industry, perhaps some even include artefacts and machinery, frozen in time. But this visual preservation conveys only a fraction of the historic fabric. Absent are the vibrations of action and the sounds which fill spaces, resonating with architecture to

unify object and space. Recorded sound, therefore, provides an ideal medium for engagement and re-enlivening. A powerful form which can de-objectify the past, create affective tracings of spaces and places, and, perhaps most importantly, afford a humanised reading of the past.

All industry, no matter how mechanised and automated, builds from human labour. And thus, the sonification of activity and action gives voice to that labour, which is otherwise silenced by the traditional historical record. The father of soundscape studies,[2] R. Murray Schaffer, flips many established visual concepts into the sonic domain; one such example is his notion of the 'earwitness'. As James Mansell describes, Schaffer's term implies that "the audible past is a lost but recoverable environmental reality that the historian can know by listening through the ears, via description in written and verbal accounts, of those who heard it. […] earwitnesses captured both the sounds of the past and past ways of understanding those sounds in their written accounts of listening".[3] Thus, when we listen to the sonic memories of former workers we receive both an impression of the historical soundscape, but also their affective and human response to those environments. Examples of this can be aptly heard within our "Whispers of the Past" soundscape installation, whereby we sought to elicit sonic memories from former dockyard workers and to reanimate the sounds described by them, to create evocative pictures of the working yard as they remembered it.[4] We utilised a sonic frame within our oral history questioning to specifically elicit responses to remembered soundscapes.

In his book *Making: Anthropology, Archaeology, Art and Architecture* Tim Ingold describes contrasting ways of knowing. One can either know about something, or know through something.[5] To know about something is to be apart from it, to observe it from a distanced vantage – to look at a hammer within a glass case. To know through something is to engage with its physical reality and to understand it in a tactile and enacted way – to hold the roughness of the wooden handle and to feel the pendulous motion through the air as you swing it to strike the nail. Each form of knowing provides a different form of insight, one analytical one material. While museums do enable such tactile engagement with physical objects, there are clearly both practical and logistical limitations incurred by scale and complexity. Short of reconstituting the full industrial complex and sending the audience through rigorous training programmes, one can never hope to afford museum visitors such an immersive experience. Sound however does provide an opportunity to convey impressions of scale significance, and activity which can communicate activity. Echoing Tim Ingold, Mansell outlines two variants of the sonic encounter; in our project we are not listening to the past (in a distanced way), but listening with and through (to connect with).[6]

All museum artefacts frame their objects, placing them in a context that shifts or directs interpretation. In the creation of our soundscapes we drew upon skills, expertise and practices from film sound and electroacoustic music, to both reconstruct soundscapes which are lost to time and articulate them to highlight the affective experience. This active process of compositional intervention is offset to some extent by the more open subjectivity of the soundscape. One may choose when and what to listen to and thus direct their own interpretations and reading of the soundscapes. In all we sought to be true to the record, and for our living oral history participants, shared back our recordings for their assessment and response before final publication.

HISTORY REVISITED

One of the questions we explore in our research, concerns ways we can utilise sounds to construct experiences of overlaid histories. We aim to create situations whereby audiences in concerts, visitors to galleries and museums, as well as online explorers, can rediscover histories and places through the sonic medium. Our endeavour does not end with the construction of historical soundscapes, but goes beyond it, into understanding the context of those sounds we do not currently hear, as well as the reactions of their listeners in those bygone eras.

Our installation 'History Revisited: Exploring the Sounds and Stories of Chatham Historic Dockyard' was exhibited in the Mezzanine of Slip 3 at Chatham dockyard, between 4-8 May 2022. The installation was designed for 3 projectors and 26 loudspeakers playing 18 sound compositions. The loudspeakers were spread in the space, which is a little more than 1.6 km^2 wide. The building was constructed in 1838 and its frame was designed by Sir Robert Seppings with the cover resembling an upside-down ship.

The Mezzanine's wooden structure evokes past ages with strong historical allusions. Our aims were to let visitors discover the historic space by navigating it through sound, and to emphasise the sonic content of the installation by exposing visitors to the historic landmark. We reorganised the architectural space into aural zones, and the loudspeakers were positioned in pairs for playing back stereophonic sound. Visitors wandered through the space, approaching individual aural zones to experience stories and sounds related to the dockyard, its history and activities. In between pairs of loudspeakers, the aural zones were mixed together, and by walking, visitors were in control of the fade in and out between stories, creating their own unique narrative as they moved forward.
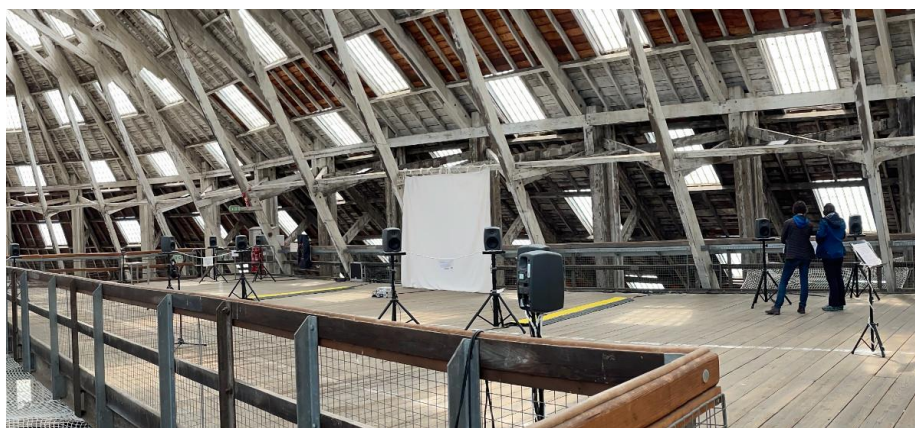
Figure 1. Part of the installation, north-west side of the Mezzanine.

There were two sets of compositions in the audio part of the installation. The first set contained compositions created by our research team, while the second comprised soundscape pieces created by schoolchildren.

The compositions of our research team were based on aural history archival material, interviews our team conducted, and sounds we recorded, processed or created from scratch. The soundscapes we developed were informed by descriptions of past events given by the interviewees.[7] Stories in our installation contained personal accounts, memories and anecdotes that were evocative and became alive again through the human voice. We approached each story from the vantage point of the person who experienced it, emphasising emotive details by creating sonic impressions of the remembered scenes. Each person's recollection added to the collective memory of the diverse group of people who happened to work or live at the same place, sometimes during different periods. This artificial collective memory, put together by our research team, formed an intricate picture of interwoven lives in the dockyard. As Halbwachs writes "[d]on't we believe that we relive the past more fully because we no longer represent it alone, because we see it now as we saw it then, but through the eyes of another as well?"[8]

The second set of compositions was created by schoolchildren of Canterbury Academy Secondary School using our field recordings of Chatham dockyard. In November 2021, our team delivered workshops at the academy, which were focused on using location sound to generate musical ideas, initiating discussions on the changes in the local sound environment and social life. The workshops

resulted in positive feedback and yielded creative responses from the students. Through this work, our project created a link between the young generation and a heritage site, encouraging children to value local history and their heritage through their own creations.

All the compositions in the installation were played in loops, starting and ending at different points in time. Thus, the overall soundscape was never repeated exactly the same, mixing stories and sounds arbitrarily, creating an impression of a *collective memory soundscape*. Three screens displayed bygone images from the dockyard archives, emphasising further the connection between the composed soundscapes, the exhibition space and their histories. We did not expect visitors to listen to every story and watch all images.[9] Our aim was to create a versatile, malleable sonic space with its own life and memories, which could be experienced for as long as someone wished. Some visitors walked slowly through the space without stopping, awed by the historic landmark which was filled with voices and nautical sounds. Others stayed for much longer, going from one story to the next, listening intensively.

In the five days that the installation was exhibited, at least 200 visitors experienced our work. Our discussions with many of them and the comments they wrote on the visitor book demonstrated the enthusiasm of our audiences, who found our installation very engaging, and regarded it as an integral part of that historic space.

With our installation, we wanted to draw attention to the key role that sound plays in understanding and communicating history. Our work was received enthusiastically both by the general public and the dockyard museum, who are adapting their approach to exhibiting history. The museum is developing a new direction in representing the past with new methods of display, to include sound, in order to enhance the visitor experience, and make the different layers of local history not only visible but audible too.

REPRESENTATION OF WOMEN IN THE ARCHIVES

As we digitised the archives, we discovered that women's voices were under-represented; this can be seen in various collections and projects that occurred over the years. For example, the *VE Day*[10] and *Home Front Recall* collections, recorded in 2005 and 2006 respectively, feature interviews with people who lived in the Medway towns discussing their experiences of WW2. Four out of eleven of the interviewees are women. Three of these women were children during WW2 and they discuss their experiences of going to school, being evacuated, sleeping in air raid shelters and celebrating VE day. The fourth, Mrs Wade, a secretary at Chatham Dockyard, discusses her work duties and her witnessing of ships returning from Dunkirk in 1940, and her memories from the air raid shelters during night bombings. She describes the bombing of the Smithery and the impact it had on her, her friends, and her working environment; and how sometimes she had to work in a shelter during the war because "the men had to get paid". She recalls that during the war there was a "terrific din at Chatham because of all the ships that were in would open up, and there were also guns on Tower Hill".

We discovered recorded interviews with a lady called Noreen Chambers, a clerical officer at the dockyard just before it closed in 1984. Chambers talks in detail about the process of the dockyard closing and her experiences of working at that crucial time. She comments on there being a feeling of loss as every Friday they said goodbye to a person or a ship, like a little funeral every week. She also mentions that more and more buildings had signs that said not to be re-occupied. Chamber's account gives us a rare insight into what it was like to work in the dockyard as it began the process of closing down.

New Addictions to the Archives

Women's stories and voices offer different perspectives of life at the dockyard, since women had different jobs compared to men, and worked in different buildings, such as the spinning rooms and the drawing office. We interviewed four women whose job roles include a tracer,[11] a master ropemaker, a former WREN (Women's Royal Naval Service), and a clerical officer.

The aim of the interviews was to discuss their experiences at the dockyard while also obtaining descriptions of the soundscape of their workplace. In her interview, Leanne Clark, a master ropemaker, talks about the sounds of the ropery and how this unique space (¼ mile in length) is rarely silent, and that when it is, it feels unnatural. She discusses how workers use bells to communicate over long distances; a ring "signals that you must do the opposite of what you are currently doing e.g., if the machine is on, turn it off". Such descriptions combined with the field recordings we made in the ropery enable us to create an accurate sonic experience of this unique working environment.

Sandra Fraser discusses her role as a former tracer at the Dockyard where she worked from 1961-67. She describes how she traced electrical drawings for the draughtsman, using linen and different types of pens. Fraser describes "clanking from outside, as machinery was being moved around", "the train going down the track" and tracers inside chatting amongst themselves.

If women's voices are not part of the archive, then we are missing out on the stories of female apprentices and those who worked as tracers, clerical officers and spinners. The addition of women's voices ensures that a diverse range of knowledge, memories and experiences can be shared with researchers and the general public.

CONCLUSION

Our project promotes 'knowing-through-listening' and the successful audience responses to our sonic interventions have demonstrated the significant potential that music, sonic arts and sound studies have to contribute within heritage environments, beyond mere decoration and tokenism. Engaging sonic perspectives allows us to open up new tactilities and affords approaches to engagement with the intangibility of past human action. Our installations "Whispers of the Past" and "History Revisited" provided a sonic re-enactment of the space and drew listeners in to engage with the ideas and architectures explored.

We must be mindful of the representations we project and the political ramifications, but also accept that all heritage contexts construct artificial framings of objects, ideas and knowledge. The primary goal of our project has been political, to represent the perspective of the worker and flip the traditional top-down perspectives of history via a focus on the texture and detail of lived experience. We have explored rich seams of information within the archives, historical publications and through oral history interviews. Our work interrogating and expanding the archives' representation of women has been important in this regard, again demonstrating underappreciated and marginalised perspectives.

The subjectivity of sound becomes its power in this context, enabling audiences to apply their own listening to ensound spaces and museum collections.

ACKNOWLEDGEMENTS

NOTES

[1] The full title of our research project is 'A Sonic Palimpsest: Revisiting Chatham Historic Dockyards' and examines the sound environments of past incarnations of Chatham Historic Dockyard in the UK. The website of the project gives more information: https://research.kent.ac.uk/sonic-palimpsest

[2] Soundscape studies explore and expand our existing knowledge about sound and listening, and the relation between human beings and the acoustic environments they inhabit and perceive.

[3] James G. Mansell, "Historical Acoustemology: Past, Present, and Future," Music Research Annual 2 (2021): 1. James Mansell presents a comprehensive survey of the field and methodology of historical acoustemology. The term 'acoustemology' was coined by anthropologist Steven Feld (1982) and combined the words 'acoustics and 'epistemology' to propose sound as a way of knowing.

[4] "Whispers of the Past" soundscape installation and geolocated soundwalk; the audio part can be listened to online: https://soundcloud.com/electric-medway/sets/whispers-of-the-past

[5] See Tim Ingold, *Making: Anthropology, Archeology, Art and Architecture* (Routledge: London, 2012)

[6] James G. Mansell. "Hearing With: Researching the Histories of Sonic Encounter," in *The Bloomsbury Handbook of Sonic Methodologies*, ed. by Michael Bull et al. (London: Bloomsbury, 2020), 93–114.

[7] There was one exception; a pair of loudspeakers played repeatedly the title of the installation in Morse code, which was also printed on the exhibit label. Visitors included former workers of the dockyard, and it was interesting to speak with an elder visitor who used to work in communications, who could recognise and translate the code correctly.

[8] See Maurice Halbwachs, *The Collective Memory* (New York: Harper & Row, 1980), 23.

[9] The total duration of the compositions was 45 minutes, and the duration of the videos containing images of the dockyard exceeded 25 minutes.

[10] Victory in Europe day, 8 May 1945.

[11] Tracers in the dockyard draw and reproduce complex engineering plans.

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MOUNTAIN AND WATER CONCEPT, HERITAGE AS REFERENCE.

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CLIMAX

After many years of isolation China opened its borders in the late '70s. This brought a positive economic reform, but also meant a hasty step-up into globalization.

Regarding the architectural design, this rushed pressure led to a direct assimilation and maladjustment of the international style rooted throughout the world in the early twentieth century. In countries where tradition and culture are closely intertwined, this assimilation was not always successful. This is the case of China, where a conflict arose between heritage and identity.

In 2014, due to a climax of critical voices highlighting the problem generated by this malpractice, President Xi Jinping said during a seminar in Being about how art can serve People, that he deeply opposed to those "strange buildings" in most big cities in China. Indirectly the president encouraged Chinese architects to create a new art and architecture style that "reflects contemporary Chinese values, embodies Chinese culture and conveys Chinese aesthetics in line with Chinese tradition".[1]

Japanese metabolism, conceptualized by Kenzo Tange, Kiyonori Kikutake, Kisho Kuokawa and Mak Fumihiko is a clear example of successful absorption of the international style. In Japan the movement had sufficient time to be analyzed and evolve according to its own cultural and social characteristics, but China's late entry into the world of globalization forced an inappropriate evolution.

Nevertheless, in the last decades a growing number of Chinese architects are exploring different ways to understand and reflect their own identity in contemporary art and architecture. Relevant architects in this sense are Pritzker awarded Wang Shu, who developed critical regionalism, or, with a more international background, Ma Yansong, who's work is inspired by landscape painting. Although their approach to the design process is different, both architects seem to successfully reflect President Xi Jinping's ideas. Their three main invariants to pursue an own version of modern style are: nature as inspiration, historical heritage, and the use of specific materials.

SHANSHUI, INSPIRING IN NATURE

Figure 1. Drawing by Huang Ding (1660-1730), part of a lot belonging to an auction of Qing dynasty court drawings.

Lao Tzu, China's best-known philosopher, wrote in his book, the "Tao Te Ching" about   "the law of man, the law of earth, the law of heaven and the natural law of Tao".[2]

Lao Tzu taught also how to find a balance between the opposing energies of the universe represented by Yin and Yang. As Lin Ping[3] said, these opposite energies co-exist in the world around us.

The Chinese word ShanShui (山水) means literally "landscape". The term was originally used for traditional paintings, but quickly spread to other areas and nowadays can be considered a great movement in itself. Shān (山) means mountain (vertical) and represents Yang energy, while Shuǐ (水), means water (horizontal) and constitutes Ying, energy. Though the concept of ShanShui, mountain and water, finds it origin in Taoism, its interpretation in architecture doesn't seem so direct.

Although China is mainly secular, the essence of Taoism provides one of the major underlying influences in Chinese thought and culture. Their love and respect for nature, is part of their philosophy of life and cultural traditions. The relationship between man and nature is indivisible and is obvious in any form of art.

According to Moran Bertrand's and Mendez Reyes' article "From Complexity Theory to Ecological Ethics", and based on various publications[4] of Edgar Morin, in western traditional philosophy no direct emotional connections between man and nature were recognized   until the emergence of ecological ethics around 1970 when nature became an academic research discipline. This was mainly a call to human consciousness in an attempt to end indiscriminate exploitation of the environment and establish a harmonious co-existence between sustainable human development and nature environment.

LOOK BACK TO THE PAST

While many Chinese architects still look at western countries and directly copy international style buildings in an "everything goes" approach, or in the best of cases "collect star architects' works" signed by internationally renowned architects, some new generations of architects are rebelling

against this malpractice. They consider that by not taking into account the cultural differences this can lead to a loss of identity. Well-known is Wang Shu's criticism; he proposes the recovery of China's own cultural traditions like Chinese garden design inspired by Taoist principles[5].

Figure 2. Beijing skyline con ChaoYang Park Plaza (MAD) on the left and CCTV (OMA) on the right. Copyright from the official MAD website.

Ma Yansong argues in the English version of his book 山水城市 ("ShanShui City"),[6] that the mountainous landscapes that once determined his childhood could be the answer to the future of China's large city centers, like Being, Shanghai or Shenzhen, where the loss of identity reflects an oblivion of the harmony that once characterized Chinese tradition.

Like Rem Koolhaas did in 2014 for an exhibition in the Guggenheim Museum,[7] Ma Yansong proposes the "ShanShui City" as a countermeasure. His message is direct: don't move the city centers out, but bring the nature landscape features into the cities. This philosophic influence in his design process is very remarkable in the sinuous curves of the "Absolute World Towers", winning project of the "Mississauga competition"[8] in Ontario, Canada.

Another more literal example is the ChaoYang Park Plaza (MAD 2016) in his hometown Being, where nature has been introduced inside the buildings. Also the mountainous shapes of their volumetry contrast with the angular hardness of the buildings, which were described as "oversized and weird" by president Xi Jinping[9] CCTV (OMA 2012). For Ma YanSong the concept of ShanShui City goes beyond forms, defending the mountain-water concept as a philosophy and way of life through which the relation between human beings and nature finds its balance.

Figure 3. Jiaxing Citizen Center (MAD) project proposal. The image is from MAD's official website.

Ma Yansong argues that the sinuous curves that characterize his work are more friendly environmentally. He criticizes the rigid, angular and repetitive forms, advocating for a more natural form of architecture, organic architecture?".

Some people see an undeniable parallelism between Ma YanSong's work and the architecture of Zaha Hadid, classifying both as "non-linear architecture", or, as he himself explains, architecture in harmony with nature. The fluidity and aerodynamics in their designed spaces are conceptually very close. Good examples are the "Harbin Opera House" (2015) in northeast China or the recently approved Jiaxing City Proyect (2021), which not only show fluid exterior volumes but also a continuous flow of interior spaces.

Zhang Deli and Zhang Wenhui argue about this comparison in their article, "哈迪德与马岩松 :非线性逻辑语言浅析"[10] ("Ma YanSong and Zaha Hadid: Analysis of Non-Linear Logical Language"), delving into the theories of non-linear forms in urbanism and landscape architecture and its interpretation in architecture in general. They analyzed the creative process of both, Zaha Hadid and Ma Yansong, in order to find out how they use this language in their work.

Wang Shu, on the other hand, reflects the influence of ShanShui in his work underlying the different levels of meaning in accordance with the project. Like in Chinese language, which has a pictographic origin, the final meaning is the sum of partial meanings.

Figure 4. Pictures of Ningbo History Museum (amateur studio) provided by Evan chakroff
Image belonging to the folder Thoughts on Wang Shu and "Ningbo History Museum"
https://www.flickr.com/photos/evandagan/5979516

The magnificence of the Ningbo History Museum (2003-08), together with the massiveness and tonality of the recycled materials on its façades (using the traditional WaPan technique) enhances the look of solemnity and tranquillity of the characteristic mountainous landscape near Ningbo. Wang Shu explains this landscape inspiration in his book "造房子"[11] (Translation: Building a house). It is important to highlight the importance of the WaPan technique as an original Ningbo craft collage technique that the author had already used in the campus of the "China Academy of Arts" in Hangzhou (2002-07). This Wapan technique uses vernacular construction materials and as such carries the meaning sense of the past.

When Brendan McGetrick visited the Ningbo History Museum together with Wang Shu in 2009,[12] Wang Shu commented that when designing the project he remembered the mountainous landscape of Ningbo and described his inspiration as the intersection of three valleys and mountains with lakes and caves.

Normally the presence of mountains is easier to understand than the presence of water, as water is often also represented by the softness and sinuousness forms of the building itself, as can be seen in most of Ma Yansong's works. The importance of water in Ningbo is mainly due to its proximity to the sea, the East China Water. The carefully designed landscape around the Ningbo History Museum is dotted with small ponds reflecting the strong presence of water partially bordering the building. The subtle way the mountain-water concept is presented in the works of Wang Shu and LuWenYu, (Amateur Studio) is not directly related to the formal details of their work.

WHEN IDEAS BECOME MATERIAL

Li Ping commented in an article[13] that if Tadao Ando believes that the most important achievement of modern architecture is industrialization and the use of prefabricated elements, this inevitably hinders the richness and diversity of architecture culture.

Ma Yansong, on the contrary, says that he always questions the Western-established values that have led to machine-like cities, alienating man from nature. Of course architecture must be materialized in order to fulfil its potential, but it is undeniable that without theoretical support, it is impossible to evolve, be analyzed and optimized.

Ma YanSong proposes the ShanShui City as the urban evolution that China can contribute to the world: a combination of density and function harmonized by the artistic concept of nature landscape environment, in the hope to build a future city centered on human spirit and cultural values. The idea of ShanShui City doesn't literally move the natural landscape into the city, but aims to materialize the ideal image of nature landscapes that Chinese people still hold in their hearts. Li Ping considers Ma YanSong's work as an architecture style that represents the Chinese heart wrapped in an advanced Western science and technology leather bag. This interpretation comes from Western architectural and artistic theories that abstract natural shapes and ideas.

The elevated contour of The "Fake Mountains" (Ma Yansong, 2008-2015), a residential development in southern China, clearly reminds the famous Guilin Mountains.

Figure 5. China Academy of Art, Xiangshan Campus (Amateur Architecture Studio), 2007, Image 37 of 68 from gallery of Photography: Wang Shu Projects, by Clement Guillaume. Campus Hangzhou / © Clement Guillaume

When contemplating the Ningbo History Museum (2003-08) of Wang Shu, it seems obvious that Wang Shu's value in the design process and materialization of ideas is different. Even though both architects have a common view on the relevance of ShanShui in their works, it is precisely their understanding and interpretation of it in their design processes that differentiates them. As Thorston Botz-Bornstein says, Wang Shu on the one hand alines himself with the thoughts of Kenneth Frampton's critical regionalism, rejecting that copying archaic models is consistent with modern Chinese architecture, while, on the other hand, he expresses his interest in collecting traditional values.

The workspace and workflow of the two architects are also different. Considering the reduced production of Amateur Studio, founded by Wang Shu and his wife Lu Wenyu, it is evident that their design process is very slow compared to MAD (MA Yansong's studio). Amateur Studio is relatively modest, closer to the spirit and work process of European architect Peter Zumthor and more in line with his understanding of the value of the materials. Both architects show great interest in recovering historical values and interest in rural life and traditional construction methods, and care for craftsmanship in the materialization of their ideas.

Also Blaine Brownell[14] proposes similar work processes as those used by Wang Shu with the traditional WaPan technique or the priming of bamboo moulds on concrete of the façades of the Ningbo History Museum. And also Kengo Kuma uses analogous recycling techniques treating recovered materials from other buildings suspended at different intervals. A good example of this is the façade of tiles on a metal mesh of the China Academy of Arts Museum (2014).

Figures 6-7 China Academy of Arts' Folk Art Museum / Kengo Kuma & Associates.
Images © Eiichi Kano

The different processes involved in turning ideas into reality remarkably reflect how Wang Shu and Ma Yansong understand the future of architecture in China. While for Ma YanSong materials and techniques are just another tool in shaping his ideas, Wang Shu shows more interest in processes in which materials can add layers of historical meaning to his designs.

CONCLUSIONS

Wang Shu's approach is close to the philosophy of European architects like Peter Zumthor. He holds a craftsman's stance regarding the design process focusing more on history, traditions and culture, and proposes an architecture style that, without copying the past, does reflect its values.[15] "I have always believed that all architectural designs and actions also have to fulfill human emotional needs towards environment and nature"[16].

Ma Yansong maintains a clearer and more direct position as a characteristic akin to architects like Bjarke Ingels or Zaha Hadid, who strip themselves from poetic embellishments and use the media to express their thoughts and justify their actions. His way of understanding and expressing the processes involved in arquitectural design is filtered through the sieve of human emotional needs and their relationship with nature.

Although Wang Shu and Ma Yansong present distinctive architectural styles, they both try to inherit the ideal of classical Chinese landscapes.

What is known as "Destruction-Construction" is a frequent practice in China. Years ago the build quality was very poor; however extensive reconstruction of entire areas can lead to a loss of identity for a society in full development, as had already been experienced in Europe. This is what Kenneth Frampton pointed out in his review about critical regionalism. Just like Frampton, Wang Shu keeps an optimistic posture towards the future; he proposes different ways for the recycling of materials, recover traditional and cultural values and provides solutions to avoid losing identity. His inspiration is the ShanShui concept, bearing in mind the principles of Taoism.

The technological skin with which Ma Yansong wraps his works makes them look more fashionable and future-focused. Nevertheless, the intention of both architects is to respond to a contemporary architecture consistent with its past. Both architects are inspired by the principles of traditional Chinese landscape architecture, but use different methods in their design process. Wang Shu's approach is anchored in tradition and pays more attention to simplicity, while Ma Yansong's approach is more distant from history and relies more on technology.

The discrepancies in their design process establish a duality of potential strategies. Even when their inspiration is similar, their different ways of understanding the design process determine their different answers to the question of how to innovate while preserving heritage. Although only the course of time can judge their works, both architects are praised and have become references for young Chinese architects, who now find tools for an architectural style close to Chinese culture and traditions.

NOTES

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[8] The Absolute Towers competition in Mississauga, Ontario, announced in November, 2006, which drew ninety-two entries from around the world. Six entries were shortlisted for a second stage, and the winning design by a young Chinese firm, MAD (Ma YanSong) was announced on March 28, 2007. Information accessed on 30 July 2021: https://competitions.org/2013/10/absolutely-amazing-a-high-rise-competition-thrusts-a-canadian-suburb-into-the-international-limelight/

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ANTICIPATING POTENTIALITIES: RE-PRESENTING ARTEFACTS TREMPORALLY AND GEOGRAPHICALLY IN PURSUIT OF INNOVATION

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INTRODUCTION

This paper aligns ideas of the in tangible to ply unforeseen moments within the natural environment, situating landscape as artefact and to encourage better practice and education around our eco systems, bio diversity and innovation. To do so the intent is to juxtapose technology, in the form of a six axis robot, with the natural environment, setting up a tension and connection at the same time to allow the realisation of landscape as artefact. The gradual manipulation of the familiar to create the unfamiliar via juxtaposition of technology and nature evokes both recognition and bewilderment, connecting the known and unknown via a moment of recognition and vague understanding in pursuit of new interpretations of interstitial space and landscape. Supposing a philosophy of experimentation this paper proposes situating nature in sync with emerging technology to imagine a techno organic landscape. Questioning understanding of the ephemeral and artefact as something man made, whilst situating the natural environment as artefact, realised via the intersection of landscape, robotic technology and design. The intent being to illuminate the indescribably ephemeral and yet forcefully adaptable presence of natural artefacts to question and understand what we know to be real and why or how such information is useful. Radiating out to touch points of interest in design, architecture and technology this paper serves as an anchor point for a research project that is in progress on the promotion of biodiversity and ecological support via robotic technology and additive manufacturing within a hyper local site on Australia's Northern New South Wales coast. Beginning with an understanding of the field in which robotics and landscape is currently immersed, this work shall then extrapolate a theory by which the tension created between machine and nature illuminates the in tangible and allows for the re-imagining of artefact within the natural environment as a marker viewed as a temporally re-locatable artefact. The idea of landscape, an ancient historic phenomenon being juxtaposed with developing technology to trigger and anticipate new potentialities is the method, alongside the elevation of landscape to a position of utmost importance as a recorder of society and change. The manipulation of theory, site and technology promotes a new artefact and landscape that supports evolutionary change and diversity, leading to the determination of how artefacts may be more than tangible, leaning towards the interchangeable and ephemeral.

Landscapes are always in transformation, constantly evolving and changing, subject to time and forces, the perfect subject, constantly altering and being re-presented. How can we situate such discussion firmly within the realm of cultural history whilst offering landscape the primary focus that

it so deserves? This research uses technology, in the form of a six axis robotic arm and the practice of additive manufacturing, to accentuate and assimilate the production of landscape as artefact. The focus of this paper takes a small part of the research to situate the reader within the idea of landscape as artefact and how the manipulation and choreography of event based program using technology within the landscape may perform as artefact that is somewhat temporal and geographically transient.[1] A possibility that is particularly pertinent within our current global climatic crisis. At the tipping point into the post Anthropocene is the possibility that our main contribution to history may be the reinstatement of the natural environment as primary importance is a wonderful projection.

NEW DIMENSIONS OF FABRICATED NATURE

When discussing the idea of nature as primary artefact, machine and nature or any possible iterations that combine a synergistic or juxtaposed representation between the two there is always an awareness of dealing with a constantly evolving and moving condition that is related to time and space in a manner that triggers the possibility of the ephemeral via the transition from one form to another.[2] This statement, seems somewhat ephemeral in its ability to evoke multiple ideas and possibilities, however it is a reality when considering nature and landscape and the growth and evolution of multiple intertwined species at once to make up a thriving and adaptable eco system. The introduction of technology and the juxtaposition of robotic form and natural processes within the landscape offers a friction and/or force that allows for the realisation of the in-between. The anticipation of the potentialities at play with a multitude of possible connections and evolutions is the starting point for any new artefact or life form. The use of robotics as a method to evoke the intangible is somewhat supported by the development and growth of mycelia networks. All life forms, as described by Merlin Sheldrake are 'in fact processes, not things.'[3] Whilst the larger focus of this research aims to support, pre-empt and aid in the evolution of certain eco systems, it also, along the way, intentionally sets the stage for new, naturally focused, living artefacts.

The idea of fabricated nature is intended to take the path of technology performing natural processes, as opposed to the production of a landscape formed of synthetic materials. Natural processes that are not regimented and akin to what we assign to our ideas of robotics, such as a machinery production line, but rather, the repetition of nature using a process that either randomly assigns the movement and function of the robot in a manner that assimilates a natural process, or a direct response to sight, as a closed loop sensor system. This field of research is currently divided into a number of sectors, most of which are necessary steps in the process of guiding and situating this research. Firstly, the forming of a terrestrial platform or scaffold, followed by the setting of the platform within the natural environment, and the interaction of the robotic source with nature as the project develops. The latter step includes a somewhat indeterminate and ephemeral possibility. Daniela Mitterberger and Tiziano Derme, operating as MAEID, have undertaken a series of terrestrial experiments that involve the growth of micro-organisms and formation of soil topographies. For the 2021 Venice Biennale the MAEID team created 'Magic Queen', a 3D printed soil landscape in which organic binding agents, jetted upon soil compacted by the six axis robot arm within a man-made formwork, allows for the additive manufacturing of a large scale landscape. The landscape that is formed is then hydrated and monitored by the robotic arm from a suspended position above the topography. The landscape changes as mycelia and micro organisms grow and subject to time, eventually degrades.[4] A precursor to the Magic Queen landscape was Derme's work with Marjan Colletti for the Chelsea Flower Show, London in 2019. Within the work, titled 'Terrestrial Reef' a synthetic landscape is created and tended by a robotic arm. The almost lunar-esque landscape challenges ideas of nature as green alongside questioning decision making and Artificial Intelligence in gardening. Both works suppose a new terrestrial formation that is devoid of traditional vegetation in favour of either mycelium networks or

more synthetic sproutings. The questions are posed, for the viewer, unspoken, yet apparent as to what our idea of landscape is? In addition this paper questions the idea of artefact if it is not man made, but rather, naturally derived with the intervention of the robotic, is it an artefact? The use of nature as artefact is supported, albeit in opposition to the artefactual as described by Mobus.[5]

Discourse in the field of natural terrain and the promotion of biodiversity via placement of objects is also furthered by Henriette Bier, and the development of 'Planetoids', 3D printed soil artefacts to be inserted into the landscape to create 'minimal interventions with maximum effect' as they stimulate bio diversity and microclimates.[6] Such research addresses the feasibility of 3D printing soil structures to support plant life, and therefore the production of an artefact that embeds within the landscape, yet mimics natural processes as it naturally evolves and erodes with the cycles of nature. What is imperative in this situation is that anything that is inserted into the landscape or natural environment is composed of natural materials local to the site. There is no jarring or interference of the synthetic. In this manner the 3D printer and the monitoring/nurturing role of the robotic arm or chosen technology becomes facilitator and operator, following natural techniques but driving the form and timing of the process from a point of view that is determined via monitoring change and pre-empting possibilities. Barnes et al have experimented with and documented the extrusion of soil and seeds to enable growth upon the 3D printed artefact.[7] The research conducted by Barnes et al included hydration retention of the extruded soil to facilitate and maintain healthy plant life. The outlined body of research on the topic of 3D soil printing and robotic gardening, for the purpose of this specific research project, is to be combined with a variety of techniques and methods to establish a scaffold within which native species may inhabit. An example of such a process may arise in the design of a scaffold that reduces erosion of top soil within a sloping site. The scaffold may be built on site, shoring up the shift of soil as the increased weather events drive more and more rain, this is contrived and positioned according to natural forms, however the way in which nature inhabits, encloses and develops that form is where the techno/natural artefact becomes ephemeral and adaptable. The artefact is framing an interstitial space. A space of instability and indeterminacy to harness the force for potential stability of the system. The landscape as artefact in transformation.

The progression and development of an artefact to represent culture as support to our natural environment would benefit from the production of an artefact that is using an entire circular economy within its process. The derision and use of an organic binding agent form the site in which the artefact is to be placed is important. Exploring the use of beeswax and plant based derivatives to determine a 3d printed material using soil that has integrity and yet assimilates with the natural environment. This development and experimentation of organic binding agents and printable materials is seen within the work of Fratello and Rael who have established a long history of experimenting with organic materials within additive manufacturing, salt, soil, grape skins, they create artefacts and architecture from the materials, yet there has been little exploration of the artefact within the environment.[8]

SCAFFOLDS FOR NATURAL PROCESSES

Why use robotics? The answer to this question follows two primary themes. One being the intent to flatten a hierarchy in pursuit of a more equalitarian approach to nature and its biodiversity. The flattening of the anthropocentric hierarchy with the supplementing of machine in place of the human within the landscape offers many reasons for discussion and thought. Yes, it can be argued that the human is directing the machine, however the human is still intended to be removed from the natural environment, allowing a relatively silent, choreographed interaction between machine and nature. Secondly, machines may make minute changes to replicate the formations created by nature without the burden of empathy or subconscious memory. Entwined within both reasons is the inherent indeterminacy that is found within many factors of working in nature. Indeterminacy of the complex,

inherent behaviour of sand or soil when deployed with undetermined, or fluctuating boundary conditions.[9] The use of sensor equipment allows for a feedback loop to recognise changes and adapt or respond to them, the alternative is a response that employs algorithms, however this is not responding to real time changes and, therefore, is not aware of the in-between or ephemeral.

A second reason for the use of robotics that speaks to the theoretical side of the project is the tension created between the juxtaposition of a new technology and an ancient landscape. The use of robotics, choreographed to silently perform a variety of life forming and sustaining functions within the natural landscape sets up a series of oppositions that may appear as forces that allow for the visualisation or recognition of an in-between space, a space of potential. Such oppositions may be definite and indefinite, ancient and new, singular and general, presence and absence, such ambiguities affect atmospheres.[10] We are quick to attribute atmosphere to a room, society and especially to a landscape. The importance of atmosphere and its ability to be read in a variety of ways can be agreed upon, generally, within landscapes or nature the presence of atmosphere is akin to the presence of life. The combination of atmosphere, landscape and artefact implies an ever changing and re-interpretable series of events. Landscape as artefact, whether the artefact is inserted into the landscape and left to become a part of it, stitched in with the ever changing and evolving eco system, or whether the landscape itself gains its importance due to atmospheres and affect is evidence that both require a life form as intervention or inhabitant. This must serve as a representative of culture and time. If we are able to grow our natural world via inserted artefacts we are presenting an important marker documenting our societal changes upon our planet as natural artefact. Of particular importance is a mode of indeterminacy that is paramount to the synergistic partnership between nature and machine. An indeterminacy that does not replicate but more anticipates nature.

CONCLUSION

The chosen site, within Northern New South Wales, Australia, is on the edge of what is referred to as a green caldera, the outer dish of a volcano eruption, however whilst caldera's are formed by the collapsing of the erupted volcano in on itself, this area of Australia's East Coast experienced a volcanic eruption 20000 years ago and the caldera-like formation appeared due to erosion. The fingers of the eruption reach down to the ocean as basalt formations replace the usual sedimentary rock. The significance of this formation, without even beginning to mention the importance of the area to first nations people who traversed the land, is found in the formations and the rich and fertile volcanic soil. This area is abundant in wildlife with over half of Australia's 800+ native bird species inhabiting the area alongside the most diverse rainforest eco system in the world.[11] Within such a momentous setting, the capturing and slowing down of certain destructive patterns is not only paramount but also a primary goal. De landa writes of evolution by 'drift'[12] as abstracted from Humberto Maturana and Francisco Varelo, pioneers in the study of autocatalytic loops. The reference for the formation or establishment of artefacts within the landscape here is found as a manner to attract species to a certain framework or object. Regarding rhythmic attractors and the sequencing of the production of catalysts for each other. Such research evokes visions of Francois Roche's 'Dusty relief'[13] project, as an attractor of pollutants, yet, how could this science be altered or re positioned to be an attractor of native species?

As mentioned at the beginning of this paper, the work is in process, however the intent is to establish a knowledge of the ephemeral, to situate the landscape as artefact, a living and ever changing artefact. The manner in which these experiments unfold will be aligned and in reference to the practical work undertaken by the aforementioned scholars. The juxtaposition of nature and technology is intended to, at the very least, draw attention to the importance of our ancient lands and their reflectivity of our time.

NOTES

[1] Elizabeth Grosz, *Architecture form the Outside: Essays on Virtual and Real Space* (Massachusetts: MIT Press, 2001) See Grosz' interpretation of Foucault's 'event' in chapter 8 *embodied Utopias.*

[2] Gilles Deleuze, and Félix Guattari, *A Thousand Plateaus : Capitalism and Schizophrenia* (London: Bloomsbury Academic, 2013) See chapter 14.

[3] Merlin Sheldrake, Entangled life : how fungi make our worlds, change our minds and shape our futures (London : The Bodley Head, an imprint of Vintage, 2020) See Sheldrake's discussion of living things as processes (p.60) is supportive of the importance of nature

[4] Aurelien Forget, Tiziano Derme, Daniela Mitterberger, Markus Heiny, Caleb Sweeney, Likhith Mudili, Tim R. Dargaville, and V. Prasad Shastri, "Architecture-inspired paradigm for 3D bioprinting of vessel-like structures using extrudable carboxylated agarose hydrogels." *Emergent Materials* 2 (2): 233-243. For further information on the developemnt of 'Magic Queen'.

[5] George E Mobus, *Systems Science: Theory, Analysis, Modeling and Design*. (Springer International Publishing, 2022).

[6] See Henriette Bier and Keith Green, "Dialogs on Architecture." *SPOOL (Delft. Print, 2019)* - Bier et al have produced work intended for 'off planet' application. The formations also apply to earthly applications.

[7] S Barnes L. Kirssin, E. Needham, E. Baharlou, D. E. Carr, and J. Ma, "3D printing of ecologically active soil structures." *Additive Manufacturing* (2022):52

[8] See Virginia San Fratello and Ronald Rael. 2020. "Innovating materials for large scale additive manufacturing: Salt, soil, cement and chardonnay." *Cement and concrete research* (2020):134 As an example of the possibilities for 3D printing.

[9] Fabio Gramazio and Matthias Kohler. *The robotic touch : how robots change architecture.How robots change architecture.* (Zurich: Park Books, 2014).

[10] Ben Anderson 2009. "Affective atmospheres." *Emotion, space and society* (2009) :2 77-81.

[11] www.environment.nsw.gov/topics/animals-and-plants/threatened-species/about-threatened-species

[12] Manuel De Landa, *A thousand years of nonlinear history*, (New York: Zone Books, 1997).

[13] Andreas Ruby and Benoît Durandin, *Spoiled climate : R&Sie, architects.* (Boston, Mass: Birkhauser-Publishers for Architecture, 2004).

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AMBISONIC COMPOSITION FOR THE IMMERSIVE REIMAGINATION OF URBAN OUTDOOR HERITAGE ENVIRONMENTS

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INTRODUCTION

Our field; a landscape grown of natural and man-made structures, forms an omnipresent, vivid, and interactive sonic environment. This temporal field is ephemeral in nature; collected by listeners as passing moments are heard. Captured and projected field recordings [1] can be received as the reanimation of sound into a new time and location, with ambisonics (three-dimensional 360-degree audio) capable of enhancing listener experience through the creation of digital 3D reimagined environments.

Historical reimaginations in the form of musical compositions, sound effects, and dialogue, can be presented as solo sounds or entire sculpted soundscapes, accessible on a personal mobile device. Locative mobile audio provides an opportunity for curated audio storytelling in the heritage sector, spatialised in an outdoor setting through GPS, sensors for head-tracking, and headphones.

Requiring minimal on-site infrastructure, mobile audio experiences are well-suited to augmenting public interactions with listed, ruined, and outdoor heritage sites,[2] and are fitting for both personal and group listening.

This paper will examine ambisonic recording techniques for heritage-specific audio content creation, in relation to the compositional process, design, and presentation of immersive listening experiences to the public. The prototype soundwalks [3] were presented through the project partner mobile application *Echoes*[4], in the outdoor urban heritage location of Brunswick Square, Brighton & Hove, UK, in partnership with *The Regency Town House.*[5] It will explore the researcher's two public prototype iterations *The Golden Hours*[6] and *Re/collections*[7] which evolved from a preliminary public co-design activity,[8] as examples to discuss the development process of ambisonic outdoor listening experiences.

IMMERSIVE LISTENING EXPERIENCES FOR HERITAGE
Immersive Audio Experiences for the Heritage Sector

3D audio has the potential to augment the visitor experience of a heritage environment, through its immersive and interactive nature. Azuma[9] outlines three key criteria for an augmented reality (AR) system to have, these are the combination of the real and virtual world, real-time interactivity, and viewer registration of virtual objects in 3D space. Align these criteria with an ambisonic locative mobile audio experience, and the listener will find they are presented with the real and virtual world

through visual interaction with the heritage site while listening to the virtual soundscape in their headphones, real-time interactivity of triggering audio tracks through movement around the site, and the registration of composed sound objects in 3D space, interacted with by the listener through head-tracking. This pace of continuous development in immersive technology has broadened its application potential, which in turn has resulted in greater AR and virtual reality (VR) accessibility for institutions and households.[10] Now VR and AR experiences are being explored in the heritage sector, and they have the capacity to augment, engage, tell stories, and recreate history altogether.

The design process of 3D locative audio experiences mirrors that of curating an exhibition of artefacts within a museum. These curated, or mapped, experiences containing audio artefacts,[11] are intertwined with historical narratives and storytelling. Sonic exhibitions have the capacity to "break from the truth effects of visual and textual storytelling",[12] expressing multiplicity of interpretive perspective. It could be considered that audio is open for many interpretations through its intangible quality; having the potential to bring intriguing ambiguity to immersive experiences. Heritage-specific sound works can form clarity through factual renditions of dialogue or field recordings, but can also equally add layers of ambience and musical content, invoking understanding through a journey of emotional engagement.

Mobile Platforms for Listening to Heritage

GPS triggering from mobile devices offers the ability to link site locations with the audio content created at a small or large scale, and in landscapes where minimal structures exist. Mobile locative audio has minimal infrastructure, which makes it fitting for outdoor landscapes, conservation areas, ruins, buildings at risk, or listed buildings, where there are limitations on fitting physical structures. All that is needed is a mobile device, headphones, and GPS signal (see Figure 1).

Mobile audio applications such as *Echoes* can be creative platforms for both designing and presenting ambisonic listening experiences to the public. A geolocative audio application can function as a platform for the sound designer to curate the experience, linking the map within the application to physical attributes of the site. These curated sounds can then be implemented on the application with ease and tested on site, and then modified and tested again, and so on, in an iterative manner.

Figure 1. Two listeners experiencing Re/collections on their mobile devices, with headphones and head-tracking device provided

From a presentation perspective, mobile platforms can be considered convenient, and even more so if the experience is BYOD,[13] where participants have the comfort of using the technology they are most used to in their everyday lives – their own mobile devices. Both of this project's prototypes operated on BYOD, and findings from these experiments presented a few fundamental criteria to a smooth BYOD public experience. Factors to consider when asking the public to engage with an experience through their own mobile phone would be the accessibility of the application (compatible with the most common operating systems, in this case Android and IOS), making sure all instructions from beginning to end of application use are clear, making the experience compatible to the site e.g. there is Wi-Fi, broadband cellular network, or neither available (in the case of Brunswick Square, 3D audio walks could be pre-downloaded onto personal phones or streamed depending on the listener's preference), and lastly, having a volunteer or assistant available to offer help where required.

Capturing and Composing with Ambisonics

Ambisonics is a method for capturing, mixing, and showcasing 3D 360 degree audio, which has the potential for immersive composition application.[14] Ambisonic microphones consist of four sub-cardioid microphones all positioned at different angles to record in a 'sphere' of sound (see Figure 2). The repositioning and transformative capabilities available with this recording technique offer the recordist and listener an opportunity to expand their knowledge of the 3D recorded sound field, and move past initial limitations of stationary field recordings. To get the full effect of ambisonic recordings, it has been observed that listeners need to be positioned in the 'sweet spot'.[15] This sweet spot is noted as the listening position that correctly displays the ambisonic mix, and gives the best 3D listening experience, taking into consideration head-related transfer functions (HRTFs).[16] Ambisonics offers a passive 360 degree experience, meaning the audio surrounds the listener, but it has greater scope for immersive engagement due to the six degrees of freedom; providing the listener with an opportunity to move around 'inside' the sound field,[17] an interactive experience which is achieved through head-rotation in the case of headphone listening.
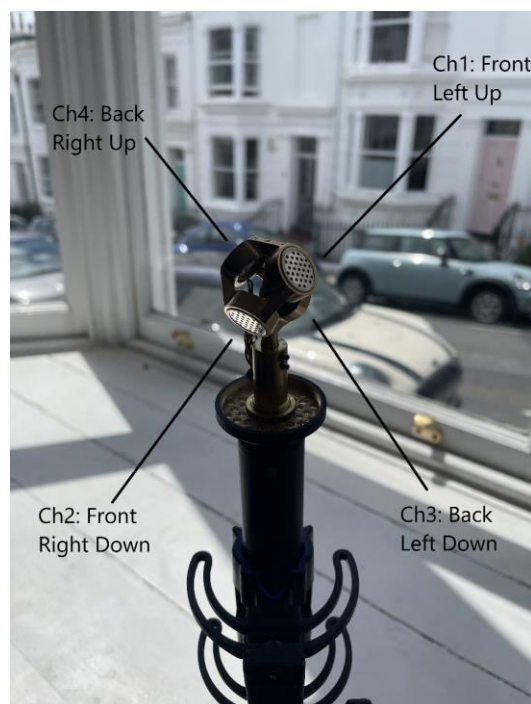

Figure 2. Sennheiser Ambeo VR ambisonic microphone with the casing removed to show the four directional microphones underneath

Ambisonics is considered a versatile technique for field recording and mixing due to its potential for reshaping and moving the recorded soundscape, as well as the multitude of outputs available (mono, stereo, binaural, 5:1, etc.). This format could also be beneficial for use in sound archives, where formats are often updated so as to help the preservation and accessibility of the file for future digital platforms. The scope of potential outputs for ambisonic recordings suggest the format is 'future-proof',[18] which, when placed in a heritage and museum context, could make ambisonics an ideal recording method for future sound collections, as the files or sound artefacts could be modified to suit various future acoustic settings and modes of listening.

Composing with ambisonics can create a more immersive listening experience. When used in field recording, an ambisonic microphone captures the sphere of sound as it would be heard by the listener, collecting information on the positioning of sources which can then be decoded into Ambisonics B[19] format for use in a multitude of applications such as AR, VR, and gaming. Ambisonics is also the compositional process of mixing a recorded and synthesised sounds into a 3D environment. This can create a manufactured soundscape which has the potential to present more diverse narratives and themes to the listener. This project explores both field recorded and mixed ambisonic reimaginations of the local heritage of Brunswick Town.

DEVELOPING 3D AUDIO PROTOTYPES
Heritage-specific Content Creation

The first process for developing an immersive listening experience, is deciding on and creating audio content. These prototypes aimed to present engaging content surrounding the local heritage of Brunswick Town, as well as audio which gave an immersive experience for the listeners. In this research project, heritage-specific content is created from a combination of archival resources and sources collected from a public co-design activity, offering the combination of both historic and public influenced content. The resulting content sources addressed in these prototypes were a combination of archival information, public histories, artefacts (see Figure 3), [20] the natural environment, musical instruments, and open-source audio libraries. These sources provided a foundation on which publicly engaging and relatable heritage-specific audio content could be made.
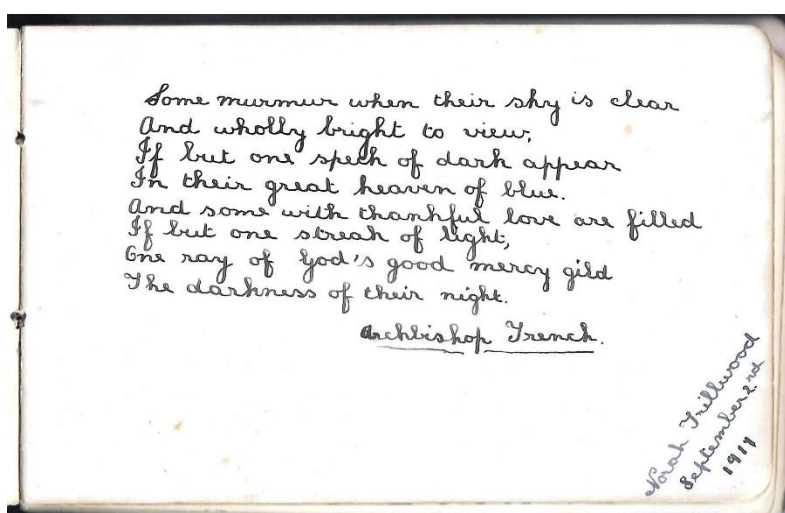

Figure 3. Extract from 'Annie's diary', a local WWI artefact provided by a participant in the 'Open Call for Brunswick Town Histories'

Three types of content were explored in this project, music, dialogue, and sound effects.[21] In the first iteration, *The Golden Hours*, recorded content was created through a combination of binaural[22] and

ambisonic microphones. The portable ambisonic microphone used for *The Golden Hours* was the Zoom H3 VR with a built-in ambisonic decoder, and as the project developed, the Sennheiser Ambeo VR ambisonic microphone was used for the following prototype, paired with a Zoom F6 field recorder as pre-amp and decoder. Creating an immersive experience through recorded, compared to manufactured ambisonic content, provides an opportunity for in-situ recordings which are played (such as sound effects or live instruments), acted out (storytelling and dialogue), or collected (such as recordings of landscapes and their inhabitants).

Figure 4. Nick Tyson from The Regency Town House being recorded in situ with Sennheiser Ambeo and Zoom F6 field recorder

As there are historic composers in Brunswick Square residing on blue plaques, this was taken into consideration when composing the musical elements to the experience. The resulting musical content became an interwoven narrative of original compositions by the researcher, and extracts of adapted works by two known composers in the square.[23] Dialogue was created in response to areas of architectural and sociological interest within the square, and recorded in the locations which best presented the examples. Historian Nick Tyson stood at each location of interest, and was recorded telling stories and histories, with the aim that when the audio was triggered through the application, listeners would hear him right next to them, creating an immersive guided-tour experience, with added sound effects (see Figure 4). The sound effects within the prototypes were a combination of open-source sounds (where the source was not accessible by the researcher) and original field recorded sounds, mixed into an ambisonic track.

Designing Through Mapping Narratives

It was found that mapping the soundwalks was best undertaken using visual aids such as digital and hand-drawn maps, combined with site visits and notetaking (see Figure 5).
The layout of the first prototype took approximately 3 weeks to refine, which was helped by the inclusion of a clear theme. This theme, which was a dawn and dusk listening experience, determined

the timings of the walks, the frequency, and how the content would be presented to the public. It allowed for manageable data collection through restricting participant attendance numbers for each session to ten at a time, and meant the soundwalk experience would need to be no longer than approximately 30-45 minutes, depending on pace. In this example of soundwalk mapping, it can be seen that types of audio have been colour-coded, and numbers and lines drawn to show a sequence of sounds and a direction of clockwise or anti-clockwise for the experience.

Figure 5. Visual sound map of The Golden Hours

The Golden Hours began at *The Regency Town House* for both the dawn and the dusk walks, whereas *Re/collections* included the landmark in the walk as a place of historical interest, but did not begin or finish there. Preliminary findings from listeners on how the experience linked the walk to the landmark of *The Regency Town House*, suggest that the process of beginning or ending the walk at the heritage institution was more effective than merely including it in the audio within the walk. As well as beginning or ending the walk there, including a memorable part of the heritage institution within the experience itself had the scope to add value for the listener by linking local history with the present. This was tested in *Re/collections*, with the locally known historian Nick Tyson, curator at *The Regency Town House.*

Re/collections used a slightly different method for mapping, which due to its higher dialogue and sound effect content than *The Golden Hours*, presented itself as more fitting. Mapping for this prototype was more pragmatic, as it was centred around finer details of architecture, specific house numbers, and history of the square; and therefore, each sound file naturally had a corresponding location where it needed to be positioned in order to provide the clear link between audio and site.[24] *Re/collections* was structured in a manner which gave the listeners an opportunity to begin and end where they wish, with the sounds listened to in any order. This was deliberate, as one of the questions explored through this research surrounded participant movement, and what audio and site factors influenced this.

Presenting to the Public

Once the audio content is created, and the soundwalk is designed, the next step in ambisonic prototype development is deciding how it is the public will engage with the experience, and how it will be presented to them. This experience uses a mobile application in an outdoor urban setting, so

headphones were most fitting in this project to ensure the listener could pick out the internal soundscape in each track from the external soundscape of the square.[25]

A key consideration within this research project was accessibility and affordability of the experience for both the heritage institution and the listener. This meant choices were made regarding the equipment provided for listening that would take this into account.
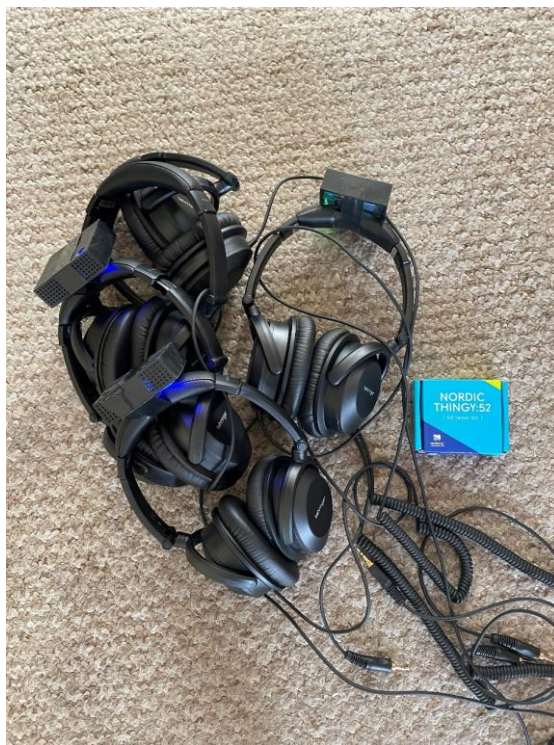

Figure 6. Listening equipment provided for the prototypes

In order to present 3D head-tracking capabilities to the public, an inertial measurement unit (IMU) sensory device was added on top of the participant's headphones, which connected via Bluetooth to *Echoes* (see Figure 6). The IMU head-tracking device used in this project is called a Nordic Thingy 52,[26] and when combined with ambisonics on the application, the listener can turn their head and experience sounds positioned within the audio sphere, giving directional listening. These Thingy 52s are affordable and versatile, and can be added to any pair of headphones, making them a suitable device to be lent out to listeners in this project.

An alternate and effective headphone option for use with the *Echoes* application are Apple Airpod Pros[27] as they have built-in head-tracking, but these are an expensive option which many listeners would not have access to and would also be challenging for the heritage institution to keep track of and provide. They were tested alongside the prototypes, but it was essential to ensure the tracks were mixed to the headphones which would be provided to the public, so for the second prototype, the Behringer HC 2000 headphones were the only headphones used for mixing audio.

The inclusion of noise-cancelling features to headphones in this project were considered and tested, but it was decided this function would not be brought forward to prototyping with the public. This is due to two factors, one being the urban setting and potential safety concerns, as listeners could be faced with moving traffic and obstructions which they may not notice if outdoor noise was cancelled. The other factor comes from an interest in incorporating 'audio bleeding'[28] into the experience. As this work explores the integration and reimagination of the heritage site, how the ambisonic mix fits against the surroundings of Brunswick Square is an important factor to better understand how the

audience engages with the site, and how fitting the audio is in the environment. It also tackles AR from an interesting perspective, as immersion takes on a different meaning through this bleeding of one 3D soundscape to another.

CONCLUSIONS

Due to the nature of ambisonic recordings, their potential for the reimagination of heritage narratives is boundless. Paired with a suitable platform for presentation, such as a mobile device with GPS, these recordings can be mapped in heritage locations, on small and large scales, in a variety of outdoor environments. Content captured and manipulated through ambisonic microphones and mixing, can envelop the listener in historic narratives, sound effects, and music, adding a new layer of value to the site. Ambisonic content has the capacity to situate the listener realistically within a designed or captured 3D soundscape; achieved through decoding the acquired 360 degree audio data and transforming it into head-tracking compatible material, which can be implemented into a multitude of current applications. The versatility and future-proof nature of these recordings, means they can be adapted and repurposed alongside new technological developments in VR and AR, and presented in many engaging ways to the public. Site-specific immersive audio experiences can create a harmony between the internal composed soundscape and the external heritage landscape; linking the present visual and aural attributes of the site, to the personal immersive experience heard by the listener. This connection has the potential to engross the listener in the heritage-specific content presented, and provide an engaging and memorable experience, intrinsically linked to the site.

ACKNOWLEDGEMENTS

The researcher extends special thanks to Phil Blume for his contributions to this research project, and to Nick Tyson for his engaging histories.

NOTES

[1] Field recording was an integral part of the content creation for this project. Field recording is capturing and collecting sounds, normally out in natural or manmade landscapes. It spans across many areas, such as natural history, ecology, soundscape creation, and found sounds for art and compositions, see Tom Western. *National Phonography: Field Recording and Sound Archiving in Post war Britain.* 2015. Normally, portable field recording devices are used, and this is possible even in ambisonic field recording.

[2] Expanding on this, this research project has produced findings on GPS audio triggering which suggest greater location accuracy in environments with minimal structures such as buildings or trees, making locative mobile audio experiences fitting for open conservation landscapes.

[3] In the context of this research paper, a soundwalk is another term for a prototype outdoor audio experience presented on the Echoes application.

[4] Echoes is the geolocative mobile audio application on which the 3D soundwalks are presented in this project. See Josh Kopecek. *Echoes.* 2014. https://echoes.xyz

[5] The Regency Town House is the heritage partner in this project, located in Brunswick Square, Hove, UK. Brunswick Square is a Regency period square built by Charles A. Busby in 1824, with the first houses completed in 1826. It is part of the larger area of Brunswick Town, and the site for all prototyping in this project.

[6] 'The Golden Hours' was the first of two iterations of immersive listening experiences created during this PhD project. It was a soundwalk which took place at dawn and dusk during the Heritage Open Days event taking place 17th-19th September 2021, with 6 sessions split over three days. They were handed an online questionnaire via QR code which they would fill out at the end of the session on their mobile phones to provide feedback. This soundwalk had 21 audio tracks in it, and took approximately 45 minutes to complete.

[7] 'Re/collections' was the following prototype which took place from the 24th-27th June 2022, over several bookable hour-long slots. This was adapted from feedback given after the previous iteration 'The Golden Hours', with new ambisonic recordings and content created alongside previous content in the last event. This soundwalk consisted of 19 audio tracks, which were all in ambisonic format, and took approximately 45 minutes for listeners to walk around the whole experience. All listeners answered questionnaires and a smaller number of following interviews were conducted as part of feedback.

[8] The preliminary co-design activity for this project took the form of an online open call for narratives, called 'Open Call for Brunswick Town Histories'. This, alongside archival research undertaken by the researcher, provided the foundation for the first and second prototype iterations discussed in this paper.

[9] See Ronald Azuma. *A Survey of Augmented Reality.* 1997.

[10] See Cenek Sasinka, et al. *Collaborative Immersive Virtual Environments for Education in Geography.* p2. 2009.

[11] The definition of an audio artefact is still under discussion, mainly due to the uncertainty surrounding the preservation of sound files as intangible artefacts of cultural heritage. It can mean a very literal definition of a piece of preserved audio archival material, but also in line with John Kannenberg's research, it can mean a collected and conserved (perhaps valued) field recording of a source such as a person, place or object, present in our past or current everyday lives. See John Kannenberg. *Soundmarks as Objects of Curatorial Care.* p291–299. 2019. Another connotation could be that an audio artefact is any sound placed into a museum or heritage setting, categorising all sounds placed within these prototypes as artefacts.

[12] See Laurence Cliffe, et al. *The Audible Artefact : Promoting Cultural Exploration and Engagement with Audio Augmented Reality.* 2019.

[13] BYOD stands for Bring Your Own Device. Participants using their own devices has become increasingly more popular in museum, gallery and heritage settings. See Scott Sayre. *Bring it on: Ensuring the Success of BYOD Programming in the Museum Environment.* 2015.

[14] See Paul Virostek. *An Introduction to Ambisonics.* 2017.

[15] This can be difficult to achieve with speakers in both an indoor or outdoor setting. An ambisonic mix could offer both positive and negative results in relation to issues highlighted by Blesser and Salter on personalised sound field creation for contrasting locations. They discuss their concerns with the different sizes of sweet spots offered to listeners in both virtual (manufactured soundscape) and performative (concert hall) spaces, commenting on the variation of experiences a listener can receive depending on their positioning within the space. The use of headphones (though different kinds of headphones would also offer different experiences) can alleviate some of these issues. See Barry Blesser & Linda-Ruth Salter. *Spaces Speak, Are You Listening?: Experiencing Aural Architecture.* p186. 2007.

[16] It is challenging to create a universal sweet-spot for listeners, this is due to their diversity of hearing. The way people receive sound from a source is called Head-Related Transfer Functions (HRTFs), and these HRTFs can vary based on attributes such as anatomy, age, gender, health, etc. Projects involving immersive audio often use various averages of HRTFs, but there is research into obtaining more personalised HRTF experiences. See Zhijian Yang & Romit R. Choudhry. *Personalising Head Related Transfer Functions for Earables.* P137. 2021.

[17] See Amy Deloise & Cheryl Ottenritter. *Nonfiction Sound and Story for Film and Video: A Practical Guide for Filmmakers and Digital Content Creators.* 2020.

[18] Virostek notes ambisonics are future-proof due to the purity of recording and lack of phase issues. See Paul Virostek. *An Introduction to Ambisonics.* 2017.

[19] An ambisonic decoder is needed to turn the Ambisonics A information into B format, which can then be used by further applications. A common solution to this process is to use a field recording device with an ambisonic decoder plugin (such as the Zoom F6 which is used in this project), which converts the file to B format before it reaches your digital audio workstation (DAW).

[20] Artefacts in the context of this project, are objects with which a heritage narrative can be associated. For example, as you can see in the corresponding figure, a local WWI diary of local service-girl Annie was provided by a participant of the public co-design activity 'An Open Call for Brunswick Town Histories'. Poems and histories from this diary were examined by the researcher, and acted out by different voice actors in ambisonic recordings for The Golden Hours.

[21] These types of content were pursued in this project in response to previous research undertaken on audience experience of different types of content. See Anna C. Edmonds. *Songs of the Sea: Exploring Audience Engagement in Local Heritage Through Locative Audio Interpretations of Roger Quilter's 'The Sea-bird'.* 2021.

[22] Soundman OKM binaural microphones were used here, as they are a pair of high quality, compact, and portable microphones which are designed to sit in a recordist's ears, or can be placed on a dummy head which simulates the spacing of a human's ears for recordings. A dummy head can be useful in situations where the recordist wishes to not be present within the recording.

[23] Two Brunswick Square composers were integrated into the audio experiences. One was Roger Quilter, see Valerie Langfield. *Roger Quilter: His life and music.* 2002, and this researcher's previous paper *Songs of the Sea: Exploring Audience Engagement in Local Heritage Through Locative Audio Interpretations of Roger Quilter's 'The Sea-bird.* 2021., with adapted renditions of piano and voice of his composition 'Come Away Death', see Roger Quilter. *Come Away Death.* Three Shakespeare Songs. 1905. The other blue plaque composer was Hamilton Harty, and a short rendition of the second movement of his piano concerto in B minor included in the soundwalk, see Hamilton Harty, Peter Donohoe, Takuo Yuasa. *Piano Concerto: Fantasy scenes; Comedy overture.* 2007.

[24] Details heard the in the soundwalk spanned from information on the doorbell of No.13 (accompanied with an old doorbell sound), to the colours of buildings, residents who lived there, the pavements, and railings of the square, and many more pieces of history.

[25] In this research project, the internal soundscape referenced throughout this paper is that of the ambisonic mix experienced through personal headphones by the listener, and the external soundscape is the natural and temporal soundscape of the heritage site, contributed to by us "as noisemakers, as listeners, as participants" see Brandon LaBelle, *Background noise: Perspectives on Sound Art.* p201. 2012. The external soundscape also takes into account the self-noise of the listener, with the internal soundscape ingrained with the etchings of self-noise from the recordist. This phenomenon of self-noise and it's presence within recording and listening is addressed by Mark Peter Wright *The Noisy-Nonself: Towards A Monstrous Practice of More-Than-Human Listening.* p29. 2017.

[26] The Nordic Thingy 52 is a compact multi-sensor platform for prototyping, which has many other functions beyond its use in this project for 9-axis head-rotation.

[27] Apple Airpod Pros were used by the researcher at various stages of testing comparatively to the over-ear Behringer 2000 headphones and Nordic Thingy 52 head-tracking device, and they were found to be very effective, but not sensible for this kind of public prototype with ten listeners per session. These will likely be tested in future prototypes, as headphones of this nature become slowly more accessible and affordable for institutions and the public.

[28] Audio bleeding is when one sound source leeks into another. In the case of this project, this bleed would be from the external (Brunswick Square) soundscape to the internal (headphone audio) soundscape, with the potential of internal to external soundscape bleed also. This bleed would mean listeners could hear sounds from the square alongside the ambisonic mix in their headphones. Engaging these soundscapes is a circular process of antiphony between the listener and the sound maker, reflexively adjusted for and against the aural architecture of the prevailing soundscape and associated social conventions. See John L. Drever. *Sounding Dartmoor: A case study on the soundscapes of rural England at the opening of the 21st Century.* 2002.

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LATENT HISTORIES: A DESIGNER'S APPROACH TO ADAPTIVE REUSE

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INTRODUCTION

David C. Harvey in his paper "Heritage pasts and heritage presents: temporality, meaning and the scope of heritage studies," argues that heritage is best identified as a 'verb' rather than a 'noun', and a number of authors have examined heritage as a body of knowledge and as a political and cultural process of remembering/forgetting and communication[1].

This study demonstrates in practice Harvey's assertion that heritage is a process. The main question this paper pursues is how architects can design new architecture from heritage-listed buildings undergoing adaptive reuse drawing on 'intangible heritage' aspects[2]. Change destabilises the form and meanings of a building. When a heritage building must undergo change to function effectively in the present, how can fidelity to its cultural significance be maintained?

Heritage significance is often established according to parameters beyond a building's tangible physical fabric.[3] However when heritage buildings undergo adaptive reuse, it is the tangible dimensions of place that usually determine the design of new interventions.[4] How can the intangible dimensions of heritage be mobilised within the design response when they may be the only criteria for its heritage listing? The inquiry presented here seeks to engage these questions.[5]

Methodology and Experiment

This study pursues these questions by conducting a series of demonstrations or design iterations in which the intangible aspects of a heritage building are incorporated into the design of a new intervention. Through this method of design research, the work displays how latent histories of intangible history and memory can become a generator for new architecture.

The research-by-design methodology involves taking an existing heritage-listed building of significance[6] – in this case the Union House building at the University of Adelaide, the building accommodating the student union (Adelaide University Union) and student community at the University of Adelaide, designed by Robert Dickson (1926-2014) and Newell Platten (1928-2021) in 1969-74; to which a hypothesised change of function to an architecture school provided the motivation for its adaptation (Figure 1).

Figure 1. Union House designed by Dickson and Platten. View from Library Steps and axonometric of digital model.

A repeated 'design experiment' is conducted on the building, each iteration exploring a different aspect of the intangible heritage, or 'latent histories,' embodied and connected to the building. The result is a series of alternative futures for the building, akin to a 'theme and variations' approach as observed in music composition. Each experiment starts with the building and ends with an extension to the west of the case study building which is designed to seek fidelity to different dimensions of intangible heritage from the host building.

The inductive nature of this design research involved a period of exploration and discovery. Reflection on this process identified a repeated pattern of operations, which constitutes the general design process. This had three main stages: 1. Active Collection; 2. Abstract Interpretation; 3. Iterative Translation.

1. *Active Collection*, where design propositions aim to extract and reveal identified qualities of heritage buildings via the posing of unconventional questions (termed *oblique questioning*) to uncover cultural significance from a building, archive, or memory. These questions become the starting points for the collection of information, not always visual.

2. *Abstract Interpretation*, where a mediating or translational *mnemonic artefact* is created, seeking to transfer information from the previous stage into a visual representation of the intangible heritage of the original architectural artefact, distilling its essential content. This is done with the aid of artistic and design tools which develop notations and mimetic representations of cultural significance.[7]

3. *Iterative Translation*, where the created mnemonic artefact is then mobilised through *translation tactics* using the designer's intuition to create new projective architectural form.

Although yielding diverse outcomes, each experiment involves the same three basic operations. (Figure 2)
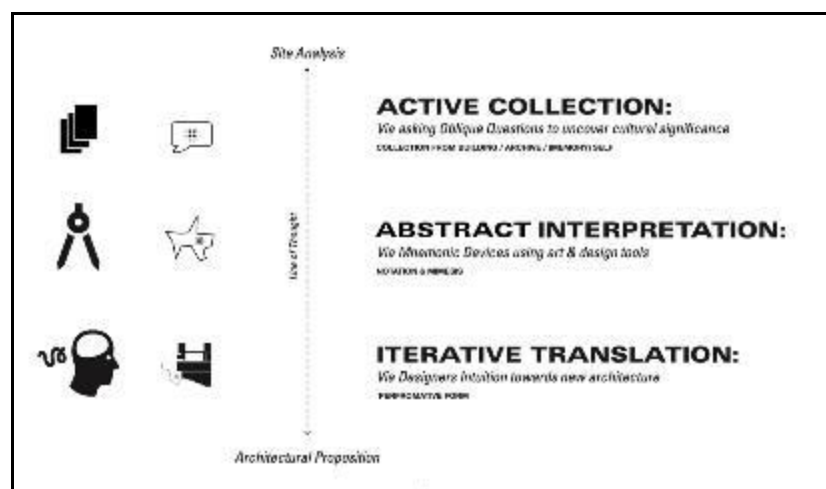

Figure 2. Diagram of design process.

DESIGN RESEARCH PROPOSITIONS

The full study involved nine alternative propositions. For brevity only three (denoted with A, B, C) will be unpacked in this paper.

The design iterations described in this paper involved looking at the past users on site (A), past soundscapes (B), and the authorship of the original architect (C). The conclusion seeks to show how intangible heritage can be activated as a generator for new architecture emerging from the idea of fidelity in adaptive reuse.

Design A: "Past Users"

This design began with the oblique question *"Where does the building exist outside itself?"*. After some thought, it was concluded that a good proportion of memory connected to the building was held in the University Union student-run newspaper *On Dit*.[8]

Union House is part of a larger precinct of buildings which dates to the late 1920s.[9] The Dickson and Platten redevelopment was undertaken between 1969 and 1975, recent enough for interviews with key protagonists to be conducted. An important character in this story was Ralph Middenway (1932-2018) (Figure 3), the student support warden in the late-1960s to mid-1970s, and served as the client representative for the union redevelopment. After finding further published reports and interviews stored at the State Library of South Australia, the present author tracked Middenway down to Hobart, Tasmania, and recovered an oral histories of his time at the Union. These interviews were peppered with anecdotal stories of the people Ralph had supported over the years.

Figure 3.Ralph Middenway as a primary source.

This history of previous users is often lost within the process of adaptive reuse and its associated process of stripping back.[10] With the heritage listing of the Union Building substantially justified[11] for its importance to a specific group of people (the student union and its users), the author explored how they might be remembered through new architectural form.

Drawing on the stories of Ralph Middenway and research into the former functions housed in the building, the author developed 'tectonic sculptures' of the past users who once inhabited the building (Figure 4). These sculptures were created to embody the previous users,[12] whose personas were given form through assemblages of *objet trouvé* (found objects). These sculptures became the *mnemonic artefacts* of this design investigation, drawing inspiration from the work of Duchamp, Picasso, and John Hejduk[13].

These artefacts were then translated into architecture, involving their 3D modelling and positioning in the locations where their source characters originally occupied the host building. Through a careful process of disassembly, manipulation and composition these elements formed a new architecture on the extension site to the west. These parts were cast as tectonic elements of the building. For example, the character of The Server now holds up a beam, while elements from The Musician now form a suspension structure within the building (Figure 5). This resulting architectural Frankenstein is assembled from various parts of sculptural bodies. George Hersey's idea that classical architecture is an analogue to ancient rituals of sacrifice influenced the design decisions for this iteration.[14]
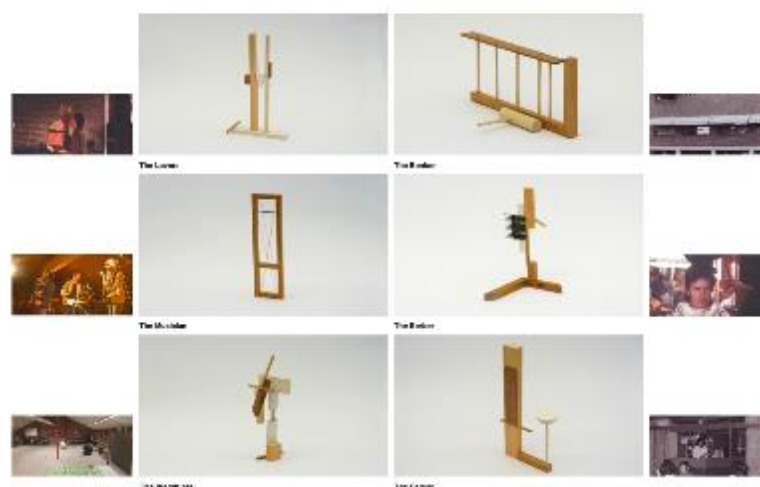

Figure 4. Past Users – tectonic sculptures

The resulting architectural form serves as a conceptual monument to the previous uses of a building now in a state of obsolescence. Through a process of translating quotidian occupation to architectural form via sculptural visualisation, this iteration exhibits a conceptual fidelity to the past, testing the limits of creative interpretation within the process of adaptive reuse. Within the process of adaptive reuse this approach seeks to demonstrate a method of linking prior functions to new architectural form by engaging the social dimension of cultural significance connected to a heritage building.
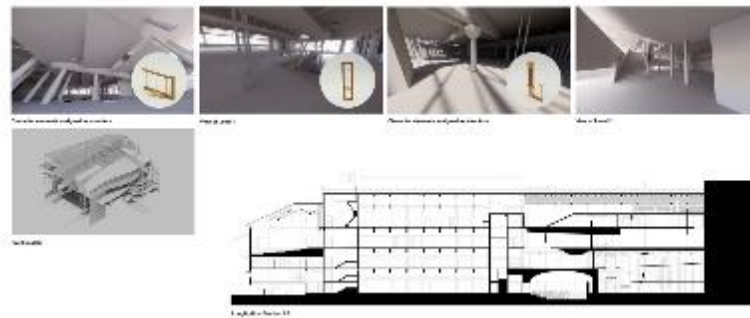
Figure 5. Past Users – New architectural form

Design B: "Sound"

This design began with the oblique question *"What these walls would say if they could talk?"* The Union Building has a history of being the incubator and performance venue to many musical bands over the years. To modify Walter Benjamin's axiom "to live means to leave traces"[15], we can say that to live or inhabit is to produce sound. With the building's South Australian heritage listing underpinned by it being "a place of special association with the life or work of a person, organisation or an event of historical importance," sound as the trace of this life becomes a medium of intangible heritage.[16]
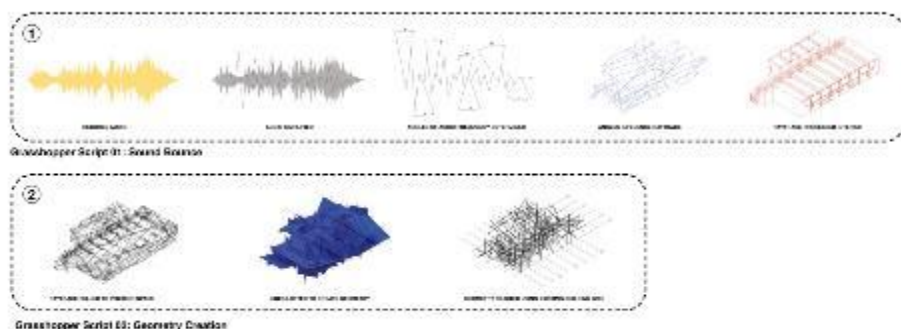
Figure 6. Sound – Parametric process to develop architectural form from soundscapes.

Some of the spaces in the building are still being utilised with their resulting soundscapes, however much of the building is under utilised and has fallen silent. Soundscapes were recorded using an audio recorder from the spaces still in use, while for spaces that remain unused and dormant, soundscapes were found or deduced from those relevant to the cultural significance of the building. An example of a found soundscape was a fencing tournament from the early 1990s uploaded to YouTube which took place in the former Games room. Sound clips were also utilised for spaces which are now in a state of obsolescence. One space now lost is that of the photography dark room, for which an audio clip of photopaper being bathed in developing fluid was found.

After gathering such sounds, attention shifted to using them to form a mnemonic artefact. After some research into the nature of sound and acoustic simulation[17], a Grasshopper script (part of the 3D modelling software Rhino) was developed. Music has been used by various architects to overlay rhythm into the plan or sectional arrangements of architecture.[18] The aim of the Grasshopper script was to seek fidelity to the sound and form of the host building. The mnemonic artefact sought to create fidelity by creating a simulation which could visualise feedback and absorption linking back to the initial *oblique question* for this design.

The Grasshopper script was formed from two processing modules. The first simulated the recorded sound bouncing around space; the second sought to create physical traces of the sound in space. The volumes used to simulate the sound reverberations were the rooms where the sounds were recorded. The interior volumes of these rooms were modelled in detail to maximise the accuracy of the simulation (Figure 6). An algorithm was devised simulating the spatial trajectory of sounds within these spaces and registered this as formal geometry, yielding 'frozen echoes'. This processed geometry was then arranged into an architectural extension. Similarly, the façade of the building was generated from a spectrogram of another sound visualization method. The sounds used to generate the image was a remix of sounds found in an architecture school. Once again sounds were recorded, found or deduced.
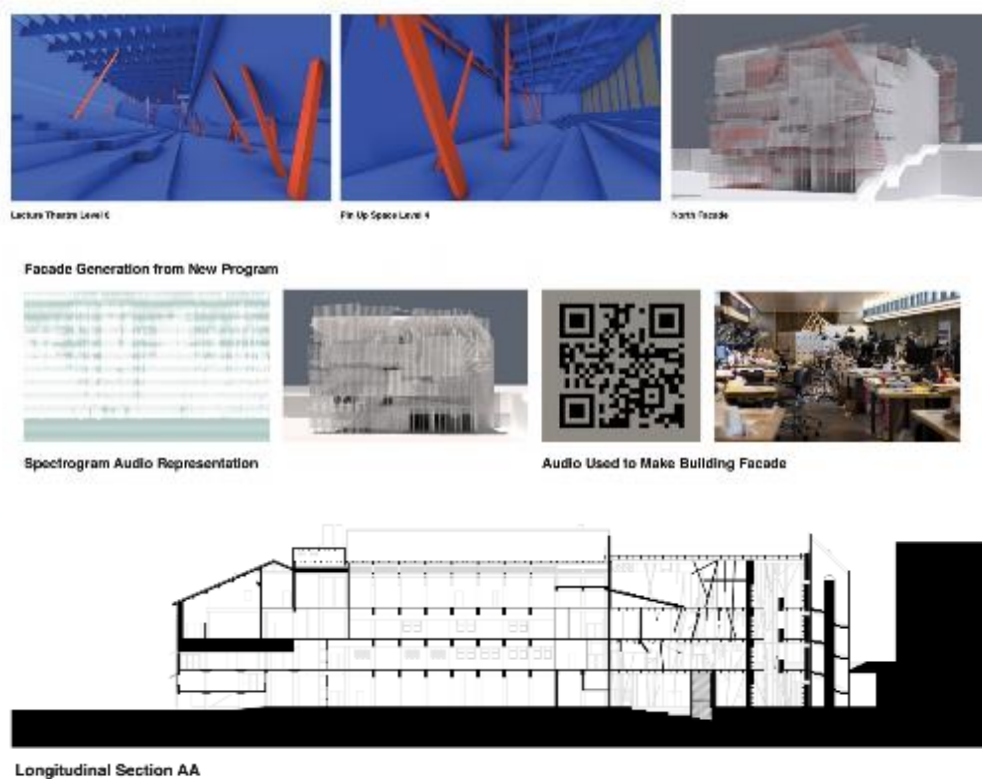
Figure 7. Sound – Architectural form from soundscapes

This design seeks to show how sound can be used to create new architectural forms which carry forward the legacy of events and activities held within culturally significant heritage buildings. Here, Union House was a seminal venue to for indie Australian music from the 1970s to the present, akin to the role the "neutrality" of the Nakwon Building in Seoul played in the development of Korean popular music during a similar period.[19] A piece of intangible heritage is brought forwards as new architecture. (Figure 7).

Design C: "Authorship"

This design was the culminating iteration undertaken in the PhD. It began with the oblique question *"Who was the original architect(s) of the building?"*

Although this was the final design in the sequence of iterations, in some way this was the first design conceived. Events in Berlin around the rebuilding of the old Stadtschloss as the Humboldt Forum after the demolition of the East German Palast Der Republik[20] made me wonder how one could build new architecture through a 'method acting' approach to seek fidelity with a previous architect responsible for a culturally significant building.
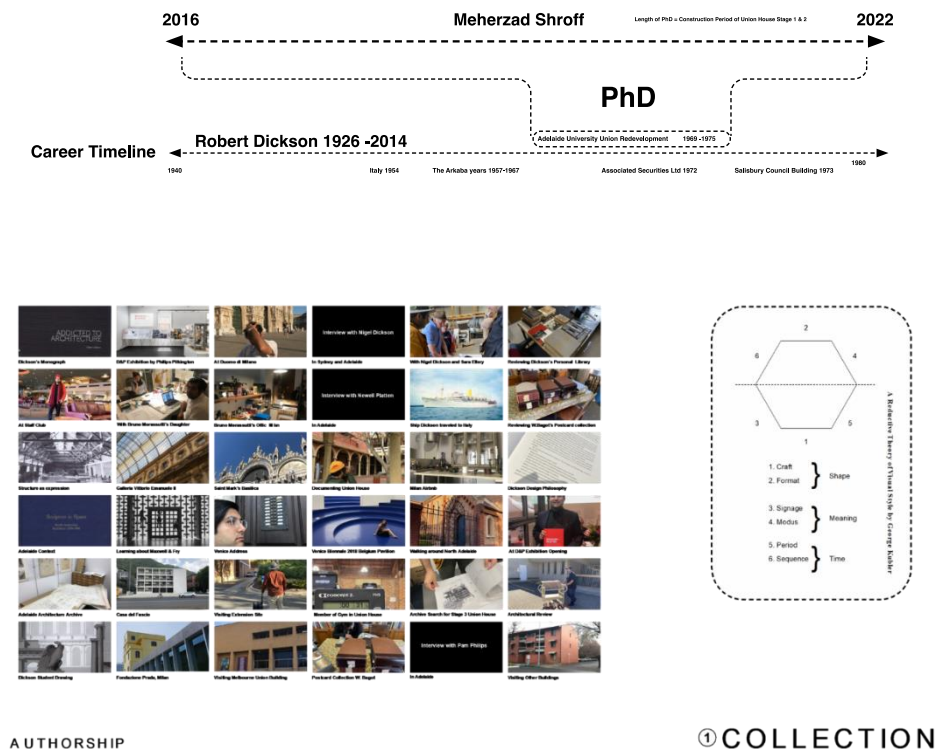
Figure 8. Authorship – Preparations towards preservation.

Active collection in this iteration began with the monograph and autobiography of Robert Dickson[21]. Over the course of six years – the same period of time that it took for Union House to be realised – extensive preparations were conducted, in which the author (Meherzad Shroff) retraced the places, people, books, and experiences that the original architect engaged with, giving a full immersion within and recreation of the psychic world of Robert Dickson (Figure 8). [22] George Kubler's conception of the interplay of style within the evolution of art and culture was an important touchstone for this iteration.[23] Other key sources were Roland Barthes's exploration of authorship, and Jorge Luis Borges' short story "Pierre Menard, Author of the Quixote," which introduced the paradoxical idea of an original repetition.

The intangible heritage here is the interiority of the original architect himself. As the author erased his own authorship through the method acting process, his selfhood paradoxically emerged as the mnemonic artefact of Dickson's interiority. In this state, the new intervention was designed, with the new architectural form occupying the "uncanny valley"[24] with respect to the existing fabric. A critical pastiche linking concept to resulting built intervention was achieved (Figure 9).
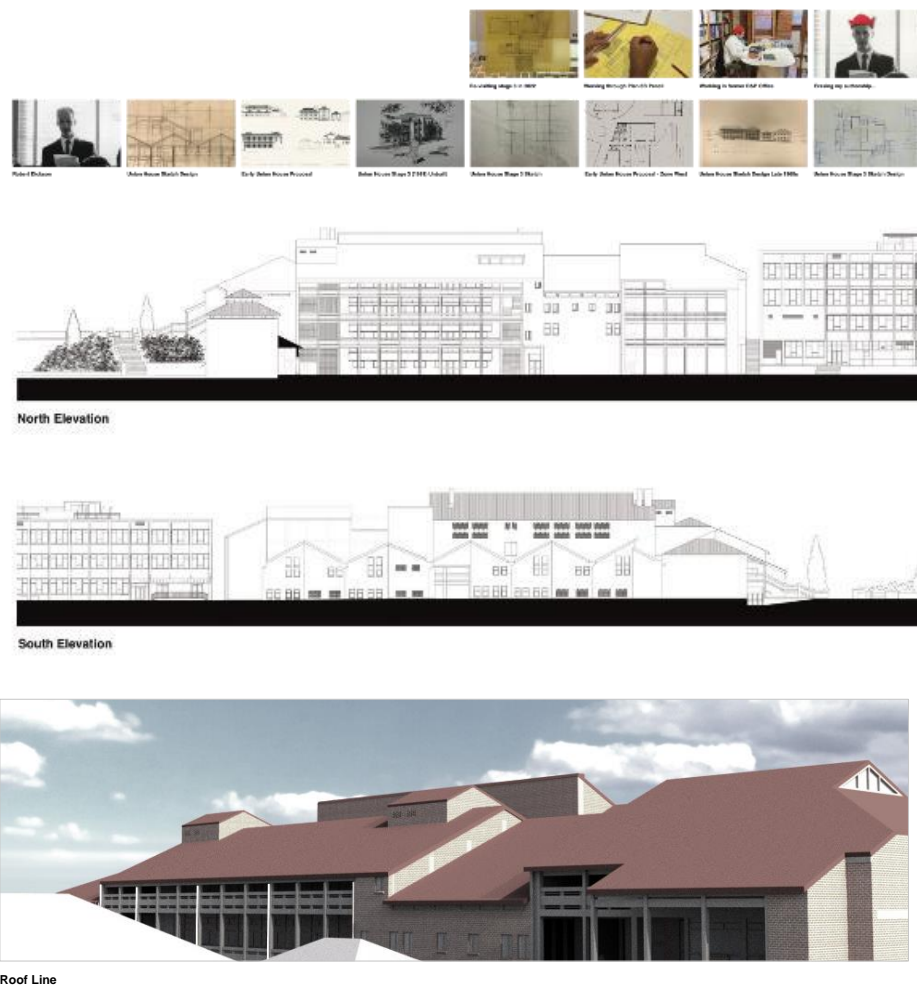
Figure 9. Authorship – New 'uncanny' form.

Such an approach to heritage can be employed by architects who seek prolonged exposure to a case study building, allowing a more considered, interpretative and restorative outcome. The new architect's authorship is suppressed, but the preparations involved in embodying the previous architect allow for richer projective experiences leading to a critically nuanced outcome.

This experiment advances re-enactment as a method to create new architectural form when heritage buildings are deemed too precious or superior for a contrasting design outcome. The process allows the original architect to be fully absorbed and the new architect to develop a form of empathy towards the life and work of the previous architect. The architecture produced is subversive to notions of restorative practices within architecture which claim authenticity but can only seek fidelity to a prior condition being recreated.

DISCUSSION AND CONCLUSION.

Each of the variations discussed here engage with intangible aspects of the original building and follow a set of procedures to convert these to propositional built form. Central to this translation process is a sense of fidelity to the source material. This fidelity can be contrasted with the notion of authenticity which plays an important role in the evaluation and management of heritage buildings. Fidelity, sharing etymological roots with the word 'faith,' opens towards a more sympathetic position in contrast with authenticity. Two distinct notions of truth are in play here – one that seeks to preserve an unchanging formal residue that endures through time; the other which enables dynamic formal

change that maintains loyal connections to the source. Within this design research, fidelity is an agnostic concept that allows the notion of truth to interact with time and space. This position of seeking fidelity acquires a theoretical basis when viewed through a 'meta-modernist' frame,[25] wherein the sincerity of fidelity oscillates with a pragmatic romanticism across an arena of 'mereological irony'.[26]

The design methodology that emerges from this inquiry seeks to expand and make explicit a design process engaging intangible heritage conducted through the agency of a new author. The fact that this is inquiry is negotiated through a design research paradigm is critical to its efficacy. We can regard this approach as a means to grapple directly with the "how" of the initial question "how can architects design new architecture from intangible heritage for heritage buildings undergoing adaption". The design methodology presented here seeks to break out of the closed and reductive approaches by which adaptive reuse designs are typically conducted.
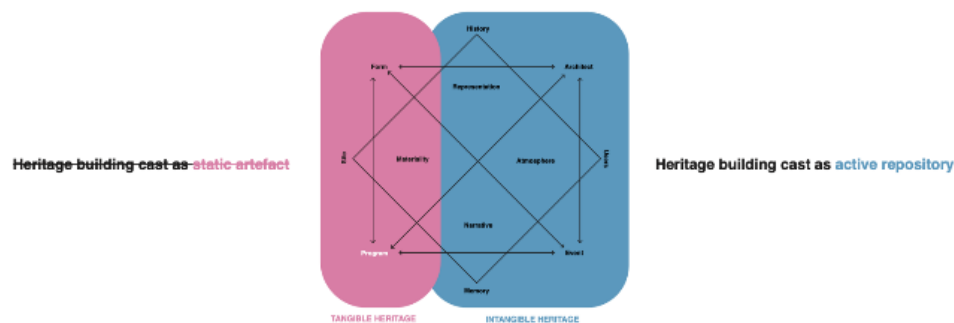
Figure 10. The Expanded Field For Preservation developed by the author to consider in the process of Adaptive reuse.

Through demonstrating a range of approaches to mobilising intangible aspects of a heritage building, this study ultimately seeks to expand the conceptual tolerances and design techniques available to the theorists and practitioners of adaptive reuse. For history and memory to be a generator, the architectural engagement with heritage buildings needs to be opened up beyond a dialogue with their material fabric. An enriched dialogue can be developed by casting the heritage building as an active repository and expanded field of latent architectural qualities. (Figure 10). "Critical Adaptive Reuse" here emerges is as a new concept formulated by the author as opposition to the authorised heritage and discursive practices towards heritage architecture.[27] With adaptive reuse as a process for the reanimation of built fabric the history, memory, cultural dimensions, and aesthetics are secondary concerns. Critical Adaptive Reuse seeks to enable a cultural project, where the architect re-enters as a cultural operator seeking the faith of the public. Critical Adaptive Reuse aims for criticism to delimit a field of values within which architecture can develop cultural knowledge.[28].

NOTES

[1] David C. Harvey. "Heritage pasts and heritage presents: Temporality, meaning and the scope of heritage studies." *International journal of heritage studies* 7, no. 4 (2001): 319-338.

[2] The term *adaptive reuse* has gained momentum in the last fifty years, emerging as an alternative process to demolition of built fabric. *Adaptive reuse is a process of alteration, mediating between preservation, renovation and demolition* (Scott). It is worth noting that what is now termed adaptive reuse is not a new process and the re-purposing of buildings has been happening for thousands of years. In contemporary settings, adaptive reuse is generally regarded as a positive process, promoting sustainability by preserving the embodied energy held in materials, curtailing urban sprawl, and allowing cities to densify, offering benefits in economic, social and environmental terms. From a cultural and aesthetic perspective, the reuse of historic buildings allows for the associated intangible fabric of time, history, and experience to be maintained and enhanced within a contemporary sensibility. Adaptive reuse enables the unfolding of the story of architecture to continue, told through new architectural intentions expressed through new form.

[3] For further discussion on heritage as an expanded process involving power, time and meaning see Laurajane Smith *Uses of Heritage* (New York: Routledge, 2006).

[4] These tangible dimensions of place are connected to what Smith would describe as a symptom of the authorised heritage discourse promoting a materialist hegemonic discourse.

[5] This paper is based on doctoral research in architecture conducted by Meherzad Shroff at the University of Adelaide, Australia. The research was conducted under the primary supervision of Professor Julian Worrall of the University of Tasmania, with secondary supervision by Dr Urs Bette, of the University of Adelaide. This research focused on design methodologies for adaptive reuse of heritage architecture and was conducted under a research-by-design modality.

[6] For further information on the architectural significance of the case study building see the entry in Hannah Lewi and Philip Goad, eds., *Australia Modern: Architecture, Landscape & Design 1925 – 1975* (Melbourne, Thames and Hudson, 2016).

[7] This method of working is supported by an expanded perspective towards architecture expressed in the work of avant-garde spatial practice, examples of this can be observed in the book *Violated Perfection (New York: Rizzoli, 1990).*

[8] *On Dit* has been in continuous publication since 1932.

[9] The site of this research is the Union house complex at the University of Adelaide. This group of buildings and landscape elements were built at different time periods in the 20th century. The Union House Building was designed by Adelaide partnership Dickson & Platten in their Adelaide regionalist style, completed in two stages with Stage 1 between 1969 and 1973 and Stage 2 between 1973 and 1975. The Union House building is also part of a larger precinct which includes The Lady Symon Building + Cloisters (1926-1927) and The Murray Building (1936-1938). These earlier buildings were designed by Woods Bagot Laybourne-Smith Irwin in a Neo-Georgian revival style.

[10] Stripping back is a process where the fixings, finishes, and internal partitions of a building are removed, restoring a building to its underlying built structure and removing any tangible trace of its former inhabitation.

[11] The Union House building complex is heritage listed in South Australia under the following two criteria: "(E) it demonstrates a high degree of creative, aesthetic or technical accomplishment or is an outstanding representative of particular construction techniques or design characteristics; and (G) it has a special association with the life or work of a person or organisation or an event of historical importance." *Heritage Places Act 1993*. South Australian Legislation.

[12] For example, The Sports Player is shaped like a racket handle and incorporates a rubber head, a reference to the squash courts, a lost part of the original design. The Banker is an abstract abacus. The Actor is an abstracted mask which talks to the nature of acting on stage.

[13] Projects such as Marcel Duchamp's cubist period like *Marié, 1912*, Pablo Picasso's *Bull's Head* and John Hejduk's masques have been inspirational for the development of the character sculptures.

[14] For more on Hersey's interpretation of classical architecture see, George Hersey, *The Lost Meaning of Classical Architecture* (Cambridge, Mass: MIT Press, 1998).

[15] For more on Benjamin and inhabitation and traces see "Paris, Capital of the Nineteenth Century," in *Reflections* (New York: Schocken Books, 1986)

[16] For an expanded perspective on acoustics in heritage conservation see *"The Sound of Silence: Valuing Acoustics in Heritage Conservation."* in *Geographical Research* 46 (3) (2008): 361–73.

[17] Much of the acoustic software and plugins available don't consider the actual sound moving around space.

[18] An example of this strategy can be seen in *Stretto House* by Steven Holl. The recent work of Coop Himmelb(l)au explores how sound and rhythm is used to create architectural form.

[19] For more on this case and the idea of neutrality in architecture see Julian Worrall, "The Nakwon Principle"*, in The Far Game: Constraints Sparking Creativity – On the Korean Front Line.* (Seoul: Space Books, 2016), 140-147. Published in conjunction with the exhibition at the Korean Pavilion, Venice Architecture Biennale 2016.

[20] For more see *https://www.humboldtforum.org/en/building-site/history/*

[21] Dickson, Robert. *Addicted to Architecture.* (Adelaide: Wakefield Press. 2010).

[22] The terminology of 'immersion' and 'preparation' is taken from the method acting process.

[23] For more on Kubler's ideas on style in art see his paper, George Kubler. 1967. "Style and The Representation of Historical Time*"* in *Annals of the New York Academy of Sciences*, 138 (1967): 849-855.

[24] The uncanny valley is a common unsettling feeling people experience when androids (humanoid robots) and audio/visual simulations closely resemble humans in many respects but are not quite convincingly realistic.

[25] For more on metamoderism see, http://www.metamodernism.com/ and http://www.metamodernism.org/.

[26] The terminology of 'mereological irony' refers to the part-whole relationship of the intangible heritage being utilised for the design work, and it being mobilised as a frame of fidelity.

[27] Note that critical regionalism and critical adaptive reuse are not ideologically connected. Critical Adaptive Reuse seeks to mediate the dominant materialist process with existing buildings with architecture and its making derived directly from the peculiarities of a particular place's memory and history. The critique of critical regionalism by Keith L. Eggener in "*Placing Resistance: A Critique of Critical Regionalism" in Journal of Architectural Education 4 (2002*): 228–37; is noted in the formation of the terminology of Critical Adaptive Reuse. Critical Adaptive Reuse also seeks to provide an alternative to the hegemony of sustainability-focused adaptive reuse methodologies.

Adaptive reuse can be a cultural project as much as a project of embodied energy protection and conservation.

[28] Critical Adaptive reuse seeks a common ground with critical architecture as a project. For more on this discussion see *Critical Architecture: Between Culture and Form* by K. Michael Hays. (Cambridge, Mass, The MIT Press, 1984). pp. 14-29

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FROM HERITAGE FACADES TO DIGITAL MEDIA SCREENS

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INTRODUCTION

In line with technological advancements, cultural heritage is also seeing an increase in the integration with digital media in various forms that mediate their principle and usage. Projection mappings are causing spatiotemporal transformations at heritage sites. Examples of projection mappings at heritage sites extend from enchanted garden experiences to reinforcing dynamic visualisation on historic castles and abbeys, which create new, digitally enhanced environments. In this paper, we discuss the consequences of spatiotemporal transformations of cultural heritage as a result of digital media projection mappings. We examine the cultural impact of digital media on heritage consumption and audiences' ability to make sense of heritage sites[1] and the places they occupy. We discuss the social, geographical and cultural dynamics of making sense of place, and explore how digital media simulations can modify audiences' sense of the space.

We observe alternating heritage facades with digital media platforms and discuss its implication on how differently the audience can make sense of their surrounding environment depending on the mediated content. On the one hand, we take examples of projection mappings[2] that reveal or elaborate architectural forms and styles; thus engage the audience with architecture styles differently through dynamic visualisations in abstract forms or narrated stories. On the other hand, we look at anamorphic media design that stimulates fantasy scenes in the real-world context to observe the consequences of media on making sense of our surroundings. We discuss these concepts by reflecting on projection mappings on heritage sites such as Durham Cathedral or monuments within the Historic Site of Lyon.

This paper explores narratives around human interactions with technology in a heritage context. It focuses on the role of digital media in mediating space and the perceived interpretation of heritage under the influence of digital media. It evolves around space, place and human experiences of urban heritage in Son et lumière settings. This paper concentrates on the transformational role of digital media on perceived experiences of heritage facades which occasionally are mediated with light and sound. In this paper, we explore the cognitive effect of digital media on making sense of place as well as interpreting heritage on the surface level and beneath. This paper examines case studies from Festival of Lights (Fêtes des Lumières) and Durham Lumiere, discussing the impact digital media could have on the perceived identity of heritage facades beneath the light. Additionally, it explores human experiences in a wider context in the urban environment by looking at the impact of light on spatial awareness and embodiment

Many fields of studies reflect on place and interpret it from the social,[3] geographical and cultural[4] points of view, observing different aspects that shape places and where human experiences occur. In tourism studies, sense of place and attachment often concern the meanings that the place provokes and

how that affects visitors' emotional associations with the place.[5] In the field of human geography, place, particularly, is discussed and defined by referring to spaces that we live in. Tuan[6] explains that a place beyond geographical location is a special ensemble with associated history and meanings. As Tuan explains, place incarnates the experiences of people and requires to be understood from the point of view of those who give meaning to it. Dameria et al.[7] argue that the term 'sense place' has been used in different ways to study place, such as scholars who employ the sense of place to negotiate physical aspects and characteristics of a place which lead to certain experiences. Such an approach to a sense of place is evident in urban designs and the correlating field of studies, including adapting and re-using[8] and the physical qualities of urban environments.[9] On a different note, in humanistic approaches toward a place, and as Graham[10] argues, the focus is on the variety of elements that people bring together to constitute a place. As a result, place is not defined unless people make places by using and understanding it. According to Scannell and Gifford,[11] it can be argued that people, places and cognitive processes together contribute to making sense of place.

This paper attempts to reflect on how people make sense of place in an urban context and how interventions in an urban setting could impact the construction of place. In the field of digital humanities, digital media and projections have been explored to investigate the role of media and mediation in human experiences indoors and outdoors, including investigating the impact of light and sound on human perception of space and one's immediate surroundings.

In architecture, light is extensively explored in spatial project mappings that give urban facades a new skin, representing an artistic and poetic vision of the creators of structures. Lovell and Griffin[12] argue that light projects and architectural elements interact in three different ways resulting in a spectrum of magically real to irreal pieces. Lovell and Griffin argue that architecture could be either passive, physically active or metaphysically active in light projections. In passive modes, architecture is not present in the illumination, disregarding the architecture and turning facades into screens. However, in the physically active projections, light illuminations give structures a new skin which references the architecture by nether deceiving or conjuring illusion.[13] Finally, in architecturally metaphysically active projections, light and architecture interact on a metaphysical level.

Light and space

The question in discourse is how and by what means digital media projections could affect the context of place and place identity. Subsequently, how could mediation in urban spaces impact people's making sense of place, even temporarily? From audiences' point of view, the effect of projection mappings extends to one's immediate, surrounding and situational environment. As previously mentioned, it also interacts with the structures subject to exposure to light. The media content itself is a key component in determining the degree and style of transformation that facades experiences under the influence of light. In artistic practices, light is often explored from the point of view of how it might alter the perception of space through defining spaces and a vision of the world. Edensor,[14] based on an analysis of a number of artistic practices with light, argues that such methods bring to consciousness a wider understanding of how humans make sense of their surrounding world, including the effect of scale, colour and intensity, creating dramatic interventions into the ordinary experiences revealing the spatial and temporal potentials of spaces.

Gallan and Gibson[15] discuss the dualism between light and darkness, day and night as two binary concepts that could oppose one another or interpret. They question how we make the agency of such opposition and how we deny it. As Edensor[16] argues, darkness is often associated with negativity, which contradicts enlightening and illumination. As Huang and Wang[17] discuss, visiting the same site under diverse environmental factors, such as day and night, or weather conditions could provoke different emotions and impact people's perception of the place. The development and expansion of

illumination in the modern context has greatly influenced nocturnal tourism experiences such as Son et Lumière events and experience consumption at night.

From an experiential point of view, light and darkness engage human beings through affect and emotion, particularly in creating an atmospheric space, in which light plays a critical role.[18] Based on a study in Blackpool, UK exploring the influence of atmospheric design on flow, Edensor[19] argues that sensual and practical familiarity with place lead to temporal flow, where emotions are not disruptive nor disturbing but anticipated, and connect human body with the environment through as immersive experience. Light, as a critical element and a medium, has contributed to the emergence of cultural events, which revitalise the nocturnal life of cities,[20] creative light events that as re-enchant places[21] by defamiliarising them.[22] According to Lovell and Griffin,[23] producing enchantment itself is a paradox, which relies on the unexpectedness of purposefully and consciously creating an affective experience, which others do not want to expect.

Light in urban context

This section introduces two historic sites home to light and sound festivals showcasing a variety of artistic and creative visions in the urban heritage. Following the previous discussions on light and space, it introduces examples of creative projections showcased in the Lyon, France and Durham, UK and discusses the multisensory implications of the projections on sense of place. The Historic Site of Lyon was inscribed on the World Heritage List in 1998 with reference to criteria (ii) due to its "testimony to its continuity of urban settlement over more than two millennia on a site of great commercial and strategic significance, where cultural traditions from many parts of Europe have come together to create a coherent and vigorous continuing community" and criteria (iv) "by virtue of the special way in which it has developed spatially, Lyon illustrates in an exceptional way the progress and evolution of architectural design and town planning over many centuries".[24] The Historic Site of Lyon is located in the Auvergne-Rhône-Alpes region where Saône and Rhône rivers meet. It is dominated by Fourvière and Croix-Rousse hills. In Lyon, the history of human settlement dates back over two thousand years. The traces of different eras from the roman and medieval to the renaissance and the 19th-century style in architecture and urban development are still visible in the city today.

The Historic Site of Lyon is home to Fêtes des Lumières, an annual event that showcases creative projection mappings on historic sites and monuments of the city. It has emerged from and commemorates the historical tradition of candle lighting on 8 December 1852, where the residents of Lyon lit up the city to celebrate the installation of the "statue of the Virgin Mary on the Fouvière Hill".[25] Inspired by Fêtes des lumières in Lyon, Artichoke produces light festivals in the UK presenting creative works by national and international artists on different scales. The first Lumiere took place in 2009 in Durham and has been held in the city every other year.

The emergence of digital technologies and the advancements in human-computer interactions has opened a genre of discourses on how technology could influence shaping human experiences. As a result, as Ciolfi[26] states, a new approach to place has been shaped that concentrates on human and lived experiences in physical environments. In the heritage field, digital technologies are increasingly being employed to further facilitate engagement and access to heritage.

As Ciolfi[27] explains, heritage experience designs focused on place and embodiment benefit visitors and stakeholders in multiple ways, including the impact it has on the nature visit, the significance of the physical environment and place as a focal point of visitor experiences. According to Kenderine,[28] embodiment in heritage is multisensory and emerges from a combination of visual, auditory, tactile and olfactory cues. Light and illumination influence human perception of space by creating shades of brightness and darkness. Artistic uses of light often take advantage of its glowing and radiant characteristics, creating a sensational experience. Light, darkness and what comes in between also

influence our understanding of the surrounding environment. Similarly, colour, direction and positioning as well as the intensity of light impact how we perceive our surrounding environment and experience spaces. The cognitive impact that projections could have on one's perception of space could extend to creating distortions, illusions and anamorphisms through animated imageries.

The projection mapping, Castle of Light by artist Javier Riera is an example of influencing the sense of place through a projection mapping that represents the site in artistic and illusionary form. Riera's work is highly intertwined with geometry and attempts to reveal hidden dimensions of the place.[29] The effect of light and reflections in the water impact how one could differently perceive the structure. The piece was projected on Raby Castle, County Durham, in 2021. Javier Reira's work presented geometrical patterns of light inspired by time, place relativity and experience. The piece transforms Raby castle's facade with mind-bending and meditative imageries echoing the fortress exterior. In this context, one's surrounding environment is influenced by the geometric pattern projections, and so is making sense of the castle being exposed to the dynamic illumination of the castle that overlays its 14th-century facade
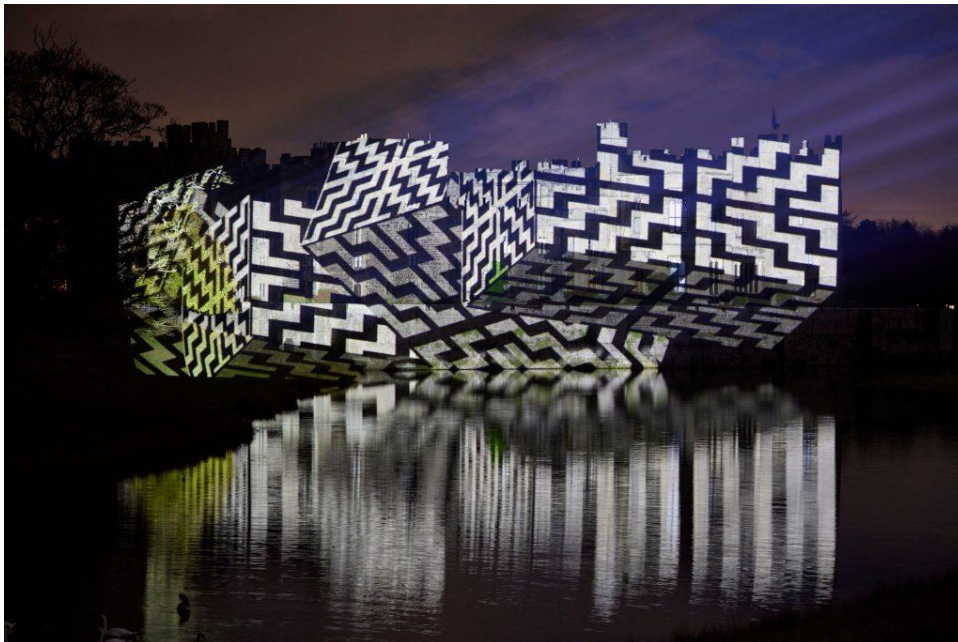
Figure 1. Castle of light by Javier Riera, Durham, UK

A historical and architectural facade provides the first impression of historical buildings and monuments and presents their identity to visitors in the urban context. From an architectural point of view, a facade is one of the main exterior characteristics of a structure with aesthetic designs and style. As previously mentioned, light projections give facades a new skin, often referencing the building in terms of shapes, motives, and architectural elements, but in many cases transforming it and employing it as a surface for alternative media projections. The way architecture and projection interact and the extent to which projections reference the structure varies, resulting in realistic to magical and irreal representations[30] of media and the sites. Although, the question that remains in discourse is how projections could be a continuity of facades in digital forms.

The 'Color or not'[31] piece by Yves Moreaux showcased in Lyon 2014 at the Cathedral of St John the Baptist, Lyon, is an example of referencing the architecture of the site in projected visual forms. The Cathedral of St John the Baptist was built between 1160 and 1481. Despite its long period of construction, the cathedral retains a notable degree of stylistic homogeneity.[32] It has been subject to many intriguing projection mappings at various Fêtes des lumières over the years. The piece, 'Color

or not', displayed lines and motives referencing the cathedral's facade, defining elements embedded in its architectural style. The piece elaborates on viewers' vision of the cathedral by radically and colourfully revealing the elements of the facade. The projection mapping skins the cathedral with a modern vision of the facade, providing references to the style. Color or not supports audiences' understanding of the facade and the cathedral as it stands. It engages the viewer with a visual representation of the facade identity and a chance to discover its style and characteristics in the dark.

Figure 2. Color or not by Yves Moreaux, Lyon, *France*

Further to the two previous projections referencing embodiment in heritage places and identity, light could be a powerful tool to stimulate one's spatial awareness - a field of science understanding where the human body is located and how it perceives the surrounding environment. Spatial perception is twofold. It is shaped as a result of exteroceptive and interoceptive processes. Exteroceptive spatial perception relates to the understanding of space through feelings. Interoceptive spatial perception relates to the understanding of where the human body is located in relation to other objects and people with attention to distance and scale.[33] Light and spatial illuminations could have the power to manipulate our perception of space by generating ambience and activating one's feelings about the space we occupy.

The piece Solitude, by Kari Kola at Finchale Priory at Durham Lumiere, 2021, is an example of creating an ambience with light projections. The piece was also empowered by the soundscape by Sylvain Moreau. The Finchale Priory was founded in the 12th century on the site of the hermitage of St Godrics. The priory was an outpost of Durham Cathedral and was used as a holiday retreat for the monks until the suppression in 1538. For this piece, the artist took inspiration from the solitary life of St Godrics, particularly loneliness, strength, patience and peace. The combination of light effects and the soundscapes created a haunting and atmospheric ambience in space. The experience of the priory in the dark, overlayered with ambient lighting and soundscapes, reactivates one's feelings about the space and interpretations of which through personal experiences.

Figure 3. Solitude by Kari Kola, Durham, UK

CONCLUSION

Reflecting on examples of light projections in urban historic and heritage contexts, it can be argued that light could stimulate one's perception of space and making sense of it. A better understanding of this phenomenon requires understanding the process through the lens of human experiences considering how one perceives and interprets their surrounding environment in relation to audio, visual and tactile stimuli and constructs meaning from them. Light and projection mappings have the power to influence or alternate our perception of space resulting in alternative or unconventional interpretations of space, ultimately affecting making sense of place under the influence of digital media stimuli. The aesthetic qualities of projections, scale and variation of styles in digital media content creations as well as the projection methods determine the transformation we experience on facades. Consequently, making sense of heritage environments, structures and monuments, perceiving and negotiating their characteristics, and thus, interpreting and making sense of the place could be influenced through light mediation.

NOTES

[1] Christin Dameria et al., "A conceptual framework for understanding sense of place dimensions in the heritage context," Journal of Regional and City Planning 31, no. 2 (2020): 139–163.

[2] Jane Lovell and Howard Griffin, "Fairy tale tourism: the architectural projection mapping of magically real and irreal festival lightscapes," Journal of Policy Research in Tourism, Leisure and Events 11, no. 3 (2019): 469–483.

[3] Gerard Kyle and Garry Chick, "The social construction of a sense of place," Leisure Sciences 29, no. 3 (2007): 209–225.

[4] Nik Mastura Nik Mohammad et al., "A Sense of Place within the Landscape in Cultural Settings," Procedia - Social and Behavioral Sciences 105 (2013): 506–512.

[5] Atila Yuksel, Fisun Yuksel, and Yasin Bilim, "Destination attachment: Effects on customer satisfaction and cognitive, affective and conative loyalty," Tourism Management 31, no. 2 (2010): 274–284.

[6] Yi-Fu Tuan, "Space and place: humanistic perspective," in Philosophy in geography, ed. S Gale (Dordrecht: Springer, 1979), 387–427.

[7] Christin Dameria et al., "A conceptual framework for understanding sense of place dimensions in the heritage context," Journal of Regional and City Planning 31, no. 2 (2020): 139–163.

[8] Ibrahim Abdallah Shinbira, "Conservation of the Urban Heritage to Conserve the Sense of Place, a Case Study Misurata City, Libya," American Transactions on Engineering & Applied Sciences, 2012, 253–264.

[9] John Montgomery, "Making a city: urbanity, vitality and urban design," Journal of Urban Design 3, no.1 (1998): 93–116.

[10] Helen Graham, Rhiannon Mason, and A Newman, Literature Review: Historic Environment, Sense of Place, and Social Capital, 2009.

[11] Leila Scannell and Robert Gifford, "Defining place attachment: A tripartite organizing framework," Journal of Environmental Psychology 30, no. 1 (2010): 1–10.

[12] Jane Lovell and Howard Griffin, "Fairy tale tourism: the architectural projection mapping of magically real and irreal festival lightscapes," Journal of Policy Research in Tourism, Leisure and Events 11, no. 3 (2019): 469–483.

[13] Jane Lovell and Howard Griffin, 469–483.

[14] Tim Edensor, "Light art, perception, and sensation," Senses and Society 10, no. 2 (2015): 138–157.

[15] B Gallan and C Gibson, "New dawn or new dusk? Beyond the binary of day and night," Environment and Planning A 43, no. 11 (2011): 2509–2515.

[16] T Edensor, "The gloomy city: Rethinking the relationship between light and dark," Urban Studies 52, no. 3 (2015): 422–438.

[17] W Huang and P Wang, ""All that's best of dark and bright": Day and night perceptions of Hong Kong cityscape," Tourism Management 66 (2018): 274–286.

[18] Tim Edensor, "Illuminated atmospheres: Anticipating and reproducing the flow of affective experience in Blackpool," Environment and Planning D: Society and Space 30, no. 6 (2012): 1103–1122.

[19] Edensor, 1103–1122.

[20] Teresa Alves, "Art, light and landscape new agendas for urban development," European Planning Studies15, no. 9 (2007): 1247–1260.

[21] Jane Lovell and Howard Griffin, "Unfamiliar light: the production of enchantment," Annals of Tourism Research 92 (2022): 1–17.

[22] Tim Edensor and Shanti Sumartojo, "Reconfiguring Familiar Worlds with Light Projection: The Gertrude Street Projection Festival, 2017," GeoHumanities 4, no. 1 (2017): 112–131.

[23] Jane Lovell and Howard Griffin, "Unfamiliar light: the production of enchantment," Annals of Tourism Research 92 (2022): 1–17.

[24] ICOMOS, Historic Site of Lyon, 1998, p 30.

[25] "The story behind the festival", Fetes des lumières, accessed November 20, 2022, https://www.fetedeslumieres.lyon.fr/en/page/story-behind-festival.

[26] Luigina Ciolfi, "Embodiment and place experience in heritage technology design," in The International Handbooks of Museum Studies, ed. Michelle Henning (2015), 419–445.

[27] Ciolfi, 419–445.

[28] S Kenderdine, "Embodiment, Entanglement, and Immersion in Digital Cultural Heritage," in A New Companion to Digital Humanities, ed. S Schreibman, R Siemens, and J Unsworth (2015).

[29] "Short Bio", Javier Riera, accessed November 20, 2022, https://javierriera.com/short-bio/?lang=en.

[30] Lovell and Griffin, "Fairy tale tourism: the architectural projection mapping of magically real and irreal festival lightscapes."

[31] "Color or not", Fêtes des lumières, accessed November 20, 2022,

https://www.fetedeslumieres.lyon.fr/en/oeuvre/color-or-not.

[32] UNESCO, "Historic Site of Lyon", accessed November 20, 2022, https://whc.unesco.org/en/list/872/.

[33] "Spatial Perception", CogniFit, accessed November 20, 2022, https://www.cognifit.com/science/cognitive-skills/spatial-perception.

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THE THICK INTERFACE: DIGITALLY MODELLING THE HAWA MAHAL FROM A DISTANCE

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INTRODUCTION

This work is part of the larger project of *architectural epistemology* – the study of ways in which knowledge about architecture can be produced, structured, and disseminated.[1] As part of this project, we are generally interested in the architectural modelling of heritage sites "from a distance," that is, with reliance on extant documentation (e. g., photographs or drawings) as distinct from direct experience.

How do the processes of representing buildings from a distance inform the ways in which we know architecture? The question is not new. Carpo remarks on the "speechless art of describing" buildings from a distance, an art that emerged in Renaissance Italy, as "the harbinger of a major cultural change" – the beginning of a historical shift from oral forms of knowledge dissemination to visual (specifically drawn) forms.[2] Hewitt, in proposing a historical study of architectural drawing in the West, identifies Borromini's work as seminal, using his work to argue that "[d]rawings and mental pictures are clearly related, as is the order in which drawings are made and the relative importance of aspects of the building which they represent."[3] Zevi hints at the possibility of achieving full sensory simulation in representing buildings from a distance.[4] However, Zevi's drawings of St. Peter's in Rome reveal specific understandings of architecture relating to spatial experience without attempting to simulate it, implying that drawings constitute an essential mode of knowledge production differing markedly from direct "unmediated" knowledge of buildings.

Considered from the perspective of a twentieth-century disciplinary context, ways in which existing buildings become known from a distance are inseparable from photography: Banham extensively discusses Le Corbusier's appropriation of trade photographs of grain elevators to support his argument for a "New Architecture"[5]; Rudofsky relies on apparently anonymous photographs to construct the idea of a "nonpedigreed" architecture.[6] Buildings like the Guggenheim Museum Bilbao are associated with photographic images whose value can be understood as on par with the building itself.[7] As Colomina has succinctly acknowledged, every building is "not simply represented in images but is a mechanism for producing images"[8]; similarly, Koolhaas and Mau forthrightly acknowledge photography's role in the construction of architectural knowledge and its consequent effects in the shaping of buildings.[9] Now, technologies like Google Street View continue to raise questions about the ways that buildings come to be known from a distance.[10]

In contemporary research of heritage sites, where scan-to-BIM technologies are brought to bear alongside virtual reconstruction efforts, the question of representing buildings from a distance becomes acute both technically and politically.[11] With respect to demolished buildings,

documentation in the form of drawings or photographs may provide the only reliable source for modelled representation.[12] In this context, even in the case of existing buildings that can be visited and surveyed with the best technology, the question of representing from a distance becomes newly worth asking. Increasingly sophisticated remote sensing, photogrammetric, and digital modelling technologies tend to place a premium on fidelity and demonstrable accuracy, i. e., dimensional correspondence between models and referents. In pursuit of fidelity and accuracy, optimal documentation is understood to be that which is internally consistent and robust with respect to coverage of the modelled site. In this context, the question we consider is whether representations of heritage sites should be valued primarily based on their demonstrable accuracy. In what ways could a digital model be construed as valuable or significant to heritage study, if that model is constructed based on documentation known to be sub-optimal?

To state our aims in somewhat more practical terms, in this project we consider the use of photogrammetry to aid the construction of three-dimensional digital models of a heritage site. We have deliberately chosen source images that considered collectively can be understood as sub-optimal relative to prevailing expectations for photogrammetric modelling. In this sense, our approach asks "what can be done with photogrammetry under problematic conditions using photographs taken from several years to decades in the past".[13]

CONTEXT

Photogrammetry is distinct from photometric scanning, which requires expensive special equipment and multiple scans done with sufficient overlap to merge data into a single point cloud, making it inaccessible for many low-budget research applications. As a means of documenting existing sites, scanning requires that the scanning equipment be physically placed in relation to the site. By comparison, photogrammetry provides flexibility in terms of equipment and software, it can operate within a smaller budget, and it allows a range of different kinds of data input (e. g., historical photographs in addition to contemporary ones).

Ideal conditions for generating photographs useful in photogrammetry vary by the software of choice but are typically to use a high-quality camera (DSLR or similar), consistency in focal length and distance from subject, and significant overlap between photos (around 80%). The most important aspect of selecting photographs is coverage of the subject from different angles. Photogrammetry is based on an algorithmic interpretation of shared key points within a set of photographs.[14] In these processes, the algorithm also places the camera in virtual space.

Reality-based modelling, in which the digital acquisition of relevant data is done through an on-site 3d survey (e. g., scanning or photogrammetry), differs from *source-based modelling,* which relies on drawings, photographs, and other information. While reality-based modelling is a quantitative exercise in which measurements are accurate relative to real units on-site, source-based modelling is iterative, resulting from a blending of different sources with different degrees of reliability. Source-based modelling may be especially appropriate for "lost" sites.[15]

While there are certainly ideal circumstances for generating images, most photogrammetry software applications can accept images not specifically prepared for photogrammetry. PhotoModeler is one of several relatively low-cost applications providing the ability to generate 3d models from photographs.[16] The software combines or integrates features of photogrammetry and three-dimensional digital modelling.[17] Its use in heritage site research is well-documented in the literature.[18] The software tends to work predictably when the source photographs have consistent focal lengths together with redundancy or overlap, depicting a variety of viewpoints on the same object or surface. The use of internet-sourced images in research concerning existing buildings and cities is also well-explored.[19] Collections of internet-sourced images resulting from a post-facto search are distinct from collections of crowdsourced images that are aimed at documenting heritage structures.[20]

In this project, we consider internet-sourced images of the Hawa Mahal in Jaipur, India, representing a range of coverage and reflective of distributed knowledge. Photographs of the Hawa Mahal, like photographs of the Taj Mahal in Agra, operate like commodities, disseminated online and appearing with banal regularity in response to online search queries. The researcher seeking photographs of the building is obligated to navigate through dozens, or even hundreds, of nearly identical images of the building's principal facade. Tourist websites featuring photographs, drawings, and maps of the Hawa Mahal are similarly commodified.[21]

Rhinoceros model

In preparation for the work discussed in this paper, we constructed a digital model of the Hawa Mahal (Fig. 1). We based our construction of the model on interpretation of published sources including detailed architectural drawings,[22] photographs, and one of this paper's author's direct inspection of the site. The digital model may be considered a *sketch* or *pedagogical* model, meaning that it incorporates a subset of what might be considered authoritative dimensions: it represents a simplification of the building's geometric forms for reasons of expediency.[23] In our work, the digital model served as a stable reference for subsequent tests.
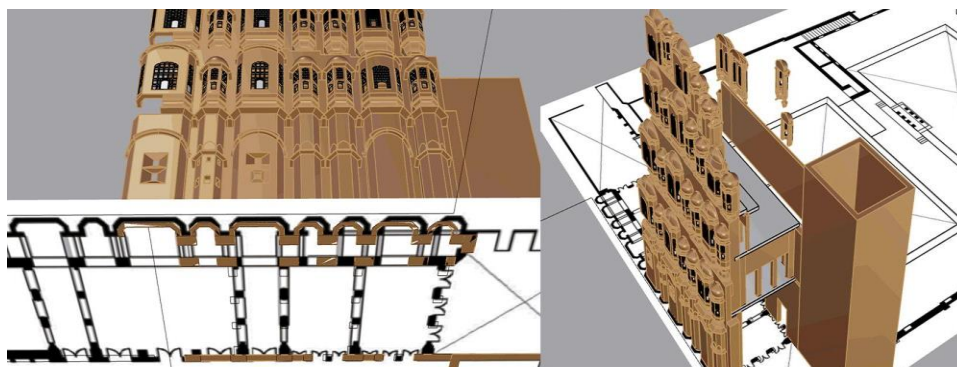
Figure 1. Rhinoceros model under construction

Preliminary test

As an initial test of our ability to handle photographs from differing cameras and focal lengths, we attempted to use PhotoModeler to construct a model of the Goetz Gallery in Munich, Germany. We used a small set of photographs minimally compliant with the expectation that significant (i. e., measured) points should be "visible on at least two images captured from different locations"[24]. The Goetz Gallery has the essential form of a rectangular prism. Ultimately, we were unable to construct a rectangular-prism model from our source photographs, which we attribute to the software's difficulty in solving for the specific (but unknown) focal lengths of each reference photograph. We also note that our small collection of source photographs exhibited a pronounced lack of redundancy, as our collection contained few photographs of the back of the building. What resulted from our test was an open, planar loop of reference points, suggesting that a larger collection of photographs with a higher degree of redundancy could be used to obtain a more predictable, complete result.

Modelling tests

Our first test of modelling the Hawa Mahal using PhotoModeler used the first ten images of the building in the order of their appearance in a Google Images search result (Fig. 2). The software was able to "orient" four of the ten images to create a planar model with texture mapping but lacking 3d information.
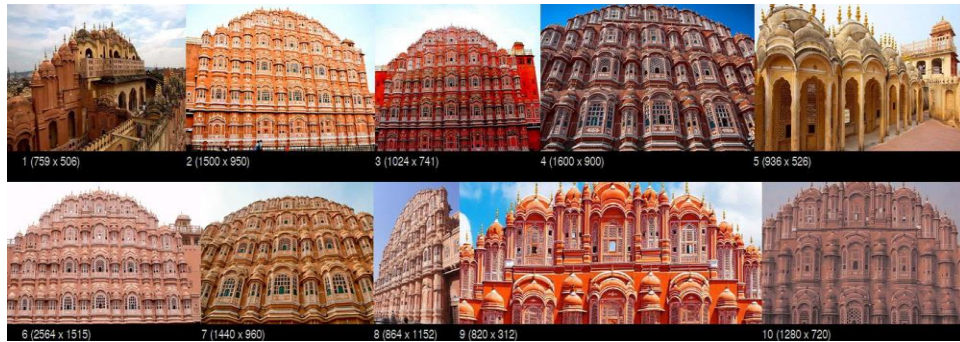
Figure 2. Images of Hawa Mahal sourced from Google Images

For our next test, we aimed to anticipate PhotoModeler's expectations for broad subject coverage, consistency of lighting, and significant overlap, by assembling a collection of specifically selected photographs. We began with a new Google Images search, from which we selected six photographs that provided coverage of the building's facade in elevation, along with photographs reflecting the depth of Hawa Mahal. As part of the referencing process within PhotoModeler, we manually indicated visible reference points across the collection of photographs, as shown here (Fig. 3) in two in-process examples. The software was able to orient five of the six images to create a planar model of the facade.

Figure 3. Reference points across the collection of images

To begin our third test, we returned to our initial collection of ten Google Images. We adjusted our strategy for selecting reference points. Instead of asking the software to consider points from the entire facade, we identified specific repetitive elements. By limiting our attention to a subset of these elements, we expected to simplify PhotoModeler's process, with the expectation of more predictable results. This approach produced 3d representations and was the most successful of the methods to this point (Fig. 4).

Figure 4. Limited-scope model of repetitive elements

We ran a fourth test as an informal control. When Rhino is used to produce a perspective image of a digital model, the simulated focal length may be set arbitrarily. In this way, a set of images can be produced that effectively mimic the form of optimised purpose-produced photographs with consistent (real-world) focal lengths. PhotoModeler oriented all four screenshots, producing a three-dimensional model with texture mapping (Fig. 5).
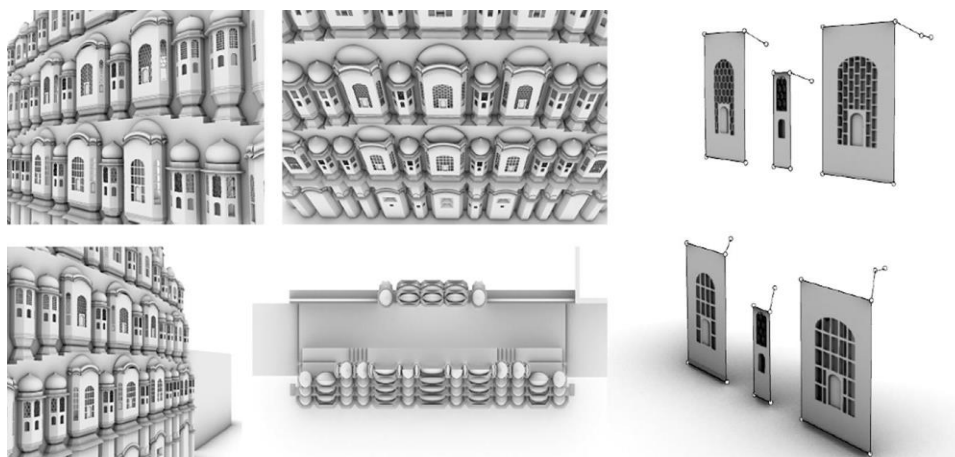
Figure 5. Rhino screenshots (left, center) producing a three-dimensional model (right)

In our fifth test, we combined the six photographs specifically selected for use in PhotoModeler along with the four screenshots from the Rhino model. Consistent with our previous tests, PhotoModeler accepted and oriented all four Rhino screenshots and five of the six selected photographs. Our test resulted in a texture-mapped model of the reference surfaces, combining information from the referenced images (Fig. 6).
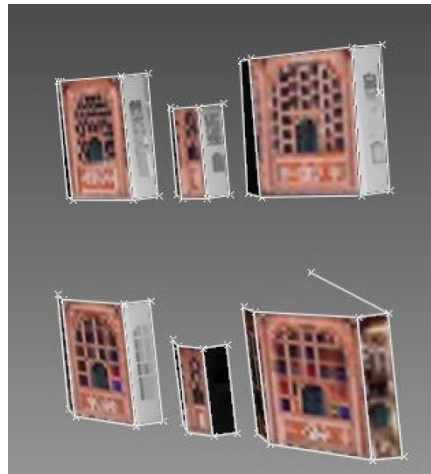
Figure 6. Model produced from Google Images and Rhino screenshots

Photoshop makes it possible to modify images to simulate adjustment of camera focal lengths. Thus, in our sixth and final test, we used Photoshop's Lens Correction filter to mitigate differences in focal length, i. e., causing the photographs to appear more orthographic. We established a simple method in Photoshop and applied it consistently to a set of eight images (two examples are shown in Fig. 7). PhotoModeler accepted and oriented all eight of the modified images, producing a three-dimensional model of the reference surfaces (Fig. 8).

Figure 7. Lens-corrected images
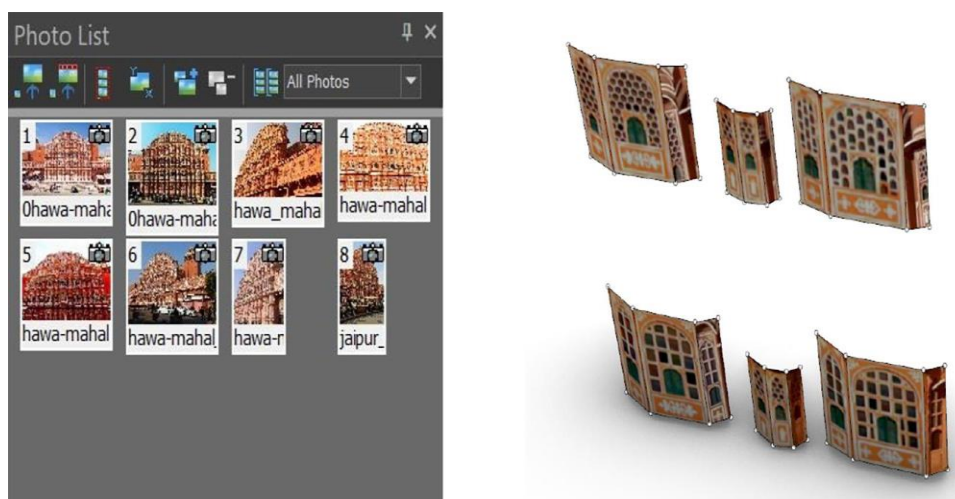
Figure 8. Model based on lens-corrected images

Acknowledging the difficulty of identifying consistent reference points across a collection of disparate photographs of the Hawa Mahal, we proposed a new approach for a final test. Based on our Rhino model, we modelled a simple polygonal form as a three-dimensional trace of the Hawa Mahal.

We overlaid linework from from this form on each photograph in our collection. This made it possible to reference points that are located off the structure. Matching the perspective of the prism linework to a given photograph proved somewhat impractical due to the use of three different software applications to achieve a result (i. e., Rhino, Photoshop, and PhotoModeler), implying that each photograph is estimated three times. The "prism method" also uses points which are detached from the actual structure of the palace, causing a further departure from the original structure.

DISCUSSION

Going into this project, we were aware that apparent gaps, omissions, and misinterpretations of photographic data can signal bias in photographic collections, e. g., when photographs in a collection are biassed toward popular views. In turn, identification of bias can suggest directions for additional photographic research or site reconnaissance. In this sense, gaps and omissions in photographic collections have obvious usefulness in contributing to the iterative development of a comprehensive representation of a heritage site.

In general, our tests of sub-optimal crowd-sourced photographs do not produce models as "intended" by PhotoModeler. Photographs resulting from a Google Images search, as a subset of all photographs available online, are "unorganized, uncalibrated, with widely variable and uncontrolled illumination, resolution, and image quality"[25], and "cannot be considered optimal for photogrammetry based on technical reasons, such as a variable zoom lens, missing information, such as camera metadata, and particularly for the lack of sufficient overlap between photographs".[26] Yet, for the purposes of this research, we did not aim to produce representations that are demonstrably accurate with respect to ground truth, but those that test the limitations of the tool alongside its benefits and capabilities, in the expectation that these tests will suggest emergent semantic relationships. In this sense, for the purpose of this research, a model is considered *successful* if it can trigger some new form of reciprocal relationship with other representations of the building.

CONCLUSIONS AND FUTURE WORK

Our work recognizes a distinction between two related acts. One is building a model for the purposes of accurately or comprehensively representing a heritage site. The other is building a model as a means of assessing the character, quality, or scope of a collection of representational artefacts that *refer to* a heritage site, e. g., photographs, drawings, images, maps. In this latter category we also identify projects that draw conclusions about touristic and scholarly photographic practices from examining image collections.[27]

Gaps and omissions can signal bias in photographic collections. There is, for example, a remarkable consistency of vantage point among the Hawa Mahal photographs we considered. This may reflect how the production of photographs is driven by a need for photographers to replicate what they have seen before, i. e., a hermeneutic circle of representation, wherein people visiting the site attempt to reproduce photographs of the building which they have previously seen.[28] In turn, identification of biases of this kind can suggest approaches for additional photographic research or site reconnaissance. In this sense gaps and omissions in photographic collections have obvious usefulness in contributing to the iterative development of a comprehensive representation of a heritage site. Our work in this project, for example, can be read to suggest a need for expanding the photographic collection of Hawa Mahal in a way that forcefully seeks out images of accessible but rarely photographed portions of the building. Such a reading of our work, however, would incorrectly assume the goal of an accurate and comprehensive model.

Gaps and omissions can also call attention to biases built into software. In conventional processes of digitally modelling heritage sites, researchers or modellers may reasonably be expected to make

deliberate and well-informed decisions about modelmaking. In the case of software like PhotoModeler, some responsibility for decision-making process is handed to an algorithmic process. That process is designed to expect certain kinds of images (i. e., images that feature consistent focal lengths, with thorough and overlapping coverage), and may even privilege certain kinds of buildings (specifically, buildings with planar surfaces at right angles), although this is not yet clearly established.

Modifying photographs through distortion, or through the addition of reference points, or through selective cropping, as we explored here, can address some of the biases in photographic collections; modified photographs may also prove to be more digestible by an algorithmic process, tending to lead to more predictable results, in comparison to unmodified photographs. Modifications essentially lead to a simplification of the algorithmic tasks, and hence have the effect of recapturing some of the decision-making process to the researcher.

While we agree that "[t]he major limiting factor ... [with respect to the construction of accurate models] was lack of overlapping coverage of the subject"[29], we contextualise this conclusion differently. Rather than aligning our conclusions with prevailing expectations for photogrammetry and digital modelling, or positioning our work in pursuit of accurate models, we suggest here that while software is of obvious utility for constructing dimensionally accurate models of heritage sites, it has a distinct value in that its use always gives rise to semantic relationships that are not obvious at the project outset. For this reason, we are willing to treat both a lack of overlapping coverage and resultant "inaccurate" models as uniquely significant. That is, rather than treating gaps and omissions as negative attributes to be overcome with better photographs or better technology, we seek to problematize gaps and omissions as necessary and constituent to processes of knowing architecture. In particular, our ability to act on photographs in response to our observations is significant to the emergence of semantic relationships.

ACKNOWLEDGEMENTS

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THE MADRID BALCONY: INFLUENCE ON THE IMAGE OF THE CITY

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INTRODUCTION

In Madrid there is a typology of balcony "the Madrid balcony", which has evolved over the last centuries to fall into disuse today, being replaced by other elements such as bay windows, terraces or large windows. Both its evolution and progressive disappearance have been the result of a combination of several factors.

The balcony has been a reflection of the different changes both in the way of life and in the needs of society throughout the different ages, making present the social advances achieved since the 19th century in the way of building residential buildings and their facades.

On the other hand, the evolution of construction systems in collective housing and the appearance of new building materials have caused that the construction process of this element has undergone constant variations. At the same time as the improvement in the habitability conditions of the bay windows has been a key factor in their proliferation.

Finally, the construction of balconies has always been linked to the regulations in force, regulating the protrusions, overhangs, materials to be used and even the criteria for calculating the buildable area.

All this has caused the urban facade of Madrid to have been changing, not only over the years, but also in the different neighbourhoods of the city, since the use of different types of balconies has been related to the socioeconomic level of homeowners.

The social function of the balcony in the development of Madrid

The image of the city of Madrid is strongly conditioned by the presence of the balcony, apart from its aesthetic and compositional purpose of facade fronts, it acquires a social function within the houses. It is an opening element to the outside and an intermediate space of relationship between the private and the public, assuming a key piece of the daily life of Madrid, which improves living conditions by providing more light and better ventilation to the spaces.

The development of Madrid began in the 17th century with the arrival of the Court of Philip II to the city and a series of forges began to settle that gave rise to the "*Chispería*"[1] neighbourhood, where balconies for the buildings of the Court of the Habsburgs were built. As the 18th century passed, its use in collective housing became more widespread, although with a very simple structure, as their only purpose was to protect the balcony opening. The facades stand out for the monotonous and systematic repetition of the openings, with balconies of small dimensions.

Figure 1. Balcony of collective housing building. Calle Olmo 29. 1799

With the advent of the Industrial Revolution, iron became the material par excellence of the 19th century. Mechanized production will cause the disappearance of artisan forging workshops and will trigger the production of cast iron for balconies, both in popular collective housing and for the upper classes, due to the discovery of its great ornamental capacity.

In the facades begins to reflect the social stratification present in the interior of the building, the balcony was conceived as a hierarchical element, enhancing its presence on the main floor, thus appearing the continuous balconies[2] reinforcing the importance and notoriety of the balcony in facade.

Figure 2. Continuous balcony. Calle Churruca 47.

It is in the last years of the century when the balcony is in its greatest splendour and begins to combine with bay windows, which become a symbol of the bourgeoisie. In the beginning the bay window is conceived as a light and transparent structure that is attached to the facade without modifying it, and that only covers the opening. However, as the years go by, the bay window increases in height until reaching the next floor slab, establishing continuity between the different floors and giving the bay window greater rigidity and monolithism, which will modify the composition of the facades. This conceptual change will be accompanied by a change in the materials used, going from the transparency and lightness of the iron to the solidity of the brickwork.

Figure 3. Bay window. Calle Carranza 24
Figure 4. Bay window. Calle Sagasta 24
Figure 5. Bay window. Calle Sagasta 30

With the entry of the 20th century in Europe, the first cast iron constructions began to be developed, creating buildings with greater spans and higher heights. In Spain, it will have a great boom in the period between the end of the First World War and the Spanish Civil War, from this moment on it will give way to reinforced concrete. At the same time, technological innovations such as heating and electricity, which will improve comfort in homes, and the elevator, which will eliminate the existing vertical stratification until this time, are being introduced into buildings

During this period, the overloading of the ornamentation is left aside and the materials and dimensions become more relevant, so the compositions are simplified while increasing the dimensions of the facade elements, starting the decline of ornamental iron.

In the decades following the Spanish Civil War Madrid doubles its population, this supposes an important building growth. At this time both the image of the city and housing programs will be determined by the government. In addition, the buildings have to adapt to the scarcity of construction materials, being handcrafted and not very technological.

The appearance of steel and concrete as new construction materials will cause a change in the way of building, replacing load-bearing walls with reticular structures that will dissociate the facade from the wall, freeing the facade from its structural function. This evolution of construction systems coincided with the ideas of the Modern Movement, which appeals for a free composition of facade openings.

The concept of the balcony used to date fell into disuse and will be replaced by large windows, bay windows or terraces, significantly reducing the number of buildings with balconies on their facade fronts, so that the Madrid balcony tended to disappear in new construction.

The construction of facades in collective housing in Madrid

The evolution of construction systems will modify the way in which buildings are built in Madrid and this will be reflected in the facades, causing an evolution in the urban image of the city. In the same way that construction in collective housing evolves, the construction of the balconies themselves also evolves.

When the Court of Philip II moved to Madrid built themselves large palaces using the best building materials. However, the popular buildings were built with materials of poorer quality and therefore less durable. The buildings were made of wood, the use of carved stone was reserved for the highest category buildings, and in other buildings it was only used for decorative elements.

The "*corrala*"[3] became the typology par excellence of popular housing in Madrid, its balconies are made of wrought iron balconies with a greater projection on the first floor than in the successive ones. Balconies from most of the 19th century are made up of a single element, formed by the railing that prevents falling, at the same time that it functions as a cantilevered structure on which the pavement of the balcony is located. This element is completely cantilevered, embedded in the wall in the upper part and in the joists in the lower part, and must support both the weight of the railings and the overloads caused using the balcony.

Figure 6. Corrala Mesón de Paredes

With the arrival of the Industrial Revolution in Spain at the end of the 19th century, the iron smelting process was improved, which allowed iron to begin to be used on a domestic scale, replacing the wooden frameworks with metallic slabs, leaving aside the soft iron forging in the elaboration of the balconies. However, balconies made entirely of iron do not allow for large overhangs, so a series of elements with a structural function began to be incorporated: fastening brackets under the flooring, brackets in the railings and anchors to the wall for the continuous balconies.

Figure 7. Fastening brackets and anchors to the wall of the continuous balconies

With the introduction of domestic scale iron, the metal structure was combined with brickwork, definitively discarding the wooden framework, and began to incorporate prefabricated elements in the construction systems, where glass became more important. In addition, balconies began to be built by means of the overhang of the floor slab, which considerably increased the overhang of the balconies.

The new principles set by Rationalism at the beginning of the 20th century influenced the materials to be used, with the widespread use of steel and reinforced concrete in building and conditioned the way in which these materials were used in the construction at the time. Due to the novelty of the concrete execution process, its incorporation into building construction was slower, but by the middle of the century it was the most used structural system, actually incorporating the reticular structure to the building. Change that will continue to this day.

With the appearance of the reticular structure of steel or concrete, the facade is released as a structural element, becoming a covering element of the buildings, losing its mechanical behaviour and acquiring mainly a thermal function. This will cause a decrease in facade thicknesses, allowing an increase in openings and incorporating new types of materials such as glass, plastics, textiles or titanium.
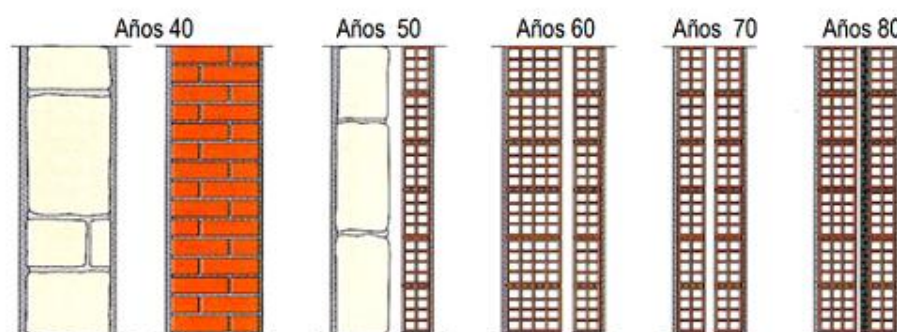
Figure 8. Evolution in facade construction (from the 40's to 80's)

On the one hand, the balcony typology will fall into disuse, and those that are made leave aside the iron balcony, adopting solutions such as laminated glass panels, steely aluminium canvases or hollow metal tubes. It should also be noted the proliferation of a series of new materials such as metallic elements protected against oxidation, silicone joint sealants or waterproofing sheets and new types of glass, which will mean a change in the construction of balconies and bay windows.

Regarding bay windows, they continue to be made of iron and glass until the end of the 20th century, they are conceived as a double skin that overlaps the actual enclosure of the facade but does not have the necessary thermal or acoustic characteristics. However, with the incorporation of new materials, mainly multiple glazing and laminated glass, will allow these spaces to be incorporated into homes.

Regulatory influence on the composition of facade fronts

Just as the construction systems have marked the evolution of the balconies, they have had to adapt to the existing regulations in each period, at the same time that this has been evolving to adapt to the needs of society.

The first regulations governing building in Madrid were the Ordinances of Felipe II in 1567. Later, Juan de Torija wrote in 1661 a technical regulation, which regulates sanitation and easements with respect to public roads. This regulation will be revised in 1719 by the Maestro Mayor of Madrid, Teodoro Ardemans, in it will limit the overhang of balconies[4] according to the width of street.[5] Although they were never approved by the government, they were used as a reference for almost two centuries.

In 1790, after the fire in the Plaza Mayor in Madrid, Juan de Villanueva, Maestro Mayor, highlights the necessary elimination of wood in housing construction. It also determines the dimensions of the

parapet of the balconies.: "*it must not go below three and a half feet (0.98 m), nor exceed four* (1.12 m) (...) *to prevent the passage of the smallest creatures, the subdivision of balusters may not exceed eight fingers* (0.14 m)" [6]. In addition, it establishes the height of the balconies according to the height at which they are situated, giving greater overhang to the main balcony.

The 18th century ended without the drafting of general building regulations. Therefore, the Royal Academy of Fine Arts of San Fernando drafted several proposals for municipal ordinances, but all were rejected by the different governments. Due to this lack of regulations the city was in a chaotic situation, so Mesonero Romanos, councillor of the Madrid City Council, drafted a very ambitious project of ordinances that tried to respond to the construction and exterior appearance of the facades and the easements over public road. For the first time, the streets are divided into three classes according to their width and the permitted overhangs with respect to them.

Despite the different proposals to establish a building code, there was strong resistance on the part of owners, speculators, landlords, architects, etc., because they considered that it would mean a decrease in their profitability. However, throughout the 20th century this changes and a large number of municipal ordinances follow, which will affect the realization of the balconies. Therefore, for the purposes of study, it was decided to group them according to the classification of buildings in Madrid established by García Castillo.[7] pre-1870, 1870-1915, 1915-1940, 1940-1960, 1960-1975 and post-1975.

During the 1870-1915 period, the first Street Ordinances were drafted, which established four orders according to their width, forcing to eliminate the narrowest. According to this classification, the different aspects of the building are regulated and the overhangs of balconies and bay windows are established, which are progressively reduced according to the floor. These ordinances were the first to be drawn up according to the metric system.

The following are the Municipal Building Ordinances of 1935, with their successive modifications. For the first time, the vertical hierarchy was eliminated and the maximum permitted overhangs were increased. However, these overhangs are better adapted to the streets where they are located because they are regulated at intervals of one metre in the width of the street.

In the 1940-1960 period, there were two successive regulations: the Municipal Building Ordinances in Madrid of 1946 and 1950. In both, building in Madrid was classified into 30 ordinance zones. The regulations regarding balconies and bay windows were tightened.

In 1972, the Municipal Ordinances on Land Use and Building were drawn up, which reduced balcony overhangs and prohibited bay windows on most streets. However, in the wider streets, overhangs of up to 1.25m for balconies and 1m for bay windows are allowed.

With the arrival of democracy, two General Plans were approved, the PGOUM[8] of 1984 and that of 1997, which is currently in force. In them it is forbidden to build overhangs on streets of less than 6m and the maximum permitted overhang is reduced to 0.75m. In addition, it is necessary to highlight the criteria for calculating the buildable area, where the square metres of balconies and bay windows are excluded from the surface of the house. Therefore, due to the increase in the price of land, the bay windows proliferate with the aim of incorporating these square metres into the useful surface of the house.

With the arrival of the Technical Building Code (*CTE*) in 2006, the dimensions of the protective barriers for balconies were established so that they can be used safely. Balconies at a height of less than 6 m must have a 0.90 m high railing and 1.10 m in all other cases; the maximum separation between openings is 10 cm. These parameters closely resemble those determined by Villanueva at the end of the 18th century, so it is worth noting that in the determinations related to safety of use we hardly find variations over the centuries.
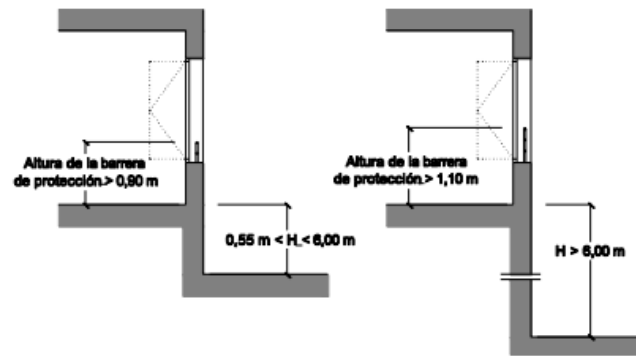
Figure 9. Protection barriers on windows. CTE-DB-SUA

To analyse the influence that successive ordinances have had on the image of the city, a graphic study has been carried out of the evolution of a section of a typical street[9] in Madrid, 16 m wide, where the characteristics of the buildings regulated by the different municipal ordinances of each period.
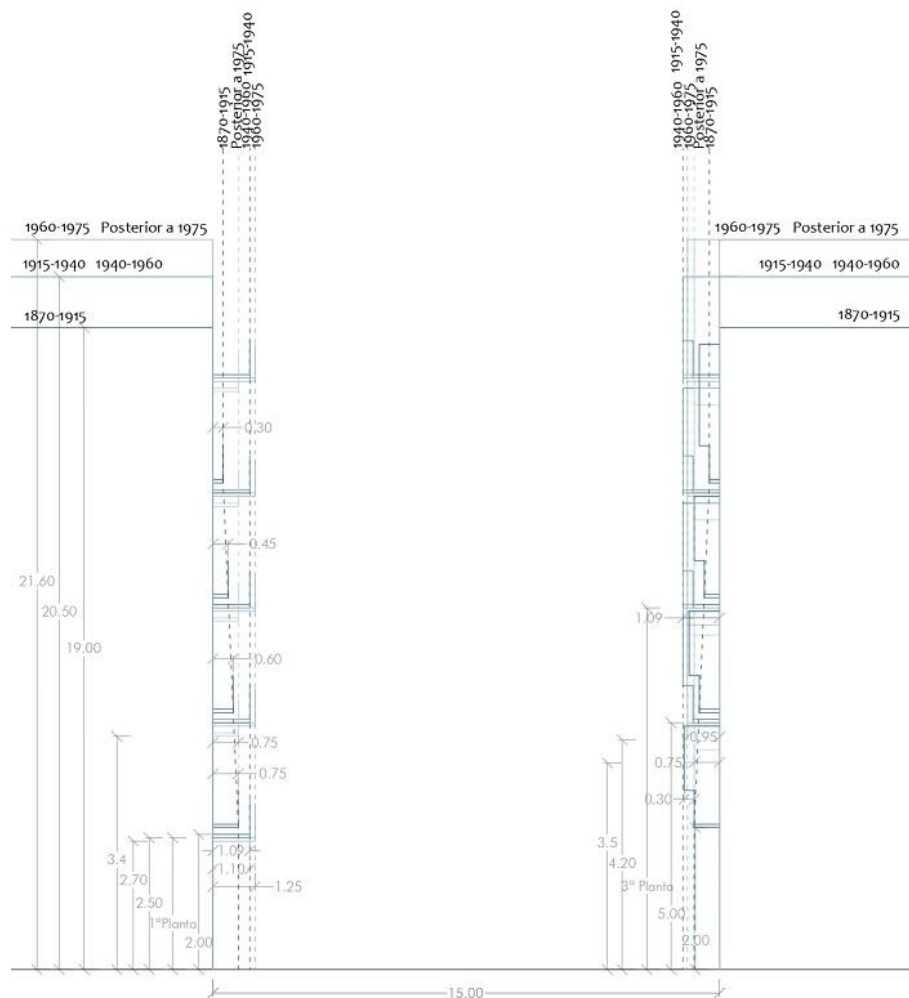
Figure 10. Graphic study out of the evolution of a section of a typical street in Madrid

CONCLUSION

The concept of the "Madrid balcony" has fallen into disuse in our times, being replaced by others such as large windows, bay windows or terraces, having a great influence on the urban image of Madrid and determined by the historical evolution-social, constructive and normative evolution of this element.

One of the social changes that has had the greatest effect on the image of Madrid's urban fronts was the suppression of vertical stratification. This hierarchy in the buildings was produced by the way of life and the distribution of the different social classes in the 19th century, and the regulations reflected it throughout the century. However, with the incorporation of the lift in the buildings, the "main" floor lost its relevance, causing a homogenisation of the entire facade front and its balconies.

The rise of the balcony throughout the 19th century and its progressive disappearance during the 20th century is closely linked to the evolution of construction systems. With the industrialisation of iron production processes, balconies ceased to be an element of the upper classes and their use was extended to popular housing, improving their conditions by providing better ventilation and more light.

On the other hand, the balconies of the 19th century did not meet the necessary conditions for habitability. However, when the façade lost its load-bearing function, the glazing was improved thermally and acoustically and laminated glass was incorporated by law, improving the safety of this element, allowing the incorporation of these spaces into the home.

Throughout the 20th century there are a large number of municipal ordinances, which affected the configuration of balconies and bay windows, with overhangs being considerably reduced due to the current regulations. In addition, it should be noted the new criteria for calculating the buildable area, which, together with technological innovations, have led to the proliferation of the bay window as a characteristic element of Madrid's residential architecture at the beginning of the 21st century.

The balcony, like so many other elements in residential buildings, is influenced by the changing tastes and needs of society, derived from technological advances and subject to the regulations in force at any given time. The evolution of this element reflects all this, thus having an impact on the image of the city as a whole.

NOTES

[1] It owes its name to the sparks ("*chispas*") produced during the forging of iron.

[2] A continuous balcony is a type of balcony that spans several doors and windows of a facade. This element is called a "*balconada*" or "*balconaje*" by the current General Plan: Ayuntamiento de Madrid. *Plan General de Ordenación Urbana de Madrid.* Madrid: Oficina Municipal del Plan. Art. 6.6.19.1b. 1997

[3] In Madrid especially, an old townhouse made up of houses of reduced dimensions that are accessed by doors located in galleries or corridors that overlook a large interior courtyard.

[4] Ardemans, Teodoro. *Declaración y extensión sobre las Ordenanzas que escribió Juan de Torija.* Madrid: Francisco del Hiero. Capitulo XLII. *De los vuelos de las rexas y balcones.* 1719. Cited in (Ezquiaga Dominguez 1990).

[5] In both cases the maximum permitted overhang represents 12.5% of the width of the street where it is located.

[6] *Orden del Consejo de 17 de marzo de 1797 para que el Ayuntamiento disponga la ejecución del informe del arquitecto mayor D. Juan de Villanueva sobre la construcción de balcones y anchura de sus balaustres.* Archivo de la Villa de Madrid, 1.31.29. Cited in (Ezquiaga Domínguez 1990); These determinations described by Villanueva at the end of the 17th century coincide with those currently given by the CTE DB SUA.

[7] *Cuadro de clasificación de edificios y construcciones urbanas de uso residencial* (García Castillo, Junio 1999)

[8] Acronym in Spanish of General Urban Planning Plan of Madrid ("*Plan General de Ordenación Urbana de Madrid*")

[9] The width of the typical street of the old quarter and the expansion has been obtained from Hernández Aja, Agustín. *Tipología de calles de Madrid.* Madrid: Instituto Juan de Herrera, 1995.

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MEMORY LAUNDRETTE: ELEMENT 1, PULLEY–WORK IN PROGRESS

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INTRODUCTION

Memory Laundrette is a project which seeks to develop an approach to the design of critical vectors within the built environment. With a particular focus on interiors in urban settings, it employs genius loci to create platforms from which to explore the potential of non-linear approaches to the creation of artefacts. These complex and layered objects serve in turn as conduits for broader discussion on the role of design in the shaping of urban space, incorporating the enduring impact of the layered legacies of (in particular) utopian modernism and offering potential future alternatives. By introducing a type of dematerialised making into the post facto production of, in this instance, utilitarian objects, the inquiry looks at how design fictions and telematic-crafting might be used as threshold crossing devices oscillating between memory, craft, design and production with the ambition to create speculative props as a part of the intangible heritage that, for now, is the performed aspects of laundering clothes.

The impulse to develop a process in this way emerged from an earlier study[1] exploring the nature of high-density dwelling expressed in the form of the Victorian tenement and the mid-twentieth century tower block.[2] This utilised partial and autobiographical approaches to layered and complex content, drawing on both archival and anecdotal elements of a specific built environment, to reassert the essence of that which had been lost or forgotten (principally through demolition), and that which had been recovered (through adaptation). This was further developed in a subsequent consideration of contemporary ways of living through spectral recollections, ficto-critical writing, or *science fiction prototyping*, with an emphasis placed on the rituals of everyday life and how directly they are intertwined with spatial memories, whether explicit, implied, or fading. It asked how we – through carefully revealing the components of such scenography, and its assembly – might develop a more resilient form and object, less burdened by conventional materiality and the direct shaping of stuff.[3]

SOAK AND SCRUB

The point of departure is via a pair of related artefacts once commonplace in the domestic urban settings of the city of Glasgow, Scotland, and the city-state of Singapore. These are the pulley: a mechanical system of blocks, laths, sash-cords, and lift-frames found attached to the high kitchen ceilings of Victorian tenements in Glasgow, and the tek-koh: a bamboo clothes drying pole, socket-mounted on the exterior of early examples of Housing Development Board (HDB) buildings in Singapore. The pulley and the tek-koh are ordinary household effects, hidden in plain sight, the former above eye level indoors, the latter on the physical exterior of their host building. These

utilitarian, quietly emblematic objects, were used in the laundering and airing of clothing and cloth. In each case, when active they are shrouded in fabric and when inactive they are exposed as mere unadorned mechanical devices, miscellaneous objects[4] made for frequent, and unglamorous utility.

In Britain, the pulley system was refined and commercialised in the nineteenth century during which time kitchens might have been considered incomplete without a clothes-airer of this type. The cast-iron lift frames were available in a range of colours and sizes and carried parallel rows of timber laths in configurations of usually four to eight. The room where they were tactically positioned possessed 'ritualistic qualities'[5] as well as representing the core of the household where the family would spend most of its time–in some instances this was the only option as it was the *only* room, it contained a bed recess and toilets were external to the dwelling. Despite this the sense of domesticity, even cosiness, condensed a sense of homeliness. 'In most apartments the kitchen was no more than a pot hanging in the fireplace'[6] however in the typical Glaswegian tenement the kitchen was the most important room, where all this 'specialized domestic work–women's work' took place.[7] It was also, eventually, the place where the range or oven was located and therefor logical to hang the pulley there to draw from rising warm air currents generated from the fireplace and the cooking range itself.
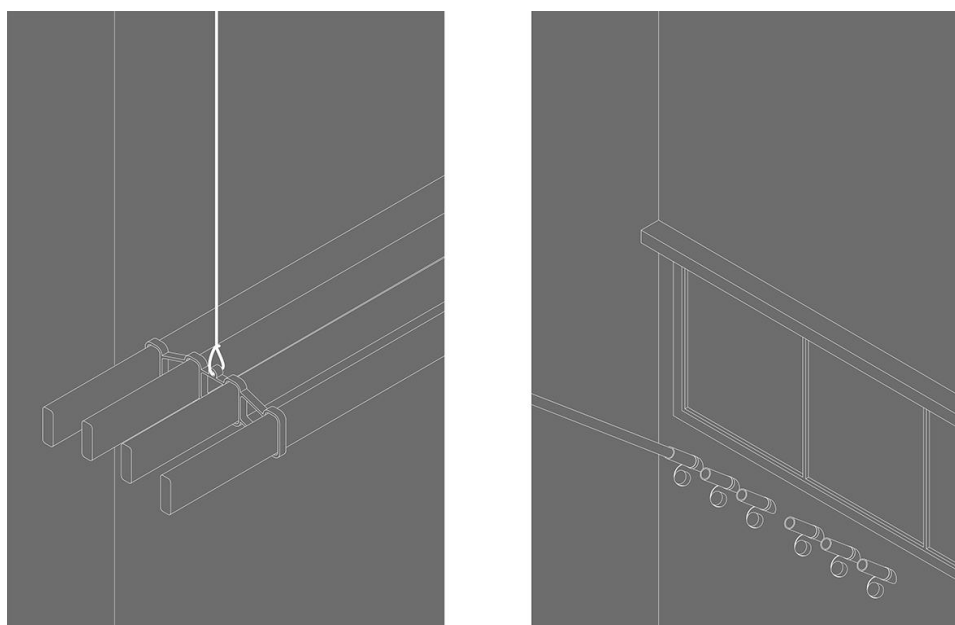
Figure 1. Pulley and Tek-Koh, artwork for diptych

RINSE AND WRING

Memory Laundrette folds-in matters concerning the relationship and interdependence between the senses. The kitchen is transformed into a 'multi-sensory context'[8] and captures the essence of domestic identity, cultural identity, and habitual, ritualised living. Laundering clothes has a very particular tactility. Freshly cleaned garments and cloth, when positioned on an airer, are cold and damp to the touch as well as heavy to lift. They may also be fragrant, but their moisture content suppresses free movement of scents. Once the transformative process of drying has concluded they are crisp and soft, significantly lighter, and more airily perfumed. By exploring the 'technologies of washing, drying, and ironing, to soaps and detergents'[9] an invisible essential part of the object significance becomes central. Moreover, the subtleties of a hierarchy of engagement with such stimuli emerges too. 'Smell and texture are relevant, but freshness is in essence a state of mind'.[10] The combination of visual, physical, and olfactory experience, 'I can smell cleanliness, it is inevitable',[11] offers a fresh perspective on potential reproduction or collaging of the object itself and importantly, how it relates to its spatial

setting and the myriad activities and interactions contained within that context. 'It takes a little more imagination no doubt to picture an apartment whose layout was based on the functioning of the senses'.[12]
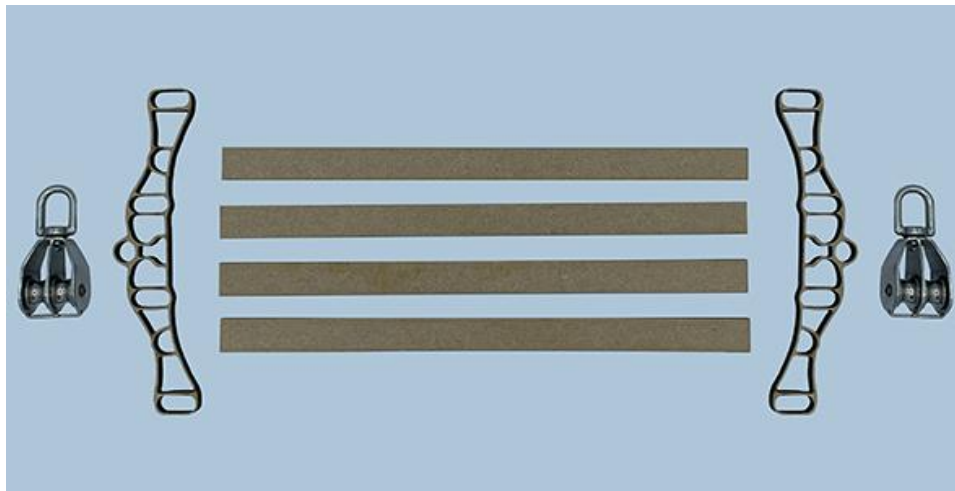
Figure 2. Deconstructed Pulley, 1:2 scale, ready-made blocks, additive printed frames and laser-cut lath

Our attempt to reconstruct the pulley incorporated considerations of laundering processes[13] and the spectacular nature of the hoisting of the washing load when positioned on the respective devices. The work is also supplemented by our existing knowledge and experience in using the pulley system. These moments were used as indicators of the memories embedded in the apparatus and represent new layers in its narrative. Where, once upon a time, speculations on the nature of the beauty of a useful object concluded that it can only be explained in terms of its purpose[14] we are drawn instead to treating each stage of the development process as iterative. The resulting objects perform as a type of three-dimensional palimpsest. Enabled by the capacity of those contemporary materials and processes deployed in digitised batch-production it is possible to accrue traces of the atmosphere of domesticity and the acknowledgement of superfluous attributes. While Victorian innovation sought ways to employ technical devices that would facilitate everyday living, we were unburdened by such concerns, instead our method of counterfeiting preferred to exploit the rapid capacity of contemporary methods of fabrication to create light-touch prototypes in materials with no subsequent practical duties to perform. 'Working practically with materials offered a more powerful procedure of discovery'.[15] The crafting process was informed by digital representations and digital crafting. We first focused on the visual presentation of the idealised formal arrangement of the objects and included chroma, materiality, texture, and weight. In some instances, this was a repetitive process, requiring detailing and acknowledgment of material performance, such as the load bearing capacity of fixed elements such as the framing or moving parts, such as the cord and blocks. We then introduced motion and by extension mechanical or physical detail relevant to wall or ceiling mounting. These decorative, even beautiful objects are kinetic at their core. We preserved their form and basic components, and sampled colour, pattern and texture with the aim of enhancing their legibility. To achieve a better understanding of the essence of the object it was recreated in digital form and 3D printed. The process enabled refreshing of historical and contextual meaning and the manifestation of revived objects with the opportunity to speculate on their future interdependence (as a collection of parts, and as an object inhabiting particular space). Machines produce artefacts that are cold and shallow,[16] removing hand skills or the joy from the creator. Conversely, dissolving the division between physical and digital production is a reality of contemporary practice, from LIDAR harvesting

of point-cloud data through to lightweight robotic printing of mud to form inhabitable spaces such as Emerging Objects' 'Casa Covida' and viewing digital fabrication as an enhancement of spatial, bodily and object relationships provide an opportunity for advanced interdisciplinary research.[17] In our case the rudimentary nature of the components involved enabled us to rapidly experiment with distanced fabrication and open possibilities from within the salvaged fragments of each source piece, for the incorporation of additional, non-visual, interactive, temporal elements. This latter opportunity assists with articulating aspects of the interdependency of the drying device on the cloth itself, such as the impact felt, after the introduction of cotton textiles garments, on a significant scale, as a readily 'washable' fabric, on those people, usually women, responsible for that task.[18]
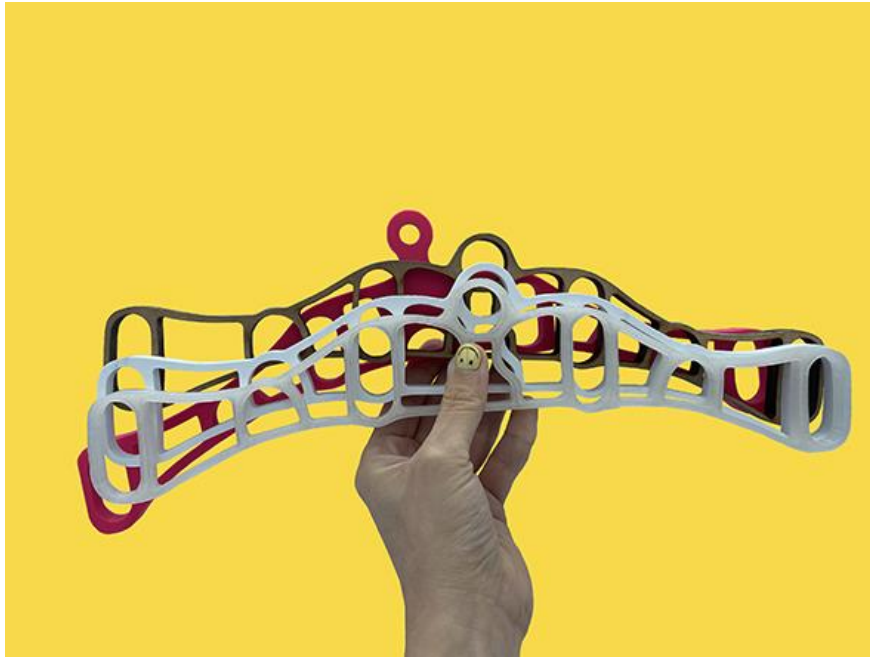
Figure 3. Selection of pulley frames, scaled and digitally produced prototypes

DRAPE AND FOLD

The process of laundering is a convergence of diverse components – textiles, equipment, sound, scent, and motion, all within particular scenographic configurations with human agency in operation. We seek to incorporate olfactory and interactively triggered dynamic responses within the physicality of the pulley itself. Historically gendered associations with domestic tasks and cleanliness[19] led us to consider embedding biased face recognition tracking software to directly influence the motion of the pulley. Information regarding stresses on the slats might be relayed through sensor-relay. Finally, we have discussed how sound can enhance the experience and the object performance. This would involve pre-recorded material for interviews or sound form current technologies of washing hoping to achieve an evocative experience. As Memory Laundrette develops, we seek to augment readings of place, interior(s) and architecture(s), through reshaping of once ubiquitous but now relegated, utilitarian objects grafted into fresh contexts.[20]

NOTES

[1] Patrick Macklin. "Some Places Where I Spent Some Time." *Interiors Design Architecture and Culture* 8 (1–2), (2017): 67–71.

[2] Patrick Macklin. "Aural Utopia." *Interiors Futures* Crucible Press, California, (2019): 46–54.

[3] The tone of the reference to the object is best articulated via this word. For elegant use see Daniel Miller, *Stuff*, especially the introductory section.

[4] See, Soetsu Yanagi. *The Beauty of Everyday Things,* trans Michael Brase. London, England: Penguin Classics, 2019.

[5] Graeme Brooker and Lois Weinthal, eds. *The Handbook of Interior Architecture and Design* (London, England: Bloomsbury Academic, 2017), 42.

[6] Witold Rybczynski. *Home* (New York, NY: Pocket Books, 2001), 73.

[7] Witold Rybczynski. *Home* (New York, NY: Pocket Books, 2001), 70.

[8] Sarah Pink. *Home Truths: Gender, Domestic Objects and Everyday Life (*London, England: Berg, 2004), 33.

[9] Elizabeth Shove. *Comfort, Cleanliness and Convenience: The Social Organization of Normality.* (Oxford, England: Berg 2003), 19.

[10] Elizabeth Shove. *Comfort, Cleanliness and Convenience: The Social Organization of Normality.* (Oxford, England: Berg 2003), 402.

[11] Sarah Pink. *Home Truths: Gender, Domestic Objects and Everyday Life* (London, England: Berg, 2004), 68.

[12] Georges Perec. *Species of Spaces and Other Pieces* (London, England: Penguin Classics, 2008), 31.

[13] Fintan O'Toole. *We Don't Know Ourselves: A Personal History of Ireland since 1958* (London, England: Head of Zeus, 2022), 61, closing section of Chapter 3, 1960: Comanche Country, 53-63)

[14] Adolf Loos. *Ornament and Crime* (London, England: Penguin Classics, 2019).

[15] Tim Ingold. *Materials against Materiality, Archaeological Dialogues* 14 (1) (Cambridge University Press, 2007),

[16] Soetsu Yanagi. *The Beauty of Everyday Things.* Translated by Michael Brase (London, England: Penguin Classics, 2019).

[17] Jonathon Anderson and Lois Weinthal. *Digital Fabrication in Interior Design: Body, Object, Enclosure (*New York: Routledge, 2021). (Chapter 9, The role of the Hand in Digital Design, 125-137)

[18] Ruth Schwartz Cowan. *More Work for Mother: Ironies of Household Technology from the Open Hearth to the Microwave.* (London, England: Free Association Books, 1989). Closing section of Chapter 4, The Invention of Housework: The Early Stages of Industrialization: More Chores for Women, Fewer for Men, 63-68

[19] Sarah Pink. *Home Truths: Gender, Domestic Objects and Everyday Life (*London, England: Berg, 2004).

[20] Development of the tek-koh component was tied into pre-pandemic academic partnership work in Singapore. Restrictions surrounding COVID-19 resulted in a decision to suspended work on this part (Element 2) of the project. This is now set to resume.

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DISCOVERING THE ARCHITECTURAL AND LANDSCAPE HERITAGE OF THE BRITISH TEA ENTERPRISE IN ASSAM.

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INTRODUCTION

The colonial bungalow in India was conceptualised to serve as a familiar, comfortable refuge against the harsh climate of the country and the fragilities associated with the colonial environment. It was materialised to be attuned to their unique socio-cultural needs, thereby being a conduit for their British ways of life while away from the homeland. However, these bungalows were emblematic of more than just making the British diaspora comfortable in an alien environment. In a situation of psychological uncertainty and exile from the parent society, creating a culturally-defined 'personal environment' was instrumental in maintaining a sense of identity. It tangibly demarcated the socio-cultural and psychological thresholds between the British and the Indians. It also displayed the new authority's increasingly sophisticated knowledge of their acquired territory, thus legitimising their ability to take it over and make it their own. Meant to serve one official after the other, the colonial bungalows signified a leitmotif of the larger colonial empire across the tropical belt.

Despite their rich embedded meanings and stature as the principal building type of the British imperial period, the colonial bungalows remain marginalised in Indian architectural conservation efforts. There is still a vast lacuna in the state of related knowledge and a lack of general awareness and sensitivity. While the British Raj's public buildings have finally received their long-awaited recognition as heritage, its bungalow remains threatened; it finds space in neither any discourses nor policy matters, with a few exceptions.[1]

By studying the tea bungalows of Assam's tea landscape, the paper seeks to initiate the much-needed dialogue on the few surviving colonial bungalows of the British Raj. By investigating the tea bungalow's conception and materialisation, the paper brings forth the process that the British diaspora undertook to contextualise the colonial bungalow to the country's climatically and geographically varied landscapes while retaining their architectural aesthetics and spatial requirements. Additionally, the paper explores how life was, and is, conducted in Assam's tea bungalows by its British and current Indian residents. Doing so establishes the colonial bungalows as more than mere architectural objects in the country's geography; it recognises them as entities conducive to maintaining specific social, cultural and psychological patterns.

METHOD

The paper's unique enquiry into the heritage of the tea landscape required a methodology that would weave together approaches of heritage studies and phenomenology. The research process is comprised of three phases. In the first phase, a systematic literature review was conducted of the tea bungalow's

conception, materialisation and spatial composition. This was followed by photo documentation of 30 tea bungalows to verify the spatial patterns discerned from the literature. For the second phase, narratives of the bungalow's British residents were analysed to understand their engagement with specific architectural and landscape spaces composing the tea bungalow. These narratives were gathered from the memoirs and personal letters they had written. For the third phase, walk-along interviews were conducted with the bungalow's present residents to understand their interaction with the same sets of architectural and landscape spaces.

THE TEA BUNGALOW OF ASSAM

When the pioneer tea planters landed in Assam following the establishment of the Assam Tea Company in 1839, they were greeted by snake-infested fever-ridden jungles, warlike tribes and wild animals on the prowl. For much of their initial weeks in the region, planters had to live amid the jungle in talipot palm huts, the only shelter from the elements and wild animals,[2] before a more comfortable residence could be built within the tea plantations.[3] The first set of homes built by the pioneers used timber laths and plaster for their walls, timber planks for their floors and heavy thatch for their sloping roofs. Following a period of stable establishment, the tea planters upgraded their homes to brick and mortar constructions, falling in line with the materiality of the country's colonial houses at the time, albeit with changes due to the geographical context. These residences, however, were short-lived. The earthquake of 1897 caused significant damages, necessitating the conceptualisation of a more contextualised architectural prototype. The provincial government promulgated the idea of a light-weight construction wherein the lower part of the wall (2 to 3 feet in height at max.) was made of brick masonry, the upper part made of a wooden framework with reed mesh inserts and the entire wall was finished with 2-3 coatings of cement plaster. This was coupled with the planter community's realisation that the indigenous community's residences were safe from the flooding that followed the earthquake. The planters amalgamated the government-advocated construction technique with flood abating techniques from the vernacular.

Two distinct bungalow typologies thus appeared in Assam's tea landscape; the Chang and Mati Bungalow. Figure 01 illustrates these typologies. The Chang bungalow was fashioned after the stilt houses of the tribal communities, wherein the residence was elevated 10 to 14 feet from the ground on posts. The Mati bungalow was fashioned after the raised plinth houses of the non-tribal community, wherein the residence was elevated 2 to 3 feet above the ground by a raised plinth.[4] The rest of the architectural configuration remained the same for both typologies.[5] They comprised of a deep, shaded veranda wrapped around the building, providing a buffer from the tropical sun and rain showers and protecting the walls of the rooms. Rooms were spacious with high ceilings to minimise the residents' heat sensation. They were also well-ventilated through doors and windows that opened onto the verandas, reducing humidity and interior heat. The entire residence had a steep, sloping roof to withstand heavy rains. The resident tea planter could choose the sloping roof style based on his aesthetic, irrespective of the bungalow typology.[6] It, however, had to be constructed with corrugated iron sheets to prevent excessive heat and infestation by snakes, insects and rodents, as was common in thatch roofing.

With the construction technique, basic architectural form and materials of the bungalow contextualised to the unique requirements of Assam, the tea planters set out to incorporate socio-culturally suited spatial norms and elements to affirm the cultural identity of the bungalows. For the British diaspora in India during the Raj, a vast landscape around the bungalow was a visual assurance that they were safely located in their own cultural territory and away from the smells and diseases of the impoverished indigenous communities around them. The British tea planters reinforced a sense of social distance and superiority by placing the bungalow within a large compound with a deliberate

means of approaching it, starting from 'an impressive entry drive and [with access] regulated by walls, gates, and watchmen.'[7] The bungalow was fronted with an immaculately maintained lawn edged with flowerbeds and dotted with shade-giving trees, water features and outdoor landscaped spaces. The rear of the bungalow comprised a sprawling kitchen garden that nurtured several fruit trees and extensive beds of various herbs and vegetables. There was often a side garden section containing the landscaped space of a swimming pool with decks and pavilions. Figure 02 illustrates the cultural space of a tea bungalow.
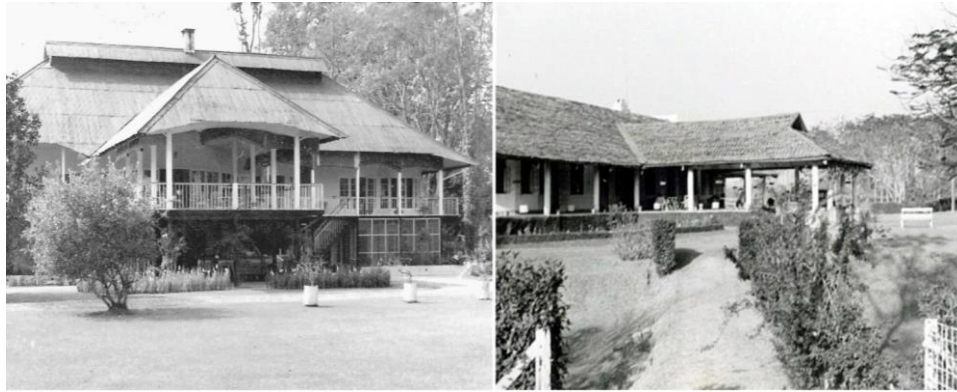
Figure 1. Chang Bungalow (left) and Mati Bungalow typologies of Tea Bungalows

Figure 2. Cultural space of a tea bungalow

THE TEA BUNGALOW AND ITS BRITISH RESIDENTS

The bungalow's interiors served as memorabilia of the lifestyle in the homeland and a spatial canvas for asserting one's national-imperial identity,[8] the drawing room and dining room being the ideal spaces for it. The British residents embellished the drawing room with family portraits, animal trophies and souvenirs to narrate their unique journey. They adorned it with an exquisite fireplace, comfortable furniture and shelves of books that enabled it to be transformed into a quiet family room where hours were spent engaging in group activities or following individual pursuits while in the same space, such as reading. They also added a wine cellar and a piano in the drawing room to make it the perfect setting to host neighbouring planters and their families for nights of games and drinks indoors. Likewise, the dining room was decorated to become an ideal setting for ceremonial eating. A

large six to eight-seater table was set in the centre of the room. The residents complemented it with cabinets exhibiting their exquisite china and silverware collection and side tables showcasing delicate floral arrangements. They also incorporated a fireplace to make the space comfortable during the winter.

The gardens were also a significant space for conducting their lives for the tea bungalow's residents. The large lawn in the front garden, along with gazebos and pavilions, enabled its use as a setting for hosting garden parties. Garden parties were usually conducted during the winter or springtime when being outdoors during the day was comfortable. During the rest of the year, residents would gather to enjoy morning or evening tea under the shade of the trees and host dinners with live music and open-air dancing.[9] Figure 03 illustrates the prized shade trees in the garden. Additionally, for the women, the front garden was a site of nostalgic reminiscence and the rear garden an opportunity to curate healthy, English meals. They supervised the planting and care of English annuals in neat flowerbeds to transform the garden into a riot of colours every season. They oversaw the tending of rose bushes to form blooming borders and vines to cover the Victorian garden arbours and trellises. They also directed the planting and care of English vegetables, herbs and fruit trees to produce an abundant harvest throughout the year.

Figure 3. The locus of shade in the bungalow's front garden

The transition between these indoor and outdoor spaces defined the bungalow's most significant space for its residents. It was on the veranda that tailors and carpenters stationed themselves to recreate products from the women's catalogues; it was from the veranda that the residents attended to occasional visitors, and it was also on the veranda that they would relax with their pets. Figure 04 illustrates engagements on the veranda. Several bungalows enclosed a portion of the veranda with nets to form a Jalli Kamra. The Jalli Kamra was adorned with rattan cane or wrought iron furniture and was used as a setting for the informal reception of guests.[10]

Figure 4. Engagements on the veranda by the tea bungalow's British residents

THE TEA BUNGALOW AND ITS INDIAN RESIDENTS

Following India's Independence, the tea gardens were owned by Indian elites. For them, the tea bungalow was the ideal site through which they could emulate their newfound status. Residing in the bungalow sealed their identities as the authoritative figure of the tea garden. Maintaining the colonial spatial structures and socio-cultural traditions enabled them to manifest their flawless acculturation of western values and lifestyles alongside their Indian ways of life. These notions have passed through generations of tea planters who have transformed the bungalows into a palimpsest of lifestyle adaptations.

The drawing room serves as a well-preserved relic of the past, with enrichment in its spatial narrative by the present residents through their souvenirs and portraits. While it is no longer a setting for intimate family engagement, it is a cherished space for hosting lavish parties for friends and families. The veranda has also witnessed a deviation in usage. It is no longer a liminal space for interacting with craft workers.[11] It is now solely a space for relaxation; especially revered for catching an afternoon siesta and enjoying a cup of evening tea amid the sensorial delights of the garden. Figure 05 illustrates the present-day setting of the veranda for relaxation. Much of the functionality of the drawing room and the veranda has shifted to the Jalli-Kamra instead. Here, the women administer the workings of the staff and engage friends/families for an afternoon tête-à-tête. Here, the residents enjoy their morning or evening tea and moments of relaxation amid the sensorial treats of the garden around. Here, residents host guests for casual conversations and friends/family for dinner and drinks.
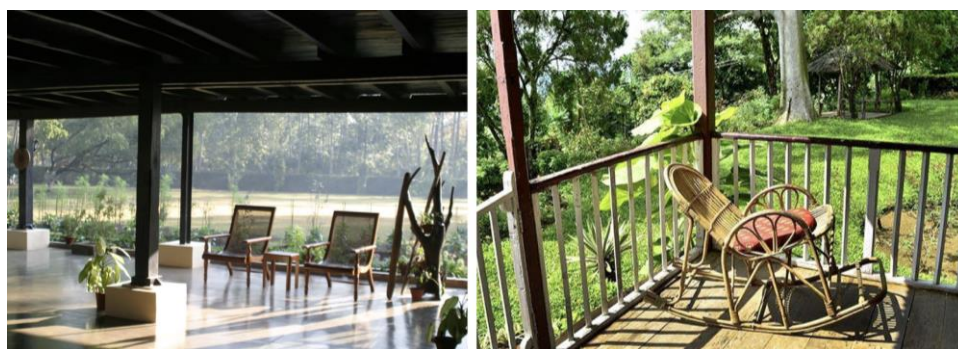
Figure 5. Veranda as a setting for relaxation for the tea bungalow's Indian residents

The front garden's lawns are immaculately maintained, and its flowerbeds are planted with colourful blooms; however, it has been reduced to space for visual appreciation rather than active engagement. Garden parties are innumerably few. Gazebos and pavilions are embellishments for celebratory or festive gatherings. Figure 06 illustrates the two elements. Only the shade trees see most engagement as residents sit underneath them on climatically favourable days.[12] In contrast, the rear kitchen garden enjoys continued patronage of the residents due to their adoration for meals cooked from fresh, organic ingredients.[13]

Figure 6. Gazebos and pavilions in the garden maintained by the Indian residents

CONCLUSION

The trials and tribulations faced by the tea planters and the meticulous considerations of architectural form, composition and materials to persevere in Assam's treacherous climatic and geographical constraints showcase the British diaspora's endeavour and ingenuity toward contextualising their residences to the country's landscape. The tea bungalow's spatial articulation brings forth the British diaspora's need to tangibly reinforce segregation from the indigenous society and convey their distinct socio-cultural identity. Its articulation to accommodate the British planter's socio-cultural rituals further underscores the colonial bungalow's priority of conjuring the comforts of home. The spaces within and around the bungalow were curated to become a setting for familiar moments of English living. The fireplace in the drawing room invoked the essence of England's monsoons and winters when the family gathered to spend their time indoors. The shade trees and gazebos in the garden provided the sensation of being outdoors amid the smells and sights of delicate blooms, like in England. The tea bungalow is thus a leitmotif of the Empire's colonial bungalows.

Exploring the narrative of space usage provides insights into the aspirations and desires of the colonial bungalow's residents. The British residents desired the bungalow to provide a setting for their socio-cultural requirements. The Indian residents aspired for the bungalow to signify their status and inculcation of western virtues. The deviation in space usage by the tea bungalow's two resident communities results from their varied desires and aspirations. The British planters formed a substantially small diaspora in the wilderness of Assam. For them, formal and informal entertaining provided the primary means of interaction. The tea bungalows' architecture and the landscape were tailored to incorporate such interactive opportunities. Thus, the gardens were extensively used throughout the year by them. The Indian residents have an extensive network of social contacts beyond the small community of tea planters. Coupled with the work pressures of present-day plantations, the need for constantly entertaining does not exist, resulting in the garden's occasional use. Similarly, the Indian resident's aspiration for the bungalow to signify their western virtues has resulted in the tea bungalow and its garden being immaculately maintained through the decades. It is their aspiration to uphold the idyllic lifestyle of the tea gardens that has enabled the colonial vestiges to survive.

By studying the tea bungalows of Assam in relation to the narratives of usage and experiences, the paper establishes the tea bungalows as more than mere physical entities in the landscape; they are spaces that have communicated socio-cultural identities and nurtured a way of life. Such a frame of perception enhances the appreciation of the tea bungalow's constituent spaces, especially the little elements that would have been otherwise overlooked. The flowerbeds when viewed as a conduit for nostalgic reminiscence makes it a more pronounced element of the tea bungalow's architectural composition. As seen from the paper's exploration of the tea bungalows, to fully understand and appreciate the heritage of colonial bungalows, it is essential to ascertain how the architecture ties to the resident community's lifestyle and socio-cultural expression.

NOTES

[1] Even Lutyens Delhi has not remained unscathed from the country's neglect of the British Raj's humbled residential Only 60% of Lutyen's bungalows survive today, even those are in the talks of being razed to the ground to make way for modern apartment.

[2] Illustrations of the tea planter's early days in Assam can be viewed in the Cambridge University Library's John Weatherstone collection. For online reference, see "Early tea cultivation in India and Sri Lanka," Cambridge University Library Special Collections, accessed May 20, 2022.
https://specialcollections-blog.lib.cam.ac.uk/?p=14604

[3] Upon reaching Assam, planters had to first find a suitable place to establish the tea garden and then have it cleared of the jungles and brush. Only following that could his house be built.

[4] The perception of greater protection from flooding, wildlife, leeches, insects and the threat of malaria fever made Chang bungalows the predominant bungalow typology.

[5] Neither of the bungalow typologies had a typical floor plan associated with it. Additionally, no two bungalows share a common floor plan in the tea gardens of Assam due to its spatial organisation being a product of the resident's unique architectural conception.

[6] As a result, a variety of European slopping roof styles graced the bungalow; Dutch gable, jerkinhed, cross-hipped, and even combinations of gable and hip types. These roof styles were distinct from the simple open gable and hip roofs of the indigenous communities.

[7] The spatial patterning of the colonial buildings and their surrounding landscape was defined to create a certain impression of the British Empire in the Indian subcontinent. This phenomenon has been extensively investigated in Thomas R. Metcalf, *An Imperial Vision: Indian Architecture and Britain's Raj* (New Delhi: Oxford University Press, 1989).

[8] The Anglo-Indians displayed their homesickness onto household engineering projects, recreating what they imagined to be quintessentially British forms of domesticity (the tea service, the sitting room) in what many viewed as inhospitable quarters.

[9] The gazebo was used as a bandstand during dinners and garden parties. The pavilions were used as a stage for dancing while the band played

[10] The Jalli Kamra held significant memories for the residents as it was here that new tea planters were welcomed into the community and departing one's big goodbye.

[11] During the days of the British planters, there was a need to constantly supervise the workings of the tailor, and the carpenter to ensure the products met the designs provided for execution. Today, such engagements in the private space of the bungalow are unnecessary and undesired; these activities thereby not being a part of the present-day verandas usage narratives.

[12] Residents avoid the garden altogether during days of scorching heat and also during the monsoons due to leeches in the garden. Residents sit under the shaded trees early in the morning during mild summer days, on days when there is wind blowing and mostly in the afternoons during the winter to soak in some sun.

[13] Unlike in the days of the British residents, today the kitchen garden is more extensively engaged as the present residents grow a wider set of vegetables in every season due to the inclusion of indigenous vegetables that were not planted by the British residents.

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DISCOVERING ARCHITECTURE THROUGH ANIMATED NARRATIVES

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INTRODUCTION

Whether hand-drawn or digital, animated films or two-dimensional cartoons transform reality into visual fantasy. Animated films are now part of our intangible cultural heritage (some of them on a global scale) and have a history[1] that goes back decades. These films not only depict the socio-philosophical aspects of a particular time through their narratives, but also visualize events and the built environment. By analyzing these films, we can understand the different perspectives of the built environment that affect our understanding of real space. Here, the narrator imagines the events in the third space, which is muddled between reality and fiction.

Adult viewers perceive them as a non-serious activity, while children take them more seriously and are influenced by them. The plasticity of events, objects, figures and architecture in a digital virtual space acts as a fantasy toy for children. I would like to focus on the possible role of architecture as a playground and as a learning object in the visual narrative space of animation. Writers Elif Sonmez, Sebnem Ertas Besir, Zeynep Sadıklar mention the importance of cartoons in their research paper "*Architecture Awareness in Children Through Cartoon*"[2] they writes, "*For children, as adults of the future, to be involved in any kind of work related to city and architecture and will improve their architecture awareness. The architecture awareness provided at early ages make children stronger in understanding the settlement where they live.*" and another place they write*, "Because cartoons are the dominant element during a particular period of time in children's life. Cartoons are used as a tool for many educational knowledge*." Like other educational animated films, the Doraemon series or animated films are an important source of informal architectural knowledge. These visual narratives are taking up more and more space in cinematic visualization and are influencing our spatial understanding, especially in relation to children. Architecture plays a central and binary role in the animated visualization of fictional narratives. The recent technological developments of digital virtual reality in animated films further complicate this situation, as virtual reality and plasticity seem to widening the distance between humans and reality. However, without an analysis of the situation, it is difficult to say whether this relationship is widening or transforming.

STUDY AREA

To address these points, I will examine the Japanese cartoon series "Doraemon." It is a robot cat, a manga character drawn by Fujiko F. Fujio in a children's magazine in 1969 and turned into a T.V cartoon series in 1973. Doraemon is not just a fictional entertainment character, but has deeper roots in educational and technological programs in Japan. Initially, it was adapted as a 2D cartoon series,

but after some time, the 3D computer versions were also available in the form of movies, which will be the focus of my studies. I will study the films "Stand by me Doraemon 1-2" directed by Ryūichi Yagi and Takashi Yamazaki. In doing so, I will try to discover the role of architecture in the visual fantasy narratives and how it becomes a part of the intangible heritage.

BASIC STRUCTURE OF NARRATIVE

The narrative of the film is based on the imagination of children. It is the story of five children, aged 8 to 10 years, who live in a Japanese suburban neighbourhood. These children belong to families with different economic and social backgrounds. The protagonist is a boy named Nobita, an underachieving student from a middle-class family in a typical Japanese culture and environment. In this ordinary environment, one night Doraemon from the future enters Nobita's life, sent by Nobita's grandson to help him with everyday problem and matters he faced. Nobita's careless and lazy nature makes him an isolated and sad child. By introducing the idea of Doraemon, the author tries to instil in children a sense of responsibility for their daily lives and especially for the built environment.

K.S Rajashri writes in his paper "*Impact of Cartoons on Young Children: With Special Reference to Doraemon*"... *as Doraemon influence young children in their behavioural pattern and peer interaction. Young characters are also given great responsibilities of protecting nature...*"[3]

The idea is based on the classical fantasy of the "Supper Man"[4] who has miraculous powers to help innocence against evil. The author has recreated this myth of the "Supper Man" in the form of a blue cat robot named "Doraemon," whose powers are based on a long list of scientific devices called gadgets, which he keeps in his pouch. Doraemon uses these gadgets to fulfil Nobita's wishes and fantasies, and to help him with the everyday problems of his childhood. These fantasies and problems depicted in the film are not very unique because we are being a part of the global village; we share these childhood fantasies and social problems such as bullying, bizarre school homework, endless dreams of toys, and the desire for absolute freedom from spatial restrictions. These commonalities of desires, fantasies, and socio-psychological problems we faced in childhood make the narrative of Doraemon acceptable in different cultures and regions of the world. These gadgets are not supernatural objects but scientific machines from the future that are not just for fun, but play an important role in teaching children about history, science, and space exploration, which distinguishes "Doraemon" from other supernatural characters. The scientific reasoning of the gadgets shows the importance of science and technology in Japanese culture and tries to awaken scientific thinking in children. The idea of Superman (Doraemon), the boys' fantasies, and the basic scientific principles are now part of the collective intangible heritage of humanity, which is one of the main reasons why the Doraemon movie/series is more accepted than other animated series worldwide. It can now be considered as intangible heritage on a global scale. In this basic structure, the short, eventful narratives in the film and their adaptation into visualisations in terms of spatial environments show the Japanese version of understanding built environment.

VISUALIZING ANIMATED ARCHITECTURE

Animation is a unique medium of expression that differs from cartoons, moving images, and, at the same time, reality because of its robotic plasticity and the visual depth created by computer graphics. As in written fantasy narratives, a specific combination of exaggerations and contradictions plays an important role in the unfolding of fantasy narratives in animated reality. Visualizing spatial realities in animated films without losing the fantasy is a complex process. It requires the viewer's imagination to complete the partial and incomplete picture. Fantasies can be considered exaggerations that contradict reality, and we try to bring the fantasy back closer to reality through visualization, which can be considered as a contradiction to fantasy. The whole spatial setting in the animated space looks like a

toy world, where the probability of possibilities and impossibilities creates a hesitation that keeps the viewer attached to the narrative. The hesitation is an important state of mind as Tzvetan Todorov writes in *"Literary Genres"*, *"As fantasies do not always result in real life solutions, they perhaps have to be perceived not as solutions, but mere tools for critical thinking that may emmerse itself in a schematic design. It becomes a thinking process, evaluating all different solutions, that also expresses the do not construct fantasy by narrating the super natural events but through the way we narrate or unfold the ordinary events."* [5]

In terms of architecture, we need an exaggerated and contradictory architectural language in which scale, materiality, form, light and sound play an important role in defining architectural visual space to achieve meaningful visualization according to the desired fantasy narrative. In the context of science fiction perspective, the fantasies depicted in the film "Doraemon Stand By Me, I- II" can be divided into three categories: First, the fantasies that have no direct reference or influence on the architectural space. Here, the architectural setting remains the same and provides the basic platform for the events. These settings play a minimal and unobtrusive role in the fantasy narrative. Second, it is the fantasy settings that challenge the boundaries of time and space and directly or indirectly affect the experience of architectural space. The author creates situations to develop the tension between time, space and reality. The ideas of time travel, parallel worlds or universes, living on another planet, and entering a film or text space, the space of paintings or photographs are just a few examples. These ideas add virtual or spiritual dimensions to physical reality and impact our experience or understanding on an immaterial level. We need to brainstorm their possible connection to the physical world. The third area is architecture, which comes directly from the imagination and is part of the fantasy world or plays an important role in fulfilment and fantasy. It is an experimental visualization where scale, materiality, form and light quality play an important role in achieving the fantasy visualization of architectural spaces as a play object or playing field for children.

BASIC SPATIAL SETTINGS

The film began with the visualization of an ordinary suburban settlement with two-story small Japanese houses on a rectangular urban grid plan. The tiled roofs with skylights create a monotonous image of rooftops in urban suburbs. The un-belted, narrowed, and empty streets add to the drabness of the built environment of the suburbs. Overall, these architectural features form the basis for the fantasy drama. The other architectural spaces shown in the film, such as school buildings, street alignments, and informal circulation spaces on brownfields in residential areas, and the growing number of plazas in residential areas, are part of our shared architectural heritage in the urban landscape.

Figure 1. Informal Playing Fields (Image courtesy to YouTube for educational purposes)

Visualization of the built environment is quite common, as scale, building materials, and architectural vocabulary are familiar to most children. However, the quality of light and shadow represents the typical Japanese or European landscape.

Figure 2. Right Angle Urban Grid (Image courtesy to YouTube for educational purposes)

ARCHITECTURAL RESPONSE TO FANTASY OF TIME

Time and space are a complex phenomenon that has its roots in millennia-old myths, philosophies and in the principles of particle physics also. Architecture is not directly related to these principles, but we cannot understand time and space without reference to architectural space. The opening scene of the film shows the interior of a small room of Nobita's on the second floor, where a study table and a Japanese-style sliding cabinet are the only utilitarian objects in the room. The worktable was placed right in front of the window. The deep starry sky penetrates the room through the window and becomes a part of the interior. The entire interior design and the light of the room reinforce Nobita's fantasy, which sets it apart from physical reality. The dark interior of the room adds even more drama to the situation. It's a pregnant space waiting for an unknown event.

Figure 3. The Drawer (Image courtesy to YouTube for educational purposes)

The event takes place through the drawer of the study table when it opens and Doraemon emerges from the futuristic infinite space while Nobita lies on the floor metres of a small room on the second floor of a traditional average Japanese house. The idea of drawers or closets[6] being a mystery is not new, as drawers and closets have been perceived as secret chambers long ago. We can find the same idea in classic fantasy literature. The table drawer can be considered a scientific version of the rabbit hole of Alice in wonderland[7] or the closet of the Chronicles of Narnia.[8] It is the combination of exaggerations and contradictions, where room verses drawer and drawer versus infinite space creates an imaginational tension. In contrast to the yellow, evenly distributed light of the room, the greenish-bluish light floods out of the drawer, symbolising another world. The coexistence of the physical container "drawer" and the infinite space within the drawer is an exaggeratedly opposing relationship between the three. By contrasting between materiality and immateriality, between gravity and space, and between form and formlessness, author tries to convey the idea of a multidimensional space and establish the connection between our physical understanding of our world and the hidden system of the underworld. Doraemon uses gadgets to address this phenomenon on different levels. K.S Rajashri writes at another place in his paper "*Impact of Cartoons on Young Children: With Special Reference to Doraemon*", "*...Gadgets surprises young children. The gadgets inspire young children and take them to a world of imagination. Gadgets such as "Anywhere door" –it can take anybody to any place*

that one can dream of at the blink of an eye." Among other gadgets, the "anywhere door" is an important idea visualized in the form of an ordinary pink wooden door, capable of breaking the boundaries of physical limitations related to time and space. A futuristic, sophisticated technology capable of breaking the boundaries of time and space does not match the visualization of the door shown in the film. It looks more like an ordinary shape or form than a scientific, futuristic invention. This kind of contradiction stimulates our mind to discover the reasons behind it.
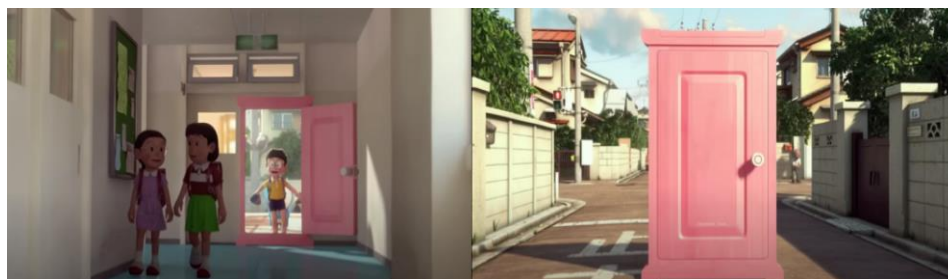
Figure 4. The Doorway (Image courtesy to YouTube for study purposes)

As for the scale, it is not an exaggerated monumental or mythological scale. Only the bright pink colour sets it apart from the rest of Japanese architecture in earth tones presented in the film. We do not find any exaggerated or futuristic material in the proposed image of the door. The ordinary and everyday vocabulary of these architectural elements makes it easier to accept them, as it forms a bridge between the real world and fantasy. Children begin to imagine fantasy events and spaces and associate them with real places. This exercise transforms the perception of the materialistic physical world into a toy or playground full of adventure.

Gravity is still a dominant factor in architectural theory today. Our building designs depend on it, but at the same time, the fantasy of a weightless floating space is also a part of our design debates. The author inverts the idea of gravity less space by transferring gravity to the roof, developing the idea of a bipolar space in which the floor and roof have the same utility and functionality. Here the architectural space is transformed into a playing field.

Figure 5. The Anti Gravity Gadget (Image courtesy to YouTube for study purposes)

ARCHITECTURAL OBJECTS

Here architectural space becomes a magical toy for the children. Children start taking their real environment as a toy and try to act as animated characters. Dr. Navreet Sahi writes, "…*When children watch such cartoons, they internalize everything that they see and believe that to be true. They follow this in their life which affects their psychological and mental development…*"[9]. In visualization, objectivity dominates over the functionality of the space. To creates this ambiance, the author plays with scale, material, form and light for visualization. Various tools were used to create this playful genre of architecture. The first idea he presents is inspired by the Lilliputians from Gulliver's Adventures. The author presents an architectural object, the "Gulliver Tunnel", which can reduce the

size of living spaces. It is a unique idea. The funnel-shaped form with the skin of green velvet, half buried in the ground, works like a scale machine.

Figure 6. The Gulliver Tunnel (Image courtesy to YouTube for study purposes)

Children enter the funnel-shaped structure from the broad side and gradually diminish along with the form, which provides an embodied experience of geometry and scale. The complexity of the interior and exterior in relation to the material also contributes to the diversity of the spatial experience. These ideas play an important role in fostering children's spatial imagination[10]. Children have a great desire to live in the world of toys and dream of tree houses. The author develops this desire further and imagines dwellings in the roots of trees. This visualisation resembles the dwellings of ants or termites on a small scale. It is a hidden, quiet and cosy space, far from the world of adults and especially the mother.
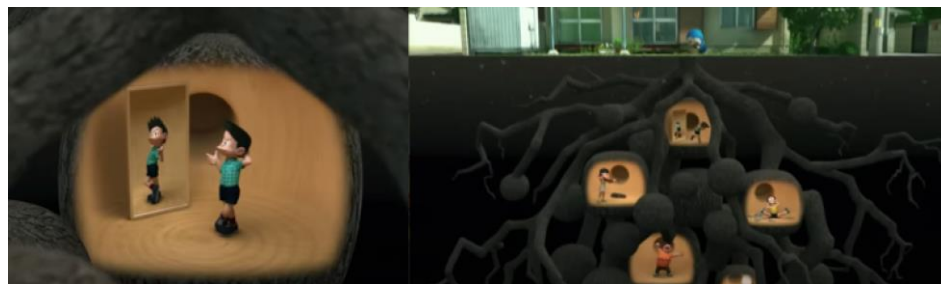
Figure 7. The Doorway (Image courtesy to YouTube for study purposes)

Materiality plays an important role in defining these homes, as the interior of the living spaces is made of wood with organic wood texture and shading. We can experience the smell of wood in these dwellings. Parallel to these universal fantasies on a small scale, there are ideas that deal with the futuristic built environment at the city level.

A futuristic, automated, high-tech environment in which the author imagines flying cars and machines. High-rise buildings and multi-story streets remind us of Corbusier's idea of the "The city of tomarow"[11] The urban environment is deserted and dominated by robotic machines and plastic buildings.

Figure 8. The Futuristic City (Image courtesy to YouTube for study purposes)

The grey uniformity of the city escape in film further reinforces the non-human futuristic environment. These images are closer to Manhattan, New York City, showing the American influence on the Japanese imagination of development.

CONCLUSIONS

The influence of cartoons on different cultures and societies cannot be denied. The plasticity of the images and the sense of fantasy make them more acceptable than other real motion pictures, in the case of Doraemon, this influence is very clear. To control children's addiction to the Doraemon series/movie, many governments have banned them,[12] but from an architectural informal educational point of view they are informative and creative. The integration of scientific theories and spatial ambiance through visual narratives in Doraemon films are brainstorming and spreading scientific culture around the globe and a universal understanding of architecture related with SF. These studies suggest that animated films are not widening the gap between man and his spatial environment but they are opening new perspectives of this relationship and adding multiple dimensions in our ordinary spatial structures.

NOTES

[1]Maureen Furniss, A New History of Animation (New York: Thames & Hudson, 2016), (Ch. 1,2)

[2]Elif Sönmez, Şebnem Ertaş, Zeynep Sadıklar, "*Architecture Awareness in Children through Cartoon / Çizgifilm Aracılığıyla Çocuklarda Mimarlık Bilinci*." Journal of History Culture and Art Research 7, no. 5 (December 31, 2018): 37. https://doi.org/10.7596/taksad.v7i5.1666.

[3]Rajashree S Adhikary,"*Impact of Japanese Cartoons on Primary School Going Children: With Special Reference to Doraemon.*" (2015).

[4]Superman is a term has a long history signify as extra powerful character. Daniel les has great discussion in his book. Daniels, Les. *Superman: The Complete History, the Life and Times of the Man of Steel*. San Francisco, Calif.: Chronicle Books, 2004.

[5]Tzvetan Todorov, *Genres In Discourse*. Cambridge (Cambridge University Press, 2001), Ch.2

[6] Lewis Carroll, and Donald J Gray. *Alice in Wonderland: Authoritative Texts of "Alice's Adventures in Wonderland", "through the Looking-Glass", "the Hunting of the Snark", Backgrounds, Criticism* (New york, NY: Norton, 2013).

[7]Carroll, *Alice in Wonderland*

[8]Lewis, C S, and Pauline Baynes, *The Chronicles of Narnia* (London: Collins, 2005).

[9]Dr. Navreet Sahi, "Perpetuating Gender Bias in Children's Cartoons: Portrayal of Female Characters in Shin Chan and Doraemon." *International Journal of English Literature and Social Sciences* 7, no. 1 (2022): 010–14. https://doi.org/10.22161/ijels.71.3.

[10]Maryam Khaleghipour, Ehsan Shahghasemi, *Fantasy Animations and Children's Imagination: A Qualitative Study* (2020). 10.33422/2nd.fshconf.2020.09.174.

[11]Le Corbusier, *The City of To-Morrow and Its Planning* (New York: Dover, 1987).

[12]Tasmania Ekram Tushi, "*The Case of Bangladesh Government Banning Japanese Manga Cartoon Show Doraemon: The Antecedents of Consumers Avoidance.*" *Dalam Global Journal of Management and Business Research: E Marketing* 14 (2014): 1. https://globaljournals.org/GJMBR_Volume14/3-The-Case-of-Bangladesh-Government.pdf

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THE WHITE BUILDING: CREATIVE RESISTANCE AND THE (RE)PRODUCTION OF SPACE

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INTRODUCTION

The White Building was an apartment building in central Phnom Penh built in 1963 as part of a post-independence modernist vision of a cultural complex incorporating social housing. In 1970, civil war began and in 1975 the Khmer Rouge seized power. Phnom Penh was evacuated, and an estimated 90% of Cambodia's artists were killed.[1] After the fall of the Khmer Rouge in 1979, the intervening Vietnamese-backed government sought to support the re-building of Khmer culture and repopulate the Building through the provision of low-cost housing to the few surviving artists. In the period between 1979 and 2017 a complex community emerged, while the Building increasingly fell into disrepair. Many residents were artists, teachers and small business owners, however the community was often disparaged by government and segments of the media as a slum, populated by criminals and sex workers.[2] From the mid-2000s, the Building was under constant threat of demolition by developers backed by the Cambodian government, and the community were at risk of forced eviction replicating similar land-grabbing episodes occurring across Phnom Penh as part of a violent neoliberal spatial reckoning.[3] In June 2017 the White Building was demolished.

Utilising a Lefebvrian lens, we position the White Building as a social product within and co-constituting a temporal space of emergent resistance. Throughout its history we show that the Building was a space of art and alternatives, however from 2008, a renewed focus on art and storytelling programs demonstrated pluralistic modes of struggle by the community, inclusive of attempts to preserve the Building and the community. These programs fostered a rearticulated sense of place and belonging.[4] Emergent forms of creative resistance were constituted by the community's (re)connection to the Building. Dominant discursive acts of the more powerful, driven by profit-driven development opportunities, were challenged through the expression of the 'lived' and the elevation of everyday life. This re-emergence of a social space tied to a sense of emotional belonging (re)produced counter-acting voices that offered a momentary space of resistance and opportunity.

SOCIAL SPACE AS A SOCIAL PRODUCT

Henri Lefebvre identified how dominant capitalist practices and ideology are core to the social, political and economic relations that form space.[5] Space is more than an abstracted expression of geometry within which a "substantive item", whether town, city or building, exists.[6] It is strategic, political and a site of ideologies;[7] space is a product of these social interactions.[8] Lefebvre distilled this into three distinct yet dynamically interrelated dimensions:[9]

- *Perceived* (spatial practice): this is where the routine production (class, society etc.) and social

reproduction (sexual relations, family etc.) of space occurs.[10] It commonly reflects what occurs within the conceived space.

- *Conceived* (representations of space): the "conceptualized space" of experts: the technocrats, economists, policymakers, and planners.[11] It is the realm of power and dominant discursive practices.[12]
- *Lived* (representational spaces): the dominated space of the lived and imagined. It is the space of images and symbols.[13] This is where the everyday and memory-making activities are entwined in culture, art, writing, philosophy, etc. While it is a dominated space, meaning, novelty and emancipatory ideas take root here[14]

We explore the creative resistance that occurred within the White Building through this Lefebvrian lens. With an emphasis on the push and pull of domination and resistance, particularly in the last decade of its existence, we show how the 'lived' offered alternative spatial imaginaries, if only for a moment of time.

THE WHITE BUILDING IN THREE ACTS

The history of the White Building can be characterized over three distinct periods. The first is the 'Golden Age' when King Sihanouk stepped away from his divine right and became the first Prime Minister. In the post-French colonial period, Sihanouk was fixated (at great cost) on building his vision of a modern, urbane Cambodia, transforming the capital city into the "Pearl of Asia."[15] This technocratic drive of the *conceived* oversaw significant infrastructure, architectural, institutional and monumental works.[16] *Representational spaces* were carefully curated through grand cultural programming such as films, music and dance, all of which Sihanouk and his family were not just patrons of, but participants in.[17]

Vann Molyvann, the first Cambodian architect to be educated in France, oversaw the ambitious Bassac River Front cultural complex development. The inclusion of the White Building in the plan was Vann's first large-scale experiment in applying modern ideas on public housing, and one inspired both by Le Corbusier's utopian project La Ville Radieuse and Ebenezer Howard's concept of the Garden City.[18] Inspired by a similar development by the Atelier des Bâtisseurs (ATBAT) in Casablanca,[19] the White Building, designed by Cambodian architect Lu Ban Hap and French-Russian architect Vladimir Bodiansky (co-founder of ATBAT) opened in 1963.[20] Comprised of 468 apartments it was the first offer of a multi-story, modern, urban lifestyle to lower and middle-class Cambodians[21] – the Building was perceived, conceived and imagined as a modernist social ideal.

The second period was one of decimation and survival. From 1970, Cambodia was beset by civil war, followed by the genocidal Khmer Rouge regime from 1975. An estimated 90% of Cambodia's artists and intellectuals were killed during the Khmer Rouge regime, eviscerating Cambodia's cultural memory.[22] Phnom Penh was emptied and pillaged, the notion of cities an anathema to Khmer Rouge 'Year Zero' ideology. This perverse spatial reckoning sought the decimation of the existing *lived space* with the razing of cultural institutions, wholesale destruction of creative artefacts), separation of families, targeted killings of artists and intellectuals, and the attempted annihilation of history.[23]

After the fall of the Khmer Rouge in 1979, and in one of the few acts of cultural renewal by the interim Vietnamese government, many of the surviving artists were allowed to live rent free (or peppercorn rent) in the White Building and were paid a small stipend to work as artists through the Ministry of Fine Arts and Culture. Former Royal dancer and Building resident Hun Sarath recalled, "the government gathered all the artists to re-build Cambodian culture due to its proximity to the National Theatre."[24] However, it wasn't until the late 1990s that some artists could start to earn a continuous, if limited, living from their craft.[25] At this time, survival was success.

THE FINAL ACT: RESISTANCE

From the late 1990s two significant threads emerged in the White Building's history, one cultural and one commercial. By 1998 the Building was significantly rundown. Many traditional masters and artists continued to live in the Building, yet with limited sponsored cultural support due to continued instability, many of these artists had fallen into poverty or were no longer practising. To address this, Arn Chorn-Pond founded Cambodian Living Artists (CLA) in 1998 and created the Cambodian Master Performers Program to provide income and recognition to Masters of traditional and royal Cambodian arts. CLA established studios in the Building the following year and paid the rent of several older artists forced to sell their apartments due to financial difficulties in the 1990s and 2000s.[26] CLA's work in identifying the importance of this ageing generation of Masters of Cambodian arts laid the foundations for other cultural interventions in the Building.

By this time, property developers began circling the Building and surrounds,[27] drawn by the prime inner-city real estate amidst a surging Phnom Penh real estate market.[28] The majority of Molyvann's Bassac River Front development had been destroyed, demolished or renovated beyond recognition.[29] Forced evictions in the area were common.[30] This trend of dispossession and accumulation continued with Building residents living under sustained threat of eviction from their decaying homes.[31]

From 2008, there was the emergence of an arts-led movement that challenged dominant social relations. The White Building became a space of creative resistance, with an intent to creatively collaborate to maximise resident's access to resources and opportunity in the city.[32] In 2008, photographer Maria Stott worked with emerging Cambodian photographers to create On Photography Cambodia (OPC).[33] In 2009, Cambodian photographer Vandy Rattana, inspired by his work with OPC, proposed the idea of the creation of a community art space in the Building with the art collective *Stiev Selapak* (Art Rebels). The space, named Sa Sa Art Projects, was grounded in the understanding, articulated by co-founder Vuth Lyno, that the Building had always been "an artist's community."[34] The space, run in a re-purposed apartment, was imagined as flexible and collaborative, enabling community and artists to realise new ideas. There were three main program strands: arts classes and workshops, artist residencies, and collaborative projects. Parallel to this, Cambodian filmmaker Koam Chanrasmey and Martin Potter (author 1) established a film school in partnership with Aziza School which was based in the Building.

Having watched many of their surrounding neighbours be violently evicted, such as the Dey Krahom commune in January 2009, members of the White Building community sought to manifest a collectivised remediation and reimagining of a vibrant and 'voiced' community, giving an urgency to their engagement with creative practices. A core group of highly engaged participants worked with both the film school and art projects – rapidly developing creative and organisational skills. As Vuth observed,

The group of the video workshop students… you could call them the youth leaders in the community, they have a certain spirit of commitment to the community and a spirit of activism, participating in demonstrations or documenting political events. You don't have to tell them; they do their own things.[35]

In November 2012, an exhibition *Snit Snaal[36]* showcased works produced by these participants, modelled after participatory, transmedia exhibitions undertaken previously by Potter.[37] This program featured extensive Building-based creative interventions: gallery exhibition, installations in numerous businesses and public spaces around the Building and a café cinema. The curator's statement notes that the work:

is intended to be enjoyed by everyday Cambodians, in particular the residents of the White Building themselves. The works are all new, created by twenty young art students and community organisers from the neighbourhood.[38]

The event led to an artist in residency program, *Pisaot,* with Cambodian and international artists living and working in residence, making art with the community.[39] Non-art outcomes included the development of community clean-up, maintenance and beautification programs. A subsequent program in January 2014, *Bonn Phum Nov Boudeng (The Village Festival at the White Building)* was an ambitious multi-platform and multi-event program.[40] *Bonn Phum* featured exhibitions in the Sa Sa Gallery, a café cinema festival, local band performances, video installations at local businesses and Aziza School and the opening of a community archive, reading room and library spaces.[41] The Festival also featured performances on the Building rooftop, with almost 1000 people attending to watch original music and choreography created by resident Hun Sarath. This performance took classical Khmer court music and dance and re-imagined it for the Building community. An online archive, whitebuilding.org, was launched at this time. Bonn Phum engaged over 75% of the Building population.[42] It also created the impetus for a range of ongoing creative works including the photo series "Humans of Phnom Penh."[43]

Bonn Phum engaged the community in creatively utilizing and transforming existing resources and spaces within the neighbourhood into artistic intervention and engagement, establishing stronger and intimate social relations amongst the community members. A lived spatial resistance was taking place. Lefebvre had emphasised the need to excavate everyday life for political possibilities that could point to alternatives.[44] This pragmatic and artistic resistance by Building residents was a very real creative excavation of everyday life to develop alternative visions of the future of the community.

The process of producing work for and organising the festival resulted in the development of an engaged leadership group within the Building. This community leadership was immediately evident when government representatives arrived unannounced soon after the festival and threatened to demolish the Building.[45] Residents prepared an action plan and organized a community meeting on the rooftop to begin a process of community-led consultation and mobilisation. The following week, after a sustained campaign in the press, the government retracted their statement.[46] Subsequently Building community leaders met with government and presented a community-led submission to Phnom Penh city council and the Ministry of Planning. This led to a 'step-by-step' agreement in July 2015. As Chumm Phanith, White Building Collective member, resident and community organiser, noted in relation to getting government permissions to do renovation work, "We can do it step-by-step not all in one time. Because if we ask to do it all, then they don't easy say yes."[47]

STEP BY STEP: DEMOLITION

The creative programs underpinned this newfound organizational capacity within the Building and continued constituting a reminder both of the increased community 'samakee' (solidarity) as well as continued re-imagining of the space and community. Sa Sa Art Projects founder, Vuth Lyno, notes that in the project, "the recent past converses with history – the resident-adapted place-making complementing the architect-designed built-environment, serving as a model and idea for building a living city."[48] The ongoing, flexible, participatory and creative programs and spaces inside the Building – which became both public and social space – embodied resistance. This was about developing existing spaces throughout the Building where the norms of the dominant culture could be re-imagined, and where there was provision for new ways to build community and social relations through the production of new stories and creative acts.[49] This is a socially engaged practice that pervades many contemporary art movements of Southeast Asia reflecting, as Tan Bun Hui observes, an art of empathy rather than direct activism.[50]

However, the 'step by step' agreement inadvertently set a timeline for the demolition of the Building and a process for compensation to apartment owners. With escalating tensions (e.g. government pressure, misinformation, lack of transparency regarding compensation, internal community

disagreements[51]), residents were eventually able to negotiate a settlement price of $1400USD per square metre, close to the original asking price of $50,000 per apartment.[52] Rose-Jensen (2022) argues this constituted a new model for urban displacement and key to this was the ability of communities to organize themselves and work with a transnational network of supporters to ensure better outcomes for communities involved in land disputes with the Cambodian government.[53] In June 2017, most owners had been paid out, residents left the White Building and demolition commenced. By mid-July the final 'hold-outs' had left and demolition of the Building was completed.

HOUSE-SPIRIT

With the demolition of the Building the legacy, to paraphrase Roberto Unger,[54] is not about the architecture – it is about successions and music. What remains is the intangible heritage of the community and their creative acts. While some of these creative acts and a sense of the community remains archived online, it is in the sustained and expanded network of creators and thinkers that the spirit of the Building endures – the successions. Sa Sa Art Projects continues in a new gallery space, still working with core participants of the White Building Project. These artists continue to produce work inspired by this time. For example Vuth Lyno's 'House- Spirit' (2018), involved the collection over 100 'spirit houses' (small shrines shaped like miniature houses and kept in most Cambodian homes) from White Building residents as they were moving out. From these Lyno created a high-rise assemblage of the houses which was installed in the Queensland Gallery of Modern Art for the Asia Pacific Triennale. Lyno (2020) observes the domestic shrines of the spirit houses performed a range of roles as:

memory banks and witnesses of what happened to the families in the neighbourhood. They were the spirits… of the White Building community… the embodiments of many intersecting dimensions: architectural and urban history, stories of families and community building, the practice of spirituality, and memories of a remarkable, resilient neighbourhood.[55]

Filmmaker Neang Kavich, who was born and raised in the Building, produced an acclaimed feature documentary *Last Night I Saw You Smiling* (2019) which screened at many international film festivals and won numerous awards.[56] Kavich filmed White Building residents, including his father, in the last days of demolition, before the Building became a memory. Kavich was an integral participant with many of the creative programs at the Building, teaching at the film school and directing a number of short films. In 2021, Kavich directed his first narrative feature film *White Building* inspired by the experience of his upbringing within the close-knit Building community and the conflicting perceptions of the last days of the White Building. The film won the Orizzonti prize for best actor at the Venice Film Festival and was the Cambodian submission to the 2022 Academy Awards.

CONCLUSION

The creative engagements from 2009 to the demolition of the Building in 2017, built on the community's artistic history, connected generations of old and new artists, generated new partnerships between community and external parties, and fostered creative, public spaces in the Building. The creative works facilitated a vision for communal transformation and then allowed for action on that vision. The community used their creative voice to re-imagine their community and to advocate for and mobilise themselves using the mediums that they were most familiar with – art and culture. Art and storytelling practices were a way of articulating pluralistic modes of struggle in a post-conflict society dealing with the onset of a new neo-liberal order of accumulation and dispossession. Dominant discursive acts of the more powerful were challenged through the expression of the 'lived' and the elevation of everyday life. Importantly, these practices looked both to the past and to the future. The very perception of both space and sense of place was (re)produced through these

alternative interactions. Ultimately the multi-arts, multi-year program of creative resistance within the White Building considered an alternative model of questioning gentrification and the relentless imperative to growth at any cost that defines the expansion of many cities across the world.[57] The collectivised, creative resistance tactics of the White Building community constituted a sophisticated and hyper-local transformation of space, drawing on activist traditions of South-East Asian arts practice and Khmer culture to challenge powerful forces, such as multi-national developers and the Cambodian government. The White Building is/was a site of resistance where the everyday and the lived experience was not 'papered over'.[58] The lived representational space of the White Building remains dialectically involved in the production of spaces of resistance by a community that continues to express itself through the creative legacy of the artists it bore.

ACKNOWLEDGEMENTS

NOTES

[1] Ang Sam, "Preserving a Cultural Tradition: ten years After the Khmer Rouge," *Cultural Survival Quarterly Magazine*, 14, no. 3, March 2010,
https://www.culturalsurvival.org/publications/cultural-survival-quarterly/preserving-cultural-tradition-ten-years-after-khmer-rouge.

[2] Martin Potter and Jonathon Louth. "Urban Transformations in Phnom Penh: creative collectives, the white building and the production of space," in *Edges Of identity: the production of neoliberal subjectivities*, edited by Jonathon Louth and Martin Potter (Chester: University of Chester Press, 2017), 263-264.

[3] Potter and Louth, 265-266.

[4] Some of the videos, photos, audio and other artefacts created over the course of the programs are archived online at the whitebuilding.org. (Martin, Potter, White Building Collective, Sa Sa Projects, and Koam, Chanrasmey, "The White Building" [website]. Big Stories Co, VIC, Australia.

[5] Henri Lefebvre, *The Production of Space.* Trans. Donald Nicholson-Smith (Oxford, UK: Blackwell, 1991).

[6] David Harvey, *Spaces of Capital: Toward a Critical Geography.* (New York: Routledge, 2001), 121-5.

[7] Henri Lefebvre, "Reflections on the Politics of Space." *Antipode*, 8, no. 2 (1976): 30-1.

[8] Lefebvre, *The Production of Space*, 26.

[9] Lefebvre, 33, 40.

[10] Lefebvre, 33, 38.

[11] Andrew Merrifield, "Place and Space: a Lefebvrian reconciliation," *Transactions of the Institute of British Geographers,* 18, no. 4, (1993): 523.

[12] Lefebvre, "Reflections on the Politics of Space," 36-37.

[13] Lefebvre, *The Production of Space*, 38.

[14] Lefebvre, 38.

[15] Linda Saphan, "Prince Norodom Sihanouk and the Political Agenda of Cambodian music, 1955–1970," International Institute for Asian Studies (2013): 64.

[16] See Helen Grant Ross, "The Civilising Vision of an Enlightened Dictator: Norodom Sihanouk and the Cambodian post-independence experiment (1953-1970)" in *Cultural Heritage as Civilising Mission,* edited by Michael Falser, Switzerland: Springer International Publishing (2015): 149-180.

[17] For an excellent analysis of the cultural programming of the Sihanouk regime see David Chandler*, Brother Number One: a political biography of Pol Pot.* Boulder, CO: Westview Press, 1992. (in particular chapter one and two). Note: Sihanouk also produced & directed 8 feature films in the mid to late 1960s.

[18] David Eimer, "Vann Molyvann: the unsung hero of Phnom Penh architecture," Phnom Penh Post Magazine, February, 9, 2014, http://www.scmp.com/magazines/post-magazine/article/1421349/vann-molyvann- unsung-hero-phnom-penh-architecture.

[19] The Nid d'abeille building in Casablanca was designed by the Atelier de Batisseurs (ATBAT) and completed in 1952. One of the lead architects on the White Building project, Vladimir Bodiansky, was a founder of ATBAT and co-designed the Nid d'abeille building. ATBAT was founded in 1945 to support post-war rebuilding, with Le Corbusier a central figure in the group. In the late 1940s due to increased urban migration across Northern Africa, Bodiansky, acting on behalf of Le Corbusier, teamed up with a group of young architects and created ATBAT-Afrique, to address urban housing issues.

[20] Pho Sochivy, "The "Nid d'abeille"in Casablanca, built in 1952 by ATBAT (Atelier des Bâtisseurs) in Centre De Formation Régionalaux Métier Du Patrominie," Unpublished powerpoint presentation. 2009.

[21] Helen Grant Ross and Daryl Collins, *Building Cambodia: 'New Khmer Architecture' 1953- 1970,* (Bangkok: The Key Publisher Company, 2006), 18-20.

[22] In 1979, the Kampuchea Review wrote "Out of 190 ballet artists, only 40 escaped death under the Pol Pot – Ieng Sary regime." In 1982, after accepting the position of Minister of Information and Culture, Chheng Phon said to the Kampuchea Review: "The genocidal Pol Pot – Ieng Sary – Khieu Samphan regime destroyed our national culture almost completely and killed almost 80 percent of our male and female performers." (see: Ang Sam, "A talk with Chheng Phon, Minister of Information and Culture," Cultural Survival Quarterly Magazine, 14, no. 3, March 2010, https://www.culturalsurvival.org/publications/cultural-survival-quarterly/flowers-forest-talk-chheng-phon-minister-information-and); In an interview with Susan Pack in 1989, Minister of Information and Culture, Chheng Phon stated, "there were 385,737 artists and intellectuals (before the Khmer Rouge); during Pol Pot just 300 people survived." (see: Susan Pack, "Cambodian Odyssey," Press-Telegram, April, 30, 1989: 1-5).

[23] James Tyner, *The Killing of Cambodia: geography, genocide and the unmaking of space* (London: Ashgate, 2008), 110.

[24] Martin Potter and Koam Chanrasmey. "An introduction to Hun Sarath," [documentary video], accessed March 31, 2022, https://vimeo.com/68345891.

[25] It is hard to over-state the decimation experienced by Cambodia from 1970 to the 1990s. While the impacts of the Vietnam War, the US supported Lon Nol civil war and the Khmer Rouge regime are well known, the continued struggles from 1979 onwards were significant and less well known. In the 1980s the interim Vietnamese backed Cambodian government was not recognized by the United Nations who allowed the Khmer Rouge and the Khmer Rouge-dominated Coalition Government of Democratic Kampuchea (CGDK) to hold Cambodia's UN seat until 1993. The Vietnamese occupation of Cambodia from 1979-93 was compounded by a series of famines through the 1980s which killed upwards of half a million people and a refusal by most nations to provide reconstruction assistance to the occupying Vietnamese government. This, coupled with an estimated 2 million deaths during the Khmer Rouge and an estimated 6000, 000 displaced Cambodians (this in a country of ~ 7.5 million people in 1975) - the country was profoundly traumatized and unsupported in any process of reconstruction throughout the 1980s. From 1991 the UN supported a 'democratic transition' with elections held in 1993 under the support of the UN Transitional Authority in Cambodia (UNTAC). However, it was not until the late 1990s that Cambodia began to have the capacity to address reconstruction of key infrastructure and systems.

[26] Vandy Muong, "At home in the White Building," Phnom Penh Post, March, 28, 2015,
http://www.phnompenhpost.com/post-weekend/home-white-building.

[27] In 2014 there were alleged strategic purchases of White Building apartments by a local developer. See: Chan Cheuk Yin, Sun Heng and Matt Blomberg, "Residents say 7NG Is buying up White Building," Cambodia Daily, August 26, 2014. Article is no longer available online. Archived at:
https://opendevelopmentcambodia.net/news/residents-say-7ng-is-buying-up-white-building/.

[28] AbdouMaliq Simone, "The politics of the possible: making urban life in Phnom Penh," Singapore Journal of Tropical Geography, 29, no. 2 (2008): 186–204.

[29] The National Theatre was burnt during repairs in 1994 and finally demolished in 2008. The charred remains of the theatre was a central feature of Rithy Panh's 2005 film "The Burnt Theatre" representing both symbolic desecration of the 'golden age' of Khmer post-independence culture and metaphor for the struggle to re-build culture from the ashes of Khmer Rouge destruction.

[30] Neighbouring squatter communities to the White Building such as Dey Krahom and a number of Tonle Bassac communities began to be forcibly evicted from the early 2000s, The most brutal and largest eviction of the Dey Krahom settlement saw about 850 families have their homes bulldozed before they were loaded into trucks and driven an hour north or south of the city and dumped in a field – most of them with no access to running water or electricity, many of them without access to shelter or schooling for their children and none of them with access to local markets. (see: Potter and Louth, "Urban Transformations in Phnom Penh: creative collectives, the white building and the production of space", 262-263).

[31] Public statements to demolish the White Building were made by high ranking politicians including Phnom Penh's Governor while in 2015 nearby building works caused structural damage to the Building, and despite the corporate led renovations of other structures in the Bassac River Front Cultural Complex, the Hun Sen led Government refused individual and communal applications by White Building residents to undertake any substantial renovation or maintenance works. These were reported in the following articles: Sen David and Alice Cuddy, "Cracks leave tenants in fear," Phnom Penh Post, February 3, 2015,
http://www.phnompenhpost.com/cracks-leave-tenants-fear; and Hul Reaksmey and Chan Cheuk Yin, "Tenants of White Building in dark on demolition," Cambodia Daily, September 5, 2014. Article is no longer available online. Archived at:
https://opendevelopmentcambodia.net/news/tenants-of-white-building-in-dark-on-demolition/.

[32] Simone, 187.

[33] On Photography Cambodia (OPC) was a photographic exploration of Phnom Penh's past, present and future through the juxtaposition of different photographic perspectives – historical photos, family album photos and contemporary images made by community members and professional – all of which focussed on the White Building. OPC launched in January 2008, undertook monthly community workshops from October 2008 until the end of 2009 and produced a number of exhibitions from late 2008 and through 2009.

[34] Roger Nelson, "The White Building," Art Monthly Australia, September 25, 2012.

[35] Vuth Lyno, "A Presentation by Vuth Lyno: Sa Sa Art Projects," *Asia Art Archive in America, March 2, 2014* http://www.aaa-a.org/programs/a-presentation-by-lyno-vuth-sa-sa-art-projects/.

[36] Snit Snaal translation: loving, friendly and intimate with another. An archive of this exhibition can be viewed at http://whitebuilding.org/en/collections/snit_snaal.

[37] For details of a particularly influential project see: Martin Potter, "Big Stories, Small Towns: a participatory and web-based documentary and exegesis www.bigstories.com.au," Adelaide: Flinders University, School of Humanities and Creative Arts, 2014.

[38] Martin Potter and Vuth Lyno, "Snit Snaal Curator's notes," The White Building website, accessed March 31, 2022, http://www.whitebuilding.org/en/collections/snit_snaal.

[39] Details on Pisaot residencies can be viewed at: http://sasaart.info/pisaot.htm.

[40] An online archive showcasing some of the work produced and some images from the events can be viewed at: http://whitebuilding.org/en/collections/bonn-phum-the-village-festival.

[41] The work and impact of Bonn Phum Nov Boudeng is also detailed by Vuth Lyno, "A Presentation by Vuth Lyno: Sa Sa Art Projects."

[42] The survey was conducted by the newly formed White Building Collective*, during the week of Bonn Phum (the Village Festival). The survey involved content analysis of the creative works produced; the number of active community participants who contributed to the creative works; and head counts of audience members (including head count of community members) at all Bonn Phum events. This survey formed the basis for a restricted report written by Martin Potter and Vuth Lyno to acquit funding for HIVOS' Arts Collaboratory.
*The White Building Collective were formed by participants in the film school.

[43] Humans of Phnom Penh can be viewed at: https://www.facebook.com/HoPPCambodia.

[44] Henri Lefebvre, *Everyday Life in the Modern World*, trans. Sacha Rabinovitch (New Brunswick: Transaction Publishers, Second Edition, 1984).

[45] Hul Reaksmey and Chan Cheuk Yin, "City Hall Backtracks Amid White Building Outcry." Cambodia Daily, September 5, 2014. Article is no longer available online. Archived at:
https://opendevelopmentcambodia.net/news/city-hall-backtracks-amid-white-building-outcry/.

[46] Reaksmey and Yin.

[47] Chumm Phanith, Email correspondence to Martin Potter, November 22, 2015.

[48] Vuth Lyno "The White Building: building a community, a city and art," Afterall Journal, vol. 50 (2020), https://www.afterall.org/article/the-white-building-building-a-community-a-city-and-art.

[49] Martin Potter. "Critical Junctures: place-based storytelling in the Big Stories, Small Towns participatory documentary project," Media International Australia 164, no. 1 (2017): 122. doi: 10.1177/1329878X17694754.

[50] Annette Van den Bosch "Asian Artists: speaking for the voiceless," Asian Currents, October, 2012.

[51] Brendan O'Byrne, "Agreement Continues to Elude Residents of White Building," Cambodia Daily, April 20, 2017, https://english.cambodiadaily.com/news/agreement-continues-to-elude-residents-of-white-building-128219/

[52] Apartments averaged 35m2. Apartments on higher floors were up to 50m2, most in the middle floor apartments were around 35m2, however some ground floor apartments were as small as 20 m2. As a result, residents in smaller apartments were hold-outs (Brendan O'Byrne, "White Building Residents Say Move-Out Deadline Pushed," Cambodia Daily, July 5, 2017, https://english.cambodiadaily.com/news/white-building-residents-say-move-deadline-pushed-132144/).

[53] Sarah Rose-Jensen "CSO Networks and Resistance to Forced Displacement in Cambodia," *Journal of Current Southeast Asian Affairs*, (first published online July 29, 2022): 9. doi: 10.1177/18681034221116127

[54] David Edmonds and Nigel Warburton, "Roberto Mangabeira Unger on what is wrong with the social sciences today.," *Social Science Space,* January 9, 2014, http://www.socialsciencespace.com/2014/01/roberto-mangabeira-unger-what-is- wrong-with-the-social-sciences-today/.

[55] Vuth Lyno, "The White Building: building a community, a city and art".

[56] "Last Night I Saw You Smiling," Anti-archive website, accessed March 30, 2022,
https://www.antiarchive.com/lastnightisawyousmiling.html.

[57] For a nuanced analysis of the White Building as an alternative model of questioning gentrification see: Sabina Lawreniuk "'A war of houses and a war of land': Gentrification, post-politics and resistance in authoritarian Cambodia," Environment and Planning D: Society and Space, 39, no. 4 (2021): 645–664.
doi: 10.1177/02637758211025536.

[58] Quoting Lefebvre, Japhy Wilson points out: "... abstract representations of space cannot succeed in 'papering over all differences' ..., as through the process of their implementation they are confronted by "the materiality of the spatial practices and representational spaces that they have discursively erased, which constitute the grounds for resistance and transformative possibilities." Japhy Wilson, "Colonising Space: the new economic geography in theory and practice," New Political Economy, 16, no.1 (2011): 388. doi: 10.1080/13563467.2010.504299.

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INFLUENCE OF CRITICAL REGIONALISM ON STRUCTURES IN BHOPAL, MADHYA PRADESH

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INTRODUCTION

Since the mid-20th century, Modernism and Postmodernism have shaped the design of most buildings worldwide. Critical Regionalism, and other related schools of thought intend to combat this issue by encouraging more thoughtful buildings that resonate with their surroundings. In the present age, where the need for sustainable and resilient architecture is more urgent than ever, sensitivity to context (including the climate and the culture) is an important study.

The term *'Critical Regionalism'* was *first coined by Alexander Tzonis and Liane Lefaivre and later more famously and pretentiously by Kenneth Frampton in "Towards a Critical Regionalism: Six points of an architecture of resistance". According to Frampton,* **"Critical Regionalism should adopt modern architecture critically for its universal progressive qualities but at the same time should value responses particular to the context".** [1]Emphasis was laid on topography, climate, light, tectonic form rather than scenography and the tactile sense rather than the visual.

Critical Regionalism is an approach to architecture that strives to counter the placeless-ness and lack of identity of the International Style, but also rejects the whimsical individualism and ornamentation of postmodern architecture. Critical Regionalism is not simply regionalism in the sense of vernacular architecture. It is a progressive approach to design that seeks to mediate between the global and the local languages of architecture.

Bhopal

Bhopal's history is tied to its lakes, which were artificially made, and settlements have grown next to their shores. In the 20th century however, colonial architecture, with its non-regionalist style and place-lessness, became dominant. This lack of regionalism in architecture continued after independence, with the new city and its built structure being indistinguishable from any other city in India. [2]However, as a state capital, Bhopal saw itself hosting several institutional buildings designed to represent the cultures of the entire state. These buildings were designed by prestigious architects and practices such as Charles Correa, Revathi Kamath and Anant Raje that were renowned for their regionalist architecture philosophies. These projects have in turn inspired a culture of designing more such architecture that is sensitive to Bhopal amidst an ocean of generically designed buildings and spaces.

AIM

To Study the Influence of Critical Regionalism on structures in Bhopal, Madhya Pradesh.

OBJECTIVES:

- To study, understand and identify various parameters of Critical Regionalism.
- To study the applications/influence of Critical Regionalism in Bhopal through case studies.
- To compare and analyse the case studies.

METHODOLOGY:
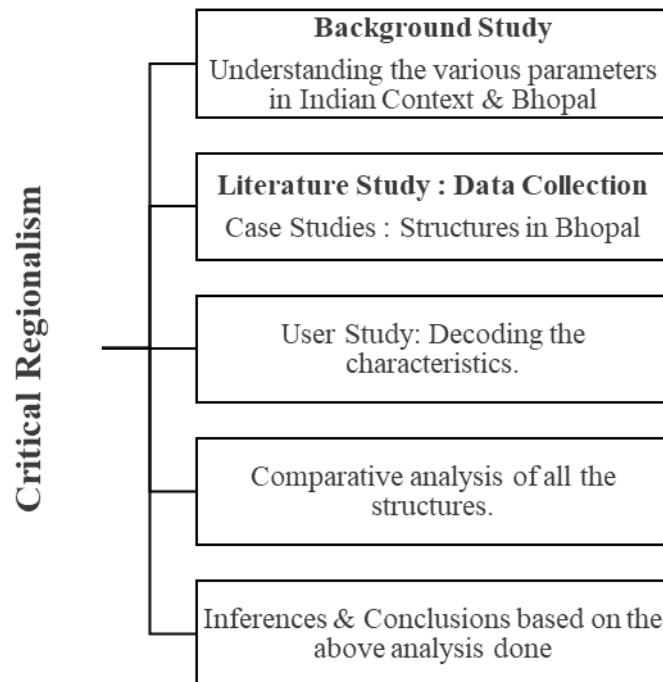
Figure 1. Methodology Flow Chart describing the process of Research done.

BACKGROUND STUDY

To understand how critical regionalism is implemented in a project, it is important to observe the project through various parameters. In the studies on critical regionalism in India, architectural projects have been analysed on six different criteria[3]. They are as follows:

- **Context-specific Architecture:** Does the design respect the character of the surroundings in which it is situated? [4]
- **Historical Knowledge:** Does the architecture take into account the building traditions of the region? The design should however incorporate historical knowledge only in its essence and should not resort to literal references.[5]
- **Materiality:** Does the project use locally available materials predominantly for the construction?[6]
- **Ecology and Landscape:** Does the project minimize the impact of its construction on the ecology of the site and the surroundings? [7]
- **Social and Cultural Appropriateness:** Does the architecture of the building respond to the social needs and lifestyle choices of its intended users? [8]
- **Technology:** Does the design adapt modern technology in a sustainable way to benefit the building program? [9]

Bhopal being in the Composite Climate zone receives a variation in temperature and humidity. [10]Located in the Malwa plateau with black cotton soil and surrounded by lakes, the city has a unique geographical context. Apart from that, it has a rich legacy of history and culture. [11] Thus, the requirements of some of these parameters can be made more specific by pointing out the historical and cultural responses appropriate for the site, as well as the climate and material considerations. Table 1 lists out these requirements as follows.

	General Parameters	**Specific Parameters (To Bhopal)**
Contextual Response	The design should emphasize on site-specific factors.	Same as general parameters
Historical Knowledge	The design should interpret elements from traditional architecture of the region into contemporary architectural language	The design should derive lessons from Indo-Islamic architecture in the state as well as the rich tribal vernacular heritage.
Climate Response	The form and organization of the project should respond to the local climate and minimize the need for mechanical controls	The design should respond to the macroclimate (the Composite climate of Bhopal) and microclimate (due to the presence of lakes and hills)
Ecological Sensitivity	The design should have a mini-mum impact on the surrounding natural environment	Same as general parameters
Local Materials & Construction	The use of locally available materials and local workforce should be thought of in the during the design process.	The design may involve the construction of clay bricks, fly ash bricks, Kota stone tiles, sandstone etc.
Technological Sustainability	The design should adapt modern technology to meet the users' needs.	Same as general parameters
User Suitability	The architecture should take care of the lifestyle of the people who will be inhabiting the building.	Same as general parameters

Table 1. Defining the Parameters of Critical Regionalism

DATA COLLECTION

For this research, two main methods of data collection were used: site visits and unstructured interviews with users.

Site Visit

All three sites were visited during this research. The architectural designs of each project were observed based on the seven parameters of critical regionalism determined in Table 1. After this, the extent to which the project fulfils a given parameter was qualitatively analysed

User Reviews

To adequately analyze the seventh requirement of user suitability, two methods of data collection were done. The first one was a questionnaire A questionnaire was prepared for the primary users of

two of the three sites, Bharat Bhawan and IIFM. This was primarily done to ascertain the user suitability of the respective sites. The following are the general questions asked.

Most and least desirable spaces in the site.

Reason for visiting the site (in case of Bharat Bhawan and ASA Head Office)

Most and least desirable time periods experienced in the site.

Comparison of personal experiences in each site with a relatable alternative

1.Bharat Bhawan compared with other public centres such as Tribal Museum, IGRMS and State Museum

2. ASA Head Office compared with a typical office building

3.IIFM Bhopal compared with other college campuses such as MANIT, SPA Bhopal, AIIMS Bhopal etc.

For ASA Head Office, a semi-structured interview was conducted on site.

The interviewee was Jayanthi Gangana, the Program Director of HR and Communication for ASA. She is one of the founding members of the organization and was one of the chief clients for the building. Through the interview, the philosophy guiding the design of the building was described. The general advantages brought by the architecture to working conditions of the organization were also discussed.

Snippets of the Interviews & Questionnaires

Interviewee - Yes, water resources is very important to ASA…and in the design of our office, we wanted to show that. The wetland houses a lot of different kind of plants and algae. And this ecosystem invites a lot of migratory birds also to our office. Also, this plot of land is the lowest point in the area, so all the rainwater drains down towards here. That's why we decided to lift the office up, and instead make this watery paradise on the ground level."

Interviewer – "Would you say that this office has succeeded in being inviting to all kinds of visitors?"

Interviewee – "Yes, yes. This is what we intended the office to be; a very inclusive space that invites the nature, invites the locals…. we gather a lot around the stepwell."[12]
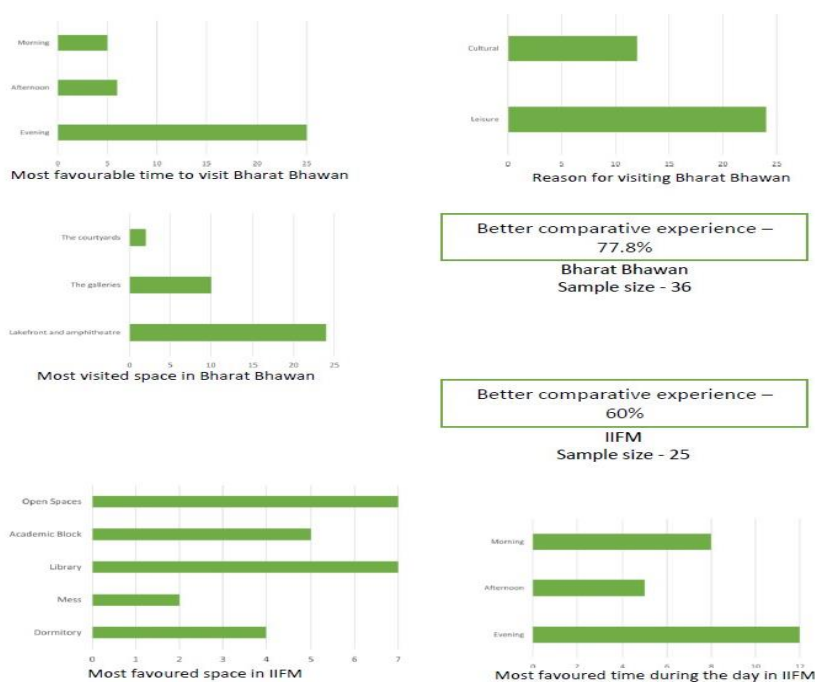
Figure 2.Snippets of Results of Questionnaires.

Case Studies
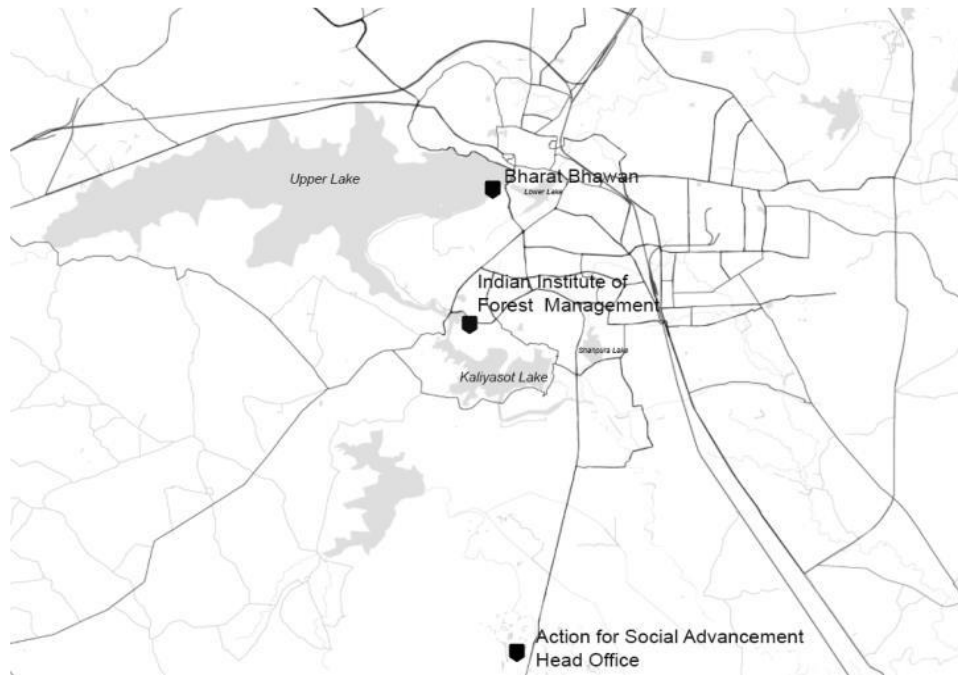
Figure 3. Map Showing the location of the three chosen case studies in Bhopal

Bharat Bhavan: Designed by Charles Correa

A centre for arts and culture in Bhopal, Bharat Bhawan is set into the lake front of the Upper Lake in Bhopal, and its design shows an emphasis on respecting its surroundings. It hosts 6 wings for general art tribal art, centres for folk music poetry and cinema & one repertory. It also has an auditorium, canteen, and an amphitheatre. Its courtyards, terraces and amphitheatre are popular hanging spots for the locals.

Figure 4. Map Showing the location & context of Bharat Bhavan[13]
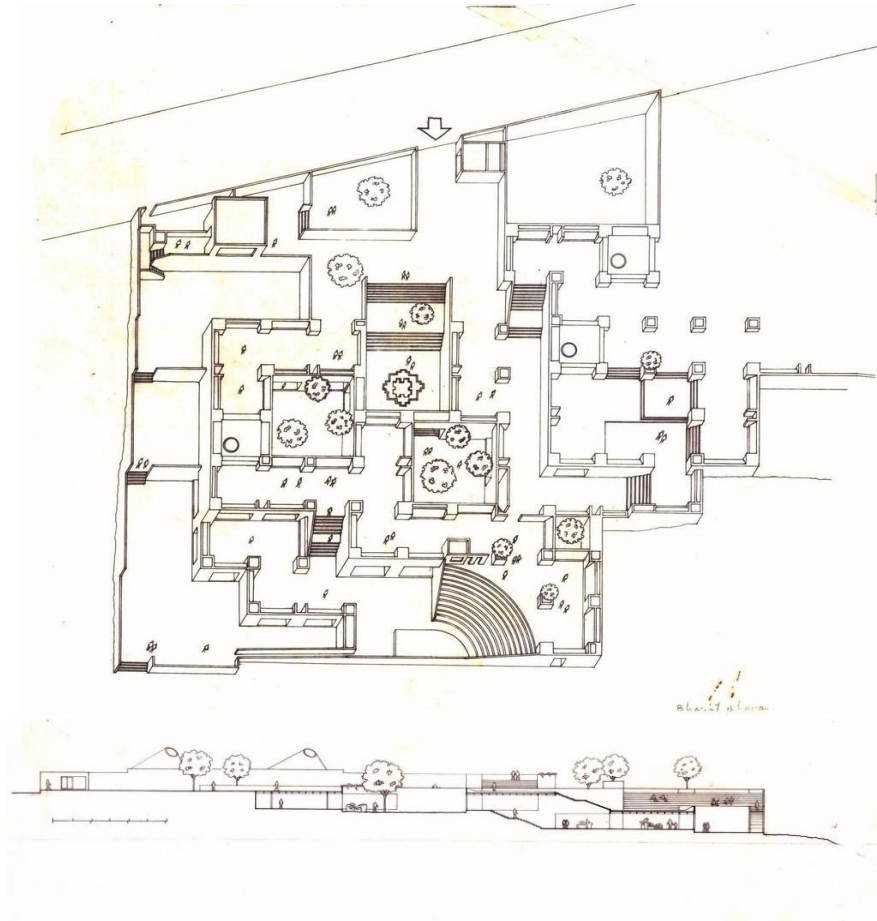
Figure 5.Plan and Section of Bharat Bhavan[14]

Figure 6. Photographs of Bharat Bhavan clicked by the Author

The entrance to the cultural centre is unassuming, with no visible superstructure apart from the two conical sky-lights. The path then descends into a courtyard in the manner of a 'ritualistic pathway' as described by Charles Correa with the circulation 'flowing' from the entrance to the lake-front and 'ebbing' at the courtyards.[15]

The Bharat Bhawan allows for a vista of the Upper Lake and the old city on the opposite shore. The minarets of the Taj-ul Masjid were directly visible before their view was recently blocked by the

construction of a few mid-rise hospital buildings. This was intended to provide a direct visual connection between the old and the new parts of the city, as well as the Upper Lake.

Indian Institute of Forest Management: Designed by Anant Raje

The Indian Institute of Forest Management is a large educational institute situated on a hillock in the south of Bhopal, with a lake at the south side. Designed as a self-sustainable campus, the built structure of IIFM has taken inspiration from its surroundings and the local culture, with use of traditional passive design elements.
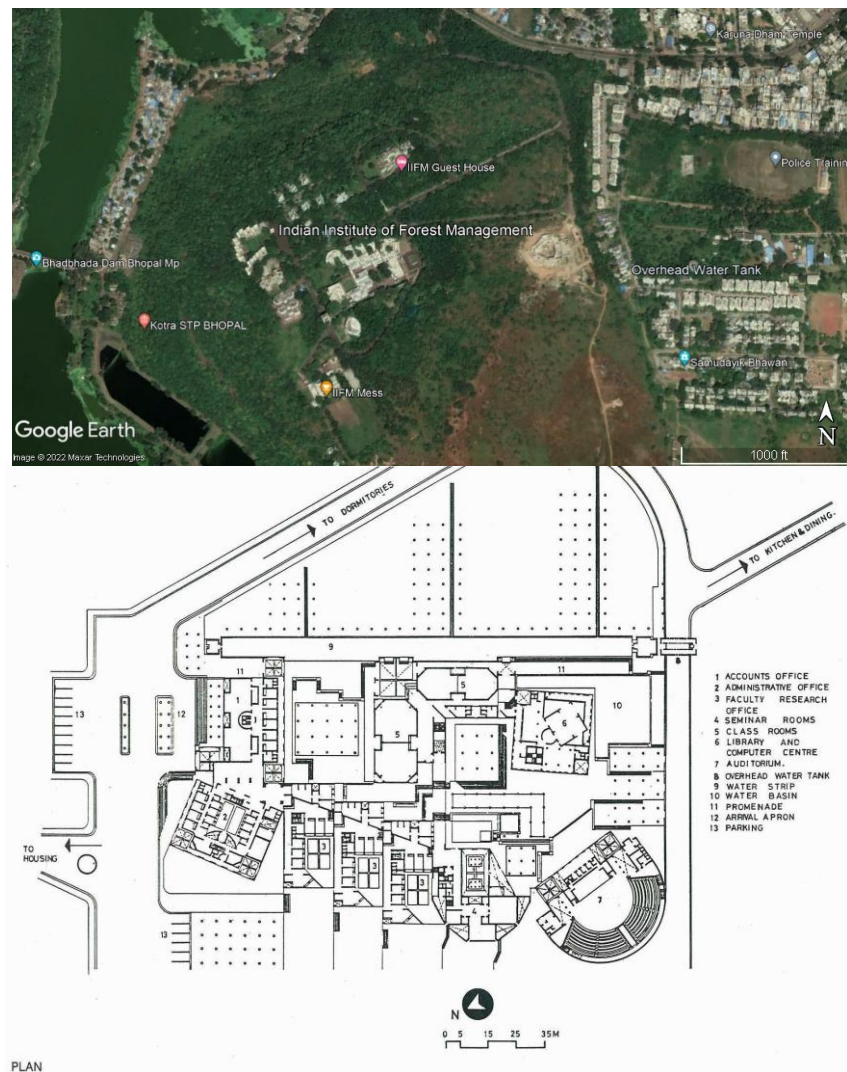
Figure 7 a. Map Showing location and context of IIFM, Bhopal
Figure 7b. Plan of IIFM Bhopal[16]

The hill is lightly sloped towards the east side and steep at the south and west sides, with the academic zone at the top of the hill. The institute is built around a main axis that runs North South. The student dormitories are placed to the south adjacent to the library, with all rooms oriented towards the lake view. There is a prevalence of open courts along the entire facility, with courts being used as buffer spaces, spaces for meeting, and as spill over areas. Water channels run along the buildings. Kota stone and slate cladding is used on all the buildings, giving an overall grey-bluish hue to the institute. Fenestrations are recessed into pockets of arches, mimicking the pre-colonial palaces of Bhopal

Figure 8. Photographs of IIFM Bhopal clicked by the Author

Action for Social Advancement Centre: Designed by Chitra Vishwanath & Team
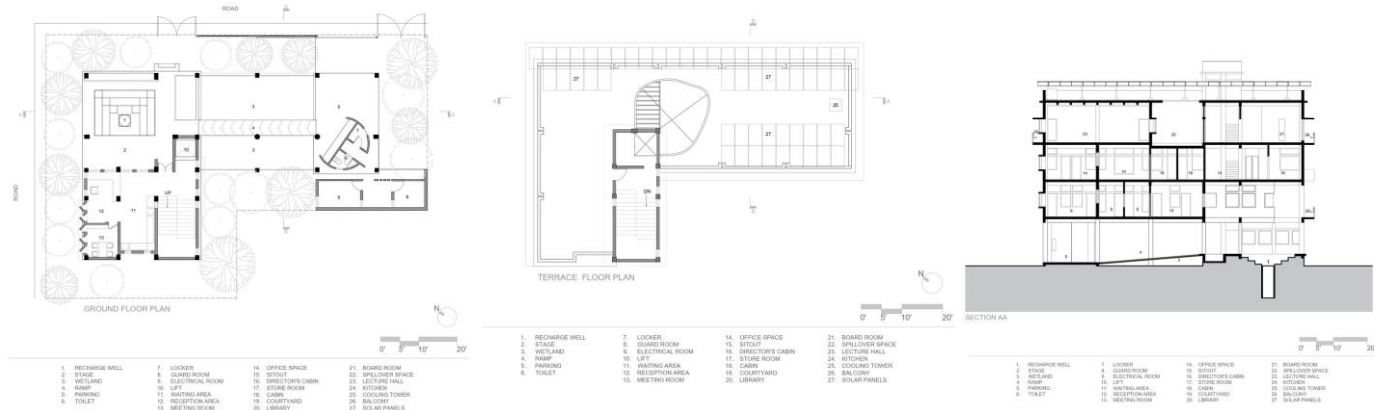
Figure 9a.Map Showing location and context of ASA Head Office, Bhopal[17]
Figure 9b: Ground Floor Plan, Roof Plan & Section ASA Head Office, Bhopal[18]

Built in 2019, it is the most recent of the projects and reflects the upcoming climate-sensitive buildings that are slowly coming up everywhere in India. The ASA is a non-governmental

organization that seeks to provide livelihoods with a focus towards natural resource management. The building houses workspaces as well as inclusive spaces that can be used by the locals. This building is notable for using latest technologies and innovative low-cost materials in its design.

At the ground level, the building is almost entirely open, with public recreation spaces, reservoirs, and parking. This was done to accommodate for the frequent waterlogging in the site due to it being the lowest point in the neighbourhood.

Figure 10. Photographs of ASA Head Office, Bhopal[19]

The interiors are punctured by several open spaces that act as spill overs for public gatherings. Windows in the eastern and western facades are tilted 45 degrees to avoid glare. Several measures have been taken to reduce the electricity usage, including energy-efficient fans and an efficient HVAC. [20]Large solar panels at the top produce all the energy required for the building, thus making it a net-zero energy building. Rainwater harvesting is also done and provides for four months of the water supply.

DATA ANALYSIS

Parameters	ASA Head Office	IIFM Bhopal	Bharat Bhavan
Built by	Chitra Vishwanath & Team	Anant Raje	Charles Correa
Year Built	2019	1989	1992
Typology	Office Building	Institutional Building	Arts & Crafts Centre
Users	Employees and clients of ASA	Students, faculty, and staff of IIFM Bhopal	Locals, tourists, artists, staff
Contextual Response	The project takes into account topographical challenges of the site in terms of Drainage, Water Management and Step Wells	Topography has been utilized to orient the Dormitory rooms towards lakes and the main building sits on the hill top/crown of the hill	The entire form of the building takes into account the natural gradation of site that incorporates terraces amphitheaters and clear sight of the lake
Historical Knowledge	Stepwell, courtyards, murals of local art	Aesthetic inspirations taken from Mandu	Inspirations from Red Fort, ancient Indian temples, ghats
Climate Response	Precise measures for passive design have been taken with the help of large overhangs, skewed windows, courtyards and insulated roof.	Use of courtyards and deep overhangs comforts the public/open spaces but doesn't help in the interiors	Right sized courtyards, raised terraces and conical roofs together help in .provision of natural shade, ventilation and lighting. No protection from strong cold winter winds
Ecological Sensitivity	Raised from the ground level which does not disturb the natural flow of water. Also, there is provision for Edible landscapes & the wetlands naturally acts as nesting space for birds	The levels in the terrain have been maintained and artificial water bodies have their source in the natural reservoir on the hill top. But a lot of natural vegetation has been uprooted for construction	Ecological preservation was achieved by sinking the project into the contours of the site, as well as keeping the immediate banks of the lake untouched and filled with natural vegetation.
Local Materials & Construction	There has been an extensive use of locally manufactured brick that uses the soil in the site, both in masonry and in insulation.	Attempts have been made to use materials found locally. The choice of materials for the façade succeeds in mirroring the natural slate and stone outcrops in the site	The stones and the bricks are sourced locally, however the cladding material is not local. They, however, help in mimicking the façade of the land-marks of the old city on the other side of the lake.
Technological Sustainability	The use of well-researched and innovative technological measures has helped the building to achieve an annual net-zero consumption as well as sustain the site's water table.	These arch lintels set up the primary façade design element of the entire institute	The use of RCC has helped in creating highly functional spaces and features, while also acting as an aesthetic feature of the building
User Suitability	The occupants of the building hold a generally favorable view of the office, primarily due to the presence of interesting community spaces.	The primary attractive feature among users was the abundance of vegetation, with a general positive view on living in the campus. The infrastructure was found to be very convenient.	Locals are primarily attracted due to the peaceful environment and friendly open spaces. However, a few spaces are isolated and may attract anti-social activities.

Table 2. Comparison of the three case studies based on Observations and User Interaction

INFERENCES

With the parameters selected for the study following are the Inferences/Findings based on the data analysis done above in Table 2.

Contextual Response

The designs of all three projects have given primary importance to the site context. However, the approaches towards context-sensitivity have been different. Spaces have been curated differently in each project.

Historical Knowledge

The 3 projects have taken advantage of their contexts and used them to define their designs.

Climate Response

The three projects have largely used passive design to attain thermal comfort. Newer buildings use other means as well, such as insulation and efficient HVAC etc.

Ecological Sensitivity

The designs intend to have as less an effect as possible on the natural features of the site.

Local Materials & Construction

The three projects have largely used conventional and easily available materials, i.e., bricks and RCC.

Technological Sustainability

Structural innovations have been used in Bharat Bhawan and IIFM. ASA Head Office has used several technological innovations including in materiality and fixtures.

CONCLUSIONS

Despite similarity in location, the differences in use, year of construction, site topography, and institution philosophies have led to different approaches of critical regionalism, and thus created different designs. This shows the wide design scope of Critical Regionalism. Technology is seen to be increasingly playing a more crucial role in regionalist architecture. Construction is still done with conventional methods and materials (notably here, RCC and clay bricks). However, recent innovations such as bricks mixed with fly-ash, black cotton soil etc. are being introduced. One major drawback of Critical Regionalist projects is that due to the specificity of the designs, they tend to get outdated with the passage of time, as visible in IIFM. Therefore, the adaptability of a building or project is also an important factor to consider while assessing critically regionalist architecture. This Study is limited to a qualitative analysis of three specific critically regionalist projects in Bhopal. There are several other projects in Bhopal that exhibit critical regionalism in their designs, on which a separate study could be done and a better analysis could be done/written. Further, this study can be expanded to other cities and locations, with their own unique challenges and parameters.

ACKNOWLEDGEMENTS

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INTANGIBLE CULTURAL HERITAGE IN THE AFRORURALITY OF THE COLOMBIAN CARIBBEAN: THE PATIO, THE HUT, THE TREE IN FRONT OF THE HOUSE

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INTRODUCTION

I tried to look, taking small steps toward the invisible, as if I were an indifferent observer of everyday appearances—a collector of experiences or space.[1] In working with the communities, I discovered a sense of complicity. I understood that complicity is entering into what is always seen. It is to make different worlds coincide. I learned to be part of what I see—being part of the experience, without appropriating the scene, without the violence of the analytical gaze. A look that wants to be more a confidence, where looking is not to violate; it is not to conquer nor to analyze. To look means finding a complicity state that allows us to discover once and again the reason for being in everyday life. One observes unarmed from intuition. Only in this way can the intangible heritage of Afro-Colombian housing be understood. One must cross the sandy street, reach the shade of the tree, cross the house to sit in the *bohío*, look at the patio, and talk over coffee. One must listen to the sweet and musical sound of the words in the *palenquera* language while the breeze refreshes the skin.[2] One must let oneself be overwhelmed to understand the meaning of this research.[3]

Figure 1. A chair for me, another for the partner. PHOTO Daniel H Nadal 2019
You have to reach the invisible to transform the visible.

The new ethnicity

The intangible cultural heritage of Afro-Colombian rurality needs to renovate the meaning of ethnicity, updating the relevance of oral traditions for the projection of their culture. Building a new idea of ethnicity means promoting a renewal of the idea of identity.[4] Starting from the premise that identity is built within, and not outside, the narratives of the communities,[5] we must understand that this construction produces specific strategies and discourses and, therefore, the crisis of the cultural value of intangible heritage.

The definition of the ethnic and the approach to new proposals for the construction of ethnic identity implies the review of ancestral spaces and traditions and the incorporation of new dynamics, readings, and use practices. The home value review is ultimately part of a cultural updating process. In this sense, the communities are not simply trapped in places, waiting to be served by development,[6] but they build their networks and narratives from which to challenge the dominant readings about their territories.[7]

The formation of a multifaceted, transcultural, and mixed ethnicity faces the difficulty of overcoming a concept of ethnicity linked to traditional cultures,[8] which presents a colonial scenario where the ethnic projection is inferior to a modern white subject that only interacts with the ethnic from some visions of the rural.[9] The image of black has persisted as rural, regional, specific, and with an appearance that projects the ancestral.[10] Defending a new ethnicity as a multiple, ambivalent, and malleable process can constitute a subversion mechanism against established positions.[11] A new dynamic and variable ethnicity.[12]

These considerations lead to the definition of new territorialities. The contemporary Afro movement struggles to reimagine identity by constructing new territoriality, a new way of inhabiting the territory, as a political project. For Afro-descendant communities, the struggle for territory as a collective cultural construction implies the struggle to preserve culture.[13] An idea of interculturality that allows their cultural positioning as ethnic subjects has led to the creation and discussion of institutional spaces called *Differential Ethnic Approach* or *Differential Approach with an Ethnic Perspective*.[14] Implementing an idea of a Differential Ethnic Approach implies anticipating action planning processes that consider the ethnic identity of the communities,[15] promoting training processes in the communities and institutional instances. It means promoting models of understanding that allows the approach of an institutional idea of the ethnic versus an idea of the racial as a collective construction.[16]

Figure 2. Four generations. PHOTO Daniel H Nadal 2020
Inhabiting is not just residing, being inside, or occupying a room.
It is giving everyday meaning to our time and our space.

From a *Differential Ethnic Approach,* Housing as a differential ethnic approach results in a political and cultural commitment, articulating the ethnic aspect, celebrated, and recognized by the nation, and the racial aspect, configuring the collective identity claimed by the communities. Therefore, the central problem defines the review of housing, its practices, and its collective construction as a fundamental element for updating a new ethnic identity. From this point of view, the development of own housing is fundamental in the face of institutional policies, defining a housing of cultural interest that is only possible as a collective process within the communities.[17]

The possibility of building a housing project from the roots, concerning the dynamic projection of identity proposed by Afro-descendant communities,[18] defines a political-organizational project and an ethnic education alternative.[19] Since intangible cultural heritage can contribute to peacebuilding processes during post-conflict periods,[20] Afro-rural housing has become an essential resource for peace in many regions of Colombia. Furthermore, intangible heritage makes it possible to cover the cultural diversity of the territories in a transversal way, fostering the approximation, unity, and transformation of the communities.[21]

Figure 3. One hundred years of solitude. PHOTO Daniel H Nadal 2020
The new ethnicity lies in the spaces of the intangible

The cultural space of San Basilio de Palenque in Montes de María was declared a Masterpiece of the Oral and Intangible Heritage of Humanity, in 2005, by the United Nations Organization for Education, Science, and Culture. The *palenquera* community has promoted the recognition of its cultural diversity through oral and intangible heritage, which can have a double reading: the recognition of cultural identity and legacy for Colombia and America or the exoticization of cultural practices and their consequent return to a colonialist logic.[22] The dangers in waiting for this declaration refer to a possible deculturation due to the growing development of individual interests and projections and a progressive loss of collective values and spaces.

The crisis of spaces for oral tradition implies a crisis that affects the value of orality as a poetic expression and a definition of racial identity. The ethnic consciousness of communities such as San Basilio del Palenque promotes the staging of an identity as a horizontal statement without domination.[23] Orality expresses a form of relationship between everyday space, the body, and nature. The expression of the body and the voice as the first territory projects a discursively constructed concept of blackness, becoming the primary means of transferring values and concepts such as landscape, culture, and ancestry.[24]

As an expression of this racial identity, the housing defines spaces to project other ways of living. It is the symbolic space of negotiations and intersections between generations. This house discovers an architecture that must be traversed, which expresses identity as a flow, as a multidimensional projection, and as a social construction. A house that connects intimately with the territory as a space for life, culture, and memory. The Afro collects in the house its diasporic condition, fight against inequality, and projection as cultural heritage.

Figure 4. The yard behind the house. PHOTO Daniel H Nadal 2020
Converting everyday life into a dissident option

SPACES OF THE INTANGIBLE
The patio, the hut, the tree in front of the house

As an articulator of the practices that allow orality, poetry, and cultural manifestation, housing is the only architectural element that can be identified as a spatial manifestation of the Afro-descendant population in the Colombian Caribbean. From this perspective, housing is the expression of the spaces of intangible. It is not about posing a technical problem but a cultural problem, which must assume the importance of transmitting space-time experiences on the one hand and ensuring the symbolic transcendence of identity on the other. These scopes leave out the institutional formulations that address the problem from two primary perspectives. One is about technical solutions to low-cost housing. The other is related to the homogenization of rurality under minimum housing criteria. The importance of vernacular constructions associated with intangible practices is essential to understand the bases supporting the notion of housing. A house that belongs to a culture of land and fabric, which defines the habitats of black colonization since ancient times.[25]

The Afro-descendant house of the Caribbean in Colombia represents the link of more than 150 years with Africa. It allows for building the image of culture and territory, representing a context's social and cultural aspects in permanent development. The articulation between the street, the house, and the patio are expressions of the daily practice of coexistence that configure a particular projection of heritage, identity, and memory. The patrimonial character of the house expresses the construction of a narrative based on the spatialization of different symbolic articulations. So, it is possible to recover and integrate the collective, family, and individual memories and project them in a renovated future.

The patio

The house is the intimate space and the expression of the ways of living of a culture.[26] In Colombian Afro-Caribbean housing, the house is converted into a threshold that opens onto the patio, always towards the property's interior. The houses have preserved this spatial structure. The symbolism of the patio behind the house defines a cultural space that supports different actions, paradoxically collective activities, that draw a sense of inward living. In the imaginary of the customs derived from the *palenques,*[27] the patios are associated with women when they are linked to the kitchen, while they remain associated with men when they are linked to the cultivation of *pancoger.*[28] The patio in the house strengthens the practice of a solidary coexistence that allows permanence in the territory, food sovereignty, and the expression of own uses and management.[29]

The corridor axis articulates traditional housing and unites public space with private and collective space, transforming housing into a threshold between different ways of living. The patio gathers different traditions, symbolisms, and an expression of home that is transmitted orally. On the patio, the ancestors' stories are told, hair is cut, yucca is prepared, medicinal plants are grown, children play together, and donkeys, pigs, and chickens are raised. The toilet and shower are always on the patio in a small module outside the house. In some way, the house is due to the patio, the space where the intimate is shared.

If we consider traditional activities manifestations of cultural identity, we can understand the necessary logic of the space that allows them. The courtyards' atmospheres, diversity, and functional dynamics favor collective orality as a vehicle for education. They convert everyday life into an automatic system to project intangible heritage.

Figure 5. The bohío of Luz Elena and her mother. PHOTO Daniel H Nadal 2021
The "bohío" is a space where the word is summoned with fire, and it is where communication and identity emerge

The hut

Leaving the house to the patio, we find an articulator space, the hut named *bohío*: the stove, the hearth. It is the wood stove under a palm canopy. The *bohío* has represented the family unit since ancient times. It is a space where the word is summoned with fire, and it is where communication and one's own identity emerge. Orality keeps the community firm; ancestral wisdom calls for being part of the culture. Through the projection of these identity spaces, women, communities, and Afro-

descendant movements are empowered. There are different ways of talking about cooking in the *bohío*. It is an offering to the family. However, it is also a call to the ancestors so they can guide the way through their wisdom.[30]

The *bohío* is the center of identity, the space that combines and summons tradition. It is the wood stove. In the *bohío,* it is vital to recognize the symbolic value of fire, word, and time, values that are not related to the functionality of the gas stove but rather to the tradition of shared communication. These Afro refuges allow us to rescue the world and continue strengthening families, community councils, and organizational processes. [31] Without a doubt, the *bohío* constitutes the most representative constructive exponent of pre-Columbian cultures in the Caribbean area.[32]

The *bohío* has to do with a first shared protection space.[33] First, the origin of the *bohío* as refuge was transferred to the ancestral configuration of the house, initially with a single entrance and window. Then, a single space of trodden land, with a wooden structure knotted with branches or vines, finished in *bahareque* and covered with palm.[34] The wood appears later as an inheritance from Jamaican and Antillean carpentry that participated in expanding European companies in America. The current *bohío*, however, remained open to the patio. The canopy that protects the wood stove becomes the meeting space by detaching from the walls. The place to rest, cook, cure, heal, dance, and talk.[35]

These vernacular construction systems of the *bohíos* have endured over time, while the housing construction systems have been modified and updated, mainly because only the materiality of the *bohío* is associated with intangible expressions and manifestations of each community.[36]

Figure 6. The witches' tree. PHOTO Daniel H Nadal 2019
The tree in front of the house is a symbol of family protection

The tree in front of the house

In the African ancestors, the tree is a symbol of memory, of family protection. Beyond the value of the shed, the shade house, and the terrace facing the street, the tree in front of the house manifests the link with ancestral traditions, which materializes in living outwards. The richness of Afro culture includes living inside the patio, around the *bohío*, and outside the tree facing the street. Public space for the Afro-descendant communities of the Colombian Caribbean has a very intense meaning because it represents the collective construction of spatiality that extends from the family space. This appropriation of the public is part of the community fabric, articulating the house with the community.

Dynamics of the street as space change throughout the day as the function and representation of the tree change. Families fill the houses' doors and the trees' shadows at sunset with chairs. Sitting in the chairs, they can watch people go by and talk. From the street, one can see, in the background, behind the houses, the patios.

The tree in front of the house is an element of urban scale. In some way related to a culture in which the houses do not grow above the tree. Instead of developing vertically, the houses multiply their elements horizontally. The roof of the house is not used; it is only a thermal control element, generally inclined. The tree appears as a reference element, meeting space, first, public shade. The tree is also the space for the shared word, representative, culturally dependent.

In this way, the nucleus of the Afro-Colombian dwelling is relegated to a suspended space, intentionally paused for daily activities such as sleeping and cleaning. The *bohío* on the patio and the tree in front of the house are places where life develops an identity. The word lives on the patio, feminine, powerful, and alternatively, in the tree by the entrance, male scattered.

Figure 7. Peacebuilder. PHOTO Daniel H Nadal 2022
Memory is a dynamic construction

Housing as a discursive construction of ethnic identity

Afro-Colombian communities constitute a political culture in which traditional expressions acquire a political meaning.[37] The shared spatiality of the collective and the oral tradition develop fundamental meaning in the struggle to recognize the territorial and communities' cultural rights. This spatiality means a guarantee of identity values and an expression of a vision of the territory.[38]

The contemporary organizational processes of the Afro-descendant communities belonging to the Colombian Caribbean coast have had a specific incidence and participation in the construction of space and a particular identity,[39] expressed in a movement called "renaissance communities," *Comunidades Renacientes*.[40]

The "renaissance communities" express the determination of the Afro-descendant communities, which collect the ancestralism of their settlements as maroon territory, a space for rebellion, and at the same time, a space for cultural reconstruction that preserves African roots. These communities go beyond recognition as differential social sectors, recognized in Colombia by Law 70.[41] The exercise of reconstructing and transmitting collective memory activates hidden discourses of resistance, which escape the homogenization of regulations and the danger of an equally exclusive folk trap.

In this process, housing appears again as a social space, free from control and surveillance, a space to resist that allows the formulation of new ways of living. Everyday life allows the emergence of a dissident culture from traditions and cultural expressions that challenge institutional readings. The questioning of institutional development proposals against the *ethnodevelopment plans* of *community councils*, representing the collective processes of Afro-descendant communities, updates the value of spatial identity.[42] Housing mobilizes the political project of black communities regarding cultural rights and the formulation of new territorialities. The dynamism of the oral tradition projects a political consciousness that defines a space of resistance and promotes a territorial and spatial vision that demands the recognition of rights against dominant positions. [43]

The principles defined in the constitution of the PCN, Process of the Black Communities of Colombia,[44] speak of the cultural logic of being black, which permeates their world-life, the territory as a space to be and a future from which to combine tradition with the projection of new structures of social organization.[45] Housing makes it possible to address these political and spatial imaginaries, defining a system of cultural spaces capable of proposing a roadmap to build new territories of difference.[46] Understanding this cultural dynamism appears as the opportunity to recover housing as a discursive construction of ethnic identity.

Figure 8. The new victory. PHOTO Daniel H Nadal 2021
Housing is the symbolic space for negotiations and identity
Built between generations

CONCLUSION
Tradition and identity as a dynamic system

The recovery of a cultural housing project and the social construction of the habitat defines a roadmap so that the communities can build a proposal for ethnic identity. First, communities must establish strategic proposals for developing their housing, capable of responding to institutional housing policies. For Afro-descendant cultures, the social construction of habitat implies developing a political and cultural position that claims the practice of their ethnicity.

Concerning the declarations of protection and safeguarding of the nation's cultural heritage, it is necessary to recover and recognize the concerns and practices of the communities. Perhaps some typological classification efforts of tangible or intangible heritage elements are responding to an

ancient practice of the social sciences and architecture, incapable of updating the elements that make up the collective identity defended by the communities.

For Colombia's Afro-Caribbean area, the house may be the only architectural device capable of articulating the spatial manifestations of Afro-descendant communities. Spatiality that participates in a permanent updating of cultural practices to express orality, poetry, and their ways of living. Indeed, from this perspective, housing is the spatial expression of intangible heritage.

The construction and expression of identity constitute a political position. In this sense, understanding that the collective and private spaces are expressions of the same cultural project acquires a fundamental value for the projection and recognition of their rights. Furthermore, the heritage character of specific architectures defines the construction of a narrative based on the discourses developed by each community in each space and time.[47]

Identity is a dynamic construction. The new generations demand new readings of identity, which is why it is necessary to understand spatial structures as associations of immaterial elements, not as a consolidation of material distributions. As an articulator of the identity processes of Afro-descendant communities, housing needs to be a protagonist in the renewal of cultural systems.

Intangible cultural heritage should go beyond the exoticism of the ancestral. Instead, one should ask for an expanded idea of identity construction, thinking on a systemic, current, changing cultural project.

Figure 9. Visualizing futures. PHOTO Daniel H Nadal 2019
Articulating our worlds with the worlds of others allows us to discover that together we can imagine an updated version of the world

I learned that being overwhelmed is coupling our worlds with the worlds of the other to discover complicit thoughts. From here, an updated version of the world can be imagined.

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NOTES

[1] In the development of this research, it is essential to consider John Berger's approach to "ways of seeing" that are also "ways of doing" or "ways of thinking." The reason, Berger says, is sometimes not enough. John Berger, *Ways of Seeing*, Barcelona: Editorial Gustavo Gili, 2016. First edition, 1976. This reading is essential to position a qualitative approach to structuring housing as intangible cultural heritage rather than tangible cultural heritage.

[2] Palenqueros are an Afro-descendant community of 4,000 people in the Colombian Caribbean. The Palenquero language, also known as "palenque" by the natives of San Basilio de Palenque, is the Creole language, a mixture of Spanish, Portuguese, and the Ki-Kongo dialect of West Africa. It is the only Creole language based on Spanish in South America, and it is one of the 68 native languages that comprise the Colombian territory. The Palenque language was articulated by hundreds of Africans who escaped from slavery in Colombia in the 16th-century maroon movements.

[3] The framework of the research proposal is defined around Participation Action Research methodologies. The research covers the four primary phases of participatory research: participant observation, collaborative research, participatory action, socialization, and collective evaluation. In addition, a critical housing and territory understanding is addressed from the participation in the mobilization of the communities.

[4] In anthropology, the debate between "essentialists" who defend identity as an expression of origin and "constructivists" who promulgate identity as a social and contextual construction allows us to understand that identities are always constructed within a shared discourse. This discourse modifies the living conditions of each community. As Stuart Hall *expressed, "I will argue that ethnic identities will not be retained beyond these limits... The incentives to a change in identity are thus inherent in the change in circumstances"* signs of a naturally constituted identity. Hall, 1996, 4.

[5] Castillo and Carou, "Reinvention of ethnic identity, new territorialities and global networks: the multiethnic and multicultural state in Colombia and Ecuador".

[6] Contemporary ethnic movements have positioned themselves to reimagine their identities and build new territorialities. The deep symbolic and emotional meanings that characterize the relationships between housing and the land make territorial identity space of struggle that challenges institutional imaginaries. The house becomes a representation space that identifies its policies and contradicts the dominant representations of space.

[7] Escobar, "Culture sits in places: reflections on globalism and subaltern strategies of localization".

[8] Hall, *Who needs identity*.

[9] Encarnación Gutiérrez explains how the debates on ethnic identity dominated the research areas on ethnic conflicts, migrations, and diaspora in the European context. Gutierrez, 2020, 207.

[10] Wade, "Ethnicity, Multiculturalism and Social Policies in Latin America".

[11] Silva-Tapia, "Ethnicities in Dispute: New Paths, New Challenges".

[12] In Conflict and Invisibility, Rojas Restrepo, 2004, the authors recover the concept of black people's invisibility from Nina Friedemann "Black Studies in Colombian Anthropology: Presence and Invisibility", a political approach to the conditioned subordination of the black population. From here, one of the open fronts to think differently and with new approaches is the development of new multiculturalism. By assuming the renewal of identity, the communities propose a social and political process of ethnic affirmation and cultural strengthening, understood in terms of valuing and legitimizing cultural traditions and practices, to form individuals and communities with a sense of belonging. Rojas, "Educating the Others: State, Educational Policies and Cultural Difference in Colombia". However, there is evidence of a permanent disagreement between the ethnic project and the state police, where the institutional programs approach each other with discourses that do not manage to transform the necessary action logic in the face of a differential ethnic approach.

[13] The idea of territory, memory, and culture as components of the ethnicization of black communities is fundamental. Restrepo, *Ethnization of Blackness: The Invention of Black Communities as an Ethnic Group in Colombia*, 223. The notion of territory as a space of life refers to all those natural and social conditions linked to a specific place, making possible the existence and development of black communities as an ethnic group with a specific tradition and culture.

[14] There are three lines of interpretation of the Differential Ethnic Approach (EDE): a method or procedure for applying normative principles, a model for understanding social reality, or an orientation guide for intervention with communities. Depending on the interpretation of the Ethnic model, different policies or practices are promoted that define the contrast between the inclusion of intangible values (including heritage) and regulatory recognition.

[15] Léon, "The differential ethnic-racial approach for black Afro-Colombian Raizel and Palenquero individuals, groups, communities, and peoples".

[16] It is interesting to see Zambrano's position regarding the communities that want to position themselves to generate new spheres of representation. A trajectory in a permanent redefinition that tries to resolve the tension between cultural legitimacy and political rationality. Zambrano *Political axes of cultural diversity*, 47.

[17] The Regional Agenda for Inclusive Social Development of the Economic Commission for Latin America and the Caribbean aims to address structural inequalities in the region, with a perspective of rights, gender equality, race or ethnicity, the cycle of life, and from a universalism approach sensitive to differences, within the framework of the social dimension of the 2030 Agenda. The Regional Agenda for Inclusive Social Development affirms the need to mainstream the gender and ethnic-racial dimensions in social protection policies and cultural, labor, and productive inclusion.

[18] García, "The tide rises. Own education and autonomy in the black territories of the Pacific", 28.

[19] The right to adequate housing is enshrined in various international instruments, including the International Covenant on Economic, Social, and Cultural Rights (article 11), the Convention on the Elimination of All Forms of Discrimination against Women (Article 14), and the Convention on the Rights of the Child (article 27) (ECLAC, 2020). Moreover, at the United Nations Conference on Housing and Sustainable Urban Development, Habitat III (held in Quito in October 2016), the States committed to generating a New Agenda to guarantee access to housing following Sustainable Development Goal 11. Likewise, the Program for the International Decade for People of African Descent recognizes that many people of African descent live in precarious, insecure homes far from their communities' cultural traditions.

[20] Mouly and Gimenez, "Opportunities and challenges of the use of intangible cultural heritage in post-conflict peacebuilding".

[21] The growing globalization, the lack of an adequate institutional organization structure, the difficulties in understanding certain cultural expressions, the threats arising from the violence of the armed conflict, and the different socioeconomic conditions of the regions have led to the consolidation of a series of measures focused on safeguarding the Intangible Cultural Heritage. This situation is reflected in the creation of instruments that have promoted the creation of public policies at the national level, such as the PCI Safeguard Policy in Colombia. Rodríguez, "The Representative List of Intangible Cultural Heritage: Beyond a List, an Exercise for Safeguarding". The safeguarding of the intangible cultural heritage (PCI) consists of measures aimed at ensuring the continuity of the cultural manifestations of a community or collectivity, which emerges as a priority need to face the contemporary challenges generated by different factors that can affect the existence of the ICP.

[22] Navarrete, "The maroons of the province of Cartagena de Indias in the seventeenth century: Relations, differences, and policies of the authorities".

[23] Estefania Rodríguez Rozo and Guillermo Molina Morales. *Grandparents of black lineage. Body, orality, and identity in María Teresa Ramírez, María Elcina Valencia and Nena Cantillo.* In Polygrams N.51. 149-171. Cali: University of the Valley, 2020.

[24] It is common to point out the link between Afro-Colombian literature and traditional orality. Afro-Colombian poetry is not a transcription of songs, but they are not poems disconnected from orality. That makes this literature a fundamental identity reference. It can be seen in texts such as *La Noche de mi piel,* by María Teresa Ramírez (1988), *Pentagrama de Pasión*, by María Elcina Valencia (2010), or *That Night with Winnie the Pooh*, by Nena Cantillo Atuesta (2011).

[25] Gilma Mosquera describes the creation of black colonization habitats as the territorial dispersion of the population descended from enslaved Africans through the colonization of vacant land without a recognized owner, which was enhanced in the last years of the 19th century with the establishment of numerous colonies in rural, and which persists today. This settlement system was consolidated during the last decades of the 19th century and the first decades of the 20th century when it reached its peak and the black population spread.

[26] Ana Montoya and Esteban Solarte. *Saint Basil of Palenque. Intangible heritage at risk.* Uni -Pluri/ Versity Magazine Vol 16. No2, 63–73. Medellín: University of Antioquia-Faculty of Education, 2016.

[27] The term palenque alludes to settlements populated and defended by maroons (enslaved Africans who escaped from the slave regime) during the colonial period. The palenques became the imaginary of freedom since every person who became part of a palenque was automatically free, especially the palenques of the Caribbean zone, which had a long tradition of rebellion and leadership.

[28] *Pancoger* refers to those crops that meet part of the food needs of a given population. They are stapled crops: corn, beans, cassava, and bananas. The sole purpose of these crops is the survival of families, for their consumption and not for trading.

[29] Francisco Rodriguez. *Palenque de San Basilio: Masterpiece of the Intangible Heritage of Humanity.* Bogota: Ministry of Culture. Colombian Institute of Anthropology and History, 2002.

[30] The relationship between the Afro *bohío* and the *tulpa* of the indigenous communities is interesting. La *Tulpa* is a space for meeting, dialogue, and knowledge exchange. It is one of the virtual spaces where one's education is

recreated. The *tulpa* symbolizes the family. The *"wet"* are the three fundamental stones of the indigenous hearth, representing the grandmother, the grandfather, and the children. In this space, one talks but above all, one listens and feels. Everyone communicates in the *tulpa*, especially the fire, smoke, ashes, and firewood.

[31] Taboada, "The bohío and intangible heritage, dangerous relationships".

[32] The claim may be controversial, but many reasons support it. One is the resemblance of the constructive expressions made with plant-based materials, specifically the roof made with the leaves or stalks of various palm species. Taboada, "The bohío and intangible heritage, dangerous relationships", 61. These structures and elements are inseparable from intangible expressions of widespread knowledge, specifically labor, which are not learned in any technical school and are transmitted through evolutionary experiences from generation to generation.

[33] Arteaga, "Traditional housing in the Colombian Caribbean".

[34] The bahareque is an ancestral construction system used in constructing enclosure walls, consisting of a framework of cane or sticks that are filled and covered with mud.

[35] Currently, the *bohíos* are built with "sown" columns, called *horcones*, with a heart of *matarratón* wood, roof poles tied with *bejuco malibú*, and a *bitter palm* leaves cover, structures that are related to the construction systems of the Tayrona indigenous communities. The communities speak of "sowing" the *horcones*, the wooden columns of the structure of the *bohío.* It is interesting to point out the value of the word sow, which has to do with taking root in the territory. *Matarratón* wood is usually used, which has toxic substances that kill rodents.

[36] Larios, "Vernacular Housing in the Colombian Caribbean: Diversity within the Unit".

[37] Oslender, "Hidden speeches of resistance: oral tradition and political culture in black communities of the Colombian Pacific coast".

[38] As Orlando Fals Borda notes, all these elements of oral culture can be understood as a new and dynamic language belonging to the people. An oral tradition is an essential tool in the analysis of the political mobilizations of black communities in Colombia. Fals Borda, "The application of participatory action-research in Latin America", 343.

[39] Duarte, "Reborn communities: formation of an Afro-descendant ethnic subject in the Colombian Caribbean".

[40] For Alfonso Cassiani, "The renascent communities of the continental coast: identity construction of the renascent communities in the Colombian continental Caribbean ", the social, political, and organizational configuration of the term "renaissance" appears as the self-determining action of communities descended from African slaves without the mediation of requirements before the institutions.

[41] Law 70 of 1993 recognizes the collective ownership of the land of the Afro-Colombian communities historically inhabited a territory. The spirit of Law 70 / 1993 is based on a fundamental principle of black culture and is that of collective ownership of the land.

[42] In Colombia, the Community Councils are the political figure that legally represents Afro-descendant communities in institutional spaces.

[43] From orality, communities express their feelings, transmit their structures, social positions, living conditions, forms of production, hierarchies, and governance mechanisms, and preserve symbolic values from memory to reaffirm their ethnic and cultural identity. Orality is a dynamic discourse oriented and organized according to the norms, patterns, values, and behaviors of the thought of a community. Motta González, "You speak of jungle and water: Afro-Pacific women in orality", 3.

[44] The Process of Black Communities (PCN) is Colombia's leading network of Afro-descendant organizations. It was born in 1993, in charge of strengthening Afro -Colombian cultural identities, access to and use of natural resources that are environmentally sustainable, as well as the recognition of ethnic rights, cultural, territorial, social, economic, and political in black communities.

[45] OCN, "Black movement, identity, and territory: interview with the Organization of Black Communities of Buenaventura".

[46] A political ecology of difference establishes discourses of knowledge and governance, space and place, landscape and action, and culture and identity. The patio, the bohío, and the tree in front of the house propose socio-cultural experiences of spatiality that demand qualitative dimensions, not quantitative ones, both notion of habitat and the house. These cultural expressions offer a political meaning to cultural practices, quality of life, and the spatial dimension of the habitat. Escobar, *Territories of Difference: Place, Movements, Life, Networks.*

[47] Pico and Ríos-Llamas, "Heritage, identity and memory in colonial architecture".

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FOUNDATIONS OF ENGLISH CATHEDRALS

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INTRODUCTION

Cathedrals are not typically considered in the context of structural and geotechnical engineering, but more often with regard to architectural and social history with exceptions such as Heyman and Mark. Expanding the view of cathedrals from a social lens to looking at engineering history and conditions presents another angle for analysis. This paper provides a case study of six cathedrals and abbeys: Peterborough Cathedral, Durham Cathedral, Winchester Cathedral, St Albans Cathedral, Selby Abbey, and Ely Cathedral. These cathedrals are chosen because of the differences in their geographic locations and structural and geotechnical conditions. Ely Cathedral is analysed twice: once as the Norman structure prior to the Tower's collapse in 1322, and then again as the Octagon tower that was built soon after. These cathedrals are analysed because of the varied soil conditions and restoration history and cover a wide geography.

Many English cathedrals are easily recognizable by their central, or crossing, tower. For centuries these towers were the tallest structures in the country, and at times, in the world. While today they stand high above their town, many towers collapsed and were rebuilt. St Albans Cathedral is the only surviving Norman tower. The rest were built or rebuilt in the 13th-15th centuries. The continued settlement and structural movement led to collapse centuries later in several cases. Peterborough Cathedral's central tower nearly collapsed in the 12th century and again in the late 19th century, and Winchester Cathedral's tower collapsed in 1107 and was rebuilt, but the cathedral required extensive underpinning in the early 20th century.

The need for repair or rebuilding stems from two causes: structural problems and geotechnical problems. Structural issues include poor masonry, weak mortar, or crooked lines. Geotechnical issues, which often precede structural ones, include insufficient foundation size and problematic ground conditions. The geotechnical issues are the focus of this paper.

Figure 1 presents a map of the cathedrals in England and Selby Abbey. This shows the geographic prevalence and underscores the need for restoration and investment in these buildings.
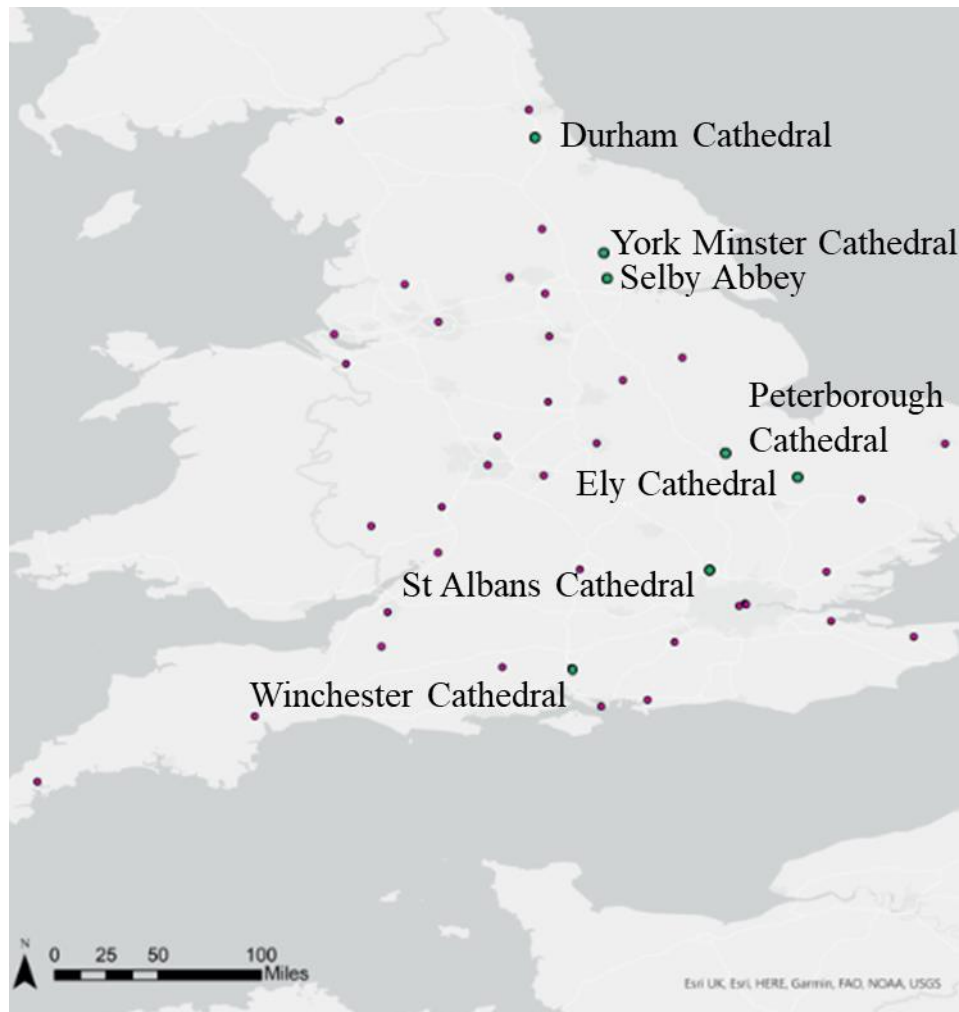
Figure 1. Map of Cathedrals in England with those labelled discussed

PURPOSE

This research seeks to answer: for a given cathedral, what is the expected settlement of a tower pier and what is the expected settlement of a nave pier? How do the expected settlements relate to the ground conditions?

The answers to these questions will allow us to understand the differential settlement that may cause structural problems and impact the longevity of the cathedrals.

PREVIOUS WORK

This research builds upon the paper "Archaeology and engineering: the foundations of Amiens Cathedral" by Bonde et al.[1] The paper addresses the bearing stress of a portion of Amiens Cathedral and studies the adequacy of the cathedral's gothic foundations. Also used were two other publications: Architectural Technology up to the Scientific Revolution expands on Bonde et al.[2] and explains the foundations of medieval structures and building techniques. The "York Minster structural restoration" engineering report illustrates the need for careful engineering analysis of structures previously studied from an architectural history perspective.[3]

This paper will expand on Bonde's et al. work using similar methodology to understand the Norman foundations of English Cathedrals. First, the foundations are idealized as smooth, stepped, truncated pyramids. Then, the weight of the structure carried by the pier and the weight of the pier and

foundation are summed. This final weight is divided by the area of the base of the foundation to find the bearing pressure. The bearing pressure is then compared to the allowable bearing capacity for a given ground. This paper will then expand upon this method to calculate the settlement of the tower piers and nave piers for each cathedral.

Even today design and settlement limits for masonry buildings are not well defined. The stress of the cathedral piers is compared to the allowable bearing stress of the ground.

ASSUMPTIONS

To find the differential settlement between the central tower piers and nave piers, the volume of masonry, the estimated foundation size, and the stress at the base of the pier need to be obtained. With this information, the settlement for each member can be calculated.

The assumptions are as follows:

- Norman arches are approximated as ellipses (Figure 2), Gothic arches as triangles
- Constant tower wall thickness of 1.52m (5ft) and nave arch thickness of 0.61m (2ft) (Figure 2)
- Structural members like columns are considered as rectangular elements for ease of calculation (Figure 2)
- The foundations are truncated pyramids and the tributary areas for each cathedral is rectangular (Figure 3)
- The allowable bearing capacity is adopted from Mark[4]
- The foundation dimensions and stresses are estimated in Table 2 for both the tower and the nave
- The Modulus of Elasticity of the ground is estimated in Table 3[5]
- Ground conditions are from the borings nearest to each cathedral as provided by the British Geological Survey (BGS). These borings are generally within 300m (1000ft) of the cathedral
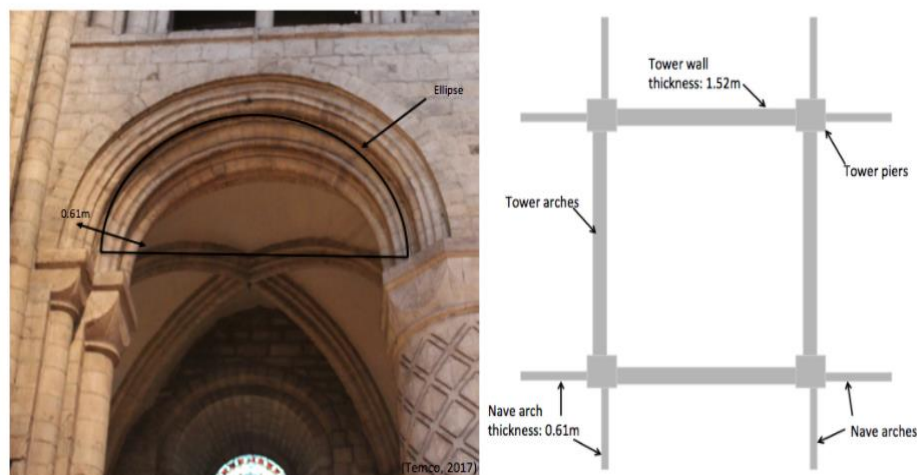
Figure 2. Tower geometry and simplification assumptions
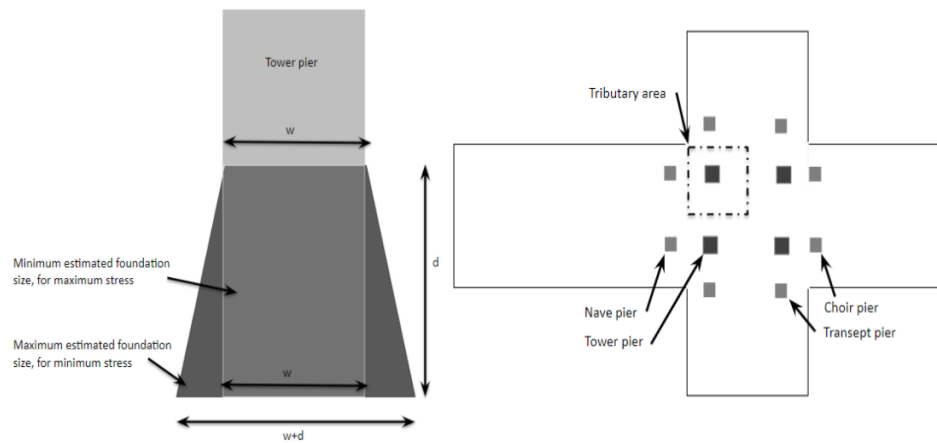
Figure 3. Foundation and tributary area shape assumptions

Subsoil	metric tons/m²	kN/m²
Massive rock (trap rock)	1000	9800
Foliated rock (slate)	400	3900
Sedimentary rock (sandstone)	150	1500
Compacted gravel, sand gravel mixtures	130	1300
Loose gravel; Compact coarse sand; Stiff clay	40	400
Loose coarse sand or sand gravel; Compact fine sand	30	300
Loose, fine sand; Medium stiff clay	20	200
Soft clay	10	100

Table 1. Allowable bearing stress of soil[6]

Cathedral	Tower Pier Width (w_1/w_2) (m)	Foundation depth (d) (m)	Min foundation area (m²)
Peterborough Cathedral	3.05/3.05	1.3	9.3
Durham Cathedral	4.27/3.35	2.3	14.3
Winchester Cathedral	4.27/4.27	4.57	18.2
St. Albans Cathedral	4.88/4.88	5.3	23.8
Selby Abbey	2.04/2.04	3	4.2
Ely Cathedral Norman	4.00/4.00	4	16.00
Ely Cathedral Octagon	3.05/3.05	1.7	9.29

Table 2. Assumed tower pier dimensions

E(MPa)				
Soil Description	Loose	Medium	Dense	
Gravels/ sand well graded	55	120	240	
Sand, uniform	20	140	65	
Sand/ gravel silty	9.5	16	25	
Soil Description	Soft	Medium	Stiff	Hard
Silts with slight plasticity	5.25	12.5	27.5	60
Silts with low plasticity	3.75	8	20	45
Clays low medium plasticity	2.75	6.5	19	50
Clays high plasticity	2.175	5.5	13.5	26
Organic silts		2.75		
Organic clays		2.75		
Peat*				50
Rock Description				
Chalk	960			
Limestone	1500			
Sandstone	1500			

*Described as "hard," "impervious," and "compressed"[7]

Table 3. Estimated Modulus of Elasticity for ground conditions

METHODOLOGY

First the force and then the stress at the base of each pier was calculated. This was completed by using the tributary area of the piers to transfer the loads from the roof down through each pier (Fig. 3). The volume of each component (stone, timber, copper) was found using the dimensions for each of the cathedrals, and these were multiplied by the density and gravitational constant to find the weight at the base of each pier in kiloNewtons (kN) over the considered tributary area. The dimensions for each structure were estimated based on floor plans, images, and some field measurements. The weight of the estimated foundation is then added to the weight of the pier at the pier base. Stress is equal to the force (loads) divided by the area (in this case the foundation area of each pier). The minimum stress corresponds to the largest possible foundation dimension size and the maximum stress corresponds to the smallest possible foundation size, shown in Figure 3. The dimensions are shown in Table 2, where w_1 and w_2 are the lengths of the sides of the foundation (not all are square) and d is the height, or depth, of the foundation.

To calculate the settlement, three methods were used: the stress bulb approach, the rigid plate load method, and the uniform plate load method. These three methods range from least conservative, estimating smaller settlements (stress bulb approach) to more conservative, estimating larger settlements (uniform plate load method). These three methods were chosen for their ease. Running computer models did not make sense due to the number of assumptions.

All three methods rely on the Modulus of Elasticity of the ground. The Modulus of Elasticity expresses the deformability of the ground's ability to resist deformation. Two different values for the Modulus of Elasticity for each ground were considered in the settlement calculations. The calculations consider the depth of influence, which is the region where the applied load (cathedral pier foundation) influences the soil deformation. The first value is the average modulus over the depth of influence, assumed to be Equation 1, where B is the width of the base of the foundation as shown in Figure 4.
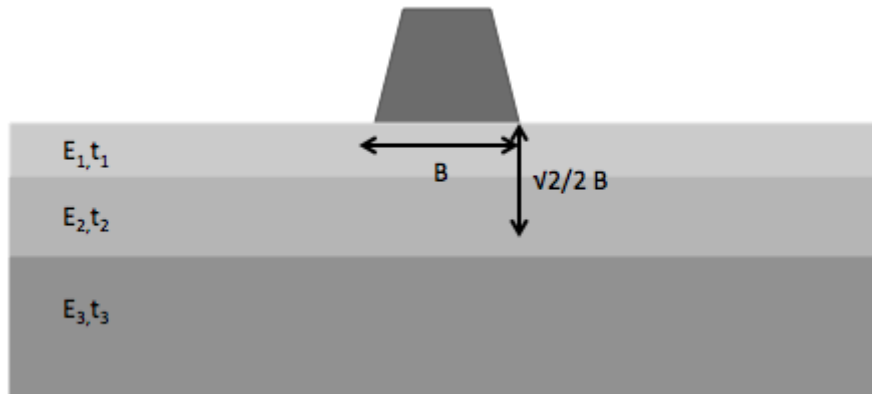
$$t = \frac{\sqrt{2}}{2} B \ (1)$$

Figure 4. E_{avg} calculation depth of influence

The average Modulus of Elasticity is calculated by Equation 2, where t_n is the layer thickness and E_n is the corresponding modulus. B is the length of the larger foundations side, w_1 or w_2. The sum of t_1, t_2… is equal to the depth of influence. This equation means that cathedrals with bedrock near the surface have a higher modulus. The second modulus considered is just the top bearing layer of soil, denoted by E_{top}. E_{top} modulus leads to greater settlements as it is a smaller value. The three methods used to calculate settlement are described below.

$$E_{avg} = \frac{E_1 t_1 + E_2 t_2 + \cdots}{t_1 + t_2 + \cdots} \ (2)$$

Stress Bulb Approach

The stress bulb is defined by the depth of influence in equation 1. To calculate the settlement equation 3 is used, where P is the force (kN) at the base of the foundation, t (m) is the depth of ground deformed, A (m) is the area at the base of the foundation, and E (MPa) is the Modulus of Elasticity estimated by the two different approaches mentioned above. δ (m) is the estimated settlement. A typical cross section is ground strata and the assumed foundation size is shown in Figure 5. These calculations were repeated for each of the central towers and piers for each cathedral. The maximum and minimum settlement was calculated for each cathedral. This method was repeated for E_{avg} and E_{top}.

$$\delta = \frac{Pt}{AE} \ (3)$$

Rigid Plate Approach

The foundation is assumed to be rectangular. The rigid plate equation assumes a circle, so a circle with the same area as the rectangular footing was found by calculating the equivalent radius, a (m). The equation for a rigid plate is equation 4, where a (m) is the equivalent radius and ν is Poisson's ratio, assumed to be 0.2. This method was repeated for E_{avg} and E_{top}.

$$\delta = \frac{P}{2aE} (1 - v^2) \ (4)$$

Uniform Plate Approach

This method yields the highest average settlements. The deformation is found by equation 5. This method was repeated for E_{avg} and E_{top}.

$$\delta = \frac{2P}{\pi a E}(1 - v^2) \ (5)$$

The ground conditions, depth of influence, and ground layer thickness, and results for each cathedral are shown in Table 4.

Cathedral	Bearing Soil Type	Depth of Influence for Max Foundation	Depth of Influence for Min Foundation (m)	Max Layer Thickness (m)	Min Layer Thickness (m)
Peterborough Cathedral	Stiff Clay Limestone	3.07	2.16	1.90 1.17	1.90 0.26
Durham Cathedral	Sandstone	4.31	3.02	4.31	3.02
Winchester Cathedral	Marly Clay Peat Silt Chalk	6.25	3.02	2.00 2.50 0.30 1.45	2.00 1.02
St Albans Cathedral	Chalk	7.20	3.45	7.20	3.45
Selby Abbey	Firm Clay	3.57	1.44	3.57	1.44
Ely Cathedral Norma	Sand Stiff clay	5.66	2.83	3.00 2.66	2.83
Ely Cathedral octagon	Sand Stiff Clay	3.36	2.16	3.00 0.36	2.16

Table 4. Ground conditions and depths

RESULTS

Following the procedure of Mark, 1995[8] and Bonde et al., 1997,[9] the bearing stress of each cathedral tower foundation was calculated and compared to the allowable values presented in Figure 5. The comparisons between the possible range of stress (maximum and minimum bearing stress) and allowable stress mean that the actual foundation size will likely fall within these bounds. This paper estimates a maximum and minimum foundation size from Bonde et al, 1997.[10]
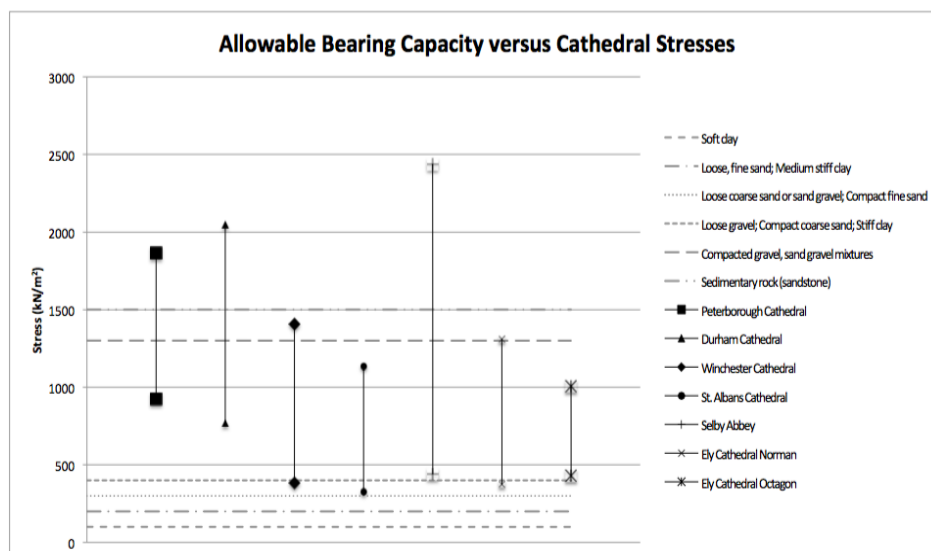
Figure 5. Bearing capacity comparison

The settlement calculation methods outlined above yield three different settlement values for each. As shown by the data in Figure 6, the nave piers settle much less than the tower piers in each cathedral. An example of this is Selby Abbey, Figure 7, where the differential settlement between the nave pier and the original tower pier is so large it creates a visible distortion in the adjoining arch. One outlier to these data is Peterborough Cathedral's differential settlement shown in Figure 8 when E_{avg} is used. In this case the tower settles less than the nave because the depth of influence of the tower includes the limestone, and therefore a higher average Modulus of Elasticity, while the nave's depth of influence is only in clay, and therefore has a lower Modulus of Elasticity, contributing to greater settlement. Table 6 shows the average settlement results. The cathedrals founded not directly on rock are considered separately because the settlement of a structure on rock is so small that the total average settlement was largely decreased when these values were considered.
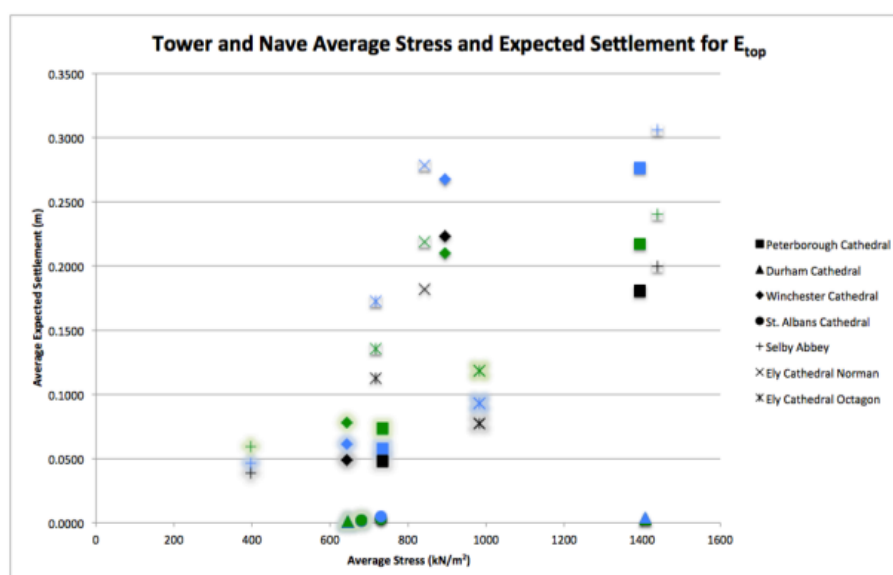
Figure 6. Tower and Nave Average Stress and Expected Settlement for E_{top}

Figure 7. Visible deformation at Selby Abbey

Figure 8. Nave-Tower deformation at Peterborough Cathedral

Average Settlement (m)		All Cathedrals	Excluding Durham and St Albans
Tower	Average E	0.104	0.144
	Top E	0.154	0.215
Nave	Average E	0.044	0.067
	Top E	0.045	0.067

Table 6. Settlement result values

The result bands created are shown in Figure 9 can be applied to other cathedrals. These bands show that for a given ground condition and tower stress (related to tower geometry), an average settlement can be estimated.
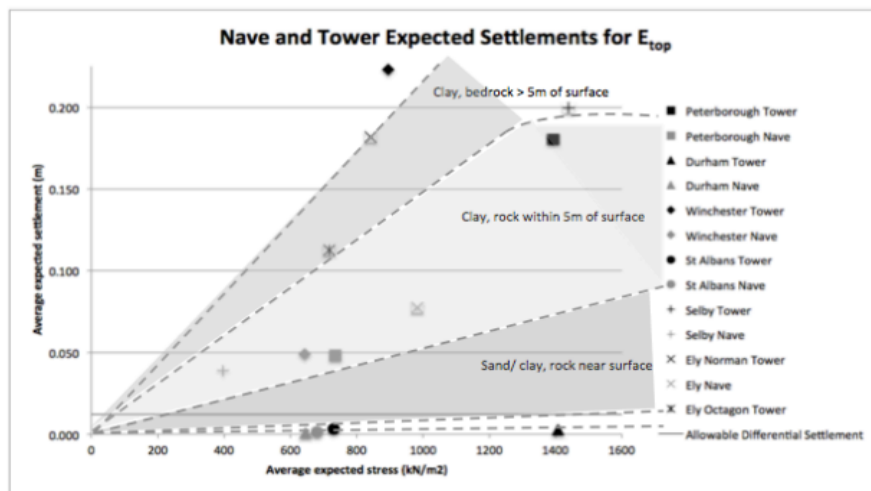
Figure 9. Settlement bands for studied cathedrals

The average differential settlement of all the cathedrals in this study is 10cm for the case where E_{avg} is considered and 15cm for the case where E_{top} is considered. This provides a range of estimated settlement of 10-15cm, but this is skewed by cathedrals built on rock, such as Durham Cathedral and St Albans Cathedral. When considering cathedral towers not founded only on bedrock, the range of estimated settlements for cathedral towers is 14-21cm. Naves can be expected settle an average of 4.5cm when those founded on bedrock are included, 6.7cm when only those founded on soil are considered.

The differential settlement can be calculated by subtracting the nave's settlement from the tower's settlement. There is differential settlement between the nave and the tower in every cathedral. For Durham and St Albans Cathedral, which are founded on rock, an average differential settlement of 0.2cm was calculated. However, for cathedrals built on clay and other soils, a range of 13cm-20cm is expected, depending on the soil conditions. For this range, the worst case scenario is recorded for each cathedral. At the high end of this range is Selby Abbey, where the settlement is visible. Structural consequences include large deformations like Selby Abbey, but also include cracking, small displacements, and possible collapse.

CONCLUSION

This is a semiquantitative study of foundation settlements of English cathedrals. There is a difference in the settlement between towers and the adjoining naves. The consequences can be seen in the photos of cathedrals in Figure 10. Each photo shows a crack or deformation. Winchester cathedral was

heavily repaired during the 19th and early 20th centuries but cracking in the masonry is still visible in the choir. The settlement at York Minster is visible inside the south transept. Additionally, cracking is visible in Ely Cathedral's and Peterborough Cathedral's transepts. Figure 10 is not an exhaustive list of cracking visible at each of these cathedrals. These are examples showing that settlement can contribute to deformation and cracking.
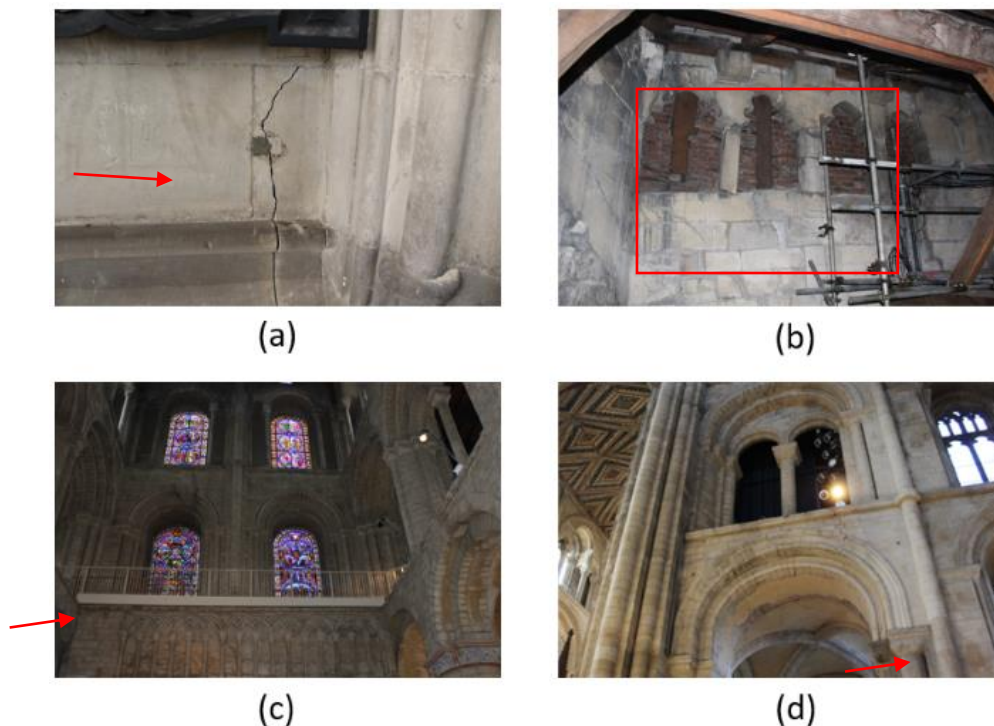
Figure 10. Cracks at (a) Winchester Cathedral choir, (b) York Minster south transept interior, (c) Ely Cathedral south transept, (d) Peterborough Cathedral north transept

It is valuable to understand the geotechnical conditions of cathedrals in the context of conservation and restoration. A geotechnical lens provides an additional and often helpful perspective in understanding the engineering history and looking towards the future.

There is value in studying historic buildings from an engineering perspective rather than the more typical social lens because the cathedrals are examples of longevity and craftsmanship that are no longer present in modern construction. Today a geotechnical engineer would not expect steel and concrete foundations designed with modern computational methods and assumptions to last 800 years with some minor repairs. These cathedrals have modelled that sometimes simple and environmentally conscious designs can stand the test of time.

ACKNOWLEDGEMENTS

NOTES

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DESIGNING WITH NASA: AN INTERIOR DESIGN FOCUS FOR-- SPACE HABITATS FOR HUMAN OCCUPATION

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INTRODUCTION

Interior designers are educated to design interior spaces for humans. Accreditation standards require that programs focus on human-centered design including ergonomics, anthropometrics, well-being, and evidence-based design approaches. This paper reviews the integration of a highly science-based approach used by NASA Engineers and space habitat designers with a human-centered design process to create habitats for the people housed in the international space station, the newly devised "Gateway" station, as well as proposed lunar stations and accommodations on Mars. The anticipation of longer missions to Mars requires that the habitats must provide both living and working interiors in a hostile environment and must also enhance well-being for the occupants through the mitigation of known risks to people in these isolated environments. Interior designers understand the human need for privacy, control over acoustics, the impact of lighting on circadian rhythms, the benefits of a connection to nature, and other aspects of the interior that impact human beings. This is a poignant example where interior design is directly related to human survival--both physical and psychological. For obvious reasons, the focus of these environments has historically been on engineering environments to keep people alive in a location not conducive to human life.

Another key aspect to human well-being is psychological health when separated from most of the human experiences on earth. These include social interactions between family members and friends as well as a connection to nature and the benefits of seeing nature on earth. Interior designers have a critical role to play in creating not only safe environments but also those within which humans thrive.

This work describes a four-year collaboration between the Space Habitat Team at the Johnson Space Center and senior interior design students at a research one institution working on senior capstone projects focused on space habitat design. While the project design follows a traditional approach to design of interiors, there are several unique challenges inherent in designing for extreme environments such as space constraints and engineering concerns that interior design students do not normally confront.

Literature Review

As expected, NASA has concentrated their design and development efforts on keeping people alive in space. This extends to rocket design, habitat design and the design of vehicles such as rovers. For example, in order to use a material within a NASA vehicle or habitat, it needs to have been proven in space through rigorous testing prior to implementation. This approach has allowed for the expansion of the original lunar mission to include a more ambitious mission to Mars. Research performed for

and by international space agencies has largely centered on the impacts of space travel to the human body and systems designed for maintaining human life in an alien environment. Less studied are issues related to human behavior and well-being. Specific elements of the design of the interiors of these space habitats have largely dealt with functional concerns with one study on color that was limited in scope.

Several issues of concern have arisen from previous space projects such as the international space station. Originally designed as a clean interior for a limited mission, the ISS has been adapted over time to accommodate a maximum number of space experiments not originally envisioned for the interior use of the space.[1] As a result, the once clean interior is full of wires, cables and equipment and is used for a purpose that was not envisioned when it was originally designed and has extended well past its envisioned timeframe. The environment is chaotic and hard to use.

Designing environments in outer space necessarily has several limitations. The first of these relate to weight and size of what can actually be sent into space. The amount of material that can be transported into space is related directly to the weight and size a rocket can carry or "payload." This has traditionally meant that a cylindrical shape is used with the maximum diameter constrained by what will fit in a rocket. Although other materials and methods have been explored--such as inflatables--the same basic restrictions apply. Further, the exterior of these units must withstand the pressures of existing outside of earth's gravitational conditions and must also provide shelter from the radiation levels found outside of earth's immediate atmosphere.

The research surrounding humans in space has focused on health issues—mostly physical with some psychological studies. A lack of gravity and the impact of microgravity on the human body has led to several well documented impacts for human health.[2] Most commonly, reduced bone mass, reduced red blood cell count, musculoskeletal deterioration, and various cardiovascular issues have been common health problems reported and studied. The heart must literally pump all the blood through the body when gravity is not present. Psychological issues are also likely to occur the longer a space traveler is away from their family, friends, and earth. Placing individuals who would not otherwise choose to live together in a confined space for a long duration of time without the possibility of escape gives rise to many potential problems. Some research about the psychological problems associated with space travel has been conducted. Both NASA and its contractors have done some research on the psychological factors associated with space habitat design. Two of the more comprehensive studies include one looking at the inclusion of a window on the International Space Station (ISS) and its benefits.[3] Astronauts have indicated their desire to have this type of view where they can view the earth from space and experience a connection to home. The other study looks at Sociokinetic Analysis as a tool for optimizing the interior environment.[4] "Sociokinetic analysis is a tool that helps identify patterns in social interaction."[5] In other words, this involved the behavioral analysis of how people use space in the ISS and where they spend their time. The sociokinetic study was conducted over a 91-day isolation test with four American crew members in the Johnson Space Center's 20-foot chamber to simulate a Lunar Mars Life Support Test. Three levels composed the habitat--Level 1 Group area and Airlock; Level 2 Equipment to support basic habitat functions including bioreactors and gauges, and Level 3 Private Zones and Crew Quarters. Five hundred and twelve hours of videos were used to assess crew movements through the habitat levels. Over time the percentage of space use changed but in all cases the most time was spent in Level 3 followed by Level 1. Crew members complained that the air lock was too cramped, level 2 had loud levels of noise and direct glare in the lighting condition.

Literature about environment and behavior research done within controlled settings on earth have identified several of the possible problems one would expect when sending people into space. The primary issues relate to privacy, interpersonal conflicts, cultural differences, gender differences,

isolation in a hostile environment and the lack of a connection to earth and nature. Despite limited published Space environment and behavior research, there are implications from research conducted in Antarctica. "Experience has shown that sustained confinement of workers in remote, isolated, high-risk environments analogous to space produces undesirable symptoms, non-adaptive behaviors, and performance decrements associated with stress."[6] Alterations in consciousness were also observed including daydreaming, suggestibility to hypnosis, and deep imaginative involvement. These in turn could lead to fugue states, increase or decrease in vigilance around work, positive or negative hallucinations and changes in the sense of smell. Such experiences could potentially endanger occupants in space. These have implications for both design and participant selection for space missions.

The European Space Agency has identified several issues to be studied further and addressed using high quality simulator experiences on earth:

1.Research on mental performance--effects of isolation and confinement

2. Research on maladaptive individuals--impact of prolonged exposure to confinement and isolation on sleep, mood, mental health and circadian rhythm

3.Research on interpersonal issues--isolation and communication with others outside (how to create the crew composition based on personality, motivation and cultural background, gender)

4.Research on psychological countermeasures (crew selection, training, monitoring, support and habitat design for these).

Additional studies have been conducted about isolation and confinement in environments such as Antarctica as well as other confined and isolated environments such as on oil rigs and nuclear submarines. Schlacht and her fellow researchers review several space habitat simulations on earth against features such as Controlled Environmental Life Support Systems (CELSS), food production and human isolation. These are projects across the globe by NASA and other organizations. [7] While the purpose is to see if these can be used to inform disaster relief interventions, the research shows the multiple earth simulations for space habitation currently being explored to test living and working conditions and their impact on humans. The framework proposed by the researchers is that habitats have to contend with three different factors: the occupants, the design of the habitat itself, and the environment within which the habitat exists. The research tested the habitability of the designs, studied the systems of life support and how to improve these, and looked at the self-sustaining aspects of the projects. The idea behind these projects is that they would apply to both space stations and colonies on other planets. The intended location in space requires that habitats be closed loop, self-sufficient systems which can be supplied from earth only occasionally. The environment is hostile to human life and the habitat must be a safe and protected environment. Peldzuz studied boredom and other psychological responses to the isolation experienced in space and outlined the various coping strategies used to combat monotony.[8]

Basu, et al outline the key known physical and psychological challenges that have been identified. These include limited communication, space motion sickness, acrophobia/vertigo, stress, disorientation, impaired sense of precision, eye-hand coordination, difficulties with manual control of vehicle or systems, post-flight disorientation, training passenger emergency and maintenance protocols, and isolation and homesickness. Several of these can be mitigated through the design of the habitat. Basu argues that some of these design interventions can be accomplished using Mixed Reality (MR).[9] Schreckenghost, et al first proposed the use of AI technology for the control of life support systems within the habitats to work in tandem with traditional control software.

Keeping humans alive in space is a complex challenge.[10] As mentioned previously, the engineering aspects of creating an environment that can support human life has been mastered by NASA. Space programs rely on a series of psychological testing protocols and earth-based simulation to determine

those who can handle the complex psychological challenges of being in space and away from family, friends and all the familiarity of earth.

Integrating windows into space modules is very difficult to achieve for several reasons including the engineering required to make the window possible and the costs involved in doing so. Using mockups, the researchers wanted to determine whether an actual view of simulated view of nature positively impacted the people seeing them. Heart rate and blood pressure as well as pupil dilation were measured as participants viewed a series of natural images. The findings show that landscape views with water were preferred over other types of views including those with humans or animals in them. Showing people views of the earth was determined to combat some forms of deprivation experienced in confined and isolated environments.

Biophilic Design Research

The benefits of Biophilic Design have been well established in terrestrial settings--including healthcare, workplace and residential design. It is logical to assume that these benefits would apply to space habitat design. This is particularly relevant when considering several of the previous studies which demonstrate the need for connection to earth and family. In an analysis of journal entries conducted by Basu and her colleagues, occupants of the ISS indicated that the most prevalent journal entry category was thoughts of home followed by problems adjusting, visitors and crew rotation, beauty and wonderment, and fatigue. Problems with isolation, adjusting and fatigue become more pronounced as the duration of the mission increases. Basu et al posit that this can be mitigated through the integration of Mixed Reality although this has not been tested as a way of counteracting the psychological issues in a space habitat environment.[11]

COLOR

Durao conducted an analysis of the five color schemes used in space habitats and the NASA guidelines associated with them in reference to the U.S. Destiny Module. The study sought to determine how color impacted the perception of space in a habitat. Previously the study of color had been limited to function concerns such as contrast but Durao expands these to include variety in a monotonous environment, sense of spaciousness, orientation and localization. She indicates that the majority of color research has been conducted by Russia. Several preliminary results include that highly saturated red and yellow were perceived as brighter with blue as less bright, and concluded that brown and yellow could increase nausea while blue could mitigate it; however, this has not been demonstrated in a long-term weightless environment. Durao concluded that a dynamic lighting system could provide color variation and that colors could be used for specific areas and functions to improve orientation. More highly saturated colors on small objects and edges would make them more visible in the habitat. Most importantly "While actual use of colors is very restricted, the need for a richer variation in colors appears to be more and more evident due to the same desire of astronauts and cosmonauts."[12] Specific color recommendations for specific areas include the use of light blue for the wardroom and using location color coding. A unified color scheme used to clarify orientation, location and perception would improve the habitat.

SOLVING BIG PROBLEMS IN SPACE

Goyal, et al focused on solving five of the biggest challenges of space habitats: gravity, radiation protection, food, and how to enlarge the habitat over time. In order to accomplish this, the design work was shaped by four key concepts--Bola, Spiral, Torus and Cylinder. The Bola model relied on a single cable that could spin at a rate to produce significant gravitational pull. Several limitations were found to this approach. The Torus model, while the most explored, also has difficulties in expansion

and waste volume. The cylinder approach allows for easy growth and can allow for a variety of g-values including zero-g. Through concentric circles, proper levels of stiffness are achievable and this allows for rotation from the center. The Spiral offers the easiest growth potential but the center of mass changes each time the structure grows. The differences in radius would create a wobble and therefore this configuration was not considered feasible.[13]

Model simulations include a series of space shields to protect the occupants from the high level of radiation found in deep space. In conclusion, the authors said that this study demonstrates the feasibility of a growable habitat with agricultural space that would allow for long term habitation shielded from radiation and with a variety of gravity gradients.

Cohen explored human productivity within the context and space habitats. In so doing, he looked at the human machine interfaces and the procedures NASA developed from an engineering perspective. NASA defines habitability as "A measure to which an environment promotes the productivity, well-being, and situationally desirable behavior of its occupants."[14] Cohen argues for a participatory approach where astronauts who will use the habitat are included in the design process.[15]

Kennedy outlines the key components associated with Space Architecture. They include the following space types: habitat, laboratory, node (transition element) airlock, berthing/docking systems, logistic supply, structural system, power system, thermal system, communications system, propulsion with GN&C. Further, Space Habitats are classified as either Class I, Class II or Class III. Class I structures are manufactured on earth and fully outfitted and tested prior to sending into space on a rocket. Class II capsules are also manufactured on earth but require additional assembly in space. These tend to be less restricted and allow for larger volumes. Finally, Class III are made in place or are space constructed.[16] The focus of all habitats regardless of mission duration or location, is required to accommodate all of the following:

crew safety

acceptable for physiological and psychological support for humans

successful accommodation of mission objectives

reliable structural integrity with adequate safety margins

forgiving failure modes (leak before rupture for example)

ability to be tested to a high level of confidence before being put into service

ability to be integrated with available laugh systems

straightforward outfitting and serving

easily maintained

long design life

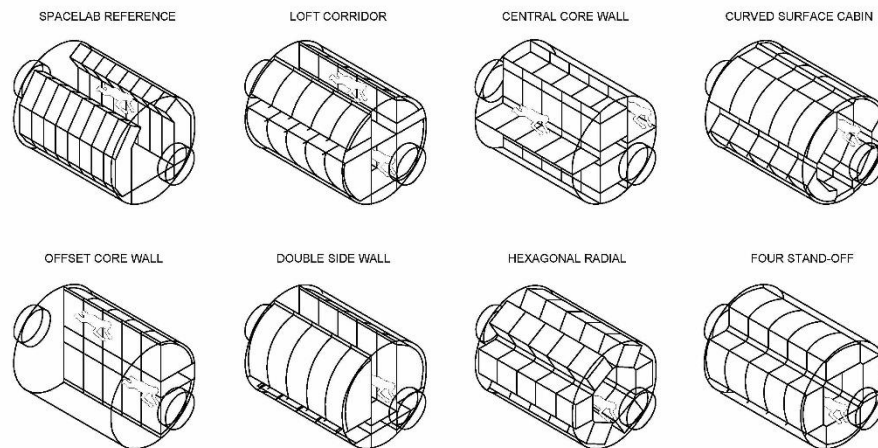commonality at the system, or subsystem level

Figure 1. Interior Configuration of Habitats

NASA has mastered the functional aspects of space habitat design (all the above-mentioned systems). The human behavior and interior features designed for human well-being need further research and development. Kennedy recommends that for long duration missions (6 months or more), a home-like environment should be created for the astronauts. He makes the following prediction: "With the emergence of space architects and TransHab in the space industry, NASA is at a crossroads, with its engineering disciplines no longer limited to cylindrical hard modules. Many wonderful and architecturally pleasing shapes will emerge in a new space era with the new century.[17] With private entrepreneurs entering the production of space travel vehicles (Jeff Bezos founder of Amazon and Blue Origins, Sir Richard Branson of Virgin Atlantic and Virgin Galactic, and Elon Musk, Tesla and SpaceX), the design landscape for space has expanded significantly.

METHODS

NASA has explored several variations for space layouts within the overall cylindrical form they have typically used. A report conducted in 1985, "Evaluation Criteria for Selection of the Internal Architecture for the Space Station Habitability Modules," evaluated the model formations with regards to ergonomics, access for repair, inspection and maintenance/cleaning, the minimization of fixed permanent structures, easy on-orbit reconfiguration, open environments, creative, soothing and stimulating environments, on-orbit window placement, rapid egress, inter and intra module growth capacity, equipment replacement, zero-g optimization, volume efficiency of use, and maximized surface area. All variations were subject to the payload constraints in order to launch into space. Maximization of modularity in all aspects of the design allowed for easy reconfiguration to adapt to new needs within the habitats.

The typical ISS habitat module has a four-rack standoff configuration. Six habitat configurations were evaluated against these constraints: 1. Reference Space Lab, 2. Vertical orientation, 3. Center Beam, 4. Loft, 5. Center Corridor, and 6. a four-post configuration. The criteria were weighted and a scoring analysis reflected the overall results for the six variations. After evaluation by six experts, the overall preferred modules were the four-post and the loft configurations. The least preferable orientation was the vertical habitat.

The way in which the possible configurations were evaluated was based on a scoring sheet (Table 1) that allowed for open-ended comments on all aspects of the design. This tool was used as the way to assess student outcomes.

Score Sheet
Interior Architecture Selection
Space Station Habitat Module
Man-Systems Division JSC-SP3
__ Reference Configuration
__ Vertical
__ Center Beam
__ Loft
__ Center Core
__ Four Stand-Off

Item	Circle score	Criteria
1.0		MANNED SYSTEM CRITERIA
1.1	1 2 3 4 5	Takes advantage of zero-g body posture and motion
1.2	1 2 3 4 5	Accommodates anthropometric range of crewmembers
1.3	1 2 3 4 5	Traffic patterns provide for easy, safe and non-interfering movement of crew and equipment
1.4	1 2 3 4 5	Easy access to the walls by shirt-sleeved crewmembers for inspection, repair, maintenance and/or cleaning
1.5	1 2 3 4 5	Easy access to all equipment for inspection, repair, maintenance and/or cleaning
1.6	1 2 3 4 5	Minimize fixed/permanent secondary structure
1.7	1 2 3 4 5	Easy on-orbit reconfiguration, including outfitting, removal and/or replacement or equipment and utilities is provided
1.8	1 2 3 4 5	Provides an open environment
1.9	1 2 3 4 5	Environment is stimulating, creative, or soothing as appropriate
1.10	1 2 3 4 5	Accommodates a variety of on-orbit window placements
1.11	1 2 3 4 5	Permits rapid egress from any location in the module
1.12	1 2 3 4 5	Provides for both inter- and intramodule growth (including crew size, power level, utilities, fluid storage and transfer systems, etc.)
1.13	1 2 3 4 5	Replacement of a piece of equipment, or access to a volume, does not require removal of other equipment
1.14	1 2 3 4 5	Environment/architecture is user friendly (functionally efficient)
1.15	1 2 3 4 5	Architecture optimizes for zero-g environment

1.16	1 2 3 4 5	Volume efficiency (crew usable, equipment, unusable).
1.17	1 2 3 4 5	Maximizes equipment surface area (control/display and stowage)
1.18	1 2 3 4 5	Airflow pattern avoids dead air spaces and enhances particulates collection
2.0		PROGRAMMATIC CRITERIA
2.1	1 2 3 4 5	Cost
2.2	1 2 3 4 5	Schedule
2.3	1 2 3 4 5	Weight
2.4	1 2 3 4 5	Flexibility
2.5	1 2 3 4 5	Technological risk
2.6	1 2 3 4 5	Operational risk
2.7	1 2 3 4 5	One-g training
3.0		ENGINEERING AND MANUFACTURING CRITERIA
3.1	1 2 3 4 5	Interface complexity
3.2	1 2 3 4 5	Extent of commonality
3.3	1 2 3 4 5	Assembly, checkout and integration
3.4	1 2 3 4 5	Quantity and complexity of tooling and test/verification equipment
3.5	1 2 3 4 5	Degree of modularity
3.7	1 2 3 4 5	Producibility

Table 1. Score Sheet

This research explores student solutions to designing space habitats using NASA's evaluative framework. Beginning with the information achieved in previous design interventions and by the criticism of the current Space Habitat Design Team in Houston, these projects posit some interesting ways to potentially inform new interventions. Of particular note, is the human-centered focus on the relationship between the environment and behavior as well as issues related to human wellness (physical and emotional). Using the tool devised by NASA students were able to respond to previous evaluations of layout and configuration as a part of their solution.

DISCUSSION

Interior design students at a research one university were given the option of working on a project with NASA for the past four years. Each year a few students chose to participate. A menu of space habitats was provided from which the students selected a focus.

Three design goals guided the student projects:

1.Within a specific focus and scenario, complete a comprehensive interior design of the habitation elements

2.Optimize the interior design to support mission objectives

3.Optimize interior design for human health and performance during completion of mission objectives
The three possible scenarios include the cislunar station, a lunar surface station or a mission to Mars. Crew sizes ranged from 2 to 4 astronauts with a minimum duration of 14 days. The overall size of the module was the one that the Space Habitat team currently works with.
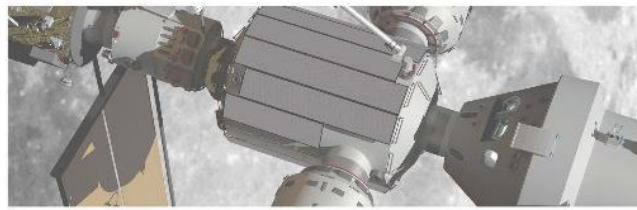
Figure 2. NASA Missions

Using NASA's Habitat Score Sheet as an evaluation tool allowed for a baseline quantitative assessment of the student projects over the 4-year collaboration period. A qualitative assessment was also completed using design experts and Space Habitat Designer's from NASA comments.
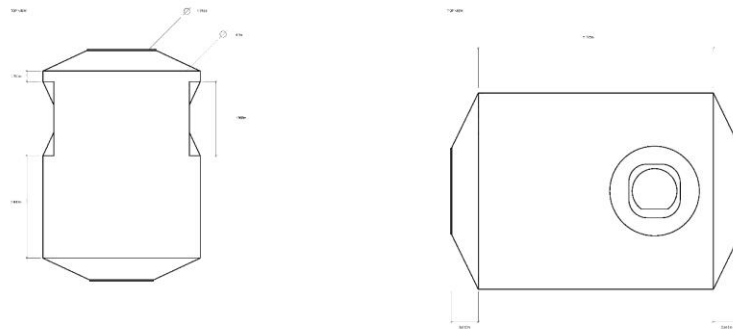
Figure 3. Habitat Size

Student Work Solutions

Project 1: Lunar Gateway Proposal (all images courtesy of Sydney Grace Miller)

The first student project takes a biophilic design and human wellness approach to the design of a space habitat for the new Gateway project (cis lunar) which will eventually provide a place for astronauts to stop on the way to Mars. As recommended by Durao in her study on color, this design solution implements a circadian lighting scheme that differentiates the living areas from the work zone.

When evaluated against the NASA score sheet, the module scored high in all 18 categories of the Manned Systems Criteria as well as in the seven Programmatic Criteria. Engineering and Manufacturing were considered to be possible based on the critique and feedback from Space habitat designers but were not specifically scored. Some of the most prominent elements of the design solution for human occupants were not part of the score sheet. These include the circadian lighting scheme, the ability to grow plants for food and introduce nature into the space, and the ability to accommodate individual spaces in the sleep pods. All three of these components are well-documented in the research as supporting human beings and their well-being.

PLAN
connection hatches indicated with arrow

worksurface

stowage

cold

first aid

rec area

garden

garden

communal counter/ sleeping pod

sample storage

wc B

wc A

galley

wc A: enclosed area with mirror for light clean up and handwashing
wc B: enclosed restroom for both solid and liquid waste

SLEEPING POD DETAIL
Approx Unit Dimensions: 1m x 1m x 2m
Roll up canvas panels to cover entrances
Top clips connect to ties on ceiling structure

COLLAPSIBLE CANVAS

SCREEN

PERSONALIZATION AREA

ACOUSTIC PANELS

TELESCOPING MEDIA WALL
user controlled LED backlighting

SLEEPING RESTRAINTS
collapse down when in closed position
embedded headphones

PERSONAL STORAGE

PERSONAL STORAGE
under floor

Figures 4-5. Miller Design Solution

Student Project 2: Mars Habitat 2066 Surface Habitat (all images courtesy of Keren Jacob)
The second student project integrated plant growing areas with water recirculation for a living and working environment on the surface of Mars. Integrating concepts from Biophilic Design, the project solution includes a central focus on a living wall system that is used to process gray water into potable water. The concept behind this is to create a connection to nature from earth within a Mars colony habitat.

When this project proposal was evaluated, it also scored high in the Manned System category and the Programmatic Criteria category, although a few concerns were noted regarding the feasibility of the internal stair which powered a water circulation system. This is something that would have to be tested prior to implementation. One of the ideas that this project proposed for future consideration was innovation. The current scoring criteria does not include a positive response to innovation but rather projects challenging either technological or operational risk receive lower scores in the Programmatic Criteria categories.
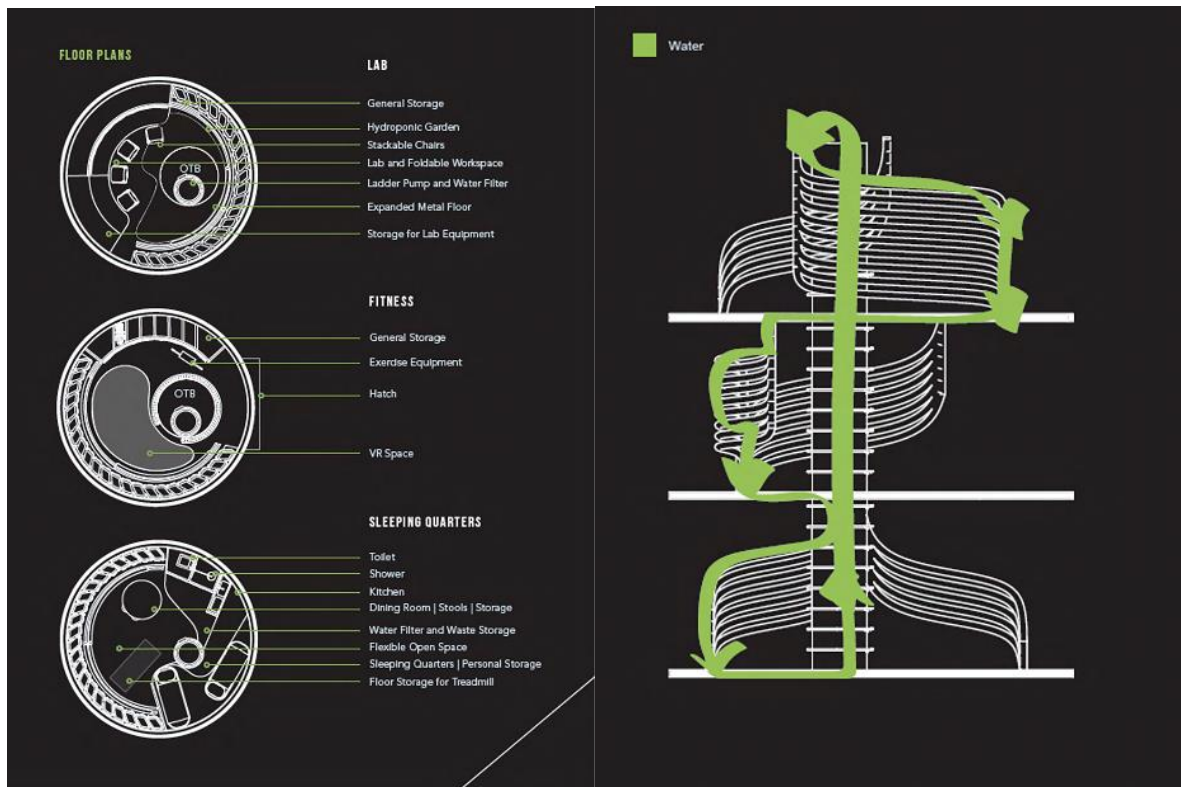
Figures 6-7. Jacob Design Solution

Project 3: Lunar Surface Module: (Images courtesy of Chase Long)

The third project relies on the integration of VR and AR into a MR technology approach to reduce the amount of clutter in a lunar habitat. The Mixed Reality approach suggested by Basu et al has been fully integrated for function. The same technology can be used to provide for entertainment, connections to home, integrating nature, and other purposes.

The final solution scored well for the first two categories and like the previous two examples, was not evaluated for Engineering and Manufacturing with the assumption that a full scale mock up would have to be evaluated. All current NASA criteria for this category were followed. The introduction of VR and AR technologies to facilitate a cleaner interior environment that was easy to navigate and did not create a cognitive overload are items not currently accounted for in the scoring criteria. During final presentations for this project, the ease of inspection and repair were raised as possible concerns should anything related to the technology break in space.
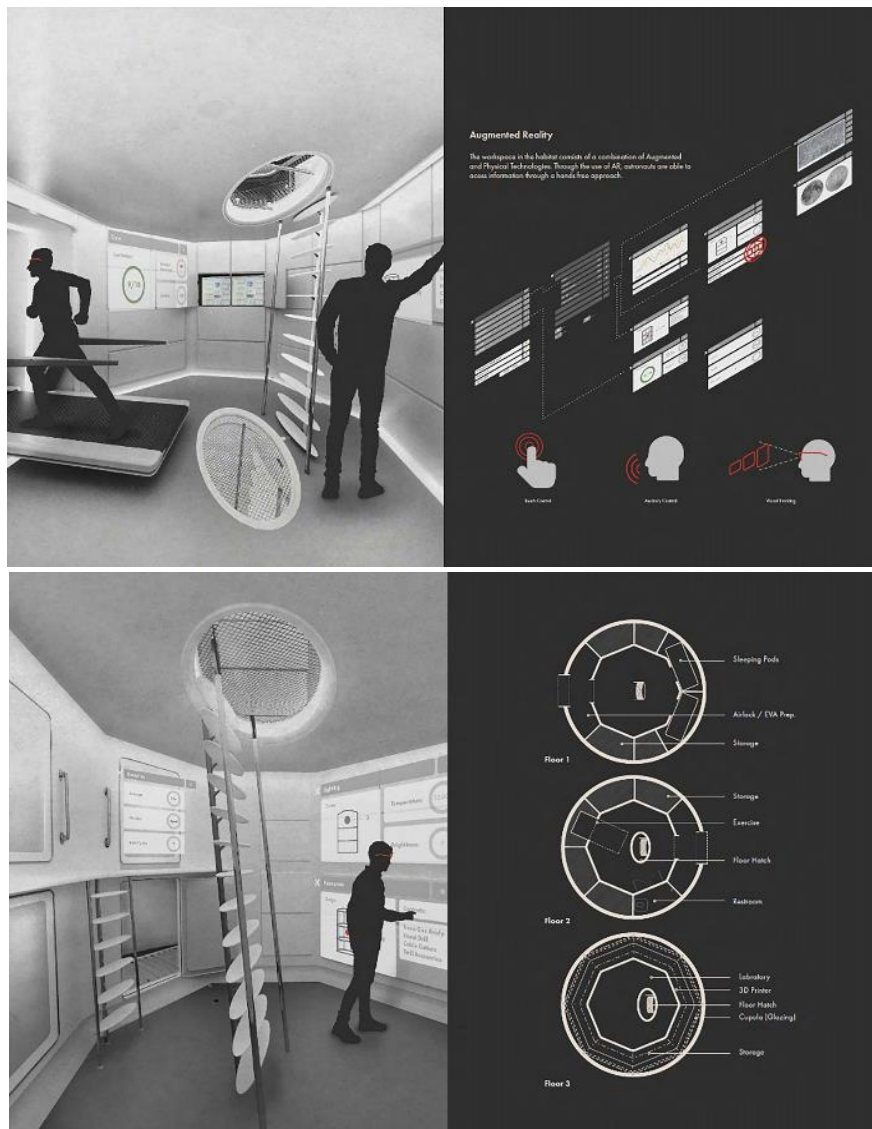
Figures 8-9. Long Design Solution

CONCLUSIONS

Interior design students can create human centered approaches for space habitats using their knowledge of the relationship between human behavior and the environment. A focus on ergonomics, issues of privacy, acoustic control and control of smells were all taken into account in each project. The need for both social spaces and privacy were balanced in the design solutions. In most projects a connection to nature was included as an integral part of human wellness. In one solution actual natural elements were not a part of the design, but VR and AR were used to provide for a digital experience of nature. Research has shown that imagery of nature can also bring the benefits of biophilic design to interior space.

The interior design student projects proposed solutions that might indicated additional scoring criteria for space habitats as they relate to human beings. Some of the mentioned above include designing for personal space, integrating nature, providing innovative interior interventions and including the use of VR and AR into the habitats. Added to this, criteria around acoustics, privacy and olfactory issues could also be assessed.

The primary hurdles associated with this project type include--working in a different gravitational environment, dealing with the lack of waste removal and the ability to receive new supplies (other than intermittently) and an understanding of the complex engineering required to keep people alive in a high oxygen environment outside of the earth's atmosphere.

Students were able to work collaboratively with students and professors from the Aerospace Engineering program and Materials Scientists to better understand some of the complex issues associated with space design. One of the benefits of working with such a highly scientific designed environment was the need to understand outside expertise as an integrated part of the design process.

This project demonstrates the value of an interdisciplinary approach that includes interior designers to the design process of a space habitat. The design solutions rely heavily on research and provide an excellent example of applying the interior design process to an unfamiliar context with new challenges to the student.

Areas for future research include testing color schemes, circadian and other lighting approaches, how spaces are separated based on work, living, and leisure applications and the integration of Mixed Reality solutions with those who will use the environments. Applying some of these design solutions to earth-based simulations of space habitats over progressively longer durations of time might be one way to do this.

Interior designers bring a human-centered perspective to the design of environment for human beings. This has not been a primary focus of space habitat design but will certainly be important as move into a future that will include more space travel and possible surface-based settlements on the moon and Mars.

ACKNOWLEDGEMENTS

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CONFLATION OF THE PAST AND PRESENT:
THE WEST MARKET OF THE GREAT TANG, XI'AN, PRC[1]

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INTRODUCTION

As an ancient capital and commercial hub, Xi'an (西安) served as the political and economic capital of 11 dynasties periodically from the 11th century BCE to the early 10th century CE (Figure 1).
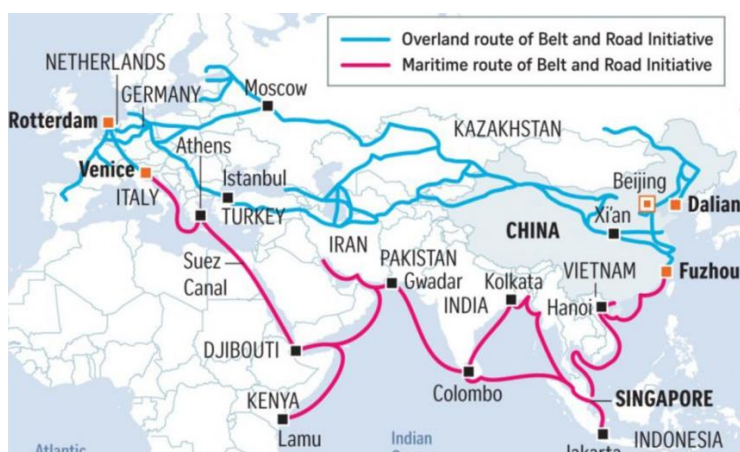
Figure 1. Map: Tang China/Silk Roads; Belt and Road (adapted from: Mercator Institute for Chinese Studies, C. Inton, https://www.brookings.edu/blog/brookings-now/2019/05/17/charts-of-the-week-chinas-belt-and-road-initiative/

Known as Chang'an (長安), the City of Enduring Peace, it was the eastern terminus of the Silk Road (丝绸之路) and the historical gateway into dynastic China. In 1974 it gained international notice with the discovery of the Tomb of the first Emperor of China and its battalions of terracotta guardian figures marking his grave at his 3rd century BCE capital in Xi'an. More recently in 2013 as part of his "National Rejuvenation" project (民族复兴)[2] the People's Republic of China President Xi Jinping (习近平) proposed reviving the ancient Silk Road and expanding it into an economic and geopolitical network between China and Central Asia. Since then, the Chinese government has been promoting what is now called the Road and Belt initiative (一带一路), a nation-building scheme involving cultural diplomacy and economic programs across Asia, Europe, and Africa.

In order to further this project, the Chinese state has invested massively in foreign financial loans and infrastructure projects and Xi'an has been selected as a contemporary "target of opportunity municipality". This designation allows Chinese citizens to move to Xi'an without prior residential permits and thus encourages all sorts of workers to relocate to the new center, a booming market that can provide ready workers for international hotels, franchises, etc., needed to run their businesses. Although Shanghai, Hong Kong and other Chinese cities have and still do host huge ports, Xi'an's history and its new contemporary role legitimate trade particularly with Eurasia, Central Asia and even Europe. Once again Xi'an has become an important crossroad for international exchange and a symbol of China's worldwide economic power. As of January 2022, modern Xi'an is a city of over eight and a half million people -- up from about four million over the past 20 years. And, with the new Belt and Road initiative Xi'an has become the third largest metropolitan region in China, totaling about 13 million.

Xi'an's location in northwestern China and its current stature as the commercial hub that connects China to its west, its historical significance, and its diverse cultural past have been commemorated in a recent building program inside its ancient wall. It draws upon 8th century Tang period architectural models but also includes a modernist style Heritage Museum housing relics from the past (Figure 2).

Figure 2. View of West Market of the Tang, Entrance (left) and Heritage Museum (right), Xi'an, opened 2012. (photo by author).

Capturing both the importance of the place and the activity of the ancient city was paramount in this refurbished area. For instance, dioramas of the 8th century city plan and its goings-on greet and orient the visitor upon entry into the Heritage Museum. Here the symmetrical urban plan, its regular and regulating ward system, its two abreast carriage boulevards, and its inclusive culture are represented: the Tang officially recognized 11 different religions, some still represented in standing architectural monuments like the Great Goose Pagoda and the Great Mosque. Today, modern high rise apartment buildings and hotels have grown up framing the old city outside its ancient wall.

The wall still standing in Xi'an and that which surrounds the old city is a 15th century construction. It has been rebuilt numerous times, is on the list of the State Administration of Cultural Heritage in the PRC and has a tentative UNESCO World Heritage Site designation. Clearly it is considered by the PRC government as an important historical marker and one that has continuing relevance in the present. Inside these walls, a shopping precinct has been constructed that is called The West Market of the Great Tang (大唐西市) (Figure 3).

Figure 3. Aerial View—West Market of the Great Tang, Xi'an, opened 2012. (Adapted from gov.chinadaily.com.cn)

It is more than just a footnote to the past given its location, architecture and commercial function, as it offers a glimpse of national PRC ambitions to capture a contemporary global commercial marketplace and to reshape its national identity. Preservation prioritized elements of history that the government wanted to preserve, making the development at Xian not just a commercial "Disneyfication" of an historic city—but a more important statement about contemporary China and its relationship to its past.

THE SETTING

The West Market of the Great Tang opened in 2012 amidst great fanfare. It was built on the original site of the West Market in Chang'an city, completed during the Tang Dynasty (618-907 CE; 唐朝). In 8th century Chang'an city there were two main markets: The East Market was built for domestic trade among the upper classes; the West Market was an international trade center gathering goods from the west as far away as Rome, across Central Asia and east to Korea. In its heyday, Chang'an's West Market documented China's centrality in the known world and its ability to draw foreign peoples and goods across the Silk Road to that center. The two markets displayed the prosperous economy of the Tang Dynasty at both levels of commercial exchange, the domestic and the inter-regional. The modern international shopping zone in the West Market area reiterates historic Tang Chang'an with its multicultural Silk Road culture and its key role as a trade center and elides that with the goals for the Belt and Road Initiative.

One enters the Old City by passing through the 8th century Kaiyuan Gate (Opening Gate 开元门) where a large stone sculpture designates the site as the starting point of the Tang Dynasty Silk Road. The sculpture depicts three Chinese, three Sogdians, fourteen camels, two horses and three dogs and was created in 1988 at the Xi'an Academy of Fine Arts to commemorate the 2100th anniversary of the establishment of the Silk Road.[3] It stands today as a statement about the diversity and international character of the ancient city.

Once inside the old walled city and on its west side, one encounters the new developments highlighting various contemporary business interests: the Tang West Market Museum, a Silk Road Culture Street,[4] an International Antique City, an Intangible Cultural Heritage City, a Tang West Shopping Mall, a Tang West Market Hotel, an International Exhibition and Entertainment Center, as well as the Noble Humanistic Residence Hotel nearby. The developers staged particular locations to high-light high vs. lower-level commerce and trade. International merchants (Figure 4) cluster in Market-sponsored high-rise luxury hotel lobbies at the periphery of the complex and make deals that support the CCPs national economic agenda allowing easy access to the old city.

Figure 4. Shopping Mall/Luxury Hotel, West Market of the Great Tang, Xi'an, opened 2012 (photo by author).

Tang Chang'an was famous for many types of luxury goods and food as they are today. Along the outer boundary of the Tang Market and facing wide avenues full of traffic and visitors is a three story Shopping Mall the developer/investors have placed a number of world-famous companies. Harry Winston's high-fashion jewelry creations display exceptional techniques in craftsmanship and design for which Chang'an was famous; Davidoff the Swiss premium brand of cigars, cigarettes and smoker's accessories, a nod to China of the 1930s (?); and Hennes & Mauritz AB the Swedish multinational clothing company headquartered in Stockholm known for its fast-fashion clothing for men, women, teenagers, and children and many other top-end goods to name a few. Their location and contents offer status for their owners while at the same time showcase the modern Chinese as players in worldwide fashion trends (Figure 5).

Figure 5. Camel with Band of Central Asian Musicians: Bronze statue, West Market of the Great Tang, Xi'an, opened 2012. (photo by author).

Interspersed with these upscale stores and below them are popular eateries such as McDonalds, Starbucks and Taixijia (泰熙家 Tae Hee's House) Korean Restaurants that provide hip foreign coffee and fast food. Nearby, larger than life bronze statues of caravan camels with Central Asian bands of musicians atop modeled on 8th century prototypes stand in contrast to a familiar McDonalds stock storefront and remind visitors that international commercial activity has been perennially available at this exact place.

Above these outer buildings and on their top third floors are housed a "Children's Paradise" with a parent-child recreation area, a simulated ice rink, and a variety of restaurants offering East, Central, and West Asian cuisines. Those restaurants are more upscale than the ones below and are interspersed with small shops selling swish goods. In the restaurants, traditional foods, even ones whose recipes

date from the Tang can be found where only *jiaozi* 饺子 and steamed *baozi* 包子 are served. Both restaurant and upscale businesses are placed according to prestige (Figure 6).

Figure 6. Fancy restaurants above, swish markets below, West Market of the Great Tang, Xi'an.
(photo by author)

Further, inside the outer wall the less plush "Silk Road Shopping Street" is a long narrow lane filled with shops of collectable foreign goods. The buildings there replicate traditional kinds of simple two storey buildings with stalls selling goods such as wine from Georgia, tiles from Iran, scarves from Turkey— and including ticket booths for performing arts from the targeted 22 countries along the Silk Road.[5] Other stalls there offer street foods of both local and imported types: breads, noodles, roasted nuts, dried apples and other candied fruits and imported spices and non-local delicacies such as squid. Just as they did since the 8th century and earlier in Chang'an musicians, dancers, recitations of poetry and/or even Buddhist or other texts, fortune tellers, demonstrations of traditional weaving or metallurgical traditions from West Asia, or felt and woven carpets from Central Asia, fill the air and streets (Figure 7).

Figure 7. Silk Road Shopping Street, Foreign goods and food, West Market of the Great Tang, Xi'an.
(photo with permission of Karen S. Rubinson)

These activities support the notion of heritage that deliberately foregrounds cultural diversity and introduces visitors to the historical extent of the land, the desert, and the marine trade roads. It brings the official linear history of dynastic China up to the present.

PRESERVATION AND DESTRUCTION IN XI'AN

Since the first historians were established at court no later than about 1000 BCE in Chang'an, Chinese leaders have made a priority of preserving a cohesive vision of China's past. They have spun a unifying message in court archives that promoted China as one culture, under Heaven, ruled by the Son of Heaven. Emperors were tasked to bring unity and harmony to the diverse territories they called the Middle Kingdom (中國)[6]. What is interesting today and tucked into Xi Jinping's vision of the future of China is the reimagining of China's history to include the study of historical texts and archaeological materials while tied to the imperative to boost China's current economy and national image to the highest level.

For instance, as recently as September 9, 2020, President Xi gave another major talk and made clear the significance of knowledge of the past to his program of National Rejuvenation. He specified that archaeology must be built with Chinese characteristics and in Chinese style that will allow better understanding of the long and profound Chinese civilization. He claimed that Chinese civilization has unique cultural genes and that its developmental history was rooted in the land of China and its communications with other civilizations in the world. The reconfiguration of Xi'an has become a major example of his current efforts to renew interest in and confirm the importance of Chinese history at home and worldwide. Its strength is that China, he says, progresses with the times and has strong vitality in the present.[7]

Thus, elision of past and the present in Xi's new economic program is evident in the choice of place, architectural and sculptural styles displayed at the new West Market and had to be designed into the commission. The continuous record of Xi'an as a commercial hub suits the Chinese model of history, one not marked by rupture, but continuity and evolution. Likewise, the Chinese socialist model of revolution (and modern history) is one of constant restoration and transformation so that the West Market in Xi'an is used as a confirmation and reassertion of past models both tangible and intangible.[8]

THE SITE AND THE HERITAGE MUSEUM

Within the revivalist New Market area and (Figure 8a) beginning in 2010, a modernist structure known as Heritage Museum was designed and constructed. This project is part of the overall plan for the site, but in particular represents the Xi government's need to provide local continuity with planning decisions made in the 1980s, allowing a certain amount of independent development to emerge while insisting on commitment to current central goals. The Heritage Museum collections focus on documentation of the immediate site and its Silk Road culture. The land on which the West Market is situated on is owned by the national government. According to the Chinese Constitution, land in cities is owned by the national government, while land in the rural and suburban areas is owned by the Province or by collectives.[9] Although individuals cannot own land privately, for a fee they may obtain transferable land-use rights for a variable number of years. Importantly, this policy was activated at the West Market commercial complex. Designated overall as a museum, it is the first civilian, privately owned on-site institution in China. The tangle of local, provincial and national interests, politics, and economics propel as well as confound the project.

The DTXS Silk Road Investment Holdings Limited (大唐西市集团) with the Bank of Xi'an as one of their largest shareholders owns and operates the complex, but within strict guidelines from and with financial obligations to the national government. Through market-oriented and internationalized operations, the group has formed a culture industry, big health industry, quasi-finance, modern commercial and other multi-sector businesses. At present, the total assets of the group are about 50 billion yuan (almost 8 billion USD/6 billion £), and it is the second largest shareholder in the Bank of Xi'an and the controlling shareholder of DTXS Silk Road Investment Holdings Co., Ltd.[10]. The Tang

West Market is a complex mercantile operation that must remain poised, therefore, with metropolitan (Xi'an), state (Shaanxi Province 陕西省) and national (PRC 中华民国) interests in balance.

The Heritage Museum is a cultural, touristic as well as an economic project of the Xi'an municipality and its investors, as opposed to the Shaanxi Provincial Museum which stands outside of the ancient walled city and is a repository of Provincial history (Figure 8b). The Tang West Market Heritage Museum holds more than 20,000 artifacts dating from Shang (1600-1046 BCE) to the Qing Dynasties (1644-1911). The Museum is divided into five sections: including Permanent, Thematic, Temporary, and Special Exhibition spaces, and an Art Gallery. The displays include artifacts unearthed from the site, including those that represent various trade categories. For instance, the Thematic Exhibition section showcases the traditional workmanship that existed on the ancient Silk Road and the Special Exhibition displays inscriptions that are meant to inspire an appreciation of local history. All such presentations make use of history as a platform for understanding and shaping views of the present.

But the Museum itself was a private commission, and that complicates the issue of what to preserve in order to stimulate the economic enterprise. In the 1980s when Beijing decentralized parts of the national economy to allow provincial and metropolitan management of local sites, and the local government of Xi'an began to promote heritage-related tourism tied to their district economic development.[11] National policies in the 2000s promoted deregulation and reduction in government spending have continued to encourage the delegation of the previously guarded functions of state to the private sector. This has resulted in corporatizing, commodifying, and spectacularizing the physical remains of past cities[12] including the Heritage Museum in Chang'an. As a heritage site, Xi'an cannot stop telling history at the Tang but must attempt to integrate heritage management and contemporary business development.

At the time both national and local controls were being asserted and struggled with. For instance, in 2016, two prominent archaeologists Zhang Jianlin（张建林; Shaanxi Provincial Institute of Archaeology) and Gong Guoqiang (龚国强; Institute of Archaeology, CASS) publicly voiced their concerns about the overall development at the site. They pointed out that the corporation had not notified the archaeological team in advance about their excavation work, an oversight that they claimed rightly could have severe consequences for heritage preservation. They argued that if the same aggressive development model were replicated for other privately funded Silk Road–related sites, that more precautions needed to be taken to balance heritage preservation and real estate development.[13] Issues such as what should be preserved and what should not were relevant to the discussion but had not been addressed. Because of the intervention of archaeologists and heritage workers, the development project was halted midway for further inspection before more construction took place. The incident reflects the deep-seated conflicts between profit-making and preservation as the city underwent and continues to undertake continued and constant development.[14] The issue is unresolved, but Xi has made clear that the past and the present must reflect the national vision he projects for the future. Selection and maintenance of heritage and preservation projects vs. creation of local, national, and international economic opportunities fluctuate according to the current circumstances, but especially the aims of central government.

The chief architect of the Tang West Market Museum, Liu Kecheng (刘克诚), is the Dean of the School of Architecture in the local Xi'an Architecture and Technology University. Well-known for his hybrid use of classic Chinese and modernist styles, the Museum has high-vaulted glass ceilings and corridors which belies a modernist approach, while the surrounding buildings feature a neoclassical Chinese style with white and grey walls, temple-shaped roofs, with dark blue tiled

rooves, and overhanging eaves. On the first level of the Museum there is a direct concession to the archaeology and antiquity of the site (Figure 8b).

Figure 8a. Heritage Museum (left), Xi'an, Liu Kecheng (刘克诚), 2010. (photo by author)

8b. Glass First Floor above remnants of carriage tracks, well mouth and sewer (right), Interior, Heritage Museum, Xi'an, Liu Kecheng, 2010. (photo by author)

A glass floor, under which stands the original market, the ancient well mouth and sewer are still intact and visible as are ancient tracks left by horses and carriages. Such archaeological discoveries always have the capacity to dazzle visitors as in this case they directly connect one with the remnants of the ancient Tang West Market and are literally available for a walk through!

Here the past and the present obviously serve each other and as Wang Jing suggests, "…this outsourcing [of] cultural heritage management through real estate development and the tourist industry… results in the emergence of a new urban spectacle predicated upon the model of the past, [and its] mirroring [of]…expansion of capital [at home and] abroad."[15]. The local Tang West Market development must constantly justify its relationship to national goals of the PRC within the environment of modern commercial globalism. Thus, we see both modernist and revivalist architecture side by side—the new style housing old stuff and the traditional buildings holding modern commodities for sale.

CONCLUSION

If we understand space as the place that organizes social activities and power relationships rather than largely a place for experiential crafting of forms, we can think about The Tang West Market altogether as an attempt to create, or recreate, a collective identity for Xi'an, and for the PRC.[16] Its physical space and organizational infrastructure contain diverse enterprises that places them as players within the global aspirations of the Road and Belt economic initiative and the National Rejuvenation project. As in the ancient example, the entire ground plan of the West Market was laid out on a well-ordered spatial model which accommodates and controls class, status and historical cultural models of commerce. Small foreign businesses are represented in small-scale shops along carefully ordered streets; elite multi-national shops with elite goods find ready-made and modern storefronts and locations on avenues with wide sidewalks.[17] The Heritage Museum celebrates and confirms in its displays a unifying historical narrative about the city and its economy.

As a heritage display, the West Market of the Tang altogether presents imagined, selective and celebrated view of the past that constructs a meaning that elides with notions of the present.[18] As a signifier for national Chinese identity as a global superpower it offers a framework for the culture overall that includes but overcomes diversity in the modern nation state of China.[19] In the guise of global commercial nationalism, a unified national identity is being advocated, allowing us to see that the overlay of history at Xi'an is not simply commercial gimmickry but a more fundamental state-level validation and reconstruction of China's continuous but periodically revised history.

NOTES

[1] Particular thanks go to Anne Weis, my archaeologist colleague, who not only helped me put this paper together, but also made sure I stayed on track throughout.

[2] Jinping Xi, National rejuvenation, (民族复兴). http://www.xinhuanet.com/politics/2020-11/30/c_1126803588.htm. Just after becoming the General Secretary of the Communist Party in late 2012, Xi announced his plans for "The Chinese Dream 中国梦", which is "the rejuvenation of the Chinese nation 民族复."

[3] Yuan Fang, China.org.cn., nd.

[4] Presumably this idea comes out of the 19th century World's fairs, particularly the 1889 Paris expo and the 1893 Columbian exposition that featured "ethnic streets" with actual actors to entertain visitors who stopped there at cafes and coffee houses.

[5] In addition, this area includes a replica of the Sui & Tang cultural square of Chang'an, a five-storied pagoda of Japan, a grand bazaar of Turkey, the Red Fort of India and Roman Forum.

[6] Term often used since about 1000 BCE to denote a transdynastic entity (China) with different dynastic names over time but having a set territory and defined by common ancestry, culture and language.

[7] Xi, National rejuvenation (民族复兴), http://www.xinhuanet.com/politics/2020-11/30/c_1126803588.htm

[8] A similar point is made by Shelach-Lavi with regard to Museum installations and exhibitions. Shelach-Lavi, Archaeology and politics in China: Historical paradigm and identity construction in museum exhibitions, *China Information,* 2018:1-23. journals.sagepub.com/home/cin.

[9] Constitution of the People's Republic of China (Full text adopted with amendments) March 14 2004:10. http://www.npc.gov.cn/zgrdw/englishnpc/Constitution/node_2825.htm

[10] DTXS (大唐西市集团 Datang west market group). https://www.dtxs.cn/index.php?ac=article&at=list&tid=101

[11] Yulie Zhu and Yang Yang, Travelling to the Past: Xi'an and the Tang Imperial City, in Leanne White (ed.) *Commercial Nationalism and Tourism: Selling the National Story (*Bristol, Blue Ridge Summit: Channel View Publications, 2016), 64-74.

[12] John L. and Jean Comaroff, *Ethnicity, Inc.* (Chicago: University of Chicago Press, 2009), 120.

[13] Jing Wang, Privatizing the Silk Road in Contemporary China. *Anthropology News* website, January 24, 2019. DOI: 10.1111/AN.1067.

[14] Wang, "Privitizing…".

[15] Wang, "Privitizing…".

[16] Interestingly, Mackay has suggested that elite conceptions of the steppe (in this case Eurasia and points west across the Silk Road) as an "other" were pursued in order to present them as China's political-cultural opposite in order to maintain ontological security and a stable unified identity beginning from the late Zhou (ca. 300 BCE). Joseph Mackay, The nomadic other: Ontological security and the Inner Asian Steppe in historical East Asian international politics, *Review of International Studies*, British International Studies Association, 2015, 1-21.

[17] This discourse was applied by Max Horkheimer and Theodor Adorno to characterize mass culture in capitalist society. It appears to be worth examining in relation to socialist aspirations in a highly centralized socialist society such as Xi's PRC today. Max Horkheimer and Theodor Adorno, *Dialectics of Enlightenment* (New York: Seabury Press., 1972), 123.

[18] Leanne White, *Commercial Nationalism and Tourism: Selling the National Story (*Bristol, Blue Ridge Summit: Channel View Publications, 2017).

[19] This notion was even central to Mao Zedong's famous teaching on literature and art: "…to make the past serve the present and the foreign serve China" (古为今用,洋为中用) (1942) and appears to be guiding Xi Jinping's current thinking as well. Tse-tung Mao (Mao Zedong), "Talks at the Yenan Forum on Literature and Art", May 23, 1942. *Selected Works of Mao Tse-tung*. https://www.marxists.org/reference/archive/mao/selected-works/volume-3/mswv3_08.htm

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对于中国和外国过去时代所遗留下来的丰富的文学艺术遗产和优良的文学艺术传统，我们是要继承的，但是目的仍然是为了人民大众 https://www.marxists.org/chinese/maozedong/marxist.org-chinese-mao-194205.htm

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ORGANIZATIONAL INHERITANCE:
ON GRASPING IMMATERIAL HERITAGE EMBEDDED IN ORGANIZATIONAL STRUCTURES THROUGH ARCHITECTURAL REPRESENTATION

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INTRODUCTION

Organizations outlive us. Though they are often legally treated as human individuals, and though they share and mobilize much of the agency of persons, their comparative longevity makes them significant as heritage artefacts. This longevity, combined with their capacity to reach enormous proportions, means that they have a disproportionate influence on the trajectories of history.

In *Africa in History,*[1] Basil Davidson touches on a peculiar fact about the spread of colonialism on the continent from the seventeenth century to the twentieth. He alludes to the ways in which, particularly in the early phases, as European states expanded along the coast and up into the rivers of West Africa, formal colonialism constituted attempts by governments to control, support, manage and exploit their own corporate assets that had already developed organically along established trade routes. In addition to suppressing the conflict which erupted regularly with existing indigenous peoples, they were also attempting to ensure that their business assets abroad met tax obligations by bringing their administrative centres closer to their peripheries. The spread of colonial enterprise was corporate before it was a matter of statecraft. The same is true for Southern Africa, where the first more or less permanent European inhabitants were employees of the Dutch East India Company rather than delegates of the state.

The extensive damage that these structures — and the individuals and systems that animate them — have caused to the cultures that they encountered adds a dimension of urgency to the work of subjecting them to critique and meaningful transformation. They are however, difficult to grasp. They exist in a different temporal and spatial scale to the human body[2] and so their complex hierarchical distributions do not generally make intuitive sense.

Though difficult to grasp, it is not impossible, as Ian Baucom had demonstrated with *Specters of the Atlantic: Finance Capital, Slavery and the Philosophy of History.*[3] In elegant prose, Baucom takes the reader through the receipts of slavery and colonial exploitation – much as Marx had done in *Das Capital* with ordinary commodities. They are detailed descriptions of real exchanges and their implications as history. Though they necessarily contain some representations of organizational structures, the organizational structures are tangential to the primary focus. The literary style of representation in those studies favours the description of events, details and the meanings to which they allude rather than structures and hierarchies, which tend towards visual description, and can be tedious to read.

Architecture has, since the advent of programme as a primary concern for the discipline, been in the service of producing images and representations of organizational structures - often in the form of buildings.[4] The research described in this paper is aimed at providing some demonstrations of ways in which architectural representations could be employed in the service of the design, transformation, formation, management and critique of organizational structures. By suspending the requirement of building construction as a necessary condition for an artefact to be considered a work of architecture, it is argued that it will be possible to create a fast-moving and dynamic architectural service which retains its social and political value (and may even enhance them) while cutting down on reliance on economy, weather, finance, construction and other factors and industries that are currently entangled with the practice of architecture.

As a demonstration and proof of concept, I have started to model organizational structures at the universities where I have worked. What follows is therefore focused on educational programmes, but it is likely to have applications in any organizational structure.

ARTEFACTS OF ORGANIZATION

This project started when I was working as the coordinator of Theory and History at the University of Johannesburg's Graduate School of Architecture (GSA) in 2017 under Professor Lesley Lokko. At the time I was working at three Universities in a part-time capacity and it was an attempt to make more intuitive sense of the institutional practices and structures in which I was immersed. Perhaps more significantly, I had been given a fair amount of freedom in the design of the Theory and History programme at the GSA.

The word design is derived from the Latin "designare" – roughly, "to figure out, to designate, or to identify". For an architect, understanding is intimately tied to drawing (and modelling for that matter) and the most reasonable response to freedom is conscientious boundary making through drawing and modelling. It was also an attempt to give post-graduate students a view of the processes which they would be going through in terms of an architectural language. The drawings were accompanied by short texts to orientate students and university administrators and were well received, in general, by both audiences.
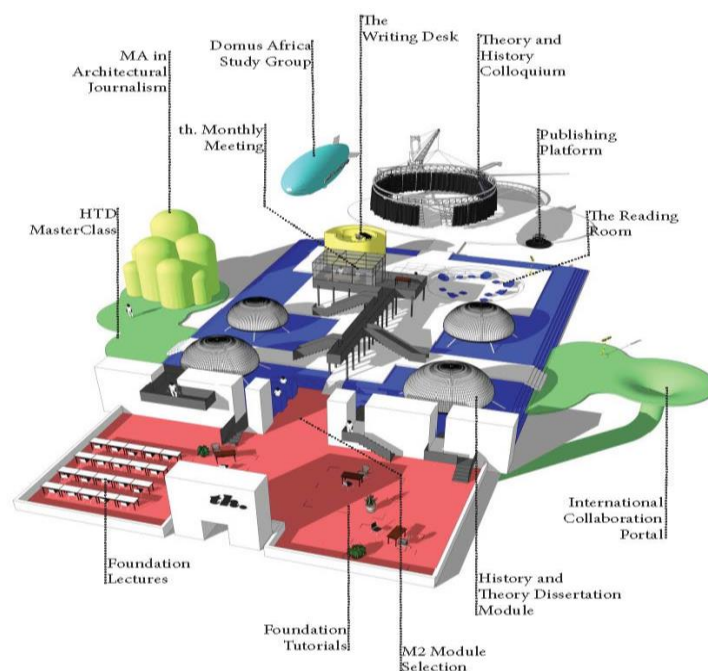

Figure 7. Overview of the two-year Theory and History programme at the University of Johannesburg's GSA. 2017-2018 by Author (2017)

Spatial representations which use buildings or landscapes as a foundation always have a temporal dimension — particularly in plan or in axonometric views, where viewers project themselves into the space and trace lines of movement through it. This is useful for processes that unfold over time, since distance can be used to indicate relative durations.[5]
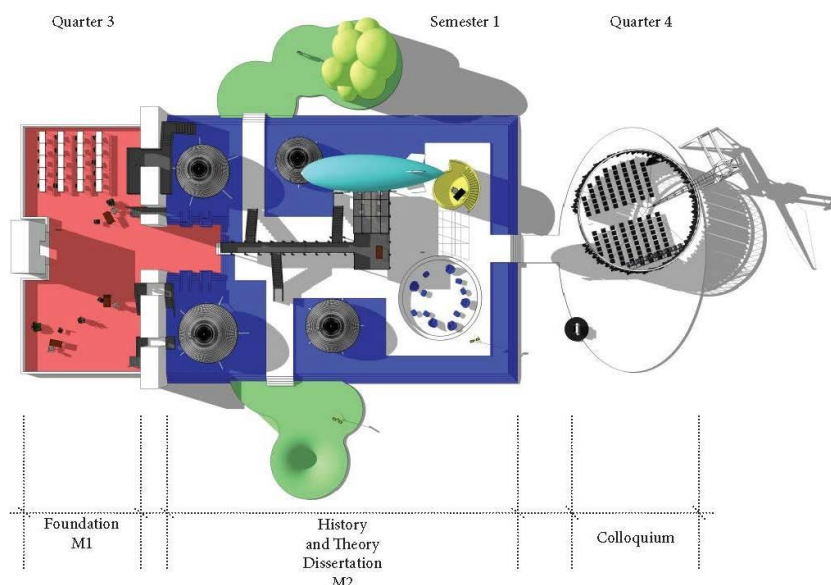
Figure 2. Overview of the two-year Theory and History programme showing relative durations by Author (2017)

The Theory and History programme at the GSA consisted of many parts, some of which involved choices that students would make. Conventions of architectural language (doorway, passage, balcony, floor, wall, aperture etc.) are used to indicate beginnings, ends, durations and choices within the two-year programme. The primary subdivision in the model, for example, is indicated by a wall, doorway, and a change in floor surface. The first component is a one-quarter module in the first year (M1) and the second, a semester-long module in the second year (M2).

The hut-like pods in this drawing represent a range of individual elective modules on offer, from which students would select. These are connected to individual staff members through staircases. The modules are raised; indicating that they are self-consciously entered into and they are round to indicate their relative, temporary autonomy from the broader context of the programme as a whole.

Distance can also be used conceptually, to indicate events, processes or structures that are connected to the primary activity, but are more peripheral, or which represent a terminus or culmination. Here, connected programmes are indicated as offshoots placed next to the primary pavilion – one on each side in green, one hovering overhead in a turquoise blimp, and one at the terminus – representing the annual colloquium which concludes the Theory and History Programme.

Later in the project, this time as the Coordinator of Theory and History at the Tshwane University of Technology (TUT), I digressed to less legible and less obviously spatial representations.

Figure 3. Glazed stoneware ceramic model of each year of study in TUT's architecture programmes by author (2021)

Due to the complexity of the medium, I had opted here for the representation of a comparatively simple subject – the curricular structure of the TUT school of architecture as it has existed from 2019. The information is taken from the prospectus – a book containing listed information about courses, their duration and their credit weighting.

Figure 4. Glazed-stoneware ceramic model of each year of study in TUT's architecture programmes, stacked and labelled for increased legibility by author (2021)

In the model above, the full duration of the extended programme (seven years) are represented. The extended programme commences with a foundation programme which only a small number of students are required to take and which is therefore placed slightly to one side of the primary axis.

Each successive year is then labelled from one to six. In the fourth year — the final year of the undergraduate programme — students can select from two specializations generally called "design" and "technology". The model tops out with two separate master's degrees; one a specialization in architectural design, and one a specialization in architectural technology.

In statistician Edward Tufte's landmark publication *The Visual Display of Quantitative Information*[6] he appears to make a compelling and clear argument against the practice of obscuring information in visual display. Though his own later work as a sculptor is not as legible as what he argues for in that book, it is still evident that the specific use of craft objects to store information content does not favour efficiency and clarity, but would have to have its value elsewhere.

Though clearly less legible than alpha-numeric information, craft objects can "speak" directly to the body and they have a high density. It is for this reason that I used the word "grasp" in the title of this paper. It refers, of course, to understanding, but on the more literal level, it refers to tactility and to languages beyond the verbal and textual. In *The Autonomy of Affect,*[7] Brian Massumi describes some of the strange values of the tactile system of the body. Core concepts, he explains, like "good" and "bad" take on new meanings as they are measured not from linguistic and culturally-developed memory but on the seemingly autonomous values of the skin and the limbic system. Objects containing quantitative and qualitative information may therefore be useful in providing previously unthinkable perspectives, and are likely to be useful in critiquing established practices and biases which have become embedded in conventions of thinking about organizations.

Political Technology

Architecture is a social practice – students leave the academy feeling prepared for contributions to building new worlds at various scales, but report frequently that they are frustrated with the lack of opportunities for expression of those talents and skills in the South African economy. The social nature of building means that much of the political will to build one way or another is embedded in organizational structures and the hierarchies of power which they support and sustain. Engagement with architecture in the so-called "real world" requires engagement with the superstructures that commission and construct buildings. Many architects therefore compete in a relatively small market of private houses for private clients of means – because the scale of the organization (the family, the couple, the individual) and the scale of the project (a house, generally) is able to be grasped by the architect's intuitive framework.

Larger commissions are generally completed by practices that have been able to establish networks and grow skills in understanding the implicit hierarchies of the organizations with which they work as well as the bureaucratic instruments that such organizations employ to mediate communication. This isn't necessarily a problem to be solved, but it is my intention to use architectural representation to increase access to those structures, and to broaden the frames of reference for intuitive understanding among architects and complex client structures.

To demonstrate this proposition, I started again with the institution in which I am currently embedded – the Tshwane University of Technology's Department of Architecture and Industrial Design.
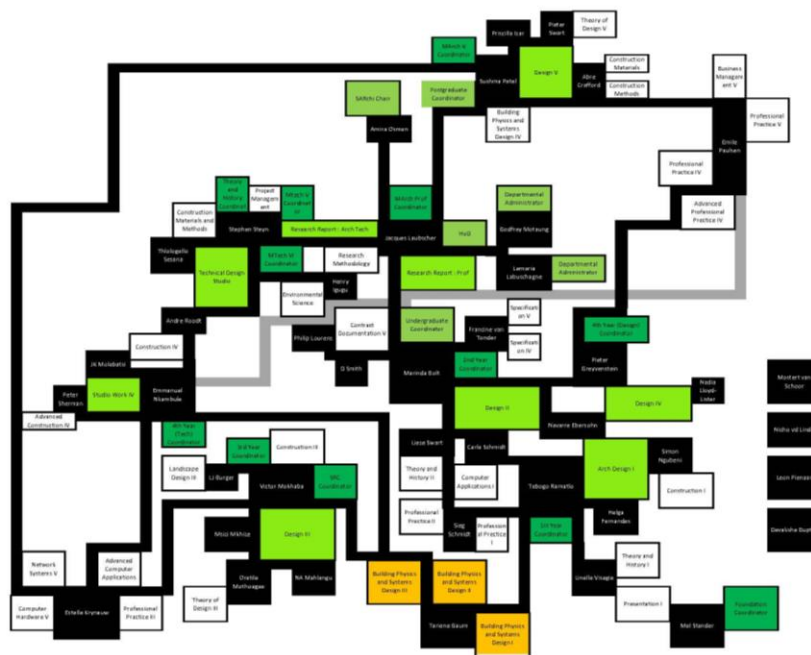
Figure 5. Summary of staff designations within the Department of Architecture and Industrial Design at TUT by author (2021)

The diagram above shows some of the preliminary information linking teachers to the subjects that they teach, indicating the relative size of individual subjects, and some institutional hierarchy using details from conversations with colleagues. It served as a proof of concept before embarking on the collection, collation and design of the information.

The limitations of two-dimensional representation are immediately apparent in the intermediate diagrams of the information content, but they were necessary to condense the information for translation into three-dimensional representation.
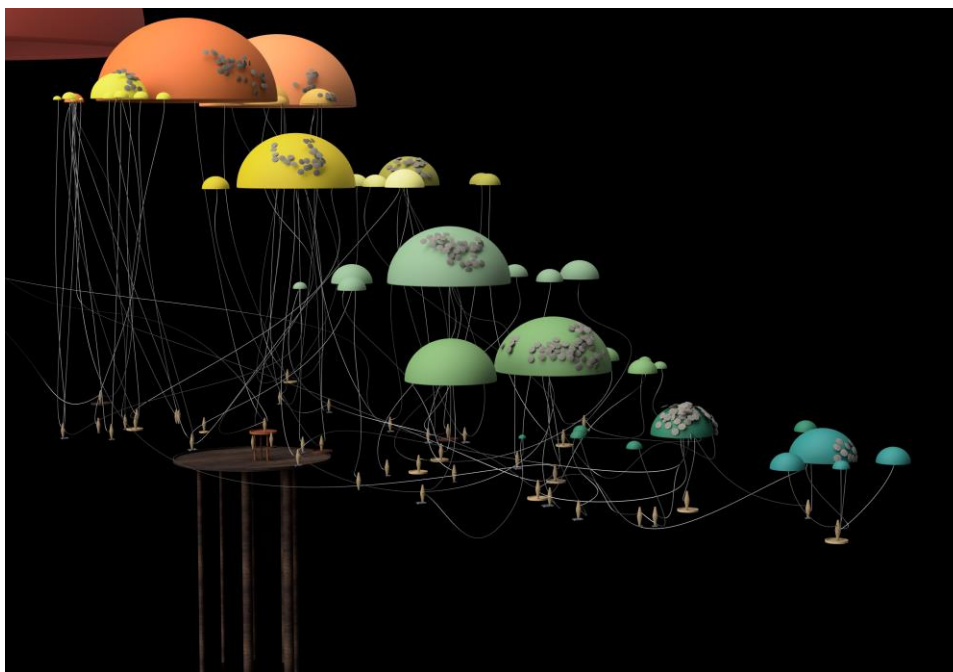
Figure 6. Subjects, staff designations and positions within the Department of Architecture and Industrial Design as architectural model by author (2021)

The resulting model is an unusual object. It is clear that the model is not exhaustive, many quantities and qualities have not been selected for inclusion and so a very large number of alternative models are possible. In addition, each individual designer would (likely, hopefully), due to the high degree of subjective expression, produce an entirely unique perspective on the organization.

It includes a small table so that it can be understood as a model, but in digital space, the perspective from inside the model also creates the appearance of a landscape.
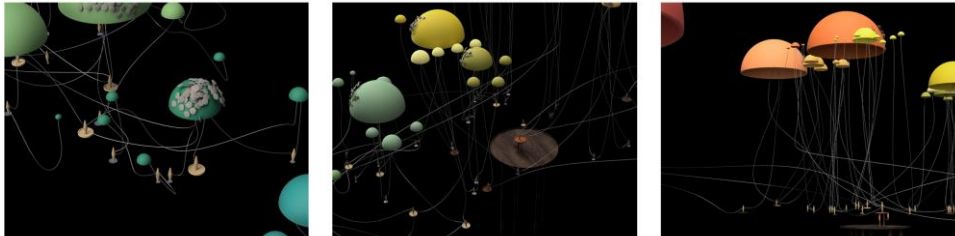
Figure 7. Detail views of organizational-structure model by author (2021)

As in previous models, the quantitative aspects of the information can be unpacked and explained with text notes (or specifications). Below, the individual subjects are labelled, and their credit weighting is quantified.
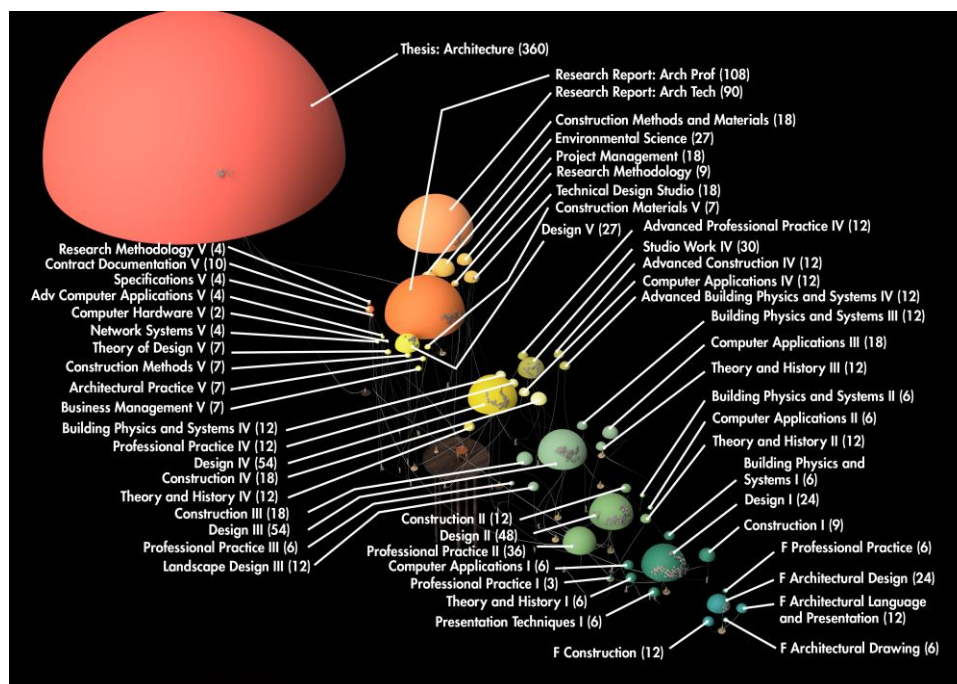
Figure 8. Re-extraction of some quantitative values – subject names and credits by author (2021)

There is an exaggeration in the scaling of individual subjects. The credit weight of each subject is embedded in the model trough the diameter of the domes representing each subject. Tufte[8] has argued against this sort of exaggeration (on a linear representation, the difference in size between subjects would be subtler, since the volumetric increase in size is effectively exponential, which is not reflected in the original quantities). I had decided to keep the exaggeration in place, precisely to illustrate the difference between "credits" (number of hours) and that which it is supposed to represent (the acquisition of knowledge). In other words, an hour of study in the first year of study could be argued to be exponentially less content-heavy than an hour of study at the doctoral level.

Additionally, the quantities used to construct this model are themselves slightly strange. Subject credits, though deceptive as a measurement and quantification of knowledge, are more or less straightforward – they represent the number of hours of study that a student spends on a subject and have been used to determine the size of each dome. Students are represented simply by the number of individual enrolments and are represented as individual 'buttons' on the major subject of each year.

But, to place the staff, the quantities are not as straightforward as they seem. I have used floating platforms to indicate their employment level. The University's bureaucratic reporting structures require quantified measurement of employee contribution, resulting in the slightly esoteric unit of the SLE – Senior Lecturer Equivalent. These attempts by the university to quantify the diffuse values that education builds, transfers, and in a capitalist economy, are assumed to sell, are always deceptive, but have been useful in the production of the illustration. Part-time employee contributions are measured through number of weekly hours in an employment contract and full-time staff members are indicated as a percentage of an SLE.

These sorts of distortions would have to be addressed by producing a large number of different models, so that different arguments could be illustrated in visual and tactile media.
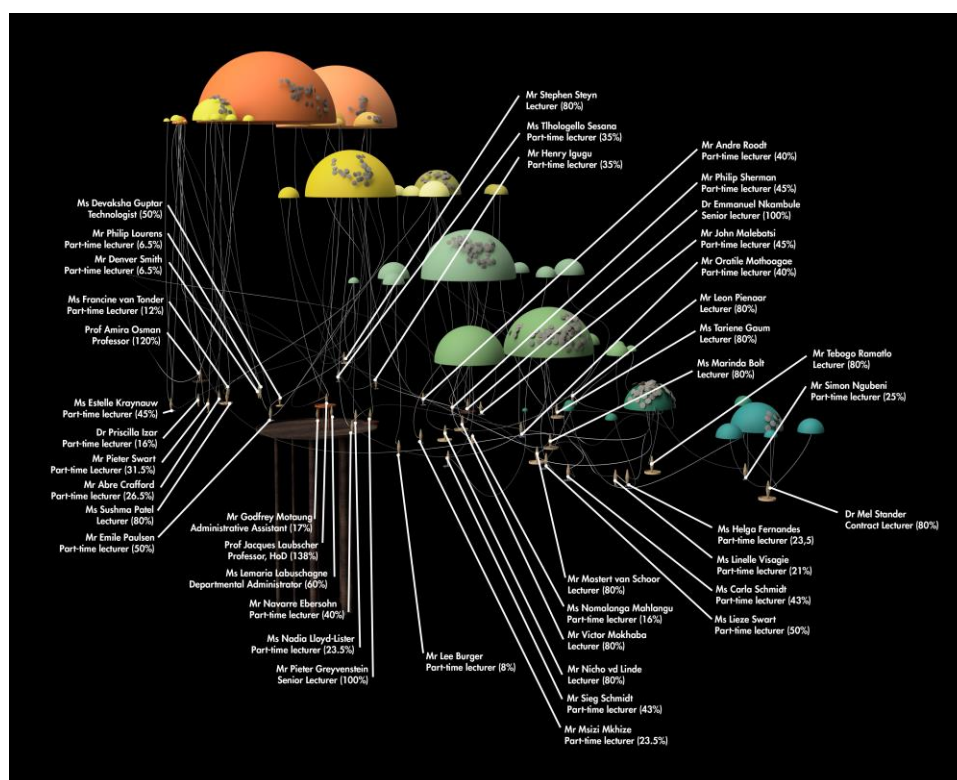
Figure 9. Re-extraction of some quantitative values – staff names, designations and appointment level as percentage by author (2021)

In a vivisection of the model, tentative relationships between staff of the department can be visualised relative to the subjects with which each is involved. Of course, organizational politics are contingent on more than the projects that convene us and the relationships that cannot be illustrated here – friendships, affections, distastes etc. form a deeper level of investigation which is currently outside of the scope of the project.

With the inclusion of real persons and their positions in architectural representations, I am constantly aware of Walter Benjamin's chilling warning in *The Work of Art in the Age of its Mechanical Reproducibility,* where he states that *"all efforts to render politics aesthetic culminate in one thing —*

war"[9]. As an antidote, he recommends the politicization of art. I hope that this project will be able to straddle that rather delicate line and empower, rather than replace, inclusive organizational politics through increased access to the structures in which we are embedded.

Luckily, the opacity of the objects makes them less useful as tools for managerial manipulations and surveillance. Objects, in general, cannot be translated directly from verbal logics nor can verbal logics be directly translated from them. They require thoughtful and deliberative analysis. This analysis involves the reading of objects and therefore mimics dream interpretation more than straightforward extraction.[10] I have written elsewhere in more detail on the analysis of architectural artefacts as shared "dreams" in the Freudian tradition.[11]

The body in time[12]

In *Images of Organization* Gareth Morgan[13] provides a comprehensive account of the metaphors with which we understand organizations, both historically and in contemporary terms. He broadly categorises them, from more concrete images like "Organization as Machine, Organism, Brain, and Culture", to more abstract metaphors; "Organizations as Political System, Psychic Prison, Flux and Transformation, and Instruments of Domination". Morgan is careful to point out that no one metaphor is exhaustive, or 'true' in comparison to the others, but argues that all offer useful perspectives on a larger, more complex concern.

The project above has expanded the metaphors with which I understand organizations to include the image of *organization as landscape.* The landscape, however, is always conflated with the body since the metaphors at the core of two key terms – organization and corporation both refer explicitly to the body. Organization means roughly "the making into organs (of something)" and corporation "making into a body". I would argue that, though Morgan leaves space for this metaphor under the headings of "organism" and "brain" that it is more fundamental to our understandings of organizations than other metaphors. In fact, corporations are considered, even in less poetic disciplines like law and finance, to be persons — each organization a somebody.

It is a metaphor, but it may also be more literal. In *Geologic Life,*[14] Kathryn Yussoff makes a pioneering argument when she describes the possibility of taking literally the animating force of fossil fuels – our pre-historic ancestors brought back to life through mechanical intervention. Similarly, it is possible to take seriously the possibility that organizations are more than abstract networks. Since they do contain conscious agents, they may be more literally like persons than what metaphorical transference allows us to imagine.

To argue for taking seriously that organizations really are like persons may seem anthropocentric, but I would argue that it is *anthropomorphic* instead. In *Monsters of Architecture: Anthropomorphism in Architectural Theory,*[15] Marco Frascari makes a clear distinction between the two practices, and argues in favour of anthropomorphism. The transformative potential of the anthropomorphic manner of working lies in the fact that, if we are able to identify with representations, objects and other creatures, we can be transformed by them. Frascari has also argued convincingly that metaphors of the body are also at the core of our understanding of architecture.[16]

The conflation of architecture, landscape and self, and the new possibilities for bodies that emerge from such a conflation are well captured by theories in Queer Ecology.[17] In response to Aristotle's Zoon Politikon (man as political animal),[18] then, I would like to frame organizations as political animals. When we produce images of their bodies, they depart from the human figure (like Abraham Brosse's cover for Hobbes' Leviathan)[19] and produce giants that are at once familiar and alien, and which require interpretation to access.

CONCLUSION

South Africa has a complex relationship with its heritage, but it is not entirely unique. It is a young country – it became a Republic in 1962, meaning that many of our institutions are older than the nation in which they live. South Africa has been a democracy for slightly less than thirty years. During the course of the most recent decades, many have expressed concern that our society seems to be transforming in theory only, and that the material conditions of our daily lives remains insufficiently transformed.

It is here that we are not unique. My hypothesis is that, though our governments may be democratically elected, they are themselves not democratic organizations and neither are any of the other corporate superstructures that make the world on the super-individual scale. Further, I suspect that the opacity of bureaucratic instruments and processes are at the root of this problem. People are not able to access, conceptually, the structures in which they find themselves, and so cannot participate in its transformation, even should the structure desire and demand it. I suspect that architecture has a contribution to make in granting us conceptual access to these structures, bringing the making of the world into our collective grasp.

NOTES

[1] Basil Davidson, *Africa in History* (London: Phoenix Press, 1966), 275-280.

[2] They are not quite the 'hyperobjects' which Timothy Morton has identified in *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis and London: University of Minnesota Press, 2013). Though they are massively distributed, and share many of the qualities of hyperobjects, it is precisely the quality of hyperobjects as, by definition, ungraspable, that separates them from organizations as objects. This paper argues that, though they are complex and difficult to grasp, it is possible to do so – if only partially - through architectural representation. They exist at superhuman scales, but not at scales that are fully inconceivable.

[3] Ian Baucom, *Specters of the Atlantic*, (Durham: Duke University Press, 2005), 14–45.

[4] See Bernard Tschumi's, "Architecture and Limits," in *Theorizing a New Agenda for Architecture: An Anthology for Architectural Theory 1965-1995*, ed. Kate Nesbitt (New York: Princeton Architectural Press, 1996), 150–167.

[5] See more detailed commentary in Stephen Steyn and Sushma Patel, "Me Here, Them There, Me There, We Here. Some Applications for Conventions of Architectural Representation in the Recognition of Informal Values" (paper presented at the Architecture_MPS Alternatives to the Present Conference, London, November 1-2 , 2018)

[6] Edward Tufte, *The Visual Display of Quantitative Information* (Cheshire Connecticut: Graphics Press LLC, 2001).

[7] Brian Massumi, "The Autonomy of Affect," Cultural Critique 31 (1995): 83–109.

[8] Tufte, *The Visual Display,* 54-77.

[9] Walter Benjamin, "The Work of Art in the Age of its Technological Reproducibility," *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*, ed. Michael W. Jennings (2008): 54.

[10] Sigmund Freud, *The Interpretation of Dreams,* trans. Joyce Crick (London: Penguin, 2002).

[11] Stephen Steyn and Sumayya Vally, "The Translation of Dreams: Psychoanalytic and Poetic Devices in South African Architectural Education," Writingplace 1 (2018): 101–112.

[12] Architects often refer to 'the body in space' (it remains a pertinent concern for the discipline). This section is a critique of the idea of the body as a historically specific, invented phenomenon. When we say 'the body in space', in other words, what exactly are we referring to? Who's body, more or less? How has that image of the body come to be understood as a common definition?

[13] Gareth Morgan, *Images of Organization* (London: Sage, 2006).

[14] See Kathryn Yusoff's "Geologic Life: Prehistory, Climate, Futures in the Anthropocene" Environment and Planning D: Society and Space 31 (2013): 779–795.

[15] Marco Frascari, *Monsters of Architecture* (Savage: Rowman and Littlefield, 1991), 27.

[16] Frascari points to overlapping metaphors present in terms like 'footprint, skin, facade, circulation, bones, spine' etc. to argue that the conception of architecture as an extension of the self is fundamental to architecture.

[15] Timmothy Morton, "Guest Column: Queer Ecology," in PMLA 152 (2010): 273-282.

[16] Ahu Tunçel, "The Ontology of Zoon Politikon" in Synthesis Philosophica 54 (2012): 245–255.

[17] Thomas Hobbes, *Leviathan or The Matter, Forme and Power of a Commonwealth Ecclesiasticall and Civil, ed.* Ian Shapiro (New Haven: Yale University Press, 2010).

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METROPOLITAN ENCHANTMENT AND DISENCHANTMENT. METROPOLITAN ANTHROPOLOGY FOR THE CONTEMPORARY LIVING MAP CONSTRUCTION

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EMOTIONS, BELIEFS AND VALUES IN THE SYMBOLIC REPRESENTATIONS OF THE CITY

The symbolic representations of the contemporary Metropolis versus the 'accounting' dimension of the homo oeconomicus of last century's Grossstadt. A shift in the cultural paradigm

Figure 1. The two Urbanities. The space of places and the space of flows

The technological capitalism of complete mechanisation described by Weber in Economy and Society[1] and Economic History[2] results from the technologically driven city. It has forgotten history, producing a type of rationalisation that has eliminated magic and ritualism and has contributed to the formation of the modern globalised world in the name of mechanised routinisation promoted by global markets.[3] The product is metropolitan disenchantment. According to Weber, the loss of the use-value of objects in favour of pure exchange-value and the reproduction of art objects seems to link the possibility of generating enchantment instead to religion and magic, which can awaken in the metropolitan inhabitants the passion for action (as opposed to blasé ethics).

The last century Grossstadt was analysed by Massimo Cacciari. The disenchantment stems from the very definition of Grossstadt as the city of capital, consumption and trade. It is from Cacciari's interpretation that we want to read the seeds of a contemporary "second modernity" metropolis that is so different from the "first modernity" one in terms of structure, inhabitants, and complexity, with the latter being unprecedented and incommensurable compared to the city of the past.

According to Cacciari, the function of the Metropolis is to uproot the individual from that conservative fixity which is the result of the traditional-mythical character of rural life. To this

uprooting, the metropolitan citizen reacts with the brainpower, which can abstract again the 'substance' of exchange-value from the 'appearance' of use-value. The Metropolis allows the reciprocal and dialectical functionality of Spirit and Intellect. In the modern Metropolis, seen as the destiny of the city, "production assumes its own 'social reason', determines the modes of consumption and succeeds in functionalising them for the renewal of the cycle. Thus, the Metropolis must implement the Nervenleben [Spirit] in order to realise, through use-value, the exchange-value that the Verstand [Intellect] produces, to reproduce the conditions of the Verstand".

Today, in the contemporary Metropolis, the value of use and exchange has been added to the 'connection-value' or 'relationship-value' that, according to Bruni,[4] is the real innovation that the Metropolis presents. The metropolitan common good must be sought through different scale relationships directly and intentionally, and not be left to the indirect play of private interests. Intentions are essential and must lead to a direct search for the good of all and not of single individuals.

We can no longer interpret the contemporary metropolis as we did in the last century. The thought of civil economy regarding the contemporary Metropolis conflicts more or less radically with the merely acquisitive dimension of the behaviour of its citizens. What is needed is therefore a new capacity for imagining the economic-productive future of the city: hybrid social enterprises, economically sustainable, structured and capable of using technologies, could be a solution for producing value and distributing it fairly and inclusively.[5]

Metropolitan Urbanity is another issue to establish.[6] Metropolis needs new spaces where inclusion can occur, and where a repository of the imagery can be recreated. What is the ontology behind the technique of metropolitan planning and management, its vision and its symbols? Competitiveness, speed, meritocracy are political words, not technical ones. Metropolitan Urbanity is the characteristic of a *polis* that expresses itself in its public places. Today, however, public places are private ones that destined for public use. The Common Good has always had a space of representation in the city, which was the public space. Today, the Green-Grey Infrastructure is the metropolitan city's monument that communicates a value for future generations and must therefore be recognised and imagined; it is the production of the metropolitan symbolic imagery, the new magic of the city.

The new codes of the magical and the extraordinary through metropolitan Green-Grey Infrastructure

A paradigm-shifting way of thinking about new metropolitan spaces produces different sets of mental maps where the higher ones imply the lower ones. In every moment of discontinuity and change, the architecture meaning is re-founded through the definition of a new formative trace. At each stage of the development of our societies, social codes of a "language of relations"[7] change, and a new symbolic organisation is founded. From a city of faith to a city of machine transition,[8] the body ceased to orient itself in the world through the network of symbols the citizen was used to employ to distribute space, time and order of meaning. In the opening between the city of the machine and the ecological city, the formation emerges of a body-space[9] structured by a built-landscape [10]to construct a metropolitan mental map. It is an open space that inverts itself from an object's background to a self-figured subject,[11] functioning as a creative driver for constructing a mental map of the void at the metropolitan scale. This structural paradigm shift also entails new built form types. For Shane,[12] Heterotopias are new built form types, the origin of a contemporary metropolitan urban space that has changed the paradigm, whose structure is now represented by a Green-Grey Infrastructure and no longer by the solid street-piazza matrix.[13] In Recombinant Urbanism, "Heterotopias, - says Shane -, are sites that replace places". The site in genetics is a section of the gene capable of mutating independently and recombining with adjacent sites due to crossing over between genes. Heterotopia

replaces the concept of place with an artificial transposition of geographic uniqueness (the site) within a new metropolitan morphotype. It is a new nature. Lynch's[14] question about geography and nature as the city spatial phenomena is still in the background. Moreover, the tectonic image of contemporary design[15] as a constructive montage of images and not as scenography, supports these scale transitions by constructing a set of landscapes. It is therefore necessary a new image of a map conveyed by signs within the study of a structural paradigm that regulates the transitions of scale, which are the primary reason for the city models to change.

We must reconceptualise the infrastructure in between space. Its deep structure has the syntactic capacity to order the metropolitan space according to specific internal laws. It must connect the architectural type to the deep structure of the ground project[16] as a founding part of the new built form type, and must also determine new urban-rural linkage patterns. New ways of using the land must be determined, allowing the recognition of a new conventional form of spaces "in between" the different urban, rurban, rural, natural landscapes.[17] This provides the potential for a system of contrasts and hierarchies of rhythmic differences, sequences and oppositions that give rise to gradations of public, semi-public and private spaces within a functional logic, which allow the new architectural sign to express itself. In this way, a new perceptive structure of the architectural language, the signs that, as in the talking architecture,[18] convey meanings to the imagination, is also enhanced. In this sense, we must introduce the concept of memory and symbolic mediator that can regenerate the enchantment, the magic of the metropolitan city. This form has a syntactic value and a semantic play that makes it vital.[19]

Figure 2. Metropolitan Green-Grey Infrastructure. Ahvaz, Shadi Aein Drawing

The body-space, the Green-Grey Infrastructure, is not physically an architectural object. However, conceptually, through the new types of metropolitan architectural projects (urban morphotypes, megastructures, hybrid buildings, comfort containers, big boxes), it is part of living since it brings the domestication of space that we link to architecture's ability to create spaces. The Green-Grey Infrastructure that spans the contemporary metropolitan city at the scale of the Bigness[20] must also allow rediscovering an intimate contact with the local scale space, amplifying sensations of our body, elevating them to that "something mystical" that characterises the act of discovery. However, these

are sensations that are never fully revealed and retain the charm of mystery, the secret, the magical and the extraordinary.[21]

The Green-Grey Infrastructure could thus be added to the list of those "beloved spaces" mentioned by Gaston Bachelard in The Poetics of Space. It is a space that can be inhabited with the body, and even if it constitutes the incommensurable dimension in the contemporary metropolitan city, it is the object of memory.

Memory is always in an operational nexus with imagination and the symbolic. It is an intermediary between an actions programme in the agenda of appointments with things and people that must be equipped with maps and charts; metropolitan citizens create a map loading on it and organising different temporalities and memorable symbolic relationships. Venturi taught us to draw different maps and hypothesise interactivity between mental maps. We are looking for that which guides the possibility of memorable mental representation through the object detected in reality.

Figure 3. Milan Metropolitan Heritage and Memorable Image, V. Galiulo Drawing

The surreal enchantment. Re-sensualising the architecture of the metropolitan city

Aragon introduced us to the world of the surreal image and the unconscious. A second way towards knowledge starts from real data but tries to understand the world in an atmosphere that generates correspondences and expresses itself through a language that tells of the encounter with the mystery of people and things. Shane introduced the surreal by describing the Heterotopias of illusion as "fast-changing and flexible, with a high potential for change and recombination". Lynch also argued a symbolic resonance that conveys the meaning of place.

The unconscious, the dark side of things, is created through a progressive unravelling of deep meaning. Therefore, the primary structure of the city must allow a symbolic deepening as it is fully

experienced to encourage the construction of new meanings through which inhabitants can make the world their own.

THE METROPOLIS AS SECOND NATURE
The role of form in the contemporary Metropolis and Zarathustra's Monkey

For Cacciari, the Metropolis without aura, the commodity city or terrain of class struggle where even the arts are capitalistically exploited, opens the door not "to suffer destiny – as the monkey of Zarathustra – however, to theorise about it without contempt "(pp.29).

The problem is understanding the forms of the city's role in the overall process of capitalist rationalisation. The Metropolis is a political concept, an original political organisation that makes the capitalist system a multi-articulated urban type, an overall service, a whole, a political power, a state as absolute order, destroying the corporative relations of the past. The Metropolis, then, is not only an economic or military fact as it was for Haussmann in 1848.

Concerning the meaning of the notion of the memorable in the Metropolis of the last century, the architect's task was to conceive the Metropolis as the "new Beauty".[22] Benjamin's Images of Cities was born. In the second Modernity era, the Metropolis memorable image is the experience of the shock, the contradiction, the complexity, the multiplicity of times and existence and the possibility of a synthesis given by culture, but only through a synthesis of times in duration, where the values of the Metropolis' public good are affirmed.[23] Shane's Heterotopias of Illusion are the Metropolitan urbanity solution to imagine new building types such as urban morphotypes, urban-rural linkages and new land-use patterns to build memorable beauty. Therefore, we need new tools to conceive and map the new metropolitan reality.

Metropolis: the open place as destiny. For an anthropology of the inhabited Metropolis

Today, metropolitan citizens, like Anthony Giddens' reflexive individual, inhabit a stratification of urban maps on an ever-increasing scale with which they are connected in real-time and virtually by web networks. That signifies atopic proximity and equivalent time between cities at different distances (multiple) enabled by networks with different speed standards. It is necessary to carry out an analysis that tends to be anthropological rather than sociological to explain how to inhabit a metropolis where the "subject feels the full weight of his work of 'disenchantment', of tragic awareness of the Data".[24] Contemporary Metropolis dialectical structure once again expresses the life of the modern spirit.

We encourage the Anthropology of the inhabited Metropolis. The metropolitan phenomenon has been reduced to a discussion on the multiplication of jurisdictions. Anthropology, instead, considers the city structure as concerning the citizens' behaviours in scheduling their time to move around according to the most diverse motivations. We therefore deal with the "inhabited Metropolis", which involves a theoretical investigation on the technical tools required to conceive a memorable image of real metropolitan architecture projects, an image that enables a metropolitan mental (virtual) map to plan the citizens' agenda.

A Metropolis communicating through 'imagines agentes'. The City of Muses

The heart-motor of an anthropology of the inhabited city considers the contemporary Metropolis a City of Muses.[25] This means conceiving a project idea and its strong communication through imagines agentes,[26] archetypes repeated as analogues in the Metropolis construction. We are talking about a project as context's components relations rooted on topographical/geographical maps looked at with the hermeneutic eye. This is the key to the City of Muses: hermeneutics that discovers/invents the

"public good" as including natives, residents, and new inhabitants. The Metropolis map must be constructed for geographical reasons, highlighting its Green-Grey architecture (the metropolitan structure) and its new edges that transcend the administrative limits of today's jurisdictions. It must address and communicate ecosystem services as the foundation of spatial and environmental justice and a new definition of its trans-action hybrid landscapes.[27] The true-to-life map of the contemporary Metropolis invested with ideal meanings must be highly evocative of the profound mission of the Metropolis' decision-makers as curators of a delicate asset. They have to see and understand this analogous map, which is so much more complex and accurate than the one, now forgotten, of A. Rossi's Analogous city - so intimate compared to the epic one of today. What is more, it is not just a metropolis map, but is an actual entity that concretely interacts with the citizens.

Figure 4. Metropolitan Capriccio, V. Galiulo Drawing

THE TOOLS
The Map of Otranto. The origin
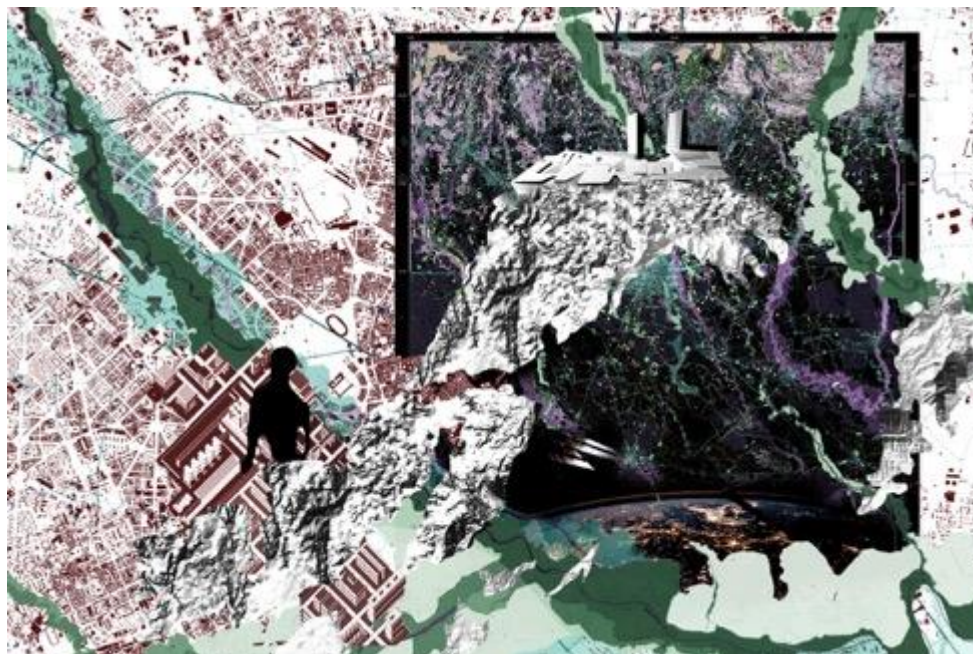
Figure 5. Otranto Cathedral, The Floor

The technical interpretation of a map through the science of language does not fully describe its power. It is a map image that keeps alive the story of the life that pulses there. The signs of the map are like the words of a language. Words/voices/songs are modern distinctions.

The floor mosaic of Otranto Cathedral is a map without geography, without the technical structure of the military component. It is composed like music by a cyclic movement, wave, breath, alternation, voices, songs. The beauty of the Otranto 'map' is that, in addition to possessing intrinsic rhythms, it is perceived according to the beholder's rhythm/direction/step (physical, mental step, sensitivity). The Otranto map well represents the concept of harmony, of a non-random interlocking of voices/parts. We must map all this when we have to describe the deep meaning, the aura of a place, which seems lost forever.

De-colonising the mind. The irruption of the symbolic through the female gaze

The Metropolitan Cartography, produced by MSLab,[28] intends to propose a method for the production of maps for fragile European and South American territories; this method takes shape in the rules of language but also in the dimension of the local symbolic, to recognise and renew the enchantment of places. This dimension characterises the mapping of the territory by women's experience. The Metropolitan Cartography subject is a woman.

That is the fruit of the symbolic revolution that allows each culture not to be enclosed within the narrow concept of "identity" but to open up through the search not of what makes us different but rather of what makes us similar.[29]

The enchantment of the word and the voice of the map

Cavarero explores how to extract the uniqueness of a place and its inhabitants from the narration of each story, teaching us that there is no mutual understanding if there is no relationship between a "self" and a "you" capable of narrating its story. The author proposes a philosophy of narration rather

than logos, which can restore the uniqueness of the embodied subject and the necessary interweaving of beings-in-relationship. Cavarero also introduces the theme of voice as a revelation of uniqueness.

We introduce the discourse of the words' relations map, understood as signs and symbols, capable of recognising and communicating the enchantment and beauty of the city again through the narrating voices. We are defining the construction process of the Metropolitan Cartography maps at the S and XS scale, dealing with what is considered fundamental according to which mechanisms, signs and symbols. We also introduce the possibility to think differently by recognising the diversity and the invisible in the map—the rebirth of the enchantment for the works of human beings is necessary for a fair distribution of resources based on the concept of the value of relationships and bonds, and social justice.[30]

The map is seen as the product of the relationship between the uniqueness of the words; the sound of each narrated voice is unique. Indeed, we are not only looking for an abstract universal metropolitan territory/subject, but also for the fragile subject, with its relational character embodied in the irreducible uniqueness of the narrative of a specific territory, of intelligence to be recognised, protected and developed, really lived and acted upon by metropolitan citizens.

This theme is also common to another author who is fundamental to the definition of feminist cartography as capable of revealing dissonances and differences in order to weave new bonds. Braidotti[31] argues that no map is without its performative character: doing, acting, becoming. "Map as (social) staging" that through certain norms of recognition and schemes of intelligibility produce new subjects, undoing the territory's solid matrices.

The concept of reality and new information technologies

Today, the metropolis cannot grow by elementary additions but by integral ones that require subversions in the paradigms of urban form and the tools for imagining and pre-seeing it. Our question is related to how the concept of reality changes with the new information technologies and if the communication of this reality changes at different scales. Consequently, our map must integrate the signs marked on the ground of past places with those left by contemporary crossings.

Our cartography is the rupture of the map—its signs gradual loss of ability to communicate profound meanings about inhabiting the earth. We deconstruct maps by including the artistic phenomenon in the construction of maps. It is a matter of thinking about a technique that investigates and explores the components of the landscape and its narratives, energy flows, symbols and stories that are part of the understanding of the territory and that can be mapped to represent contemporary movements stratified in the space/time of exploration; the elementary anthropological signs of the local space will change and hybridise with those of the past.

The images produced by human beings build an essential part of metropolitan maps; with our mobile phones, each of us immediately becomes part of a map. So, the moving body itself is a kind of territory because it is the product of identity, relational/emotional capacities and biometric properties that today can be calculated through wearable technological applications.
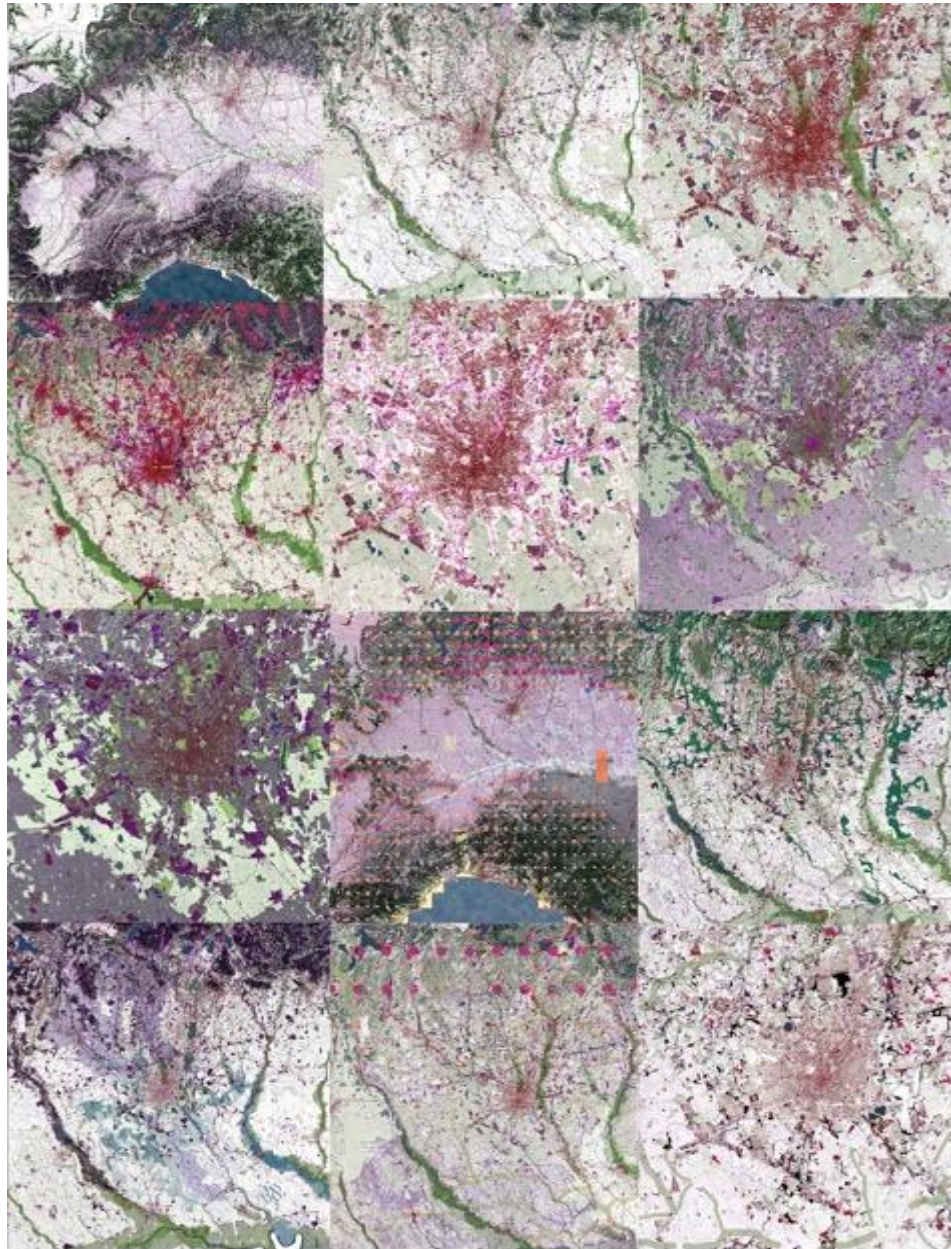
Figure 6. Metropolitan Cartography, Protocol Maps. V. Galiulo 2020 - 2021

Dis-similarity and de-figuration for figures that do not 'visibly represent' but 'visually show'

According to Didi-Huberman, the image can signify reality, but with a completely different intent; it has the value of a transfer, passage, association, and not of a definition; it becomes a mental path that is never mere aestheticism, but leads to aesthetics towards conceptual, rational and spiritual paths.

Thus, in the map, the figure of the relationship between the elements is created and read, paradoxically, through a process of de-figuration, i.e., going beyond the mere iconic representation of an element of the territory to arrive at the hidden meaning of the subject represented, at its relationships, which we have found through a process of key words and relative concepts within a Metropolitan Glossary.
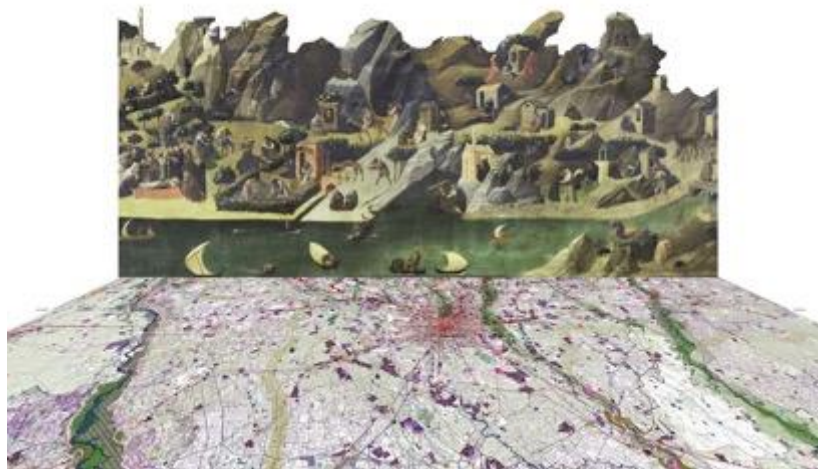
Figure 7. New Information Technologies in Metropolitan Cartography Maps. La tebaide, Beato Angelico 1420 on Ecosystem Services Protocol Maps, Milan L. Galiulo, V. Drawing

Through the Glossary, the map image becomes knowledgeable because it is the means to represent qualitatively, i.e., in relation, the quantity of data.[32]

We needed for our maps, especially those that work at small scales, to introduce a mode of representation that, while acknowledging the primacy of Alberti's principles, which founded the structure of our virtual/mental mapping, could represent local territory elements' deep meaning. According to Didi-Huberman, it is a question of conceiving an infinite universe of relations, of interpretative grids. Even the smallest element of reality enters into ever new and original correspondences with another particle, opening up its meaning and the related imagery.
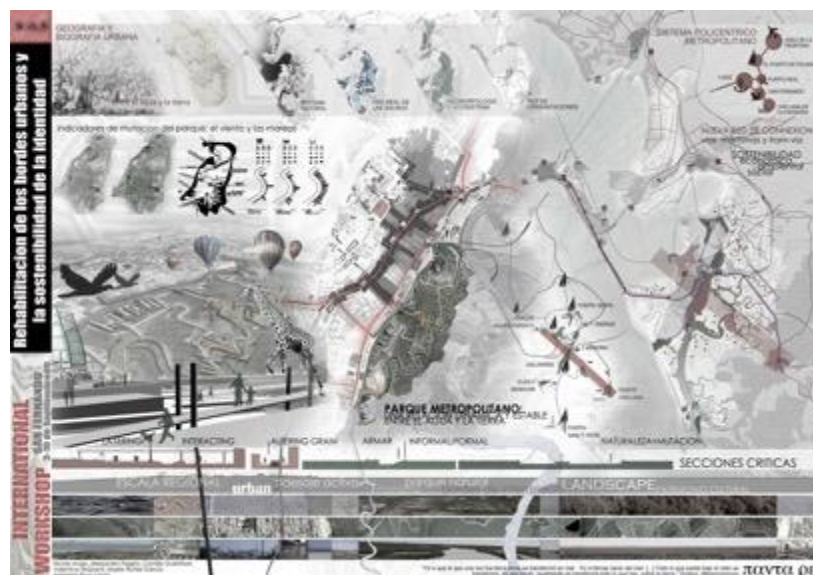
Figure 8. Cadice- S. Fernando Metropolitan Park,
N. Avigo, A. Frigerio, C. Guerritore, V. Mazzanti, N. Nunez Garcia
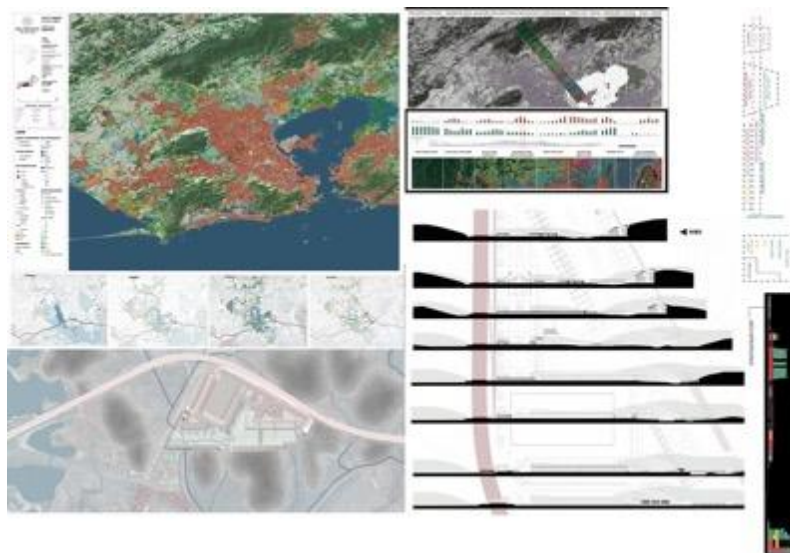
Figure 9. New Built Form Type for Rio de Janeiro, D. Marcon, A. Contin, V Galiulo, F. Mistò.

CONCLUSION

Dis-similarity and de-figuration are the two operations that create figures which "are not valid for what they represent visibly, but for what they show visually, beyond their appearance".[33] Therefore, the map presents clues to ways of looking at reality. Didi-Huberman refers to Peirce and Poe and defines the clue as the vestige of a contact, a mark left, a material imprint. We called it a symbolic mediator, and today we add to this concept, borrowing from Didi-Huberman, the notion of symptom.

Maps allow us to imagine and involve the observer through the mimetic paradoxes of dissimilarities.

We cannot forget that our maps are also a technical tool for raising awareness of a context with particular criticalities to remediate. Therefore, we must provide the observer and the map's curator with conceptual tools that allow for coherence in their actions. Thus, we introduce a phenomenological assumption that refers to the act of the subjects curating the map, to what they want to represent; an aesthetic assumption that aims at the subjects of the gaze and refers to what they want us to understand; an anthropological assumption dedicated to the definition of images that deeply concern the inhabitants of our contexts; and finally, a semiotic assumption, related to the deep meaning.

Furthermore, it is in this way that, as Didi-Huberman points out, we can also recognise the freedom of imagery associations as a fact of structure in which "each image is only clarified in the global vision of all the others, however disparate and dissimilar they may be".

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THERE IS NO REMEMBRANCE WITHOUT ARCHITECTURE. RELOCATED MONUMENTS, COMMUNITY AND MEMORY

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A NEW PERSPECTIVE IN CULTURAL PROPERTY PRESERVATION. WHY PRESERVE HERITAGE? WHAT TO PRESERVE? FOR WHOM TO PRESERVE IT?

Cultural Heritage theory establishes the duty to preserve it due to its inherent value and the acknowledgement that it constitutes a non-renewable resource that, once destroyed, cannot be replaced. Cultural Properties must therefore be preserved for the benefit of future generations. But it should not be forgotten that we have not received our cultural heritage as an integral legacy that we could theoretically consider complete. The UNESCO World Heritage Convention (1972) dictates the material protection of Cultural Properties along with a reminder of the dangers that threaten them. As I have analysed in previous studies,[1] Western conception of heritage preservation has focused its interest on material conservation and acknowledges that the process of conservation implies that heritage is received by each era and each community in a different way. Heritage would be constructed through systematically renewed manifestations of changing perceptions of the past over time. Thus, the fundamental question for heritage conservation and management is not how much heritage from one period may or may not survive intact into the future, but what heritage, as our legacy to future generations, will benefit future societies.[2]

This perspective allows us to address the question of community and societal reception of cultural properties and the conjunction of its tangible and intangible values, but my approach is that it does not encompass the full complexity of the debate. As I have argued before, material preservation is not the only way to guarantee the preservation of our cultural heritage, and we must also consider that the concept of authenticity is neither universal nor univocal, and that each cultural context presents its own. The West has established that cultural heritage is one of the forms in which memory is materialised, and therefore the preservation of its authenticity has become the focus of reflection. As a result, material conservation has prevailed over preservation. I agree with the idea that we must ask ourselves whether we have created what we can define as a devotion to the perpetuation of past remains[3] and whether restoration has become an aim itself.[4] Other cultures have reminded us that the conservation of materiality is meaningless if it is not linked to the permanence of immaterial values and have made them the priority in heritage guardianship,[5] as maintaining significance is sometimes more important than conserving matter.[6]

One cannot ignore that cultural heritage is subject to a continuous process of transformation and that damage and catastrophes, even inadequate restorations, create new heritage. Bruno Foucart argued that restoration creates a new work, and that even such recreating interventions as Paul Abadie's at Saint-Front de Perigueux have kept alive works that are thus alive, albeit in a state that had never

existed in the past,[7] and have been received and reinterpreted based on that transformation. The complexity of the process of continuous heritage creation and reception is more evident today than ever before. In the case of monuments displaced by the building of dams, the question of intangible values and reception is crucial, since they have been subjected to profound transformations and separated from their original environment. I propose that it is necessary to analyse these cases from the perspective of the transformation-reception of their values, apart from as a technical process.
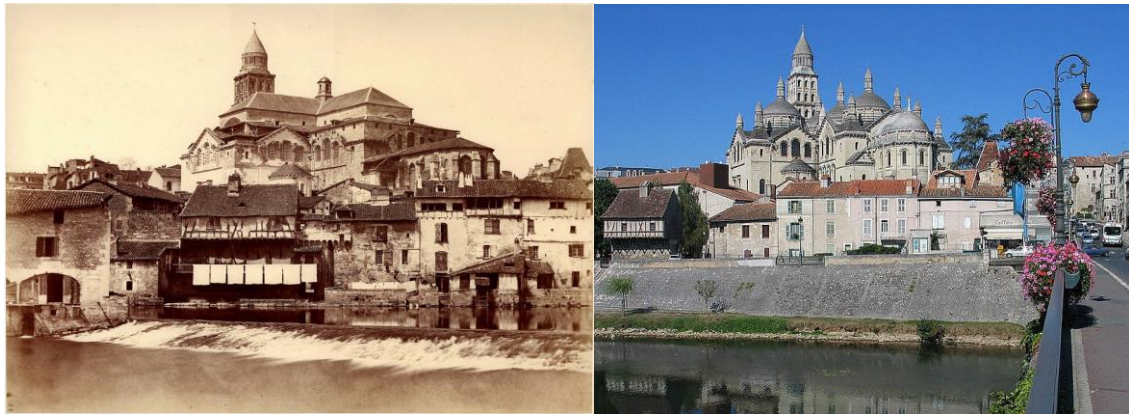
Figure1. Saint-Front de Périgueux. Before and after restoration. Postcard and Creative Commoms

MONUMENTAL RECOVERY AND PRESERVATION AFTER UPROOTING. PRESERVING TODAY FOR THE FUTURE. HERITAGE COMMUNITY AND CULTURAL RESILIENCE

I concur with the idea that heritage conservation is a forward-looking process through which the past is brought into the present to shape new practices and environments. However, the aim should be to preserve for everybody, rather than forever. It is true that we accept that our generation has the responsibility to preserve that legacy for the future, but it has been suggested that we need to reflect on who we are and what that future is.[8] In my view, this 'we' refers to society in general, but more specifically to the community that interacts with heritage and endows it with meanings, and the future is not necessarily that of the next generation, but also that of our own. We must not forget that our today is our tomorrow because it shapes that continuous process in which every moment leads to the future. We must conserve heritage for our present and future as well as for our present and future selves. In this way, conservation presents a different meaning. This is not a forthcoming task, of which we shall not see the fruit, but a present responsibility that will allow us to receive, maintain and enjoy heritage. I believe that the meaning of inheritance, as applied to cultural heritage, should not so much be that of bequest as that of transmission. Thus, I propose that one can only pass on what one has, owns and is responsible for in the present. The heritage preservation is fundamentally a duty towards our society and our community, and only by this duty fulfilment it can be guaranteed that heritage is transmitted to a future in which it might be endowed with new meanings, it might be transformed and acquire dimensions that we cannot conceive today, or, on the contrary, it might simply disappear.

This complex and enduring relationship between heritage and the communities linked to it, which consequently define it, is embodied in what the *Council of Europe Framework Convention on the Value of Cultural Heritage for Society* (*Faro Convention*, 2005) defines as a heritage community. This document recognises the right of everyone to establish links with the cultural properties of their choice, as an aspect of their right to freely take part in cultural life. It is aimed to involve society in the process of defining and managing cultural heritage, and this heritage process is conceived as a *continuum*. More specifically, the convention understands cultural heritage as 'a set of resources

inherited from the past that people identify, regardless of who they belong to, as a reflection and expression of their own and constantly evolving values, beliefs, knowledge and traditions, and affirms that this encompasses all aspects of the environment resulting from the interaction between people and places over time'. It asserts the idea that cultural heritage has a meaning in the present and must be preserved for the community.

The same document states that a heritage community is constituted by people who value specific aspects of a cultural property that they wish to preserve and pass on to future generations, within the framework of action by the public authorities. It is a group of people who are united in valuing a specific heritage and in the will to preserve and transmit it. This implies that heritage conservation should make people aware of their heritage and that it should be given back to the community: it should be people who learn to recognise the importance of their heritage in all its aspects and, consequently, attribute value to it.[9]

The ideas of heritage present reception and transmission for the future, together with the community concept are remarkable when dealing with relocated monuments after a dam building. The narrow relationship between heritage and communities is especially noticeable in rural environments. That is why the building of these structures – which impacts on less populated territories – has a determining effect on both heritage and communities. The disappearance of entire villages and heritage assets under water shows that this legacy is primarily related to the present and to us. The affected population loses not only its home, but also the framework of its life and social relations, and sees its heritage uses and traditions disrupted. A rupture takes place, and an individual and collective crisis ensues. It is precisely the reflection on the recovery of monuments after crises that is one of the most decisive issues in our current context.[10] Conflicts or disasters interrupt or alter heritage practices and the relationship between community and heritage. The displacement of a monument means tearing it away from its environment and its community. When reconstructing it in a different space, attention should be paid to the recovery of heritage processes and practices, although traditionally the relocation of buildings was determined by their material recovery.[11]

The relocation of buildings establishes a new relationship with the territory and the receiving community, never identical to the original one. This is evident in the case of the dismantling and relocation of the early medieval church of San Pedro de la Nave, Zamora, Spain, affected by the construction of the Ricobayo dam. It is a temple built in the 7th century whose value was highlighted by the Spanish historian Manuel Gómez-Moreno.[12] This prior knowledge and assessment justified the decision to dismantle and move it between 1931 and 1932. The move was followed by a debate about its new location. Finally, it was decided to remount it in El Campillo, a village close to its original environment, and the relocation process involved the restoration of the building. The additions to the original fabric considered insignificant or detrimental to the understanding of the monument were removed and those parts lost over the course of history were completed.[13]
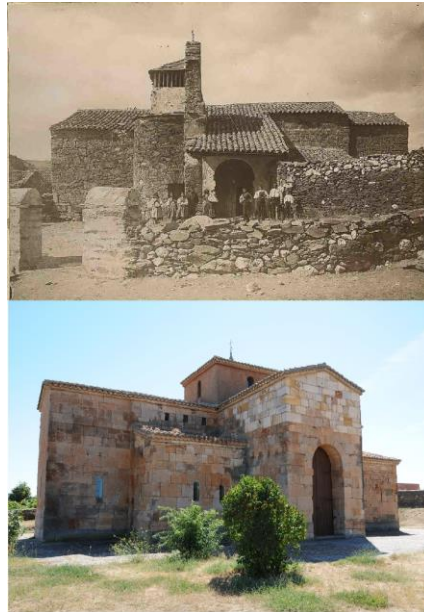
Figure 2. San Pedro de la Nave. Before and after restoration.
Catálogo Monumental de España, CSIC and Pablo Herrero Lombardía

As a memorial and identity element, the arch of the old church bell tower was placed over the access to the enclosure that delimited its new location, so that the inhabitants of the area would continue to be accompanied by the sound of the bells that had guided the rhythm of their lives before their uprooting. The recovery of this identity element was repeated in the case of the Riaño Valley, in León, where a contemporary monument was erected next to the town built to replace the disappeared village. The bells of the destroyed churches were placed in it.[14]

Figure 3. Church of San Pedro de la Nave and the old bell tower. Pablo Herrero Lombardía

The neighbours who moved from Nave to El Campillo followed the path of their church. They became part of a new community and maintained a deep bond with the monument, although its appearance after the restoration was different from their memories. The most recent interventions have sought to deepen this link, despite the depopulation that threatens the territory. As part of the Atlantic Romanesque Plan, a visitor reception centre has been created, respecting its prominent role in the landscape. This enclosure houses a small cafeteria that has become a meeting place where the residents in El Campillo take refuge and maintain social ties. Moreover, visits to the building are

accompanied by volunteers from the village, who perpetuate the close link with an element that acquires an identity character. The value of the building as a unique example of early medieval architecture has become an element of civic pride. The old parish church, seen as a humble temple, has been filled with heritage values in its new location and is perceived as an exceptional monument that attracts visitors and enhances the local economy.[15]

The relocation of the uprooted monuments in the valley of Riaño, León, was a result of the building of the Remolina reservoir at the end of the 1980s. The villages of Ancilles, Burón, Éscaro, Huelde, Pedrosa del Rey, La Puerta, Riaño, Salio and part of Vegacerneja were flooded. Most of the population that agreed to continue living in the district was relocated to a new settlement: Nuevo Riaño. With a few exceptions, the entire cultural legacy of the villages disappeared. Only five buildings, dismantled and moved were saved: the hermitage from Quintanilla, the churches from Pedrosa del Rey and La Puerta, and the schools and the church from Burón, where the Allende Palace was also dismantled. All these buildings were dismantled and reassembled, except for the palace, the remains of which are still abandoned.

The church of Nuestra Señora del Rosario in La Puerta was valued for its medieval construction and its pictorial decoration. It was dismantled, and the paintings removed and finally relocated in Nuevo Riaño. Although the removal process inevitably damaged the paintings, fortunately they were not considered to be worthy of being moved to a museum and they remain attached to the original space for which they were created. Next to the church, and as an evocative element of the town's identity, a monument called *El Silencio de las Campanas* (The Silence of the Bells) was built, a concrete structure topped by a metal mesh from which the bells of the flooded villages hang.

Figure.4. Riaño. Monument of the Silence of the bells. Pablo Herrero Lombardía

Another memorial and commemorative space in Nuevo Riaño is *La Plaza de los Pueblos* (The Towns Square), conceived as a main square surrounded by seven columns with the names of the disappeared towns engraved on their shafts.[16]

Despite these attempts, these elements have not been established as identity elements with which the community identifies. The Silence of the Bells is perceived as a decontextualised element whose poetic name does not correspond to its cold materialisation. The columns in The Towns Square do not provide a sense of memorial to an architectural and urban environment that is standardised and lacking in character.

Figure 5. Riaño. The Towns Square. Pablo Herrero Lombardía

If what has been lost cannot be replaced, the methods used and the will to respect certain international conventions could not avoid altering the values of the displaced architecture. Once these monuments have been reinstalled in a new environment and subjected to restoration processes, they have undergone a new process of identification by the community in which they have been integrated and a new sequence of reception and attribution of heritage status has taken place, because the struggle and the claim that the inhabitants of the Riaño valley have maintained up to the present day has endowed this heritage with values.

The church from Pedrosa del Rey, profoundly transformed, became the parish church of Nuevo Riaño. Today it is the centre of the community's religious celebrations. Next to it, a space for collective uses, where an Ethnographic Museum has been installed, was built at the initiative of the neighbours to bring together the traditional culture and the history of the destruction of the villages. Examples of vernacular architecture have also been reconstructed in front of this temple.

Figure 6. Church of Pedrosa del Rey and reconstructions of elements of traditional architecture. Pablo Herrero Lombardía

The church from La Puerta has become an attraction for visitors and is linked to traditions recovered and dramatised by a cultural association, such as the parade on the night of the dead, in which the traditional costumes and masks kept in the museum are recreated.

Figure 7. Riaño. Güeste d´Ánimas. All Hallows Eve Parade at La Puerta Church. enredando.info

The hermitage from Quintanilla, which housed the patron saint of the now defunct Riaño, was rebuilt in a unique location of great scenic values and continues to host traditional celebrations.

Figure 8. Hermitage in Quintanilla. Pablo Herrero Lombardía

The old church from Burón was rebuilt in an area that was safe from the waters and continues to house the religious life of the villagers, and the old schools have been recovered as the town hall and headquarters for the community's social activities.

Figure 9. Old Schools and parish church in Burón surrounding the meeting space of the community.
Pablo Herrero Lombardía

CONCLUSION

The relocation of buildings breaks the link between the monument and its surroundings and alters the nexus between the architecture and the community to which it belongs. As a result of this radical change, the material heritage is transformed and the emotional and cultural links, traditions and meanings attributed to it by the new community that receives it evolve, even if some of its members belonged to the community that created the relocated monument. Preservation for present times determined its future prevalence.

Displaced monuments have been welcomed by the community as focal identity elements and community values. After the trauma, these buildings have sustained the community and their new reception has been generated by that community. Relocated monuments have been altered, transformed and decontextualized, but the community has generated a new understanding and has recovered and renewed its intangible values. The heritage community has turned the process of reception and heritage status into a conservative action for the present, for us, which will guarantee its survival in the future, for them as well as for the new generations who maintain the tradition and heritage learned from their parents and grandparents.

The technicians and specialists saved the materiality of the monuments and subjected them to revision processes. The buildings, remounted close to their original sites, have kept their values alive because part of the community stayed with them. The altered materiality is endowed with new meanings and becomes an element that reinforces the cultural resilience of the displaced populations. Without these rescued elements, memory would have lost its hold. As John Ruskin stated in 1920: *We can live without architecture* and *worship without her*, *but we cannot remember without her*.

NOTES

[1] See Maria Pilar García Cuetos, *Humilde Condición. La conservación de la autenticidad del patrimonio cultural*. (Gijón: Trea, 2009).

[2] It is recommended to see Cornelius Holtorf, "Conservation and Heritage as Creative Processes of Future-Making," International Journal of Cultural Property 27 (2020): 277-290.

[3] It is advised to see the reflections in David Lowenthal, *The Heritage Crusade and the Spoils of History*. (Cambridge: Cambridge University Press: 1996).

[4] For further information see the contribution Javier Rivera Blanco, "Nuevas tendencias de la restauración monumental. De la Carta de Venecia a la Carta de Cracovia" in *A intervençào no patrimonio práticas de conservaçao e reabilitaçao*, ed. Aníbal Costa (Porto: Universidade do Porto, 2004): 99-117.

[5] See García Cuetos, *Humilde Condición*.

[6] It is recommended to see Rachel Douglas-Jones, John Hughes, Siân Jones, and Thomas Yarrow, "Science, value and material decay in the conservation of historic environments," Journal of Cultural Heritage 21, (2016): 823-833.

[7] For further information it is advised to see Bruno Foucart, "L'homme du néo-roman", in *Paul Abadie, architecte, 1812-1884*, ed. Claude Laroche, (Paris: Réunion des Musées Nationaux, 1988): 20-25.

[8] See Rodney Harrison, Caitlin De Silvey, Cornelius Holtorf, and Sharon Macdonald, "Forever, for everyone…", in *Heritage Futures Comparative Approaches to Natural and Cultural Heritage Practices*. London: University College London, 2020): 3-19.

[9] See Jukka Jokilehto, "Questions of authenticity", Conversaciones 8 (2019): 55-72

[10] See Harrison, De Silvey, Holtorf and Macdonald, "Forever, for everyone…"

[11] See María Pilar García Cuetos, "Desmontes, traslados y reconstrucciones de monumentos. Soluciones "excepcionales" y su aplicación metodológica en la restauración del siglo XX en España", in *De Viollet-le-Duc á Carta de Veneza. Teoria e práctica do restauro no espaço ibero-americano,* ed. Jose Delgado Rodrigues, (Lisbon: Laboratório Nacional de Engenharia Civil, 2015): 551-558, and María Pilar García Cuetos, "Las primeras experiencias de desmonte y traslado de monumentos en Francia y España. Lecciones para el presente", Gremium 6 (2019): 22-35

[12] It is recommended to see Manuel Gómez-Moreno, *Iglesias mozárabes. Arte español de los siglos IX al XI* (Madrid: Centro de Estudios Histórico, 1919).

[13] See García Cuetos, "Las primeras experiencias de desmonte," 32.

[14] See María Pilar García Cuetos, "L'ultimo valle. La costruzione della diga di Riaño, León, Spagna. Destruzione del patrimonio e rinnovo urbano", in *La cittá palinsesto. The city as palimsepst*, eds. Francesca Capano and Massimo Visone (Naples: Naples University Press, 2020): 1029-2039.

[15] See García Cuetos, 1036.

[16] See García Cuetos, 1037-1038.

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THE FOCALIZATION OF HERITAGE THROUGH DIGITAL MODELLING AND REPRESENTATION

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INTRODUCTION

Can a digital model tell a story? Can a digital creation with the intent of reality capture — from photograph to model — be compared to other narrative forms like texts, paintings, and films? Literary theorist and philosopher Roland Barthes explores the notion of representation and storytelling in photography in his book, *Camera Lucida: Reflections on Photography.*[1] Barthes shares that a photograph's unique quality of a snapshot of 'what-has-been' doesn't void its storytelling capabilities in favour of only recording when carefully composed to include detail. Although some photographs remain only a recorded frozen moment and lack storytelling components, many contain details that emotionally connect the spectator to the photograph's subject matter, drawing them in and placing them at the moment captured. As Barthes explores, the detail — known as punctum — is manipulated by the operator that creates the photograph. The photograph becomes not a copy of reality, but a representation of it, providing one focalization created by the photographer's choices of what and how to capture the image. Barthes, who admits to not being a photographer, approaches the subject from a philosophical and literary theorist standpoint allowing a unique opportunity to expand his approach to other mediums. Extending the theories introduced by Barthes, this paper explores how the roles of photography and the studium and punctum in the composition relate to digital models. Using the virtual reality (VR) project, *Parliament: A Virtual Environment*, this paper will examine how the operator uses the level of details within a virtual model to emphasize the heritage and narrative value of the space represented.

DIGITIZATION AND MODELLING OF CENTRE BLOCK

In 2019, the Centre Block of Parliament Hill National Historic Site of Canada was closed to the public for a multi-year rehabilitation project. Since 2013, Carleton Immersive Media Studio (CIMS), a research unit associated with the Azrieli School of Architecture and Urbanism at Carleton University in Ottawa, Canada, has had the opportunity to be involved in the digitization and modelling of the existing conditions of the site to prepare for the rehabilitation. To date, CIMS has created a complex building information model (BIM) of the grounds and buildings of the Parliament Hill National Historic Site, referencing historical architectural drawings, photographs, point clouds, and photogrammetry data (Figure 1).[2]
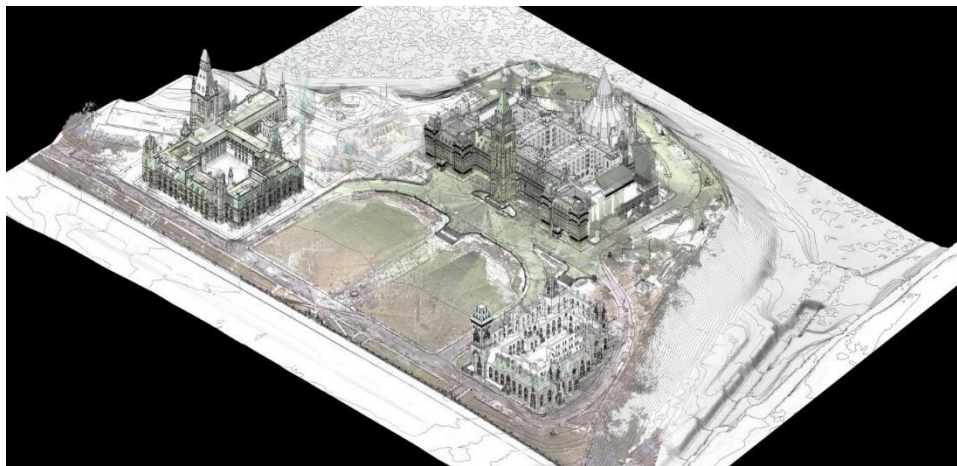
Figure 1. The BIM of the Parliament Hill National Historic Site with point cloud overlaid

The BIM of the Parliament Hill National Historic Site of Canada and the Parliament Buildings has proven an asset in historical documentation, construction, and public outreach through digital storytelling. While the Centre Block of the Canadian Parliament Buildings remains closed, the public has been unable to access the building and learn about its connection to Canadian history and the governmental bodies within its walls. Although public tours remain of the relocated government spaces — such as the House of Commons and Senate — the Library of Parliament (LOP), responsible for disseminating Parliamentary processes to the public, has turned to alternative forms of communication, such as *Parliament: A Virtual Experience.*

Released in May 2020, *Parliament: A Virtual Experience* is a 15-minute passive VR experience available through Steam's online game platform.[3] The project was produced by LOP in partnership with the National Film Board of Canada (NFB), under the guidance of creative director Émilie F. Grenier. CIMS created the virtual environment, and DPT, a Montreal interactive storytelling studio, developed the digital content that fills the virtual architectural spaces.

For the virtual environment, CIMS converted the highly detailed BIM of six key heritage spaces within the Centre Block into a VR environment in Unity 3D for the Oculus Rift. Although the BIM contained a level of detail appropriate for visualizations and renderings, the data was not easily converted into Unity 3D for VR due to the complexity of geometry, unoptimized meshes, and unrealistic textures.[4] In response, CIMS devised a workflow using Rhinoceros 3D and Autodesk 3DS Max to help convert the BIM into a working VR experience that met the optimization guidelines outlined for the Oculus Rift.[5] Each component in the architectural space, from window to wainscotting, was evaluated and processed individually to determine its importance to the virtual environment and narrative and what level of detail was appropriate for it. The final product was six highly detailed environments explorable using Unity 3D and an Oculus Rift VR headset (figure 2).

Figure 2. Parliament: A Virtual Experience scene in the Library of Parliament

The process undertaken to assess the level of detail required was strategic to ensure that the virtual environment contributed to and supported the narrative while also maintaining the overall architectural impression of the heritage space. Although the model was only the stage for the overlaying narrative created by the LOP and NFB, the production team insisted that the virtual environment maintained the impressive characteristics and heritage value existing in the built form. The virtual environment was to express the story of the building independently of the narrative overlay.

WHAT IS A STORY?

To understand how the virtual environment can tell a story, we must first define 'story.' Most narrative theorists [6] agree that there is a difference between the story and its telling — or representation — and share commonalities in the definitions of these components. Although each narrative theorist will explore the nature of storytelling uniquely, presenting different methods to analyze or construct narratives, they all begin with a shared view of the distinction between story and narrative. Literary critic Jonathon Culler emphasizes this shared view in his book *The Pursuit of Signs*,

… if these theorists agree on anything it is this: that the theory of narrative requires a distinction between what I shall call 'story' — a sequence of actions or events, conceived as independent of their manifestation in discourse — and what I shall call 'discourse,' the discursive presentation or narrative of events.[7]

In each definition, the distinction between story — the chronological real-time events that occur in the real or story world — and the narrative (or discourse) — the re-telling of the events from a particular view and arranged to show connections through cause, space, or time.[8] The act of storytelling is only a representation of the real events or form.

Narrative theory has focused heavily on written text, [9] however, the initial intention of early contributors was that the field of narratology would transcend discipline and media. As digital media and narrative scholar Marie-Laure Ryan points out, theorist Roland Barthes first stated that narratives are numberless and carried out in both spoken and written language and fixed and moving images.[10] Although narratives transcend all mediums, Ryan states that each medium is not equal and not without influence. As Ryan discusses, different mediums will have unique storytelling methods and require unique narrative tools, and visual mediums will especially require special handling of the narrative.[11]

REFLECTIONS ON CAMERA LUCIDA: REFLECTIONS ON PHOTOGRAPHY

In *Camera Lucida,* Barthes explores this inequality between mediums for how they communicate and represent narrative using photography as the focus of analysis. Barthes states that a photograph is not a true signifier — or representation — of the subject matter. Unlike a painting where each stroke is applied to represent the desired point of view and narrative it depicts, the photograph is a capturing of the subject — or referent.[12] While other mediums express a narrative representation, as Barthes interprets, photography is more connected to the referent than traditional reference forms.

Although a photograph starts as a capture of reality and not its representation, Barthes explains how the use of 'studium' and 'punctum' can transform the photograph from a snapshot of 'that-has-been' to an emotionally charged narrative that transports the viewer to the events of the composition. The studium is the elements within a representation that provide context and clarify the events. For photography, as Barthes explains, it is the recognizable historical, social, or cultural elements that indicate what the photograph depicts. However, the punctum is the small details that produce a meaningful connection to the viewer of the photograph.[13]

As Barthes explores, the punctum is critical in converting the photograph from historical documentation to narrative; however, it is under the control of how the three roles of photography — the operator, spectrum, and spectator — use and interpret the relationship between the studium and punctum. Of the photography roles introduced by Barthes, the operator is the photographer who holds the camera and decides what is captured while the spectrum is the subject matter that can alter their behaviour to a desired perspective. The last role, the spectator, is the viewer of the photograph who gives it meaning through their interpretation.[14] Although specifically defined for photography, the roles can be expanded to include all mediums related to communication and storytelling. The operator can become the author of a text, the director of a film, or the modeller of a virtual environment. The spectrum can be characters within a written narrative or the physical building represented in a virtual environment. The spectator is the viewer of the film, the reader of the book, or the user within a virtual experience. Each role has an impact on the representation's storytelling capability and how the studium and punctum interweave through its creation, representation, and reception.

Operator – Spectrum – Spectator

The different operators for the various mediums are all in control of the representative creation of the physical form. The author of a text will control the narrative through an organization of the plot, characters, events, and perspectives. In contrast, a film director controls the narrative through framing, set design, special effects, and dialogue, and the computer programmer and modeller both manipulate the digital space to communicate the desired narrative. While Barthes critiques the photography operator for not creating a representation but only capturing a temporal moment, he disregards that the photographer manipulates the representation through staging, lighting, framing, camera settings, and photo-editing. The photographer might capture true elements, but they control how those elements are arranged and composed. It is in the arrangement where the operator controls how the composition will include the punctum to draw the spectator into the narrative.

The manipulation of the composition by the operator alters how the spectrum is perceived. However, since a photograph is a snapshot of reality, the operator is limited in manipulation based on the physical condition. For example, a photograph of a building in ruins can never be presented as a whole. Regarding virtual environments, the source material acts as a portion of the spectrum, limiting the digital representation's resources and knowledge of the physical space. For the representation to contain the narrative of the physical form, it must ensure it successfully connects to the spectrum — both in its larger visual, historical, social, or cultural qualities found in the studium and in the small details of the punctum that give it meaning.

The spectator is the most important role according to Barthes since it is the interpretation of the representation by the spectator that gives it meaning. Narratologist Gerald Prince similarly believes that the person reading the narrative interprets the text independently from the author's intent, thus giving it its actual meaning.[15] Richard Gerrig, professor of cognitive science, further defines this as 'transportation' where the spectator's act of interpreting the representation converts them into an active participant where they become invested and present in the narrative.'[16]

The success of any representational form, from text, to photography, and virtual experiences, relies not solely on the techniques used to create the spectrum by the operator, but also by if the spectator feels connected and present within it. In addition to the connection Gerrig explores through the interpretation of the reader, Barthes states the punctum is how the spectator becomes engulfed in the representation. If the spectator feels connected, they no longer perceive the work as a representation within a medium, but as the narrative itself:

...I perceive the referent (here, the photograph really transcends itself: is this not the sole proof of its art? To annihilate itself as medium, to be no longer a sign but the thing itself?[17]

The punctum helps transport the spectator into the spectrum and immerses them in the narrative. Ryan elaborates on the concept of immersion when she explains that immersion is when the reader no longer separates the real and the virtual. For narratives to be immersive, they must create a space where the spectator relates to and envisions themselves within it.[18] For Barthes, this immersion removes the photograph's classification as a representation, converting it from a photograph of the place to the place itself.

REFLECTIONS ON PARLIAMENT: A VIRTUAL EXPERIENCE

Although focused on photography, the key concepts introduced by Barthes in *Camera Lucida* can help understand the storytelling capabilities of the virtual environment created for *Parliament: A Virtual Experience*. Much like a photograph, the creation of the virtual environment begins with collecting the 'what-has-been' through reality capture methods including laser scanning and photogrammetry. The information is further translated into the BIM and processed for the Unity 3D VR environment.

Barthes' definitions of the roles are equally important for the virtual environment. The operator — or modeller — chooses what elements are converted from the BIM to the virtual environment and determines the level of detail. The spectrum — or building and reference material — informs the operator of what elements are essential through their heritage value. Lastly, the spectator — or VR user — experiences and appreciates the space. The spectator's feeling of presence and connection to the physical building's heritage value is directly related to the operator's decisions on how to model the space using Barthes' concepts of studium and punctum. For the operator, the studium are the elements of the spectrum that are required to give the space its shape and be recognizable. In contrast, the punctum are the small details that transform it from a recognizable space to impactful and meaningful. In the punctum — the details — the storytelling of place occurs.

The initial BIM of the Centre Block of the Canadian Parliament Buildings contained a high level of detail in the heritage significant spaces — such as the Senate Chamber. When first translating the BIM to VR, the model was a great starting point to give the narrative overlaying the space a recognizable stage. However, the virtual environment was missing the detail referred to as punctum with only converting the BIM to VR.

Figure 3. Converted BIM of the Senate Chamber in Unity 3D

When comparing the Senate Chamber before the detail is applied (figure 3) to after (figure 4), the distinction between a virtual environment with only studium and one with punctum is clear. The first image is a recognizable space. It has a clear architectural style, and elements — like the furniture layout and high ceilings —help make the space recognizable as a government chamber. The first image is undeniably a well-modelled representation of the Senate Chamber. However, the second model contains additional details in textures and ornamental pieces that extend the virtual environment past a representation. The added details help transport the spectator to the virtual space. They no longer are looking at a strong representation of the environment but are present in the virtual Senate Chamber. The model is no longer only a stage for the narrative, but it becomes a storytelling tool as well, expressing the story of the building and its heritage value. To echo Barthes' words, *"...a detail attracts me. I feel that its mere presence changes my reading, that I am looking at a new photograph, marked in my eyes with a higher value. The 'detail' is the punctum.'*[19]

Figure 4. Completed Senate Chamber virtual environment for Parliament: A Virtual Experience

Story in the Details

When creating the virtual environment for *Parliament: A Virtual Experience,* it was not feasible to create all aspects and ornate features of each space at the highest level due to project limitations. However, the restrictions on model complexity provided the opportunity to define a level of detail system for the virtual environment that helped emphasize the necessary architectural and heritage details — the punctum — of the spaces. The level of detail system created was a three-tier classification that helped prioritize elements based on their proximity to the spectator, their connection to the narrative, and their significance to the architectural heritage quality consisting of LOD 1, LOD 1.5 and LOD 2.[20]

On the low end of the spectrum, LOD 1 was the converted BIM with generic texturing. Figure 3, containing only LOD 1 elements, shows that the lower level of detail provided the spatial and architectural geometry needed to define the space and its use. However, it is void of the details — the punctum — that express its heritage and narrative value.

LOD 1.5 and LOD 2 provided additional detail, with LOD 1.5 using real-world textures on the converted mesh and LOD 2 using photogrammetric meshes of higher polygon count and real-world textures. LOD 1.5 and LOD 2 elements provided the added details in figure 4. Their use, especially LOD 2, was carefully restricted to highly important assets for the space's heritage value and narrative connection. As seen in figure 5, the strategy of sparsely using LOD 1.5 and LOD 2 elements was applied to all the virtual spaces represented in *Parliament: A Virtual Experience*. This strategy helped transform the model from a digital representation of space admired from afar to an inhabitable virtual space to experience. As Gerrig explored for literary texts, the spectator is transported to the space represented, and the spectator becomes immersed in the history found within the heritage architectural elements.

Figure 5. Comparison of Rotunda digital model without (left) and with (right) LOD 1.5 and LOD 2

Although the three level of details was first introduced to help manage the scope of the project and maintain an optimal polygon count for the virtual environment, they helped create a strong storytelling component to the model. The LOD 1.5 and LOD 2 elements highlighted the architectural, heritage, and narrative importance within the environment. Their careful placement draws the virtual spectator's eyes to desired focal points and helps emphasize narrative connections. The decisions of the operator — the modeller — of where to add 'punctum' greatly influenced the storytelling success of the virtual environment.

CONCLUSION

In creating the virtual environment for *Parliament: A Virtual Experience,* the operator — the modeller — had to process and optimize each element within the virtual space. Much like how a photographer stages their environment for an optimal representation, the modeller creates an ideal representation through the assembly and processing of the virtual components, deciding what elements should be kept, removed, simplified, or optimized. Through this process, the modeller converts the virtual environment from a representation of the space to a virtual equal to it.

Barthes explains this notion for photography that when the photograph successfully connects emotionally to the spectator with the addition of punctum, they become immersed in it and feel present. The photograph seizes to represent the spectrum, but it is the spectrum itself. Barthes says, *"I perceive the referent (here the photograph really transcends itself: is this not the sole proof of its art? To annihilate itself as medium, to be no longer a sign but the thing itself?"*[21]

The virtual environment within *Parliament: A Virtual Experience* is a stage for a greater narrative; however, its use of punctum allows for the stage to become a storytelling tool beyond the layered narrative. The stage becomes the narrative of the heritage significance of the Canadian Parliament Buildings, expressing that a digital model can be a piece of storytelling, controlled by the focalisation of the modeller through careful use of the details — the punctum.

ACKNOWLEDGEMENTS

NOTES

[1] Roland. Barthes, *Camera Lucida : Reflections on Photography* (New York: Hill and Wang, 1981).

[2] The terrestrial laser scanning was completed by CIMS in partnership with Heritage Conservation Services (HCS) — a branch of Public Services and Procurement Canada — using a Leica C10 and P40 (exterior and large interior spaces) and a Faro Focus (small to mid-sized interior spaces). For more information on the documentation and modelling practices used for the Parliament Hill National Historic Site, refer to: Lara Chow et al., "The Evolution of Modelling Practices on Canada's Parliament Hill: An Analysis of Three Significant Heritage Building Information Models (HBIM)," in *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. XLII-2/W11 (GeoRES 2019 - 2nd International Conference of Geomatics and Restorations, Milan, Italy, 2019), 419–26, https://doi.org/10.5194/isprs-archives-XLII-2-W11-419-2019.

[3] Available online at https://store.steampowered.com/app/1232920/Parliament__Parlement/

[4] The polycount of the BIM far exceeded the guidelines set by Oculus for optimized VR environments, in some cases by more than 16 times Oculus Documentation, "Guidelines for VR Performance Optimization," accessed January 11, 2019,

https://developer.oculus.com/documentation/pcsdk/latest/concepts/dg-performance-guidelines/.

[5] For more information on the conversion of BIM to VR, refer to: Cailen Pybus et al., "New Realities For Canada's Parliament: A Workflow For Preparing Heritage Bim For Game Engines And Virtual Reality" (CIPA 20019 Avilla 27th International Symposium, Avila, Spain, 2019).

[6] For further readings on narrative theory, check out:

Vladimir Propp, *Morphology of the Folktale*, 2d ed., rev.edited with a pref. by Louis A. Wagner [and a] new introd. by Alan Dundes., American Folklore Society Bibliographical and Special Series ; v.9. (Austin: University of Texas Press, 1968).

Gérard Genette, *Narrative Discourse : An Essay in Method* (Ithaca, N.Y: Cornell University Press, 1980).

Gérard Genette, *Narrative Discourse Revisited* (Ithaca, N.Y: Cornell University Press, 1988).

Gerald. Prince, *Narratology : The Form and Functioning of Narrative*, Janua Linguarum. Series Maior ; 108 (Berlin ; Mouton, 1982).

Prince.

David. Bordwell, *Narration in the Fiction Film* (Madison, Wis: University of Wisconsin Press, 1985).

Emma Kafalenos, *Narrative Causalities*, Theory and Interpretation of Narrative (Columbus: Ohio State University Press, 2006).

Mieke Bal, *Narratology: Introduction to the Theory of Narrative, Fourth Edition* (Toronto: University of Toronto Press, 2017).

[7] Jonathan D. Culler, *The Pursuit of Signs Semiotics, Literature, Deconstruction*, [Reprint, with a new preface by the author], Routledge Classics (London ; Routledge, 2001), 189.

[8] The description provided is a simplification of theories presented in narratology. Russian Formalists, such as Vladimir Propp, the distinction between story and narrative are the fabula and the syuzhet. The fabula is a chronological series of events that occur while the syuzhet is how the events are translated by the narrator for dissemination, not needing to abide by the constraints of chronology or duration. Propp, *Morphology of the Folktale.*

For French Structuralists, such as Gerard Genette, the distinction is known as the histoire and récit. The histoire is the story and totality of the narrated events while the récit is the method for sharing the events through narrative discourse (Genette, *Narrative Discourse Revisited*, 13). Gerald Prince extends the definition of narrative by stating that a narrative recounts a series of situations and events occurring in a certain world — real or fictional that act as a collection of signs grouped. The narrative is the linking of two or more events — or signs — through causal, spatial, or temporal relationships that can focus on larger or smaller details from the real or fictional world. (Prince, *Narratology : The Form and Functioning of Narrative, 61-77).* This is further expanded by David Bordell who stated that, *"A narrative is a chain of events in a cause-effect relationship occurring in time* (Bordwell, *Narration in the Fiction Film, 50),* and by Emma Kafalenos who states that a narrative is a sequential representation of events, fiction or non-fiction, in any medium (Kafalenos, *Narrative Causalities*, vii).

[9] Under the influence of Gerard Genette

[10] Marie-Laure Ryan, *Avatars of Story*, Electronic Mediations ; v. 17 (Minneapolis: University of Minnesota Press, 2006), 3.

[11] Ryan, 4.

[12] Barthes, *Camera Lucida : Reflections on Photography*, 76.

[13] Barthes, 40.

[14] Barthes, 9.

[15] Prince, *Narratology : The Form and Functioning of Narrative*, 103.

[16] Richard J. Gerrig, *Experiencing Narrative Worlds : On the Psychological Activities of Reading* (New Haven: Yale University Press, 1993), 5–18.

[17] Barthes, *Camera Lucida : Reflections on Photography*, 45.

[18] Marie-Laure Ryan, *Narrative as Virtual Reality : Immersion and Interactivity in Literature and Electronic Media*, Parallax. (Baltimore: Johns Hopkins University Press, 2001), 45.

[19] Barthes, *Camera Lucida : Reflections on Photography*, 42.

[20] For more information on level of detail in the virtual environment, refer to: Katie Graham et al., "Defining Geometry Levels to Optimize BIM for VR: Insights from Traditional Architectural Media," *Technology Architecture + Design* forthcoming (n.d.); Katie Graham, Lara Chow, and Stephen Fai, "From BIM to VR: Defining a Level of Detail to Guide Virtual Reality Narratives," *ITcon* 24, no. Special issue Virtual, Augmented and Mixed: New Realities in Construction (2019): 553–68.

[21] Barthes, *Camera Lucida : Reflections on Photography*, 45.

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ERMITA AS A CONFLICTED HERITAGE ZONE IN MANILA

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INTRODUCTION

In the year 2020, the world commemorated the 75th anniversary of the Allied firebombing of Dresden, Germany, remembering an atrocious event that resulted to the area being leveled by aerial assault. The commemoration was featured in major news outfits including major news outfits like the New York Times, the British Broadcasting Company (BBC), France 24, Al-Jazeera, and of course, Deutsche Welle, among others. Before World War II, Dresden, famously referred to as the Florence on the Elbe", was considered as one of the world's most beautiful cities because of its architecture as well as its art treasures.

On the night of February 13, 1945, the British Bomber Command hit Dresden with an 800-bomber air raid, dropping some 2,700 tons of bombs, including large numbers of incendiaries. The U.S. Eighth Air Force followed the next day with another 400 tons of bombs and carried out yet another raid by 210 bombers on February 15. It is estimated that some 25,000–35,000 civilians died in Dresden in the air attacks.

At the end of the war, Dresden was so badly damaged that the city was basically leveled. A handful of historic buildings – the Zwinger Palace, the Dresden State Opera House and several fine churches – were carefully reconstructed out of the rubble, while the rest of the city was rebuilt with plain modern buildings.[1]

The Frauenkirche, which was reduced to a heap of ruins, was just conserved as a war memorial within the inner city of Dresden. The stunning Lutheran church was two centuries old when bombs in 1945 caused the huge stone dome to topple, leaving only small sections of two walls and an altar, amid a pile of rubble. The people in the city were so devastated that they had to be spurred by two events - the fall of the Berlin Wall and the reunification of Germany in the 1990s - to make them dream again, to resurrect the old skyline of Dresden, with its iconic bell-shaped dome.

A 14-member group of enthusiasts headed by Ludwig Güttler, a noted Dresden musician, formed a Citizens' Initiative in 1989. From the group emerged The Society to Promote the Reconstruction of the Church of Our Lady, which began an aggressive private fund-raising campaign. In 2005 that the glorious Frauenkirche church in Dresden, became the city's jewel again.

In contrast, deafening was the silence with regard another devastating outcome of World War II. As the United States set about regaining control of Manila from the Japanese, urban streets were bombarded by American artillery and in the process, a beautiful, elegant metropolis, dubbed as the "Pearl of the Orient" was laid to waste, and which unlike Dresden, has never quite recovered.

American historian William Manchester wrote, "the destruction of Manila was one of the greatest tragedies of World War II Of Allied capitals in those war years, only Warsaw [in Poland] suffered

more. Seventy percent of the utilities, 75 percent of the factories, 80 percent of the southern residential district, and 100 percent of the business district was razed." [2]

Intramuros, the old walled city in Manila, and its vicinity suffered the most at the end of the war for this was the site of the last stand between the occupying Japanese and liberating American forces. The Americans, seeking to force a surrender, bombed the city into oblivion, destroying 6 of the 7 churches. San Agustin church was the only structure within the walls which was spared. Intramuros was such a disaster that it was ignored during the post-war rebuilding phase and has only recently started to see a renaissance of cultural, social, and commercial activities.

Figure 1. San Agustin Church, Intramuros

Ermita

Instead of Intramuros, a number of buildings outside the wall were given priority, particularly, in Ermita, Manila's civic center. At the start of the 20th century, with the unforeseen war, here arose its government buildings: The City Hall of Manila and the offices of the three branches of government. Here too would arise the first State-run educational institution, the University of the Philippines and alongside it the Philippine General Hospital. A large park was laid out around the monument to the national hero, Dr. Jose Rizal, as its core.

Among the buildings bombed in the area in February 1945 was the Legislative building. Most of the structure was beyond repair, except for the still standing central portion. With the inauguration of the Republic of the Philippines in 1946, the building was reconstructed to be home of Congress. It was rebuilt by the U.S. Philippine War Damage Corporation to the same dimensions but with less interior and exterior ornamentation. Reconstruction began in 1949, while the congress moved back the same year. The two wings of the building were completed in 1950. The building was built mostly from memory, with the aid of a few remaining blueprints.

Figure 2. Restored Legislative Building

The Metropolitan Theater in Ermita, Manila was bombed as well during the liberation of Manila by the United States and Filipino forces in 1945. Designed by National Artist for Architecture Juan Arellano in 1931, the Metropolitan Theater is the only existing art deco building in its scale and integrity in Asia, its exterior and interior elements exhibit a style of ornamentation with ingenious art deco elements and indigenous motifs interspersed by the opulent works of Italian sculptor Franceso Monti and National Artist for visual arts Fernando Amorsolo and other Filipino masters. [3]

Figure 3. Restored Metropolitan Theater

During the post-war period, it was repurposed as a boxing arena, a motel, bar, basketball court and as a home for squatters. In 1978, a restoration of the theater was initiated by the then Metro Manila Governor, Imelda Marcos. Its prestige as a cultural center was redeemed but proved to be short-lived, as it closed down its doors again in 1996 because of conflicts of ownership.

In May 2015, the Department of Budget and Management released Php 270 million from the National Endowment Fund for Culture and the Arts for the sale of the theater from its owner, the GSIS. In June 2015, the GSIS transferred the right of ownership of the theater to the National Commission for Culture and the Arts (NCCA) to start the rehabilitation process of the theater. With its most recent restoration, it was opened to public viewing in 2021.

Heritage and Politics

Politics factor in the conduct of heritage conservation: Frauenkirche and the Metropolitan Theater were brought back to their original splendor through the political will of government leaders and private citizens. Instrumental in restoring the Frauenkirche was the establishment of the Citizens' Initiative, spurred by the fall of the Berlin Wall and the reunification of Germany in the 1990s. The immediate conservation of the city of Dresden after World War may have also been a factor in the gradual allegiance of Germany with the Allied powers and eventually its incorporation with NATO in 1955.

The restoration of the Metropolitan Theater, on the other hand, was gallantly supported by the national government as the city of Manila also had in its mayoral seat a leader whose vision of making Manila a model in the revival of Philippine cities. The opening of the Metropolitan theater for public viewing, in fact, coincided with the year that he proclaimed that he was running for the presidential office.

Politics and governance likewise factor in the safeguarding of conserved heritage. Instilling consciousness of the importance of pride of place is crucial among those who hold administrative posts: this is a challenge in the case of a city like Manila which has not fully recovered from the effects of World War 2, and where the memory of its splendor is almost long gone. Efforts to provide a vision of the future and directives in urban planning which incorporate the preservation of important built heritage are necessary and are of much value.

CALLE PADRE FEDERICO FAURA

At the heart of Ermita is a street called Calle Federico Faura. Its easternmost end is Manila Bay,a natural harbor that serves the Port of Manila in the Philippines. Strategically located around the country's capital city, Manila Bay facilitated commerce and trade between the Philippines and its neighboring countries, becoming the gateway for socio-economic development even prior to Spanish occupation.

On its opposite end is Paco Park, originally constructed by the Dominicans as a burial place for Manila's elite, during the period of Spanish colonial rule in the Philippines. It was designed by Nicolas Ruiz in 1807 as a cemetery with a circular geometry and repeated arches. [5]

Figure 4. Paco Park and Cemetery

National hero Dr. José P. Rizal was secretly buried here after his execution in 1896, where it was dug up and kept by the family in an urn in 1909, and later on enshrined in Luneta (Ermita) in 1912. It is also the final resting place of the three Filipino martyr priests, Jose Burgos, Mario Gomez and Jacinto Zamora, who were executed in 1872.

Between Manila Bay and Paco Park, previous to the bombing of Manila in 1945, once stood the Manila Observatory, the Ateneo, an educational institution ran by the Jesuits, and other structures established during the Spanish colonial rule in the Philippines.

University of the Philippines

During the succession of American rule in the Philippines, the University of the Philippines was constructed and instituted along Calle Federico Faura, Ermita became the birthplace of the country's national university. This premier institution of higher learning was established in 1908 and is now a university system composed of eight constituent universities spread throughout 17 campuses all over the archipelago.

The first buildings of the university were designed by William Parsons, who is known to have implemented Daniel Burnham's plans for both Manila and Baguio, the Philippines' summer capital.

Figure 5. University of the Philippines

A large part of the University of the Philippines complex in Manila was leveled to the ground, with the exception of Philippine General Hospital (PGH) and its Nurses' Home, the building of the Cancer Institute, and the entrance wall of the Rizal Hall.

The post-World War II reconstruction of Rizal Hall at the University of the Philippines in Manila was done under the Philippine Rehabilitation Act of 1946. Only the wall of the main entrance remained standing after the bombing of Manila in 1945, the characteristic deep archways and covered loggias in Parson's design was preserved.

Philippine General Hospital

In 1907, the US-Philippine commission had appropriated a sum of P780,000 to build a hospital at the corner of *Calle Federico Faura and Calle Rizal* (or what is known today as Taft Avenue). By 1909, a central administration building, various wards and operating rooms and an out clinic for the hospital had been built. On September 1, 1910, the hospital, which was to be known as the Philippine General Hospital, was completed and opened to the general public.

While the architectural style of the Philippine General Hospital as generally referred at as Neo-classic, the hospital's stylistic design can be argued to be more of a simplified example of Spanish Colonial Revival Architecture (with inspiration from the existing Philippine architectural tradition), which was a United States architectural style movement popular between the 1915 and 1931 and was based on the Spanish colonial architecture of old Spanish cities in the Americas.

Figure 6. Philippine General Hospital

As seen in the frontal façade of the hospital, Parson's design of PGH had stayed faithful to the pre-existing Philippine Spanish colonial architectural tradition found in Manila, for both aesthetic and functional reasons. Large spans of smooth pastel-colored plaster wall, simple in design with almost no form of ornamentation, compose both the interior and exterior of PGH. Low pitched clay tiled roof with long eaves to provide shade for the walls of the building, also typical in the existing Spanish colonial architecture, was adopted in the roof design of PGH. Parson had agreed with Daniel Burnham's idea that there was a particular "picturesque quality" of local Spanish architecture that should be maintained and should be "taken as examples of future structures" for their "beauty and practical suitability to local conditions" to which Parson thoroughly considered in the design of PGH.[6]

In various secluded sections and facades of PGH both in the interior and exterior, Parson also made use of decorative iron grill work/trim, small porches and tall double-hung sash windows for the design of the hospital. This design choice may have taken inspiration from the practical function of ventilation and aesthetic look/ornamentation of windows or *ventanas* and *ventanilas* of local Spanish architecture (i. e. the *Bahay na Bato*). It is important to note that the numerous large double-hung windows and open porches which connect the exterior environment and interior environment of the

hospital not only provide for better cooling and ventilation in the tropical heat, but may also signify the Filipino value of having a sense of openness and sociability.

Moreover, Parson also applied the unique local architectural tradition of using *capiz* shell on the sash windows, to allow soft light to enter the interior. Capiz comes from the shell of the windowpane oyster (Placuna placenta mollusk), which is native to the seas of Southeast Asia, specifically Indonesia and the Philippines. It was the best local alternative to glass when the latter was not widely available in the Philippines.

Figure 7. Bahay na Bato

PGH Nurses Home

The PGH Nurses Home, a structure made from reinforced concrete with a cement tile roof and concrete floors, has been described as "one of the most attractive buildings" inside the PGH compound. It has a total of 18 bedrooms, six on the ground floor and 12 on the second, with terraces and verandas on both floors. [7]

The building, with a hybrid Mission architectural style, was likewise designed by William Parsons.

Its restoration is of utmost important, as this is one of his early works, and the building signifies and gives concern and importance to nurses and health-care workers during the American period. [8]

Figure 8. PGH Nursing Home

H. A. Bordner Building

Although no longer a part of the University of the Philippines compound, the H. A. Bordner building is found right next to it along Calle Faura. Designed likewise by William Parsons and constructed in 1914, it was then known as the "Central School", the first established public school for the children of American Citizens. Just like Nurses Home and PGH, it was built with wide arched doors and *capiz* shell windows which are either awning or are located at the ground floor's arched windows.

Figure 9. Bordner Building

CONCLUSION

Among the streets in Ermita, Calle Federico Faura is unique for its being able to showcase through its built architectural structures and natural features (its topography) the breadth of Philippine history: from its pre-colonial past, to the three colonial regimes which it had to address (Spanish, American, Japanese), and to its present democratic autonomy.

On one end of the street is Manila Bay, the docking place of the Spaniards before they first stepped foot in Manila. This is one of the acclaimed ports in the country which has long been involved in pre-colonial trade, as locally made boats were docked before trade was done by the locals with natives of other Southeast Asian countries, China, and even as far as Madagascar.

At the opposite end is Paco Park and Cemetery, a unique circular cemetery that was built during the time of the Spaniards as a response to a number of epidemics. Between the two ends are architectural structures built during the Spanish and American colonial period, ruined during the war, but reconstructed and are still being used up to these days.

Most important among these are the Bordner Building, the Philippine General Hospital, and the Nurses Home in the compound of the said hospital, three among the five surviving structures in Manila that showcase Burnham-Parson architectural style, known for its use of neoclassical motifs with deference to the needs of the tropics as well as the local climate.

Although the style may be critiqued as a colonial imposition, palimpsest approach reveals that Burnham and Parsons may indeed have attempted to achieve structural harmony with the existing buildings in the area.

Using the palimpsest concept as a means analysis, the huge arched portals and hallways, although unique to its period, in fact echoes the layered arches in Paco Park and Cemetery built during the earlier Spanish colonial period. Moreover, the use of transparent *capiz* shells in the absence of glass, is also reminiscent of Philippine residential windows and doorways (i. e. *bahay na bato*) in the nineteenth century.

Calle Federico Faura then reveal historical layers that are simultaneously visible, some superimposed. It will be eventually proposed in my study that these existing layers may eventually be used to inform the organization and eventual construction of new structures.

Acknowledging the relevance of these design motifs and their incorporation in projects that respond to contemporary needs and perhaps as a nuance in modern design may be the solution to a certain unity or cohesiveness in space that has not yet been achieved as of now.

Lastly, several of the architectural structures along Calle Padre Federico Faura in Ermita, Manila date back to more than 50 years, and some, even three centuries. Under Philippine Republic Act 10066 each of these structures then are considered Important Cultural Properties, given that "they are more than fifty years old and hold some significance as one of the oldest built structures in Manila." The structures were built ether during the Spanish and American periods, or became one of the headquarters of the Imperial Army during the Japanese Occupation. In other words, the street is a diorama of Philippine colonial history.

There are bases for establishing Calle Faura in Ermita as a heritage zone. The stakeholders in the community, such as the University of the Philippines Manila, should strengthen research programs that address the historical, cultural, and socio-economic significance of Ermita. Heritage groups, like the Faura Project, should continue their pursuit of reviving and revitalizing traditions on the street.[9] Hopefully, these will get the recognition it deserves.

NOTES

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DESIGN HYBRID ARCHIVES: DACIANO DA COSTA LEGACY AND COLLABORATIVE CURATION STRATEGY

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INTRODUCTION

On deciphering the provenance of a design object, we are recognizing a journey of different purposes, meanings and usages tagged along, from the creator will, through the symbolic attachments, until its ultimate purpose. The designer archive provides us tangible proofs to understand the purpose of the individual creation, but also gives us the tools to follow the tracks of the object´s collective function.

By identifying his trail in the community, we recognize the Designer legacy in the collective memory. Ultimately, the object could turn into a symbol, an image, an idea, an event, and occasionally, in a meaning quite different from the original one and that could turn into another *artefact or event* of an altered kind.

Such complexity of properties embodies the research question, concerning the way of archiving hybrid, online, physical events and artefacts in the future: witch curation strategy to apply, to retrieve information and recognize the track of relations in between. By studying the Designer archive system, by analyzing both tangible and intangible impact, by designing a virtual architecture of connections, using what constrain the objet/idea/event/document as a gain. By combining different descriptions, formats, concepts, one can surpass those *idiosyncrasies* that portray that multiplicity of media, and, consequently, giving new uses to documents, objects and events that may result in new ideas exhibited through the mind in other formats, other media.

This paper intends to answer the research question by introducing the Portuguese Designer Daciano da Costa legacy as a case study. Described and preserved in a very irregular system, includes an archival collection, concerning his professional and academic creation, his public and private life. It´s closely connected with a Design collection and a studio collection all ultimately interlinked with a bibliographic collection, related to his professional and academic creation.

Considering the fragmentation of archival collections, Daciano da Costa personal archive (1959-2005) it´s dispersed among public and private memory institutions, customers and family places. His archive´s division springs from deliberate decision-making, as well as circumstantial resolutions, following both the producer and his family actions. The Daciano da Costa family archive collection (2005-2021), includes mainly editorial and prototype production projects documents, regarding his trademark and has been carefully and symbiotically shaped. This disaggregation it also reflected in his legacy dispersion throughout.

THE PROJECT SCOPE IN ARCHIVAL SCIENCES (NOVA UNIVERSITY OF LISBON)

Bearing in mind, the practice of Digital Humanities and collaborative curation strategy, on building Digital Heritage, as sustainable solution to preserve Daciano da Costa personal and family archive's integrity, to retrieve their meaning and to recognize their path, this approach should be extended to the scrutiny of his legacy, his day-to-day life, his family, his friends, his students, or any stranger who used his creations, read his books, saw his drawings, listen his talks, worked along with him, but in the sense of contributing to create an intangible *trail* in the collective memory of the whole. It involves mapping, connecting and curating both archive collections systems, along with his work legacy, on behalf of rebuilding, understanding, and projecting Daciano da Costa heritage in a digital setting.

DACIANO DA COSTA BIOGRAPHIC SCOPE

Born in 1930 at Lisbon, he began his career in the former *Portuguese World Exhibition Pavilion Campus,* at the sculptors' ateliers (1959). After a period of collaborative work in the industrial design, developing slick and functional office and medical furniture, his recognition as "global project" designer was established, by some important project's commissions, such as the *Aula Magna of the Rectory of the University of Lisbon* (1960-61), the *Villaret Theater* (1964), *National Library* (1965), the *Estoril Casino* (1966), the *Hotel Alvor Beach* (1966), reaching his maturity in the *Calouste Gulbenkian Foundation* (1966-1968).[1]

As an Academic Professor, Daciano da Costa joined Escola Superior de Belas Artes de Lisboa´s Architecture Department in 1977. He created and coordinated the first Degree in Design Architecture in 1992, where he taught until jubilation in 2003. The course was dedicate to creating products for the people and focused in the development of a socially committed design professional, guided by teachers who could make a more pragmatic professional contribution, making it effective as a pedagogical action. He also instills in his students the development of the analytical and linear synthesis capacity of his environment, through the exercise of drawing in *sketch notebooks.* A practice that was seminal, both in his personal work and in his academic plan.[2] Daciano da Costa died on October 10th, 2005, at Lisbon.

MAPPING

Daciano da Costa legacy has been study mostly from the Design and Architecture point of view; specific concerning is design concepts, is technic heritage and is academic understandings effect. Most of the time, specific academic research upraises a precise part of the Artist/Designer character, focused on the objects and their specific consequences, highlighting some of the subjacent network threads. Many fundamental Daciano da Costa works were highlight, relating archive documents as conceptual process evidence.

However, those investigations could lack the collateral connections, which only a full-length and holistic view can give to a specific academic study, achieved mainly by the practice of Digital Humanities and collaborative curation strategy. Therefore, one must map the legacy to rehabilitate, implicitly, the existing connections between the artist will, the concept, the technic, the material, the result, how is perceived and the works about it. Subsequently, one should plan or built, potentially different and surprising connections, only apparent after an adequate mapping design, since, no single work, strategy, concept, idea can be assumed, analyze and interpret separately from each other or one another.

Hence, to conceive this information system scope, it is imperative to map, both archives' systems, shadowed by the mapping his legacy, intertwining the idea (the sketch, the image, the reference*)* with

the original documents (e.g. the project blueprint), with the practice result, the work itself and both his practical and social function.

Hosting Daciano da Costa legacy, it integrates his personal archive, which consists on a documental core that includes technical drawings, photographic prints, personal papers and manuscripts, associated to his professional and academic creation, as well as both his public and private life. These contents, relate to a massive work prototype collection of interior and outdoor design, as well as Daciano da Costa objects and studio furniture. The archive collection articulates with a bibliographic collection, such as its editorial production and a library, closely associated with his professional and academic production, by which his creative process and his conceptual references will be better understood, as guiding lines of their academic and projective work.

Archival Collection

The archival collection is *disseminated* among several public and private memory institutions, several client institutions and some Daciano da Costa family private spaces, thus being organized, preserved and described in very irregular way, without an adequate correlation arrangement. This archival production nuclear order fragmentation is consequence, on the one hand, from a deliberate decision-making, and on the other hand, from circumstantial resolutions, consequent from both the producer and family core initiatives actions. Since 2004, most of the technical drawings, sketches, models and photographic evidences, associated with their project activity until 1994, were deposit, under a protocol, carried out by the Designer himself, at the General Directorate of Portuguese Cultural Heritage Archive (Direção Geral do Patrimonio cultural). The documents had been the subject of archival treatment, preventive conservation and digitization, being able to be examine without undermining its stability set, although, currently, the access its conditioned by both Archive Team and Daciano da Costa Studio scrutiny.[3] The archive production, resulting from Daciano da Costa professional activity (technical drawings, *sketchbooks,* 1995 to 2005), his academic activity (handwritten texts, essays versions, communications, catalogues, correspondence, 1977-2004), and his personal life (manuscripts, correspondence, photographic evidence, 1930-2004), is scattered between his family home, his former Studio, and Daciano da Costa Studio, currently handled by his daughter, Inês Cottinelli, since 2005, with no archival description or preventive conservation intervention, Due to collection deposit protocols, such as Design and Fashion Museum - MUDE, 2005 and Centre Pompidou, 2013, the nuclear order of archive and bibliographic collection fragmentation was emphasize. The former case includes *Longra Metallurgical* catalogues, *Dona* enamel crockery prototypes*, Shepherd/Osaka cutlery* models and several color interior decoration studies.[4] The latter case includes three sketches from the Fauteuil prototype *Boroa 2*.[5] Apart from that, one can assume an indefinite set of archival and bibliographic documentation, within the client institutions still today exhibit and appreciate Daciano da Costa works: (e.g. originals or copies of technical drawings, photographic evidence, correspondence, purchase notes, etc.), eventually deposited in their archives.

Daciano da Costa family archive has a much distinguished media production collection, that was and still is produced around the Architect and Designer legacy, consisting mainly in information related to editorial projects (drawings and sketches digitation, textual production and exhibitions), prototype production projects, for *Daciano da Costa* trademark business, registered by the studio itself. This initiative of keeping alive his legacy, has led to the creation of a posthumous and collateral archival production mass, associated, among other things, with exhibitions productions, catalogs editing and electronic content creation. This Archival production it´s spread between the Daciano da Costa Studio and some memory institutions that had contributed to this goal.[6]

Design Collection

The design collection comprises a considerable interior and outdoor design prototype collection (office, medical, home and lounge furniture, such as chairs, tables, cabinets and *fautteuils*, decoration pieces and panels, tapestries, kitchen tools, lamps, benches, hash-treys, tiles posters, etc.), which can be traced among several national and international museums and art galleries, and customer institutions, such as Calouste Gulbenkian Foundation, National Library of Portugal, Centro Cultural de Belém of Lisbon, Lisbon City Council, Casa da Música of Porto, Casino Park Hotel of Funchal, Coliseu dos Recreios, Hotel Altis, National Laboratory of Civil Engineering, Ministry of Public Works, João Villaret Theatre, University of Lisbon´Rectory. For better understand of Daciano´s production, one suggests following is work CV, available at Daciano da Costa Studio platform.[7] After Daciano da Costa death, a protocol was sign between his family and Lisbon City Council (2010), to handing over a significant part of his creations, which are currently deposit at MUDE. In 2015, a protocol was sign between his family and the Centre Pompidou,[8] to hand over a prototype to the permanent exhibition. In MUDE´s case, the incorporation stablished *Daciano da Costa Collection,*[9] which was broader to other sources prototypes. In both cases, works were subject to museographic treatment, preventive conservation, and digitization, thus allowing its research, without undermining their stability. There is also a similar incorporation proposition to MoMA - Museum of Modern Art in New York. Moreover, there´s an undefined number of Daciano da Costa objects and studio furniture collection, which it´s disseminated throuhout Daciano da Costa family households (Daciano da Costa Studio, former Daciano da Costa Studio and Daciano da Costa main Family House). Between prototypes numbered pieces, licensed works, projects and installations, the reckoning should only be possible to trace by the end of this project.

Bibliographic Collection

The bibliographic collection, comprises Daciano da Costa editorial production and his private library, closely associated with his professional and academic production, by which his creative process and his conceptual references would be better understood, as guiding lines of their academic and projective work. Set down at Daciano da Costa main family house and Daciano da Costa Studio, it comprises more than 500 monographies, catalogues, and periodicals, around the farthest subjects, since the most specific, concerning international design, architecture, and History of Art, to unrelated areas like literature, poetry, music, etc. Remaining without any sort of description, the importance of this bibliographic collection lies on Daciano da Costa personal annotations which would be connect, to several archives documental and design work themselves.

CONNECTING DACIANO DA COSTA LEGACY

To perceive Daciano da Costa, personal and family archives, and involving the rest of his legacy as a Digital Heritage resource (in the context of Contemporary History, History of Art, Architecture and Design), one must reflect on the practice issues that underscore the importance of collaborative research in the definition of collective memory. Simultaneously, one must consider a range of digital curating performance, applied to the rebuilding of knowledge.

Therefore, it´s logical to consider a holistic perspective, concerning the archival systems study methodology. and understanding the legacy *components*, as belonging to a moderately closed system of social information, materialized in any type of support, configured by some essential factors: the organic nature (structure) and the functional nature (service/use), to which associates a third factor, the memory, imbricated in the previous ones.[10] In the personal and family archives case, one must perceived them as a set of interrelated and articulated elements, including the environment in which they are located, and directed towards a specific end or purpose.

The connection should be network based following the archive document, the media results, the prototype, the exhibition, the bibliographic references, their catalogs, allowing the investigator to *navigate* instead of *driving,* stopping weather necessary the investigation to develop.[11]

As interconnected systems, the collection´s curation process can occur parallel with the management process, but it always implies working on the results of the latter, insofar as the former includes the construction of knowledge on the information resulting from the latter.[12] One needs to prove the existence of heritage content in these collections, which implies the creation and establishment of knowledge with heritage significance, giving new uses to the contents that may constitute new contents, in a multidisciplinary perspective, providing them new reading dimensions, in a transdisciplinary perspective.

The option to use a pre-existing information management platform would only states a primary stage of investigation. The open access platform OMEKA[13] is mainly use to collection management allowing understanding the future methodology to apply and to develop the curation process.

CURATING LEGACY

"A cultural object has always to be seen as the outcome of the relationships between itself and the world around it, such as between an object and another object, between a human and an object, and between the environment and the object."[14]

From this perspective, we can easily see how an object/document/idea/artefact/media is the result of a series of interactions between other physical entities, and it heavily relies on intangible elements, such as a specific technique and a particular social arena, for its identity. The significance of an object/document/idea/artefact/media it´s always actively built within a context and, consequently, it´s representation is subjective and a consequence of a knowledge exchange dynamic.

The idea of hybridization[15] not only relays to the different media that you can map, connect and curate, considering an information system, weather there are related or not. It relates to the curation act itself, because we are dealing with different timeline frame, we are producing new assumptions, resulting from the object/document/idea/artefact/media social *assimilation*. We are building present knowledge with document/object/idea/artefact/media that depicts past conceptions, techniques: memories.[16]

So, legacy curation process should be develop considering other observation models and their main curation strategy, particularly those related to other Design Artists or important characters that lived and influenced his works and writings. Taking the case of Daciano da Costa Studio platform as an example,[17] its main purpose is to endure Daciano da Costa legacy through the reproduction and the transaction, through his licensed works. There´s little opportunity of create new horizons of knowledge. The network examination could be extensive to wider references, particularly Daciano da Costa international inspirations, such as Carlo Scarpa, George Nelson, the Knoll House or Robbin and Lucienne Day. Apart from the endemic fragmentation, very typical from 20th century personal and family archives and legacies, one can observe a diverse range of answers, since the entirely safeguarding heritage solution, classically assumed by a public memory institution, such as Carlo Scarpa,[18] to the hybrid proposals of Knolls House[19] or Robbin and Lucienne Day Foundation.[20]

CONCLUSION

To produce cultural heritage, one must *remember,* "The concept of cultural heritage itself is historically constructed as a hybrid social product."[21] Cultural heritage's specific position at the intersection of an imaginary past and a reinvented present, generates the conditions required for hybridization.

Subsequently, hybridization enables us to focus on the interconnection, apart from different domains, different temporalities and actors at different levels also, overcoming and rejecting hierarchies, main narratives.[22]

Heritage hybridization is thus linked to social and cultural practices, knowledge exchanges and functions, values and meanings that heritage conveys. Beyond from the technical *detail* of media, hybridization should be the main word to recognize the work of digital curation in the Cultural heritage creation.

This technical and intellectual transfer - the articulation of knowledge and methods used in the human sciences, with the digital world -, acclaims the assumption of the archive document, as well as the archive collection, and even all media considered, as an *object* of usage, practice, reflection, exhibition, and *re-creation.*

In this context, Daciano da Costa curation legacy study case, suggests opening the arrangement to the collaborative research in a holistic strategy environment, allowing both symbolic and literal hybridization assumption of the collection: combining several types of documents, several formats and different time frames, perceived in different perspectives, with the purpose of better understand the Designer work and to produce new outlooks, apart from existing ones.

NOTES

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[2] Martins, 22-28.

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[6] "Daciano da Costa. Designer," Fundação Calouste Gulbenkian, accessed July 14th, 2022,
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[7] "The work," Daciano da Costa, accessed July 14th, 2022, https://www.dacianodacosta.pt/en/the-work/

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[12] Carbone, "Moving Records: Artistic Interventions and Activisms in the Archives**"**, 105-110.

[13] "Tour," OMEKA, accessed July 14th, 2022, https://omeka.org/s/tour/

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[15] Maria Gravari-Barbas, and Isidora Stanković, *Hybridizations Concepts, Scales and Spaces***: *workshop proceedings* (Paris: University the Paris, Panthéon Sorbone, 2021), 13-15.

[16] Mounir Bouchenaki, "The Interdependency of the Tangible and Intangible Cultural Heritage," *14th General Assembly and Scientific Symposium of the International Council on Monuments and Sites* (2003): 1–5, Nicola Carboni, and Livio de Luca, "Towards a conceptual foundation for documenting tangible and intangible elements of a cultural object: digital Applications," *Archaeology and Cultural Heritage* 3, no. 4 (2016): 108-116.

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DIGITAL TECHNOLOGIES FOR URBAN REGENERATION: A CASE STUDY OF THE FORMER BILEĆA STREET IN TREBINJE, BOSNIA AND HERZEGOVINA

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INTRODUCTION

The Digital or Fourth Industrial Revolution, which began in the 1980s, is the event that has contributed the most substantially to possibilities for global information dissemination. The explosion of digital technologies over the last twenty years has brought change to the conventional workflow. Institutions dealing with cultural heritage have recognised the opportunities afforded by digital technologies for the preservation of tangible and intangible heritage, especially the great potential they have shown for improving public access to different forms of cultural heritage and its reuse.[1] Over the last two decades, there has been a debate among experts about the benefits and drawbacks of using digital technologies for the purpose of preservation of cultural heritage, as well as the relationship between the material and virtual worlds. Digitisation has caused many controversies and dilemmas as to whether digital technologies can recapture the past outside what was previously the human sociocultural context. Heritage is revitalised not solely for its spatial presentation, but also for the experience and magic of feeling that one is in the past. This is a creative approach that allows one to experience history using all senses and is a way to present heritage that really appeals to people. The upside of digital technology is that it allows the protection, conservation and promotion of tangible and intangible heritage. Ideas and initiatives such as virtual museums, libraries and galleries are readily embraced when a site or an institution cannot be accessed physically, and they were actively implemented during the COVID-19 pandemic. It is often reiterated that the ultimate goal of using digital technology is to understand the past and to appreciate the achievements of ancestors.[2] The European Commission launched Europeana, a platform that provides access to cultural heritage through digital technology and is freely publicly accessible.[3] The use of digital technology is a two-way process in that it has influenced our understanding of heritage on the one hand, while on the other, cultural heritage has also influenced how digital tools can be used.[4]

DIGITISATION IN THE SERVICE OF REVITALISATION OF CULTURAL HERITAGE

Globalisation and the modern way of life have led to heritage becoming a cornerstone of efforts to preserve identity. In recent decades, the protection of building heritage has been at the core of urban and cultural policy across Europe and beyond. These processes have seen the involvement of such

global international organisations as the UNESCO and ICOMOS, or within Europe's borders, the Council of Europe and the non-governmental sector, such as the Europa Nostra federation. Technological progress has opened up possibilities to preserve and revitalise both tangible and intangible heritage. Initially, it was museums that first began using digital technology, followed by efforts to revitalise tangible cultural wealth and making documentaries to bring history to life.

However, there has been relatively less research into the preservation and transmission of intangible heritage.[5] According to research, projects that have used digital technology to preserve intangible heritage include the UNESCO Atlas of the World's Languages in Danger and recording vernacular music.[6] Digital reconstruction of urban complexes such as streets requires an in-depth knowledge of everyday life, of how an area formed and how it was experienced. It is particularly difficult to reconstruct those urban places – or bring back their spirit – whose transformation has led to their physical disappearance.[7] New technologies can assist with establishing former street use patterns and understanding the culture of towns and cities. The importance of the case study presented herein is that it attempts to bring to life the historical and cultural life of Bileća Street, Trebinje's former high street.

METHODOLOGY

The first part of the paper presents the method of theoretical analysis and the historical method employed as the research framework. In addition, for the needs of the research geodetic maps, photographs, newspaper articles and interviews with Krš residents, whose memories hold the answer about the key events in the Bileća Street area. The land use plan, functions, plot area and construction density in the area under consideration were very useful for the analysis. Instrumental for the research was analysing land use because it helped to establish residents' activities and routines. The historical development of Bileća Street is described briefly to present both the valuable architecture that has been destroyed and the buildings that remain. A close reading of narratives and anecdotes as well as newspaper articles and recorded interviews served as a source of information about the local culture of living.

The carefully collected materials analysed in the first part of the paper permitted the study authors to make conclusions about the characteristics of the area under consideration, and synthetic reasoning helped to see possibilities for its future development and revitalisation with the help of modern technologies.

THE STREET AS A PUBLIC SPACE FOR EXPERIENCING THE CITY

Streets are public open spaces whose primary purpose is to allow the movement of and communication between people, as well as their interaction with the environment. Kevin Lynch and Norberg-Schulz believe that streets are places of cohabitation, 'small worlds', segments of the life in a town or city.[8] They represent a city's cultural entities whose local character is easily identifiable thanks to their being the stage and catalyst for human encounters. Many theorists agree that streets do not only allow movement but also social and artistic expression. Social and historical circumstances impact on how streets develop. It is this urban element that makes the daily life of cities and towns distinctive. Main streets serve a number of purposes and are typically found at city cores. These purposes or activities mark their identity and make them more easily recognisable within an urban street network. They are the cultural entities of cities that emanate the local character as built through relations between service providers and service users. Hence the urban critic Jane Jacobs' claim that 'If a city's streets look interesting, the city looks interesting; if they look dull, the city looks dull'.[9]

THE HISTORICAL DEVELOPMENT OF BILEĆA STREET, TREBINJE

Trebinje is a city located on the border between Bosnia and Herzegovina, Montenegro and Croatia. Its climate is Mediterranean/Adriatic, thanks to its low altitude and the proximity of the Adriatic Sea on the one hand, and the high mountain ranges in the hinterland to the north on the other. Trebinje's urban development started under Ottoman rule in the 17th century, when its layout and identity were established. As the Venetians took control of Risan in 1684 and of Herceg Novi in 1687, the Turks retreated to their upcountry estates. According to historical sources, Trebinje had only one fortification incapable of protecting it from attacks, which forced the Turkish authorities to build a larger one. According to Korać, the fort, located on the bank of the Trebišnjica River, was built on the foundations of an old medieval town. Because the existing stronghold was small and easily penetrable, in 1706 Osman Pasha Resulbegović started works on a bigger one, better known as Ban-vir [10] (a name that fell into disuse after 1738; later it was also known as *ićesar*).[11] The existing fort was expanded, with more buildings added and the structure additionally fortified between 1706 and 1715, which gave the Trebinje Fortress today's appearance. It is likely Bileća Street formed in parallel with the works on the fortress beginning in 1706. Previously a stronghold of little import, Trebinje gained importance as it became the seat of a captaincy and an administrative, political, military and economic centre. The newly arriving Turks began settling not only inside the ramparts, but also in the so-called *Omanović mahala*, or neighbourhood, an area that corresponded to today's Krš district,[12] which the Trebinje *čaršija*, or bazaar, the commercial part of the town, developed from. This part of the town, named after the Omanović family, who were the first to settle in it, was initially the only neighbourhood outside the Trebinje Fortress. Over time, craft shops began opening in the neighbourhood, eventually forming the so-called *Gornja Čaršija*, or Upper Bazaar, very similar to the craft districts of Kujundžiluk in Mostar and Baščaršija in Sarajevo, albeit smaller. This was likely the location of the shops run by Mustafa-aga Ćatović of which Colonel Miloradović writes to Bishop Savatije Ljubibratić in his 1711 letter.[13] Alexander Hilferding, who visited Trebinje in 1857, wrote that the Trebinje bazaar was located outside the fort and that it had about 70 shops, in reference to the area along Bileća Street.[14] On both sides of the street stood rows of well-known coffee houses and general and craft shops in the style of oriental cities. It was the town's main commercial area and also the stage of all major events.

Figure 1. An Austro-Hungarian map showing Bileća Street

The arrival of the Austro-Hungarian occupation authorities brought changes to the area, with several modern buildings built in it; nonetheless, thanks to the use of natural materials, the style of the new constructions did not differ much from the adjacent oriental or local Herzegovinian houses. More changes in the vicinity of Bileća Street took place in 1910, when a part of the moat surrounding the Old Town was filled to destroy the breeding grounds of malaria-causing mosquitoes, as proposed by Dr. Rudolf Levi.[15] It was under Austro-Hungarian rule that Hugh Street formed near Bileća Street,

and the two came to constitute the town's principal thoroughfares, running to Dubrovnik Gate and Bileća Gate respectively.

Figure 2. Postcard from the Austro-Hungarian period showing Bileća Street

Photographs and postcards dating back to the late 19th century and the first half of the 20th century are the best source of information on the appearance of Bileća Street. It was called *Bazargasse* at that time and it was the commercial centre of the town. Bileća Street ran from the main street, then called Tsar Street, which is today King Peter the Liberator Street, to Bileća Gate. Obviously, it owed its name to the fact it was a road leading out of town in the direction of Bileća. On both its sides Bileća Street was lined with general merchandise shops, craft shops and two-story buildings, the lower of which was used as a shop or workshop, and the upper as living quarters.

Today, we know how these buildings looked thanks to the photographic material remaining from the time of Austro-Hungarian rule, as well as the period of the Kingdom of Yugoslavia and the Socialist Federal Republic of Yugoslavia.

Figure 3. A photograph of Bileća Street taken from the upper tower of Bileća Gate in 1915. Most of the buildings shown were demolished to build a road in the mid-20th century

A photograph taken in 1956 shows the very much intact layout and building stock of Gornja Čaršija, i.e. the left and right sides of Bileća Street leading to Bileća Gate. The construction of the new road to Bileća required clearance of the part of the old bazaar on the right side of Bileća Street, an intervention that separated the Krš district from the rest of the town core. With the row of shops along

Bileća Street now broken, the commercial zone of the town ended at today's King Peter the Liberator Street.

Figure 4. Bileća Street on a 1956 geodetic map (left); an orthoimage of Bileća Street today (right)

The appearance of Bileća Street irretrievably changed in the second half of the 20th century, when the authorities endorsed the demolition of a number of buildings along the right bank of the Trebišnjica River, not taking into consideration their cultural and historical value. As claimed by the officials, the buildings were demolished primarily to make space to widen the street and due to problems with infrastructure, since the existing structures were either dilapidated or had problems with water supply and/or wastewater disposal. All buildings along the Trebišnjica River were torn down and streets built in their stead, as can be seen in the orthoimage in Figure 4 above.

Figure 5. Bileća Street today

Bileća Street urban patterns

In addition to running spatial analysis – exploring the urban space of Bileća Street, this study required a historical interpretation of its urban life, with the aim of establishing its use patterns. This ensured not only analysis of the urban space, but also assessment of the additional dimension of the non-material value of the street use through history. The Time Machine is a project aimed at historic urban spaces, which seeks to map Europe's social, cultural and geographic evolution over time (https://www.timemachine.eu). It is a digitisation project that will allow Europe to turn its long history

and interculturality into an economic and social asset. 'The material culture of a particular locale might be utterly vanished due to changes (planned and unplanned) attributable to natural or human-made causes that have brought forth physical surroundings that differ from what historical agents experienced in the past.'[16] The obstacles posed by this type of research efforts concern finding authentic pictures of buildings; likewise, only very few photographs have been preserved from the time when Bileća Street existed to be used to complete the historical picture of the townscape of the former Gornja Čaršija. Many European cities are faced with the same problem as they look for answers to questions about living areas and urban landscapes. The lost space of Bileća Street can only be reconstructed with the help of geodetic data and photographs. A geodetic map of the town from 1956 provides accurate 2D spatial data for all buildings prior to their demolition. Most of these structures can be reconstructed in 3D with the help of photographs and postcards, especially the bird's eye view photographs taken from the surrounding hills and gate. Also of special importance are the publications of the Trebinje Photo Club titled *The Old Trebinje in Photographs*, which are records of the town's architecture, events and people.

Bileća Street connected the residential Krš district with the Old Town and was the commercial zone of Trebinje. At the end of Bileća Street, at the entrance to Trebinje, stood Bileća Gate, and along it, on both its left and right sides, stood rows of approximately 6-metre-wide craft and trade shops, whose layout and design is reminiscent of modular architecture. During the Austro-Hungarian period, the authorities built somewhat larger buildings, whose street fronts were 10 metres wide. Bileća Gate enclosed the town and Bileća Street, delineating this area for use by residents only. The old postcards show the buildings had one or two floors and were constructed from locally quarried gray Herzegovina stone used as masonry. Their flat facades were a combination of the Mediterranean and Central European styles. The use of stone slabs as the roofing material necessitated the gable construction. The street was fringed by the buildings and there were no yards or public green areas. The buildings had wooden awnings with merchandise displays underneath. All buildings had large windows on the ground floor, which increased the transparency of the street fronts. The street formed as a rim that separated the residential Krš from the Trebišnjica River. The plots were up to 100m² in size, with their average area at around 70m². The street was a fairly straight line leading into the city, the perception of which was reinforced by the sloping terrain of the Krš district. Depending on the room, the size of the traditional windows varied between 60x80 cm and 80x110 cm, i.e., most often the width-height ratio was 1:1.4. A lot of the buildings had double-casement windows split horizontally into two parts, while those on the ground floor were true arches. The windows were installed from the inside of the stone frames and had outdoor wooden shutters. The shutters and the rest of the carpentry were painted blue. Some of the shops on Bileća Street had arched portals that served as the shop windows. The dominant colour was the Herzegovina stone gray, which stood in contrast to the blue woodwork of the original neighbourhood.

The streets leading into Krš are in the form of stairs 2-4 metres in width, with no space for motorised vehicle infrastructure. The terrain configuration of Krš made the area along Bileća Street suitable for commercial activity due to its position along the main route of access into the town.

Residents and the street life

The physical aspect has an impact on the social aspect and activities in an area. The physical and social aspects influence the spiritual aspect because together they create memories and feelings in people as they follow their daily routines and engage in activities in a place. By analysing the physical remains of the street its appearance can be reconstructed, whereas its everyday life can be revived with the help of oral traditions and records of the memories of old Trebinje residents. The writings of local researchers and chroniclers, i.e. of local residents who were in love with Trebinje (Ljubiša

Anđelić, Đorđe Odavić) allow one to visualise life in this part of the town in the past. Many photographs and postcards show clearly the names on the shops and coffee houses that were once located in this 'bohemian' neighbourhood that added charm to the town centre. There were a lot of shops and taverns on Bileća Street, and this is how we know about Mehmedaga Zubčević's hardware shop, Omer Tičić's pharmacy, Hivzija Galijatović's haberdashery, and many others.[17] This part of Trebinje may be considered to have been its liveliest district because, besides the town market, it had the greatest circulation of people and goods.

Back in the 1980s, many residents of the Krš district pleaded for the revitalisation of Gornja Čaršija, together with its craft shops and all its distinctive features.

CONCLUSION

This study focuses on Trebinje's long-lost Gornja Čaršija, its social and cultural structure, as well as the daily life of its people and the changes it underwent through history. Bileća street and the Krš district, as the oldest parts of Gornja Čaršija, evoke nostalgia for the past, when they were an attractive, thriving part of the town core, with craft shops and live music heard from the old taverns visited by tourists who came mostly from Dubrovnik and Herceg Novi. Today, the Krš buildings are mostly derelict and Bileća Street partly destroyed following Trebinje's urbanisation in the 1960s, which ruined one of its most attractive areas. As reported by the Trebinje Tourist Organisation, there are no organised tours around this part of the city because many of its residential buildings are dilapidated or have nothing to offer. The neighbourhood was slowly abandoned by its occupants in the second half of the 20th century due to lack of basic infrastructure, which is when it became a run-down urban settlement.

The Krš district and Bileća Street should be reconstructed with the assistance of cutting-edge technology, following the examples of cities across Europe, as much the historical data will permit it, based on cadastral maps and photographs. The area revitalisation would also require collecting old anecdotes and stories related to the street and the bazaar, the town's former commercial hub, to pass on to the next generation. The buildings that have been preserved but whose ground-floor premises are vacant can be revitalised by accommodating in them modernised arts and crafts, while keeping the same old purposes and names. The existing buildings need to be restored to their original form, with the woodwork and facades repainted the same colours to give them their original appearance. This would attract tourists to this part of the city and facilitate life for the Krš dwellers because the area would be used daily. Thus far, 3D technology has not been used extensively in Bosnia and Herzegovina to revitalise building heritage. This method, which has become commonplace for historical cities, is locally used only very rarely. Bileća Street is an area with a sense of history and a space that has the potential to store memory. The buildings that cannot be fully restored in this way can be brought closer to tourists and the next generation with the help of modern technology. Creative revitalisation of the dilapidated Krš district and Bileća Street would not only preserve the distinctive ambience of this part of Trebinje, but it would also revive its old spirit, with its intangible heritage, old crafts and traditional way of life.

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BETWEEN PRESERVATION AND COMPOSTING: THE QUEER ECOLOGIES OF DRUID HEIGHTS

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INTRODUCTION

Across the Golden Gate Bridge from San Francisco is what is known today as the Muir Woods National Monument in Marin County.[1] Amidst the fog and the old-growth redwood forests at the foot of Mt. Tamalpais, the evocative ruins from the community called Druid Heights are slowly composting back into the earth. Layers of soil entangled with material culture decompose alongside the deep environmental and spiritual ideas of vibrant historical subjects, their queer imaginations, and collective anarchist politics, making it a complex and intriguing space that may offer alternative ideas for ways to live and die during times of collapse.

In addition to its ruinous aesthetic, the handmade buildings at Druid Heights have a unique history shaped by non-conformists and their radical ideas about the relations between themselves and the forces of nature around them. They tried to live differently, experimenting with collective values and somewhat esoteric principles. What can we learn from their experiment? How do their spatial and political practices inform and influence the larger issues we are living in in current times? What does this kind of communal living with the land achieve and what are its limits?

The community of Druid Heights was founded in the 1950s by Elsa Gidlow, an openly lesbian poet, anarchist, and organic gardener; Roger Somers, jazz musician and woodworker who developed the very particular aesthetic of rustic vernacular seen in different structures throughout the land; Ed Stiles, woodworker and hot tub builder, and only survivor who still inhabits Druid Heights; and in the final days, Alan Watts, Beat Generation scholar of Eastern philosophies and one of the first Westerners bringing Zen Buddhism to America. These core community members, and their many visitors, shared an ethos of spirituality and connection to the earth which can be called "spiritual environmentalism." Some of those ideas materialized in various ways including self-built structures and other handmade aesthetics that were generally explored during the back-to-the-land movement. While being critical of industrial capitalism and consumerism, they proposed social change through exploring alternative lifestyles and crafting a physical and spiritual escape from the post-war capitalist city. Although their ideas were not applied to society at large, they formed interesting directions for cohabitation with the landscape and with each other, establishing a long cultural reach that continues to be relevant today.

Currently, Ed Stiles is the only member of the original community who still inhabits his part of the property. Other than the section where he and his family live, most of the land and its buildings are unoccupied and have fallen into disrepair. Since the ruins have not been preserved, the structures are decaying. The passage of time and an overgrown natural environment are dismantling them. This process sometimes reveals the resurfacing of some of the community's original values related to

spirituality and environmentalism, where life welcomes contingency, embracing the cycles as seasons, that include both beginnings, endings, and constant transformation.

To unearth these ideas, I will first trace back the genealogies of spiritual environmentalism that influenced its ethos and aesthetics. I will then talk about the community and focus on four key structures and the garden, analyzing what we can learn from their experiments and how their original intentions have or have not been materialized in physical form. I am interested in questioning what these ruins can symbolize for us today, what were their limits, and how can this queer ecological entanglement with more-than-human unruliness be useful for an architectural theory and practice.

GENEALOGIES OF SPIRITUAL ENVIRONMENTALISM

Radical environmental circles that were also interested in spirituality, such as the community at Druid Heights, have been influenced by previous ideas and aesthetics that branch out from early anti-industrial and anti-capitalist philosophies. In late Victorian England, environmental values were part of a utopian "back-to-nature-socialism" developed around John Ruskin, William Morris, and other proponents of the Arts and Crafts movement.[2] They denounced individualism and liberal capitalism, highlighting the ecological dimensions and effects of deforestation, pollution, and modern technologies. They followed Romantic views that preserved communitarian social relations and maintained artisan and artistic skills.[3] These ideas traveled across the Atlantic and were imported by artists and philosophers influencing the way they represented and understood the picturesque and sublime wilderness in the American frontier.[4] At the same time, these ideas also populated the colonial psyche with certain kinds of racial imaginaries and fantasies that refused to recognize diasporic populations in settler-colonial occupied lands.

Notable figures of American Transcendentalism, such as Ralph Waldo Emerson, adopted Romantic ideas and mixed them with elements of Orientalist philosophies. These ideas further influenced their views regarding, for example, how natural objects appeared as reflecting universal, spiritual truths. Emerson and his colleagues, including Henry David Thoreau, perceived divinity in the natural world and believed that moral "impulses" emanated from the natural environment.[5]

This kind of sacralization of the natural landscape took different forms in white American environmentalism. On one hand, "conservationism" denounced a mere extractive logic of resources that appealed to efficiency and science to improve industrial domination over nature.[6] "Preservationism," on the other hand, attempted to protect nature on a non-utilitarian basis, defending it for aesthetic, scientific, recreational, or spiritual reasons.[7] Examples of preservationism include landscape architect Frederick Law Olmstead's work. Olmstead recognized the beauty and importance of protected "wilderness," supporting arguments about the anthropocentric benefits of contemplating nature. Even if preservationism was considered a radical critique of the Western project of exploitation of nature for economic gain, it also promoted the expulsion of indigenous populations from their territories and supported the touristic consumption of nature by the white elites.[8] In California, for example, environmentalist and writer John Muir was a preservationist who focused on protecting "wilderness," pushing toward the creation of the first National Park in the Yosemite Valley and the Sierra Club. But even though Muir was a religious man who found morality in nature, his ethics are questionable. Due to his racist views and white supremacist beliefs, the Sierra Club has had to reassess his continuing symbolic role and visibility in the organization.[9]

Even if the creation of the National Park Service was originally interested in preserving nature, its interests were interwoven within colonial, heterosexual, and racialized formations of nature. The creation of these "wildlife preserves" mistakenly conceived "wilderness" as pristine and untouched, although the land had been inhabited and modified by Indigenous groups for thousands of years.[10] In this genealogy of white, straight, cis-male environmentalism, Indigenous people have not been the

only ones left out of the American conception of the environment. The dominant environmental narrative of "white wilderness" was only informed by European-American male voices and left out other genders, sexual orientations, and all non-white perspectives, including the African American experience, which was systematically ignored and excluded.[11]

American Transcendentalism was part of the broader "white wilderness" narrative which makes it problematic on many levels, but it also challenged the assumptions of industrial capitalism. In Northern California, these ideas influenced the Bay Area Arts and Crafts architects and artists such as William Keith and Bernard Maybeck, who worked together in the Swedenborgian Church of San Francisco (Fig. 1). They used artisanal and handcraft principles to oppose consumerism and extractive relationships with nature. Bay Area regional architecture developed a local style that was rustic, primitivist, and eclectic, producing a distinctive version that closely connected with the landscape.[12] These ideas were attractive mainly to the educated white upper-middle-class intellectuals who looked for authenticity through their lifestyle.
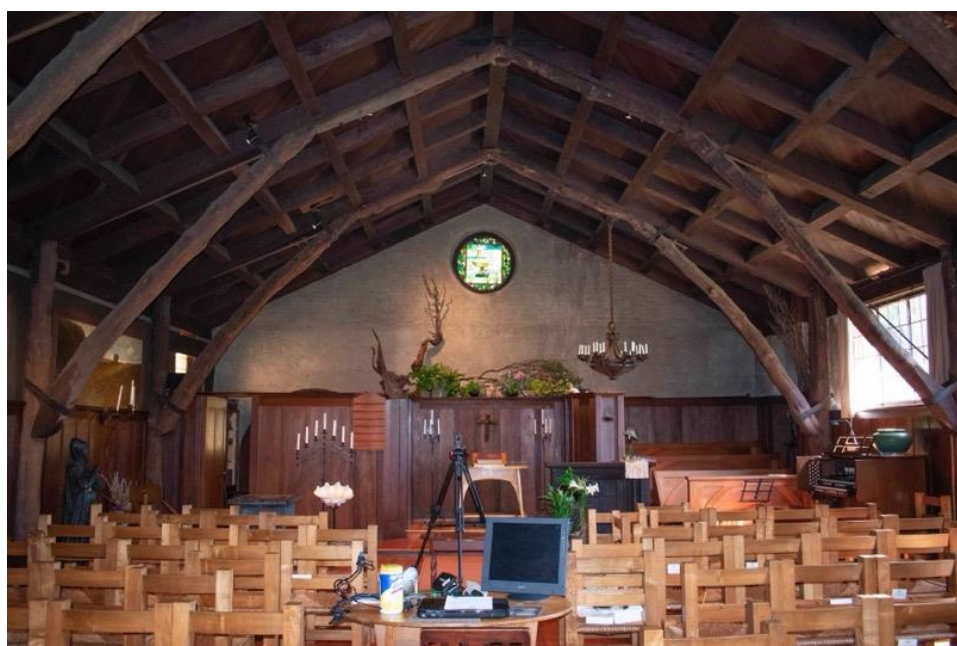

Figure 1. The Swedenborgian Church of San Francisco (2020) Photograph by the author

SPIRITUAL ENVIRONMENTALISM IN DRUID HEIGHTS

Threads of these more radical ideas about the environment made a resurgence in Northern Californian intellectual circles during the post-World War I years, when bohemian groups were getting together in San Francisco and Berkeley. Artists and intellectuals developed interests and tendencies toward rejecting conservative traditions and discovering more progressive ways of understanding the world. They looked for more modern versions of spiritual environmentalism, finding them in Walt Whitman's poems and Edward Carpenter's work in terms of how they connected their environmental politics with a homosexual lifestyle.[13] Elsa Gidlow was one of these forward-looking writers, who later founded Druid Heights.

Elsa Gidlow, poet-warrior

Known to many as the "poet-warrior," Elsa Gidlow was a lesbian poet that considered herself an anarchist and a feminist, influenced by Emma Goldman.[14] Born in England, she emigrated to Canada with her family. In 1926, Gidlow and her partner, "Tommy" Henry-Anderson, moved from New York

City to San Francisco, and later to Fairfax, in Marin County.[15] Gidlow soon started a garden, considering the open-branched madrones as guardians. Influenced by her friend Ella Young, who taught Celtic spirituality at UC Berkeley, Gidlow decided not to impose her will on the garden but was open to cooperation with the environment.[16]

Gidlow's feminism and identity as a lesbian influenced her understanding of the forces of nature as female. Her beliefs in "Goddess spirituality" conveyed a sense of kinship with the non-human universe.[17] She identified with nature and felt a connection with the land as partner.[18] Gidlow learned all she could about the land and its interdependence, wanting to disturb it as little as possible with her presence. She cherished the hillside in the spirit of being part of the garden itself.[19]

Gidlow's interest in spiritualities that perceived the natural environment as sacred was part of a broader resurgence of Asian religions and philosophies in the US during the 1950s. Among the artistic and intellectual circles later known as the Beat Generation was the Englishman Alan Watts, who influenced by teachers such as DT Suzuki, began explaining his interpretations of how Eastern and Western views differed. [20] Gidlow met Watts through the American Academy of Asian Studies.[21]Through the Academy, she also met Roger Somers, who was a saxophone player and builder who offered her the partnership of buying property together. Somers and his wife had found a 5-acre farm with two houses for sale and were looking for the right people to work and live together.[22] Gidlow had also been dreaming about a community, a place for a spiritual retreat, a larger garden, and a quitter place to write.[23]

Druid Heights

Gidlow named the land Druid Heights because the fog-shrouded afternoons reminded her of her natal Yorkshire, where her much-admired Wuthering Heights by Emily Brontë took place.[24] She also drew from the idea of the Druids in the Celtic tradition, who considers female sensibilities to have divine powers.[25] In the naming of the site, we can see the threads of subtended racialist imaginaries as a continuation of settled offspring that have mutated as an afterlife of white spiritual environmentalism.

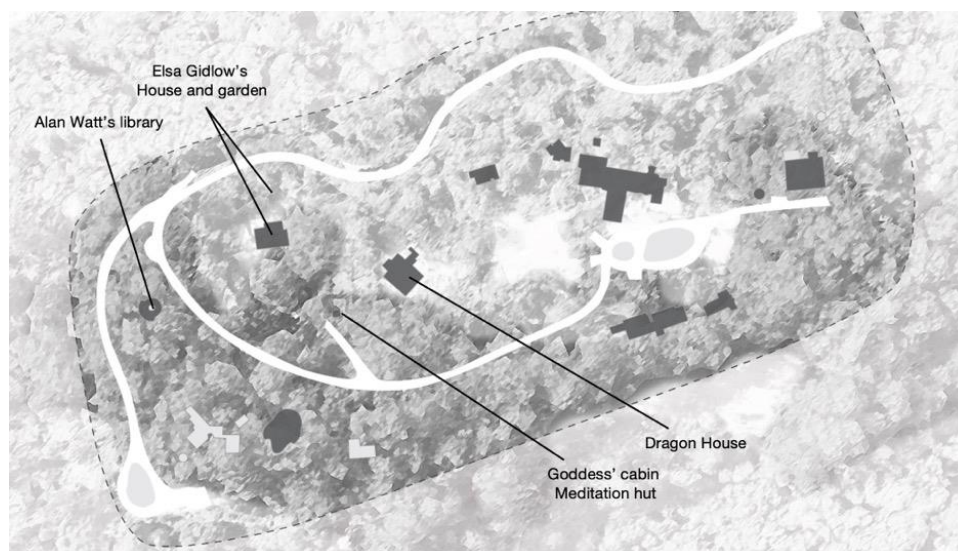*Figure 2. Map of Druid Heights based on a diagram by Michael Toivonen, www.savedruidheights.org*

Elsa Gidlow's house and garden

Gidlow's garden (Fig. 3) surrounded her small house, which stood like a hermit's retreat up a hill. The house had a series of sundecks and trellises filled with pots with colorful flowers of all kinds, surrounded by a kitchen garden. Today, the sundecks have collapsed, the planters around the house

are broken, and native plants have taken over the space where the kitchen garden was. How there are almost no traces of her garden shows how it is seamlessly reabsorbing back into the landscape.

Figure 3. Gidlow's garden remains (2020) Photograph by the author

Gidlow's house (Fig. 4) is a small structure, simple in design. A simple ranch house, the structure is the only one on the site with a concrete foundation. Other than broken windows, the house is overall in fair condition.[26] Gidlow remodeled the original structure extensively. It has a rectangular floor plan, and its walls are covered by redwood siding. There are several wooden planter boxes built-in around the building. Inside, the living room has a fireplace and large windows. It has an integrated sofa with bookcases and wooden wall paneling that gives the space a domestic atmosphere. It has a practical feel to it and expresses an austere but comfortable lifestyle. There are no major ornaments other than a woody craftsmanship ethos mixed with a pragmatic aesthetic that welcomed the beauty of lush landscaping.

Figure 4. Elsa Gidlow's house (2020) Photograph by the author

The Goddess' Cabin

The Meditation Hut or Goddess' cabin (Fig. 5) looks as if it is part of the forest. The cabin was built in collaboration between Somers, Ed Stiles, and artist Detlef Kotztse for Gidlow in the 1980s.[27] The walls and roof are covered with irregular-shaped natural-colored shingles. Today, it is covered by an overgrown vine cascading on four sides. It has a white arched double door with rainbow-colored glass, making it look like a forest shrine. At the back, it has a round window with a blue lotus at the center.

Figure 5. The Goddess' cabin (2020) Photograph by the author

Somers's vernacular architecture: The Dragon House

Similarly, Roger Somers approached the reconnection with nature through an eclectic aesthetic. His woodwork of natural forms was probably influenced by the Bay Area Arts and Crafts architecture. Somers and Ed Stiles enjoyed working with salvaged materials, leaving the lumber to guide them intuitively rather than following plans or building codes. The Dragon House (Figs. 6 and 7), which was also one of the original structures on the site, was extensively remodeled. Beat poet Gary Snyder also joined the community and helped build the living room's Japanese-inspired meditation room. Here we can identify traces of Orientalist approaches when integrating Japanese aesthetics into the hills of Northern California.

Figure 6. The Dragon House (2020) Photograph by the author

Figure 7. Dragon House interior (2020) Photograph by the author

Alan Watt's library

In the early 1970s, Gidlow invited Alan Watts and his wife to live in the community. In search of a round form for Watt's library, Somers and Stiles adapted a redwood water tank, stepping out of the norms of consumption. They added a conical roof with a round skylight at the center. The interior contains a round room, where Watts held seminars and tea ceremonies. The repurposing of the water tank was a thoughtful approach to design that relates to improvisation and adaptive reuse.

Figure 8. Alan Watts's library (2020) Photograph by the author

Collaborative life at Druid Heights

Far from the world but close to San Francisco's bohemian circles, the residents at Druid Heights welcomed the interplay between sexual freedom and higher consciousness. They were all self-employed and lived austere lives, not aiming to have more than what they needed. Druid Heights was a hidden place that encouraged inwardness, experimentation, and spiritual growth.[28] These practices anticipated and articulated many themes that became the main tenets of the 1960s counterculture: pacifism, Buddhism, ecological awareness, the expansion of consciousness by psychedelics, hedonistic sex, and openness to homosexuality.[29]

Between preservation and ruination

In 1973, the National Park Service forcefully bought the land on which Druid Heights sits as part of an ongoing expansion effort to preserve the redwood forest, the drying watershed, and endangered species including the *coho* salmon.[30] They invoked eminent domain, purchased the land, and gave the owners lifetime leases. That same year, Watts passed away. Gidlow passed away in 1986, and Somers in 2006. Only Ed Stiles and his wife, together with a group of extended family, inhabit his section of the land amidst the ruination of the other structures.

The spatial and political practices at Druid Heights were limited in various ways. Although the community was looking for a more respectful connection with the environment, their infrastructure was not ecological: they contributed to the draining of the watershed; they used fossil-fueled electricity and vehicles; there was no alternative approach to waste production; there were no outhouses nor composting toilets, etc. Similarly, the community's inhabitants were mostly white, cis-

gender, middle-class, and able-bodied, free to come and go to the city. Additionally, their awareness did not include a reflection regarding the repetition of settler-colonial dynamics on Native land.

CONCLUSION: POSTHUMAN COMPOSTING

Standing at the crossroads between the past and the future, Druid Heights's fate remains undecided. Its queer ecological entanglements can help us think of ways to attend to questions of memory and critical knowledge by engaging with a prior and dematerializing world that gives evidence of what the present and future could be. We may want to try to freeze the structures and remember them in that way forever.

We can also continue the original ethos of Druid Heights and explore it as a site for speculation. If the ruins were allowed to disintegrate, we could witness the process of decay and could potentially learn to live with decline without burying the fact that things fall apart and decompose. Letting buildings compost back into the earth challenges the architectural practice of compulsive building, questions the imperative of architecture as necessarily permanent, and opens space for new worlds in which we can live and where it is worth living. We could treat these disintegrating ruins as a metaphorical and physical compost pile, where the category of waste becomes nourishment and the dichotomies between life and death blur in constant change, where we can learn to let go in grief while also choosing what to hold on to. Hybrid practices of preservation and landmarking could also work with site interpretation and historical memorialization processes that dismantle Anthropic categories, opening space for post-Anthropic ways of thinking and being with.

The practice of posthuman composting could become part of the decolonizing, renaming, and land-back processes, like the way shellmounds enacted reciprocal ways of living on Ohlone sacred landscape. Posthuman composting could contribute to the reckoning with the past to imagine alternative futures, making new earth while understanding what is at stake in the process of sedimentation. This process includes practices of remembering and paying attention to many communities that have been living on broken grounds and have already experienced colonial world-endings.
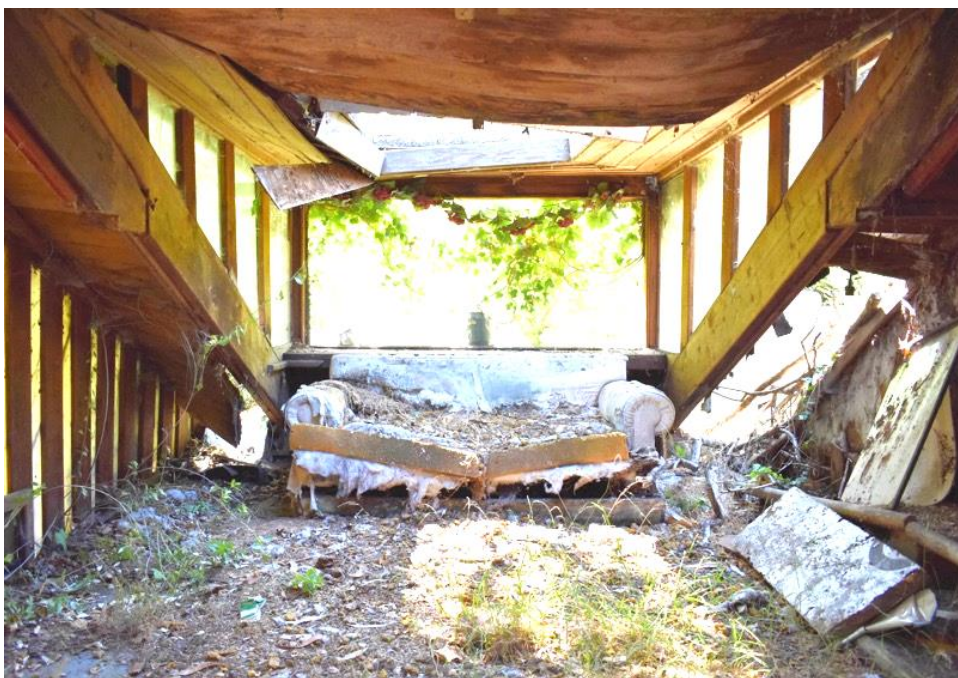

Figure 9. Collapsing and decomposing structures at Druid Heights (2020) Photograph by the author

NOTES

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[3] Bonneuil and Fressoz, 271.

[4] Roderick Frazier Nash and Char Miller, *Wilderness and the American Mind*, Fifth Edition (New Haven: Yale University Press, 2014), 85.

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[6] Bonneuil and Fressoz, *The Shock of the Anthropocene*, 268.

[7] Bonneuil and Fressoz, 270.

[8] Bonneuil and Fressoz, 271.

[9] Lucy Tompkins, "Sierra Club Says It Must Confront the Racism of John Muir," *The New York Times*, July 23, 2020, sec. U.S., https://www.nytimes.com/2020/07/22/us/sierra-club-john-muir.html.

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[15] Gidlow, 289.

[16] Gidlow, 294–95.

[17] Gidlow, 411.

[18] Elsa Gidlow, *Ask No Man Pardon: The Philosophical Significance of Being Lesbian* (Druid Heights Book, 1975), 10.

[19] Gidlow, *Elsa, I Come With My Songs*, 307–8.

[20] Roderick Frazier Nash, *The Rights of Nature: A History of Environmental Ethics*, 4th ptg. Edition (Madison, Wis: University of Wisconsin Press, 1989), 114.

[21] Gidlow, *Elsa, I Come With My Songs*, 328.

[22] Gidlow, 342–44.

[23] Gidlow, 351.

[24] Gidlow, 359.

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SPACE OR HYPERSPACE? THE STAGE DESIGN OF KUNQU OPERA RESTORES THE INNER EXPERIENCE OF JIANGNAN GARDENS

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INTRODUCTION

Since the 1990s, nine Suzhou gardens have been included in the "UNESCO World Heritage List".[1] Correspondingly, in 2001, UNESCO (The United Nations Educational, Scientific and Cultural Organization) declared Kunqu Opera "Masterpieces of the Oral and Intangible Heritage of Humanity".[2] Of these two, one is a model of classical Chinese gardens, and the other represents Chinese elegant performing arts. They were all born in the traditional Jiangnan region of China centred on Suzhou City. There is a close relationship in the development process, which is reflected in,

1) In terms of artistic expression, the philosophical term "emptiness and fullness create each other" can be used to describe both Jiangnan gardens and the artistic characteristics of Kunqu Opera. [3]

2) Jiangnan gardens and Kunqu Opera have evident intertextuality — a space for Kunqu Opera performances is often set up in garden design, and Kunqu Opera playwrights often describe garden scenes in their scripts.

This commonality is not accidental. As Georgi Plekhanov puts it, "[t]he art of any people is determined by its mentality; its mentality is a product of its situation," [4] Jiangnan gardens, Kunqu Opera, and even poetry and painting, which respectively mean spatial art, oral culture, literature, and graphic art, share the concept of "emptiness and fullness create each other".

The following points must be clarified before discussing the hyper-space relationship between gardens as material cultural heritage and Kunqu Opera as intangible cultural heritage:

1) What are the hyper-space characteristics that poetry, painting, gardens, and Kunqu opera collectively embody?

2) How the commonality of the four art forms spans dimensions, that is, from nothingness (poetry), to two-dimensional (painting), then from two-dimensional to three-dimensional (garden space), and finally three-dimensional transition to "hyper-space" (stage design)?

3) What trend will the hyper-spatial nature of gardens develop in the future stage design of Kunqu Opera?

Influence of Aesthetic Principles of Poetic Painting on Garden's Hyper-Space

A new art form called poetic painting, which represented "the idea that poetry and painting can be virtually interchangeable in their content," [5] first appeared in China at the end of the eleventh century, according to East Asian art historian James Cahill (1926–2014)'s book *The Lyric Journey* (1996).

This kind of painting became a fashion that people were chasing in the Vanity Fair of the literati class at that time. For example, the famous poet and painter Su Tung-po (1037–1101) wrote in his poem, Painters since ancient times have not been ordinary fellows.
Their marvellous thoughts have the same origin as poetry.[6]
A common phenomenon in that era was that "[good] painters [often] are praised as 'being like poets'".[7] This aesthetic phenomenon of transitioning from poetry to poetic painting means that the viewer's "experience" spans from language to visual art. According to Cahill, the "experience" of poetic painting is that "one gazes at the scene from outside it, without the imagined participation."[8] In a sense, vision becomes the main way of "experience" for the viewer in viewing poetic paintings. The non-perspective long scroll composition of ancient East Asian paintings, due to the lack of a visual centre, would result in visual continuity in the way of viewing, and this "visual continuity that the master of monumental landscape […] could impart to the terrain of their pictures presents the world as traversable, stable, ultimately comprehensible."[9] During the viewing process, the viewer can obtain information from the symbols of the painting to enhance their spiritual experience, "one can move smoothly through their pictures, sometimes taking in entire mountains or forests as visual units, sometimes coming in for close-up views that reveal abundant detail to exploring eye."[10] The painting methodology essay "Lin-ch'üan Kao-chih (林泉高致)"[11] (11th Century AD) in the Northern Song Dynasty (960–1127) believes that painting that can bring a sense of travel and living experience is better than painting that can only make people look at the scenery.[12] This view means that the experience of poetic painting gradually changes from visual aesthetic to spatial aesthetic feeling.

The experience of space in the viewing process has become the highest criterion of poetic painting. In the process, the painter will deliberately sacrifice the expressive power of the brush to avoid the visual experience of realism.[13] This supreme principle even influences the design of their own living spaces.[14]

From the above content, it can be concluded that the garden design methodology in Jiangnan has a direct relationship with the "experience" aesthetics of poetic painting. In other words, "experience" is beyond space, an aesthetic principle that both painting composition and garden design follow. So how should this "experience" be understood? What is the relationship between this "experience" and the stage design of Kunqu Opera?

Hyper-Spacial Simulation Rules of Modern Kunqu Opera Stage

There are two ways of dealing with walls in Jiangnan garden design; one is called "obstructive scenery", and the other is called "borrowed scenery."[15] Obstructive scenery means a wall (or obstacle) blocks the landscape behind it, allowing the viewer to bypass the wall and experience a completely different space. The borrowed scenery creates an opening in the middle of a barrier, through which the landscape of another space is presented to the viewer (sometimes a door, sometimes a window).

These two approaches to setting up obstacles in the garden represent the relationship between the mountain and the surrounding landscape in the poetic painting. After the discussion in the first section, a logical connection can be drawn here; the painting is trying to simulate poetry, while the garden is trying to imitate painting. To sum up, when the aesthetics of one art type, A, applies to another art type, B, B will try to restore the feeling that A brings to the audience. The reason why Kunqu Opera is hyper-spatial is that the stage design of Kunqu Opera simulates the garden, which in turn simulates painting, and the painting simulates poetry. However, the criticism of poetry is more of an aesthetic experience. Nonetheless, this experience is constantly being enshrined as the highest aesthetic principle by other art categories, which leads to this hyper-spatial experience. From the

following four-stage design cases for *The Peony Pavilion* in Kunqu Opera, we can see why this retrospective simulation (Type B simulates Type A) is the key to hyper-spatiality.

There are differences in the restoration of "experience" in modern Kunqu Opera stage design, and these disagreements turned into various attempts at "simulation" in different senses. In the existing 1960 video of Master Mei Lanfang (1894–1961) performing a Kunqu Opera named *The Peony Pavilion*, it is not difficult to find that the entire stage set is trying to simulate a real garden scene. For example, in the indoor scene at the film's opening, there are two types of borrowed scenery, a nearby door and a distant window, which simulate the depth of field in a garden (see fig.1).

Figure 1. Schematic diagram of the scene made according to Mei's version.

However, in the 1983 version of *The Peony Pavilion* by another Kunqu Opera master Zhang Jiqing (1939–2022), the spatial "simulation" was intentionally weakened. The substantial depth of field design in Mei's version is ignored in Zhang's version. Compared with Mei's version, Zhang's version is visually flattened. The borrowed scenery is directly represented here as a circular window (the Mei version adds a circular doorway). Stage space no longer has another borrowed scenery to increase the space level (see fig. 2). This version shows another direction of stage design; the simulation of pure garden space by Kunqu Opera sets has gradually become the simulation of aesthetic principles. Just as the poetic painters of the Song Dynasty abandoned the technique of realism, this is the result of the designer's thinking on the rules of hyper-spatial "simulation". "Experience" has a new trend in this edition; that is, it goes beyond the simulation of space and tries to return to the universal poetic aesthetic criterion.

Figure 2. Schematic diagram of the scene made according to Zhang's version.

In 2004, writer Pai Hsien-yung (1937–) designed a new version of *The Peony Pavilion's* stage. Pai introduced the musical's lighting system, separating the protagonist, supporting roles and actors, making the audience's visual focus more concentrated.[16] Compared with the previous versions of Mei and Zhang, this version completely abandons the practice of dividing space with obstacles. In the stage setting in Mei's version, a round door opening (near wall) and a round window (far wall) increase the depth of field to reflect the relationship between emptiness and fullness in space. Zhang's version weakens the depth of field and perspective, focusing on the use of non-space to enhance the viewer's experience of emptiness. When Pai's version completely abandoned the stage set and switched to using lights, the use of obstacles to simulate a garden to create an experience of emptiness was transformed into the use of stage lights to reflect the relationship between emptiness and fullness. Obstacles (fullness) - openings (emptiness) transform into dark stage spaces (emptiness) - beams (fullness). The transformation of this expression material means transitioning from the past garden material simulation to the garden "experience" concept. The direction of this material revolution is worthy of recognition, just as poetic painting uses pigments to re-express the "experience" created by poetry, and the Kunqu Opera stage uses lighting to eliminate the dependence on the materiality of gardens gradually.

Figure 3. Pa's version of The Peony Pavilion.

In addition, there is currently a fourth version, which is widely influential, dating back to the "Salon Edition" in 2007.[17] The famous Kunqu Opera actor Wang Shiyu (1941–) used a Ming and Qing Dynasty imperial granary on Beijing's Dongsishi Aly Street as the venue and performed *The Peony Pavilion* here according to the specifications of an ancient private garden. This version restored the historical performance form—performing arts troupes in the Ming and Qing Dynasties would perform in private gardens.[18] Kunqu opera performances influenced by this model were called "salon versions" (Tingtang version). The Salon version was as commercially successful as Bai's version, but it took a very different path from Bai's version regarding stage design. Although behaviorally, the Salon Edition can easily be attributed to vulgar antiquity, from another perspective, it can be seen as a new exploration of "simulation. " Just imagine, in history, is not the act of gardening practice of poetic painting also an attempt to make an alternative attempt from a material point of view? From the perspective of the relationship between Kunqu Opera and gardens, the meaning of hyper-space has much room for interpretation and enormous plasticity in material practice.

Figure 4. Still from the Salon edition of Six Records of a Floating Life (浮生六記)*.*

Interpretation Flexibility — Hyper-spatiality of Kunqu Opera Stage Materials

The above briefly describes the development process of contemporary Kunqu stage sets. The four cases represent,

1) the direct imitation of the materiality of the garden by the stage setting of Kunqu Opera;

2) the restoration of the poetic aesthetics of the Kunqu Opera stage set;

3) the Kunqu Opera stage set began to undergo an innovation in the realization of materials, using the light and shadow on the stage to re-interpret the "simulation experience";

4) another development trend of the Kunqu Opera stage sets fully emphasizes the "restore" of the senses, emphasizing the performance in the actual scene.

The third and the fourth are the two primary development directions of the Kunqu Opera stage set after 2000, reflecting the flexible interpretation of the experience of hyper-spatiality.

Such attempts have never stopped. In 2017, Qianhui Feng from University College London (UCL)'s Interactive Architecture Lab made an experimental art project on Kunqu Opera. The project uses the current pioneering stage design concepts, namely interactive performance, and immersive theatre, through a combination of live-action performances and large-scale projection installations, allowing the audience to immerse and gain an interactive experience. This project is very different from the previous Kunqu Opera stage design cases because the experience is comprehensive, combining different types of "simulations. "

First, it exists to simulate the garden space. The stage area has an isolation zone between the performance and audience areas (see fig. 5 [right]). This mode restores the classical stage mode of garden Kunqu Opera. For example, there is a pond outside the Kunqu Opera stage building in the Humble Administrator's Garden to separate the audience from the stage (see fig. 5 [left, middle]).
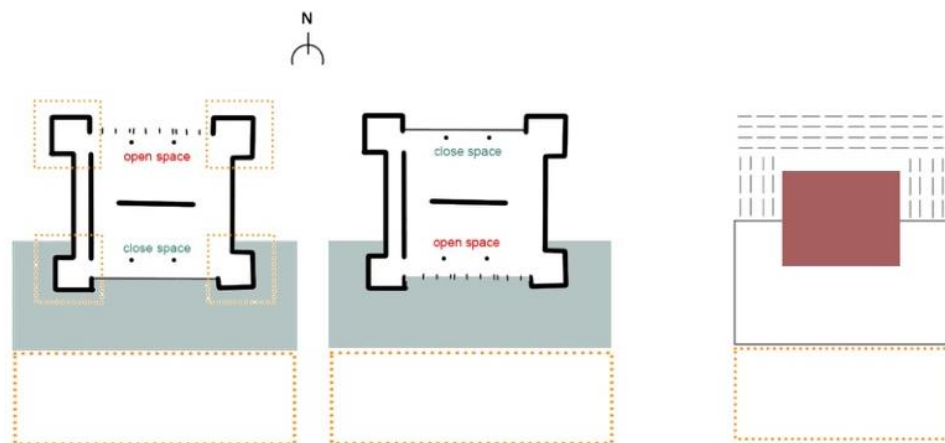
Figure 5. Plan of Kunqu Opera Stage at Humble Administrator's Garden (left, middle)
Plan of Qianhui Feng's Immersive Kunqu Opera Theatre Installation (right)

Second, this project attempts to simulate the viewer's experience of traditional gardens. To be precise, she uses the method of displacement, that is, to simulate and reconstruct the experience effect brought by the materials of the garden through heterogeneous materials. For example, the usual practice of obstructive scenery and borrowed scenery techniques in traditional Jiangnan Garden design is to use opaque obstacles, such as walls, rockeries, or plants. On the other hand, Feng uses light, soft, translucent materials to hang from the frame structure like banners, which are both obstacles and transparent. So, this new type of obstacle simulates the "obstructive scenery" and "borrowed scenery" technologies that should not coexist on a traditional obstacle (see fig. 6).

Figure 6. Still from Qianhui Feng's Immersive Kunqu Opera Theatre Installation — Inner Awareness.

CONCLUSION

The Kunqu Opera stage and Jiangnan gardens have inseparable historical origins. Even in the current stage design of Kunqu Opera, this origin cannot be eliminated. Kunqu Opera stage designers in different periods used different angles, such as forms, materials, and aesthetic principles, to create a sense of the experience of the cultural mood. This experience is hyper-spatial. It comes from the transfer of poetry theory in Chinese cultural history. The transition process is rough in that painting gradually appropriated the aesthetic criteria of poetry as its own, gardens appropriated the aesthetic criteria of painting, and the stage design of Kunqu Opera also appropriated the aesthetic standards of

gardens similarly. Nevertheless, this aesthetic criterion is poetic and gives hyper-spatiality in the transfer process.

So, what are the new trends in the current stage design of Kunqu Opera? Judging from the five classic cases of the modern Kunqu Opera stage, this trend can be summarized as the simulation of gardens in form and the deconstruction of the "experience" of gardens in terms of materials. Feng admitted that she tried to "recompose and redefine the world of dramaturgy in the digital age to achieve the desired results of interactivity and immersion" through this project.[19] Although this sentence may seem exaggerated, it is undeniable that Feng's project has achieved a breakthrough in the existing Kunqu Opera stage design experience to a certain extent. The hyper-spatial aesthetic shared by poetry, painting, gardens, and Kunqu Opera has reached new heights in Feng's project.

In short, the hyper-spatial nature of the Kunqu Opera stage must become a new idea for the future Kunqu Opera stage design to achieve better cultural connection from ancient poetry and painting to gardens.

NOTES

[1] See "Classical Gardens of Suzhou" in "World Heritage List," *UNESCO World Heritage Convention*, accessed June 21, 2022, https://whc.unesco.org/en/list/

[2] See "2018 Representative List of the Intangible Cultural Heritage of Humanity," *UNESCO Intagible Cultural Heritage*, accessed June 21, 2022, https://ich.unesco.org/en/lists

[3] Original Chinese text: 虛實相生. This translation references "being and non-being create each other" (Laozi 2015, ch. 2), and "[e]mpties their heart/minds, fills their stomachs" (Laozi, ch. 3). The Baidu Encyclopedia entry suggests that the term can describe poetry and paintings.

[4] Georgi Plekhanov, "Unaddressed Letters, First Letter," in *Georgi Plekhanov Selected Philosophical Works*, Volume 5, trans. K. M. Cook and A. Fineberg, 263–294 (1899–1900; repr., Moscow: Progress Publishers, 1981), 295.

[5] James Cahill, *The Lyric Journey: Poetic Painting in China and Japan* (Cambridge, MA, and London, UK: Harvard University, 1996), 8.

[6] Original text: "古來畫師非俗士，摹寫物象略與詩人同." See Cahill, 8.

[7] Cahill, 8.

[8] Cahill, 9.

[9] Cahill, 9.

[10] Cahill, 19–19.

[11] Original text:"林泉高致." It means "Lofty Messages of Forests and Streams." But in *The Chinese Theory of Art*, Lin Yutang translated it as: "A Father's Instructions: On landscapes, techniques and perspectives."

[12] "It has been well said indeed that there are different kinds of mountains. Some are good for climbing, some for looking up at from a distance, some for walks, and some for residence. When a painting can achieve this effect, it may be considered good. But those that are good for walks and for residence are preferable to those good for climbing or for looking up at from a distance." Yutang Lin, *The Chinese Theory of Art:Translations from the Masters of Chinese Art* (New York: G. P. Putnam's Sons, 1967), 72.

[13] "For landscape, what was sacrificed was the ability and willingness to differentiate earth and rock texture, the differing leafage and branch structures of trees, the visual distinction of limpid and cloud spaces, along with the rendering of transient effects of light and atmosphere, indications of season and time of day." Cahill, 15.

[14] From the Northern Song Dynasty (960–1127), poetic painting aesthetics began to be used as a methodology for garden construction. For example, the designer of the famous royal garden Genyue (艮岳, means mountain in the northeast corner) was Emperor Huizong of the Song Dynasty (1082–1135), a famous painter. In the Yuan Dynasty (1271–1368), when the poetic painting was revived, Ni Zan (1301–1374), a famous painter, built the Qingbi Pavilion(清閟閣) for himself. See Tianhua Liu, *Huajing Wenxin: Zhongguo Gudian Yuanlin zhi Mei* (Beijing: SDX Joint Publishing, 1994), 229–236.

[15] See Hongxun Yang, *A Treatise on the Garden of Jiangnan: A study into the Classical Art of Landscape Desigh of China* (Shanghai: Shanghai People's Press, 1994), 241, 254.

[16] Pai Hsien-yung gave a detailed introduction to the importance of modern musical lighting in expressing the fantastic plots in Kunqu Opera in an open class at the Chinese University of Hong Kong. See Hsien-yung Pai and Wei Hua, "Beauty of Kunqu Opera (崑曲之美)— 3. The youth version of *The Peony Pavilion*: Innovation in Costume and Stage Design (三、青春版《牡丹亭》：服裝與舞美的創新)," *Coursera*, accessed June 21, 2022, Video, 10:22, https://www.coursera.org/lecture/kunqu/san-qing-chun-ban-mu-dan-ting-fu-zhuang-yu-wu-mei-de-chuang-xin-B16Rv

[17] The original word is "廳堂 (Tingtang)", which means the salon of officials or nobles.

[18] "The Salon Version of The Peony Pavilion will be staged in the Royal Granary" (The original text is in Chinese), *News Sohu*, April 16, 2007, http://news.sohu.com/20070416/n249466535.shtml

[19] See Qianhui Feng, "Inner Awareness," *Interactive Architecture Lab*, September 22, 2017, http://www.interactivearchitecture.org/lab-projects/inner-awareness

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A TALE OF STRUCTURES: CONFRONTING THE DUPLICITY OF IMAGE ENCOUNTERED IN WHEN NEGOTIATING SITE THROUGH SEEING, TOUCHING, DOING

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INTRODUCTION

This paper explores the duplicity of seeing based on imagery and questions the ways imagery is utilised in the seeing and the representing of site and its objects. Exploring the contrasting interplay of digital and physical, seeing and tactile knowing; the paper presents findings from a series of site observational studies conducted by the author which began as part of a standard review of a site management plan. It explores the changing knowledge that occurs between a first reading of a scene and new discoveries rendered from alternate readings and negotiation. Questioning how we understand spaces and the objects within, the paper dissects a reading of site (site analysis) undertaken as part of management planning within a conservation reserve, where function of site and performance of its structures and ecological preservation are seen as paramount. It questions the validity of a singular approach. Through examining a simple piece of site furniture and its surrounds, it posits that reality is more complex than first appears.

Beyond Singular

Doreen Massey describes how places "do not have singular identities… The coeval existence of a multiplicity of conditions: that is the gift of space (and time)".[1] If spaces, and objects have multiple identities, it seems logical that there must be multiple ways to view them and to understand them. Juhani Pallasmaa states how the world 'furnishes us with dispersed images and a body of images at the same time. In both cases, I shall prove that the imagination augments the values of reality".[2] We come to know the world not just through one means, one perspective, but through a myriad of senses, in body and mind. Considering an approach akin to Tim Ingold where the landscape is "with us"[3], its built forms and our interactions within it are not built of land or materials or even space: the way we perceive, and the world we physically interact with are intertwined. We cannot just survey nor describe spaces or the objects within them in an isolated manner.[4] Pallasmaa suggested that the drawn image, that produced by the body and the hand might articulate the real world better than other methods - "perhaps it is the hand that really imagines as it exists in the flesh of the world, the reality of space, mater and time, the very physical condition of the imagined object"[5]. A balance of imagined and real.

This paper considers this idea, questioning whether findings generated from onsite encounters, tactile approaches and imaginings might allow the construction of more perceptive, meaning laden imagery.

Background & Site Context – The Forest Preserve:

The site examined is a small forest reserve located to the north of Oxford township, in North Canterbury, Aotearoa New Zealand.[6]
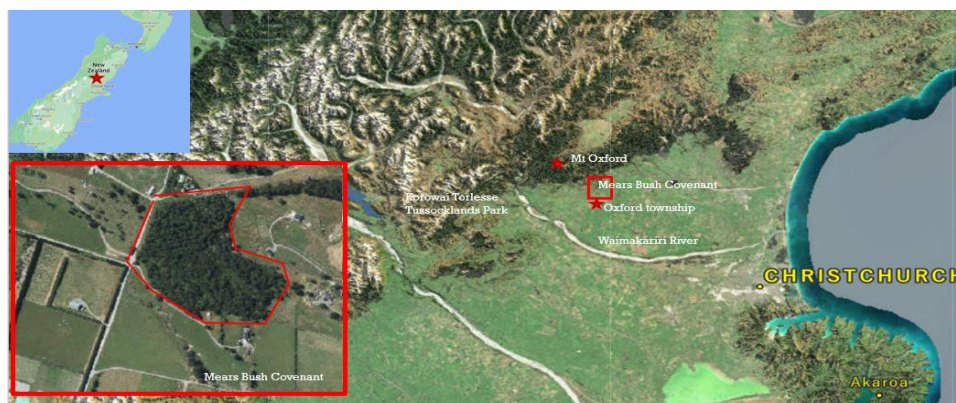

Figure 1. Location Plan

A covenant was established in 1980 to protect and restore a small remnant of this forest on private property and is managed under agreed plans with the QEII National Trust.[7] Containing a variety of sensitive native species (plants and birds) - the forest preserve was fenced off to protect from stock and remaining exotic timber removed. The bush has a network of tracks used by local recreationists. A series of small-scale structures have also been installed over the years – built by several community volunteer groups. These are in various states of repair and in need of rejuvenation or replacement. A review of site management would suggest that many of these structures are outdated, some require removal or replacing.

Figure 2. Site Structures

Site Review – Standard Practice:

After a change in land ownership the management plan for the covenant was reviewed. The site review used standard, accepted methods for a site assessment – existing data such as prior management plans, aerial photos, ecological reports and site photos were studied followed by a new

onsite survey undertaken to assess current ecology and structures within the covenant site. The approach was based on examining visual evidence and existing documentation, best practice for species management and recreational use. Readings were supported by site walk through, grounding data on site

The main aim of the review was to ensure that data was current for the site and any required maintenance/construction activities, or site improvements were taken into account for future scheduling (including track maintenance; possible upgrading or removal of substandard structures; targeted species protection and pest control.

Initial Findings

Upon visiting the site, it was apparent there was potential gaps in the review. The assessment was very focussed on physical ecology and historical uses. The original plans/strategy did not take into account a broad range of other values, views or detail special character attributed to location and use. While consideration was given for enabling and ensuring public access (and therefore safety) there was little consideration for the behaviours, uses or attachments that might relate to the reserve.

The bush and its walking tracks are important to the local community and intensively used for recreation and educational activities by local groups and public. Many users have a long history and connection, and the reserve has become important for reasons beyond recreation or conservation. These connections are not always immediate nor easily understood on first approach. They are not necessarily physical, they are intangible. Orth, Thurgood and van den Hoven describe how an "object can hold meaning for its ties to significant memories, experiences, people, places or values…. In this way, attachment to things often develop from properties beyond their materiality, extending to their links to aspects of the self or the life narrative of an individual." [8] In many senses the bush and its features has be claimed by local users; as described by Orth, Thurgood and van den Hoven [9] - attachments have been made and are being made.

Hints Of Other Meanings:

When we represent a site and develop a management strategy for a protected space, we deliberately present a fixed set of knowledge and ideals to a site. The plan is drawn, objects are classified, usage determined by pre-existing frameworks for management and use. The way a site is programmed and subsequently represented does not always reflect the variable ways that a site may be understood and used by its many users. There are many intangible qualities to a site that are not seen, recorded or represented in standardised site documentation.

A simple search of social media immediately revealed other site uses and gave hints at some of the values that might be considered. Site artefacts and objects reveal connections to past history and uses – memorial plaques on seat, inscriptions carved into furniture, objects placed within the bush alongside tracks. While these can be shown in photographs what is presented in this format is a shallow, one dimensional viewpoint. Maurice Merleau Ponty proposes the perception is the most valuable tool in knowing and that all observation is underscored by our own awareness. "Perception is not a science of the world, it is not even an act, a deliberate taking up of a position; it is the background from which all acts stand out, and is presupposed by them". [10] We cannot know depth nor complexity without first perceiving. Merleau-Ponty continues in saying "all my knowledge of the world, even my scientific knowledge, is gained from my own particular point of view, or from some experiences of the world without which the symbols of science would be meaningless. [11]

A standard site survey and its documents and images catalogue a site and its objects. We provide context and meaning from our perceptions. A photo can provide valuable information but more can be perceived through alternate means of knowing and heightening our perceptions. Interacting with

objects enhances their significance. We understand them in new ways. Woodward explains how "objects acquire meaning through our textural accounts and also reiterate that meaning back to us… The narrativization of objects occurs when people discuss (draw, touch...) objects and in doing so, construct and deconstruct their own values, beliefs and experiences".[12]

A CLOSER LOOK – EXPLORING SITE

To consider how a site object might be narrativized and what attachments made, one item of furniture was focussed on - a simple pine bench located towards the top of the hill in the north-western corner of the reserve.

One Seat: One View:

The seat is concreted in place with a southerly aspect - it faces a wall of overgrown shrubbery. The view from the seat, while once looking towards the Korowai Torlesse Mountains to the southwest, is now obscured by vegetation. It is exposed to cold mountain winds moving across the foothills from the ranges westwards of the site. Dust from the adjacent gravel road coats the seat on occasion driven up by the nor-western gales that frequent the site in spring and autumn. The seat has with a small brass plaque in memory of a man who loved conservation and is lichen covered with the wood damaged in places.

Figure 3. Top left – The Korowai Torlesse Range, Bottom Left – Current view, Right – The bench

An initial assessment of this seat would conclude: It is simple. Inelegant. Insignificant in its construction. Easily built. Easily removed. The damage to its base would justify its replacement, the lack of view its relocation. But a simple, fact-based reading denies other knowledge.

One Seat: Other Views:

There are other ways site can be read and known, and there are others views to also consider. Pallasmaa writes of how we perceive atmospheres through our emotional sensibility, how "the judgement of environmental character is a complex multi-sensory fusion of countless factors which are immediately and synthetically grasped as an overall atmosphere, ambience, feeling or mood".[13] How we represent those spaces should also account for these sensibilities. Merleau-Ponty describes how "my perception is […] not a sum of visual, tactile, and audible givens. I perceive in a total way

with my whole being. I grasp a unique structure of the thing, a unique way of being, which speaks to all my senses at once". An atmospheric perception also involves judgements beyond the five Aristotelian senses, such as sensations of orientation, gravity, balance, stability, motion, duration, continuity, scale and illumination. [14] An image of a site can be augmented by other sensory information, by perceptions and imaginings.

Perceptive Images: Sensory Knowing & Other Observations

In order to explore other views, other methods were utilised in viewing site: to sit and contemplate an image or a site form through sketching and quiet observation. Thinking through time. To daydream[15] and record what is found. To allow the attention to float through space. [16] Making multiple observations, multiple visits. Recording thoughts, sounds, tactile things (the timber fibres, the wind), to listen to the surrounds – in this way new imagery is created. Later to take these findings and retrace them - on a page through drawing, through image creating. Cementing findings in a tactile and a visual way. To describe experiences – ours and those of others we might perceive without trying to analyse.[17] To pay attention to the stories of those on the track: hearing others accounts and seeing their memories in place. Considering other users - those that come to the bush to listen and watch for wildlife. To sit at the bench and wait for the calls from the forest below, to see what emerges at the margins.[18]

Figure 4. Precious memories wrapped in a scene

To observe and to produce images based on those observations. Our allowing others to create images for us – the graffiti on a seat, the footprints along a track, images created by others.

Figure 5. Textures and traces from site

Images create and can contain language. To produce an image of site can recall the past, can prompt awareness of others stories. Schalansky notes the power of language, of her writing and her intent "to have something survive, to bring the past into the present, to call to mind the forgotten, to give voice to the silenced, and to mourn the lost. Writing cannot bring anything back, but it can enable everything to be experienced".[19] Images too have that power to evoke memory. Images can preserve the past.[20] The creation of a visual story, an artwork can prompt new knowledge of a thing, a place or an object. Art "exists that one may recover the sensation of life; it exists to make one feels things, to make the stones stony. The purpose of art is to impart the sensation of things as they are perceived and not as they are known".[21]
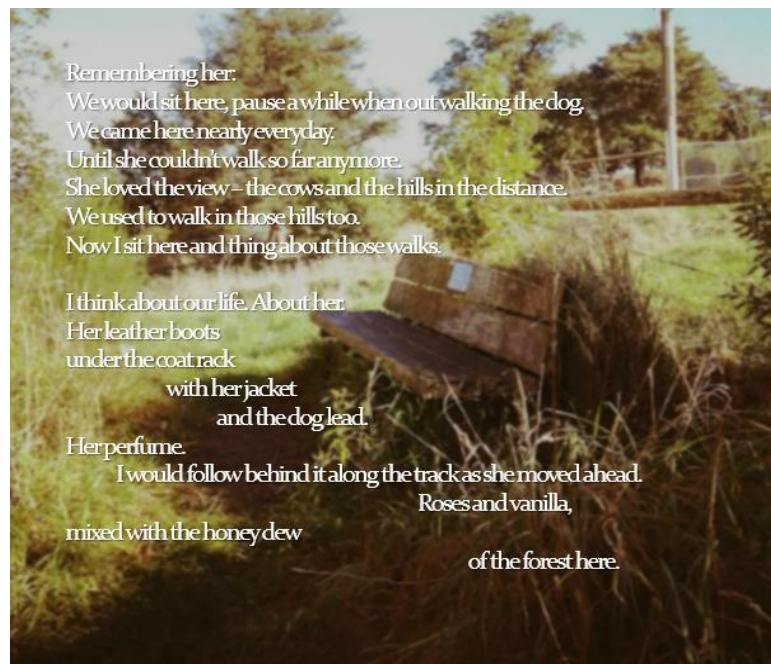

Figure 6. Memories written as lists and texts can be used in imagery

The Meaning Of An Image:

Is a montage or a created image a true representation? Do we need to change our default imagery to be more open? A photomontages, as a standard 'go-to' for communicating design ideas can never represent a site or an object accurately. Often the photo montage is highly artificial, or idealised, and yet they can reveal a telling narrative. James Corner describes the images we perceive and hold in the mind, those eidetic images, as affective, altering and as more than visual. "Eidetic images contain a broad range of ideas that are at the core of human creativity. They refer to a mental conception that may be picturable but may equally be acoustic, tactile, cognitive, or intuitive".[22]

Image creation (both physically and digitally) allows us to synthesise new worlds and new experiences. These creations can help others understand spaces, actions and happenings. We can tell stories about known objects and spaces or newly adapted spaces with more than visual senses. We can have others tell stories for us and create images.

Figure 7. An image drawn by a child provides simple insights and layers of meaning not immediately apparent.

We can test our understanding through using technology (AI/Performative media) to create new objects for us, to provide a fresh interpretation. Inspiration can be found in such means, provided we do not lose sight of our connection with reality.[23] We need realism, with imagination. Image grounded in the tactile, the perceived. We must be grounded so as to be true to the site as it is physically known. The site, the seat, our experiences of site, are real and grounded in the tactile. While intangible, they are found in a physical dimension when we look carefully.

Confronting Structure: Image, Encounter And Negotiation

An image created to show one facet, one 'unbiased' or deliberate view might be described as duplicitous. Like Massey's gift of space ,[24] the gift of imagery is that it also has multiple identities – multiple readings based on the eyes (and other senses and perceptions) of the reader. The very act of making an image factual or external or ineffectual is a falsehood .[25]There can be an insufficiency in the telling and in the reading. As design professionals we are taught to look upon sites and structures through certain means. We use the lens of the official, the professional onsite to assess a sites capability, the suitability of its existing structures and its capacity for new design. Form is essential, function a narrow precept.[26].

CONCLUSION

We use our tools and conventions (plans, images, policy) to make a judgment on what is found, what might be found and ultimately how other might experience a site. We create a text to be read.

The function of a site or a site object can be complex. A seat becomes more than a seat when seen with an imaginative eye - it is a portal to a memory, another time. If we come to know an object, a site, a structure or a form through a document or an image – what do we actually know of that thing? We can image form, materials, scale, proportion but we can not immediately see the attachments, the memories, the connection that might be present. For, as Pallasmaa has written "the immediate judgement of the character of space calls for our entire embodied and existential sense … perceived in a diffuse, peripheral and unconscious manner rather than through precise, focused and conscious observation".[27] The way we perceive and then record this observation is important. To trust our instincts. To expand our knowledge. The imagery we create – in the physical and in our minds informs how we design, it also informs how others come to understand a place and its objects. James Corner describes the import of this imagery: "That representation exercises such agency and effect is precisely why images in design cannot properly be considered as mute or neutral depictions of

existing and projected conditions of secondary significance to their object; on the contrary, eidetic images are much more active than this, engendering, unfolding, and participating in emergent realities"[28]. That image reading does not need to be straightforward or obvious. There is an "infinitesimal lag between our experience of a thing and our conceptualisation of it. Intersubjective experience thrives within this interval, which designers can draw out by avoiding easy intellectual consumption of their designs through vision or language"[29]. Spending time with an image can open up our reading. What is easily consumed is not necessarily of the most benefit, it must however instil the authentic.[30] Lebbeus Woods wrote of "architecture that transmits the feel of movements and shifts, resonating with every force applied to it, because it both resists and gives way"[31]. Eidetic imagery likewise can shift, can enrich perceptions and site as it frames and it gives way to revelation. When we have an awareness of the duplicity of design image revealed through different lenses of knowing design representation and digital imagery can be made to reveal the intangible values of memory and contact born over time if created to express a variety of stories. If site readings and site imagery are negotiations of space, time and perception – the readings are deeper than face value.

ACKNOWLEDGEMENTS

NOTES

[1] Doreen Massey, "Some Times of Space". In *Olafur Eliasson: The Weather Project,* ed. Susan May and Olafur Eliasson (London: Tate, 2003), 107–118.

[2] Juhani Pallasmaa, *The eyes of the skin – architecture and the senses.* (London: Academy Edition, Polemics Series, 1996).

[3] Tim Ingold, "The Temporality of Landscape". In *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill.* (London: Routledge, 2000).

[4] Ingold continues to say: "the landscape, I hold is not a picture in the imagination, surveyed by the mind's eye, nor however is it an alien and formless substrate awaiting the imposition of human order…..neither is the landscape identical to nature, nor is it on the side of humanity against nature. As the familiar domain of our dwelling, it is with us, not against us, but it is no less real for that. And through living in it, the landscape becomes part of us, just as we part of it" (Ingold, Tim. "The Temporality of Landscape". In The Perception of the Environment: Essays on Livelihood, Dwelling and Skill. London : Routledge, 2000. 191).

[5] Juhani Pallasmaa, *The Thinking Hand: existential and embodied wisdom in architecture.* (Chichester: Wiley, 2009).

[6] The foothills behind Oxford were once covered by extensive native podocarp forest (predominately Black Beech *Nothofagus solandri* and secondary species). This was systematically removed through timber milling and burning to develop hill country farmland and forestry in earlier times.

[7] With a mission to inspire and partner with private landowners to protect and enhance open spaces of ecological and cultural significance, QEII encourages people to experience, appreciate and respect New Zealand's diverse heritage by promoting public access to land protected by open space covenants. In 2000 an iteration of this agreement was established between the QEII trust and the Mayo family as landowners of the title. The main aim of the Mayo covenant agreement was to enhance and restore original ecological values while facilitating public access and recreation – these aims continue today.

[8] Daniel Orth, Clementine Thurgood, & van den Hoven, E., "Designing objects with meaningful associations". *International Journal of Design* 12, no. 2 (2018). 91-104.

[9] Something which is not mine becomes mine: "there is a level of agreement among these researchers regarding the strong ties between people forming attachments to things and the ways in which humans construct, develop and maintain a sense of self. Belk's advancement of the notion of the extended self in which an individual's sense of self extends beyond what is me to what is mine has become a central component of product attachment theory." Ibid.

[10] Maurice Merleau-Ponty. *Phenomenology of Perception.* Trans. Donald A Landes. (Taylor and Francis. Oxon: Routledge, 2013).

[11] Merleau-Ponty.

[12] Clare Humphries, and Aaron C. T. Smith. "Talking Objects: Towards a Post-Social Research Framework for Exploring Object Narratives." *Organization* 21, no. 4 (2014) 477–94, https://doi.org/10.1177/1350508414527253.

[13] Juhani Pallasmaa. "Space, Place and Atmosphere. Emotion and Peripherical Perception in Architectural Experience." *Lebenswelt* (Milano), no. 4 (2014). https://doi.org/10.13130/2240-9599/4202.

[14] See Maurice Merleau-Ponty, "The film and the new psychology. 1964" quoted in Juhani Pallasmaa. "Space, Place and Atmosphere. Emotion and Peripherical Perception in Architectural Experience." *Lebenswelt* (Milano), no. 4 (2014). https://doi.org/10.13130/2240-9599/4202.

[15] Bachelard uses the term daydreaming, a process that reveals and allows us to see the invisible, "the values that belong to daydreaming mark humanity at its depths". Gaston Bachelard, "Poetics of Space". In. *Rethinking Architecture: A Reader in Cultural Theory*, ed. N. Leach, (London: Routledge, 2005). 85-97.

[16] Lassus describes this as "Floating attention'. To notice the world but also drift through. Bernard Lassus, "Stories for Tomorrow". In *Tradition and innovation in French Garden art: chapters of a new history*, ed. J.D. Hunt, M. Conan & C. Goldstein. (Philadelphia: University of Pennsylvania Press, 2002) 221-233.

[17] Phenomenology "tries to give a direct description of our experiences as it is, without taking account of its psychological origin and the causal explanations which the scientist, the historian, or the sociologist maybe able to provide." Maurice Merleau-Ponty, *Phenomenology of Perception*. Trans. Donald A Landes. (Taylor and Francis. Oxon: Routledge, 2013). https://doi.org/10.4324/9780203720714.

[18] The bush has a rich variety of songbirds that live within its depths or along its fringes – Bell birds, warblers, creepers, fantails. As well as a collection of livestock in the farmland that surround the forest. The forest itself can be eerie. Rob Tipa describes the beech forest and its silence "Beech forests soak up the sound like a big

mossy sponge. Stand for a few minutes and the silence consumes you. In company, you may find yourselves whispering respectfully to avoid disturbing the peace." Rob Tipa, "Treasures of Tane. Plants of Ngai Tahu". p188.

[19] Lily Nilipour. "An inventory of losses by Judith Schalansky: the innumerable items of the past". 2021. Zyzzyva Book review. https://www.zyzzyva.org/2021/03/02/an-inventory-of-losses-by-judith-schalansky-the-innumerable-items-of-the-past. Accessed June 02 2022.

[20] Images can carry memories in their crafting. As Lili Nilipor describes when discussing the writing of "Between Memory and History: Les Lieux de Mémoire," French historian Pierre Nora writes that "today…professional archivists have learned that the essence of their trade is the art of controlled destruction." Among other things, this suggests that a true archivist has a love for not only what remains in the archive, but also what is lost. Memory is an art—the artist the recaller but also the forgetter. Ibid.

[21] Viktor Shklovsky, "Art as technique". Trans. L.T. Lemon and M. Reis. In The Critical Tradition: Classic Texts and Contemporary trends ed. by L.T Lemon and M. Reis. (Third ed.)) Boston, New York: USA. Bedford Books, 2006) 774-784.

[22] James Corner, "Eidetic Operations & New Landscapes". In Landscape Imagination: Collected Essays of James Corner 1990-2010, ed. James Corner and Alison Bick Hirsch, (New York: New York: Princeton Architectural Press, 2014) 152-169.

[23] Katherine Jenkins describes how "a degree of detachment has permeated our movement through the built environment that is increasingly informed by digital imagery and orchestrated via sophisticated navigation technologies". We have become separated from our physical world, we move through but not within and we need to return to diverse, physically ways of exploring the site and its contents. Katherine Jenkins, "Field exercises" In Journal of Landscape Architecture (Wageningen, Netherlands) 13, no. 1 (2018): 6–21. https://doi.org/10.1080/18626033.2018.1476024.

[24] Doreen Massey, "Some Times of Space". In Olafur Eliasson: The Weather Project, ed. Susan May and Olafur Eliasson (London: Tate, 2003), 107–118.

[25] The body is at the core, perception trumps direct knowledge. The plan view or the birds eye perspective denies bodily knowledge and experience. As described by Michel De Certeau critiquing an image of New York City 'to be lifted to the summit of the World Trade Center is to be lifted out of the city's grasp… His elevation transfigures- him into a voyeur. It puts him at a distance. It transforms the bewitching world by which one was 'possessed' into a text that lies before one's own eyes" He continues to describe this as a fiction of knowledge. Blind to what is actually real. Michel De Certeau The practice of everyday life, trans. S. Rendall (Berkeley, C.A: University of California Press, 1984), 92.

[26] Clare Jacobson writes of Lebbeus woods: that his "ideas are essential to any era of architecture. He was committed to advancing the political, social, and urbanistic importance of the built world. Today's architects, who tend to prioritize architectural form over all other design issues, can learn from Woods's drawn and written studies that the consequences of form-making are most important". Our forms can create new experiences and openings for expanded site uses. Woods, L. & Jacobson, C. 2015. Slow Manifesto: Lebbeus Woods (C. Jacobson, Ed) Princeton Architectural Press (2015). In Taylor-Hochberg, Amelia. "A continuation of his way of being" – an interview with the editor of "Slow Manifesto: Lebbeus Woods Blog". Posted 2021.

[27] Juhani Pallasmaa. "Space, Place and Atmosphere. Emotion and Peripherical Perception in Architectural Experience." Lebenswelt (Milano), no. 4 (2014). https://doi.org/10.13130/2240-9599/4202.

[28] James Corner, "Eidetic Operations & New Landscapes". In Landscape Imagination: Collected Essays of James Corner 1990-2010, ed. James Corner and Alison Bick Hirsch, (New York: New York: Princeton Architectural Press, 2014) 152-169.

[29] Rachel McCann. "On the Hither Side of Depth: An Architectural Pedagogy of Engagement" In. Environmental & Architectural Newsletter. 16, No. 3 (2005):9-18.

[30] The image must be well made and relatable to the viewer to instil a sense of authenticity, otherwise the image is tacky, or fake or not considered deeply. "Creating objects with meaningful associations requires the user to perceive the associations as authentic, that is, they must perceive the object to successfully embody the associated source. Our design for the world clock Globe cued memories of Alex's travel experiences but was also likened to common souvenirs, relating to a style of travel that Alex actively avoids and thus detracting from the authenticity of the embodiment." Orth, D., Thurgood, C., & van den Hoven, E., "Designing objects with meaningful associations". International Journal of Design 12, no. 2 (2018). 91-104.

[31] Lebbeus Woods. "Slow Manifesto". Lebbeus Woods Blog. Wordpress. Published: January 7, 2009 / 4:09 am. https://lebbeuswoods.wordpress.com/2009/01/07/slow-manifesto/

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THE ARCHEOLOGY OF BROOKLYN CITY HALL SQUARE: SEEKING INSIGHTS FOR RE-ESTABLISHING SOCIAL AND CIVIC INFRASTRUCTURE IN MEANINGFUL PLACES IN THE AMERICAN CITY

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True enough, we need an environment which is not simply well organized, but poetic and symbolic as well. It should speak of the individuals and their complex society, of their aspirations and their historical tradition, of the natural setting, and of the complicated functions and movements of the city world. But clarity of structure and vividness of identity are first steps to the development of strong symbols. By appearing as a remarkable and well-knit *place,* the city could provide a ground for the clustering and organization of these meanings and associations. Such a sense of place in itself enhances every human activity that occurs there, and encourages the deposit of a memory trace. [1]
Kevin Lynch *The Image of the City*

INTRODUCTION

Examination of early American town plans clearly demonstrates a urban morphological culture where the urban square is a considered a critical social and symbolic concept for city planning. [2] The social/political/cultural heritage these spaces embodied and supported was later challenged by changes in American urban life, suburbanization, and urban design ideology. [3] Many urban squares that were planned or emerged as important places for their communities saw their spatial definition and sense of place undermined by substantial reconfiguration/redevelopment. The result was a loss of heritage once embodied in these places; cultural and community memory evaporated.

Current trends in urban development only continue this trajectory, where corporate interests seeking profit can only provide simulacra of urban spaces. [4] These privately owned spaces pose as community space, but their limits and policing determine what people can do and when they can do it, casting a vail over them as corporate productions, often retarding use by the general public, undermining these spaces' potential for embodying collective memory and values.

Today there is a claim that public space has shifted to the virtual world, [5] but it must be noted that the loss of physical public spaces in the real world, as genuine places for community gathering and collective activity, coincides with the increasing political and social stratification of American society. Urban scholarship focused on the analysis of the historical evolution and morphology of the built environment in fact supports the reconsideration of urban public space as a critical physical component of social and civic infrastructure that can foster gathering, meeting of strangers, and

building new social bonds, all important aspects of daily urban life that can build meaning of place for the community.

This paper explores the role and morphology of public space in the historical and contemporary American city using the civic core of Brooklyn, New York as a case study to better understand the potential use and meaning of urban space to the community. A careful analysis of historic maps, newspaper accounts, and photographs reveals the evolving morphological condition of the physical space but also its use patterns by the community, including celebration and commemoration. This analysis shows the impacts of the "despatialization" of this civic place. Study of its architectural fabric and monuments allows the exploration of issues of community representation and memory. The findings offer insights into the potential to re-establish spatial identity and significance to the Brooklyn community. Further, this study brings to light critical issues to consider when considering the re-construction of public spaces in American cities as places for community commemoration, celebration, political expression, and cultural memory and transmission.

THEMATIC CONTEXT

The city is the product of myriad conceptions, decisions, and actions over long periods of time. The material fabric seen as organised complexity is a testament to this production and has inherent qualities and characteristics that can be observed and documented.[6] The material fabric also has potentialities to be endowed with and/or contribute to a sense of place which is enriched over time by collective memory.[7] This sense of place is something understood but subtle, not readily documented or demarcated. For this reason, the sense of place can be nurtured, consciously or subconsciously, or neglected and undermined.

The city, and later borough of Brooklyn, New York provides a poignant case study of the emergence of a place, a space that stands out from the rest of the city with special spatial and symbolic qualities. This place is endowed with heritage overtime, maturing as a critical and meaningful place to the community. This place, here referred to as Brooklyn City Hall Square, however, is later disrupted by a conception of the city that guides decisions and actions that overlook or ignore the subtle material nature that is critical to its sense of place and heritage, robbing the community of a vital space that links Brooklynites in a continuum of generations both past and future.

This study of Brooklyn City Hall Square is aided by considering it through the theoretical perspective of Aldo Rossi's concept of the urban artefact. Rossi sees the city as the "great, comprehensive representation of the human condition."[8] Within that representation, certain places in the city take on a critical role as expressive repositories of the human condition in a particular context as *urban artefacts*.[9] The urban artefact is understood here to accumulate collective experiences and memories, imparting a particular type of knowledge that facilitates the transmission of culture.[10] The artefact is both conditioned by us over time, but in turn conditions us. The artefact sparks the imagination as it links us to our collective memory.

URBAN MORPHOLOGY: EARLY DEVELOPMENT OF REGIONAL URBAN FORM
Urban Structure's Initial Foundation

The territory in question here is first occupied by a people known as the Lenape. The Lenape settlements were seasonal, shifting between the coastal conditions in the summer and inland conditions in the winter.[11] While the physical settlements were lost as the colonial population grew and dominated the territory, the great surviving artefact of the Lenape occupation of the territory is the path system for movement and connectivity through the landform to the crossing point of the estuary now known as the East River, shown in figure 1.[12] As the Dutch set up their initial outposts and villages, they recognised the logic and value of this path system, and placed their villages at strategic

locations on the path, in particular at the point of the crossing of the estuary as well as in a central position of the upland territory.

Urban Squares in the Emerging Morphology

Across the estuary, the largest settlement of the region forms into the nascent city of New Amsterdam. In the early settlements and outposts around the immediate region, we see the beginnings of an urban morphology that includes critical nodal points in the form of urban open spaces, some of which are later formally regarded of as urban squares. The space at the fort in New Amsterdam is the most conspicuous of these, and is developed overtime as Bowling Green, a still extant and elegant urban square. In fact, while architectural works are built and later demolished to make way for the next generation of buildings, the urban squares can be seen as the primary urban artefacts to emerge as these settlements became established towns and later cities.

The value of the urban square in this urban morphological culture, however, is later disputed. In the planning of the great grid for Manhattan island's intense urbanisation, the commissioners express a reluctance to integrate urban open space and in particular the formalised Baroque urban squares found in many European cities.[13] Despite this reluctance by the city "planners," a number of landholders see the benefit of place making through the development of urban squares or greens, albeit in support of speculation rather than civic enhancement.[14]

Figure 1. 1767 Survey of Brooklyn (Source: New York Public Library)

The Urbanisation of Brooklyn without Squares

As Brooklyn's urbanisation lags behind New York's, one can place the decisions of the Brooklyn landholders who are urbansing their land in this context of an emphasis on speculation rather than the civic. In fact, Brooklyn's early landholders proceed to commission surveys to layout streets and blocks with no urban space whatsoever, prioritizing instead saleable land. This dearth of any form of open space, even as an amenity to support speculation, is notable. Indeed, in the Brooklyn newspapers and other documented sources dating to the early decades of the 19th century, there is both a clear expression of support by many in the community for urban squares and parks and a frustration that none are developed in the initial urbanisation.[15] Squares and parks are noted as critical to providing a

grace to the city, endowing it with beauty, but also serving the critical functions for health and happiness through provision of fresh air, relief from the dense streets, and inclusion of trees as "lungs of the city" that also provided important shade in the hot summers.[16]

AN UNEXPECTED CIVIC SQUARE

In the midst of this production of urban territory, a civic square unexpectedly emerges in the early Brooklyn. Amidst the frenzy of speculation, a triangular section of a residential block is provided to the young city as a site for the new city hall. Curiously, the initial plan for the building would build out the full triangular site; only after a market crash delayed the project did a new more modest building plan emerge, leaving some of the site unbuilt.[17] In this way, the space of Brooklyn City Hall Square, shown in figure 2, emerged.

Ironically, this space actually takes on many on the qualities of the type of space bemoaned by the commissioners planning Manhattan: a figural space with a dominant civic building. The unbuilt portion of the triangular sites acts as a forecourt, offering a dramatic approach to the new City Hall from the north, with the ionic portico and pediment sitting on top of a monumental stair dominating the space. This portico is the welcoming feature of an arrival sequence that starts at the ferry landing at the foot of historic Lenape pathway, now called Fulton Street. The urban sequence from the arrival point to City Hall and the quality of the architecture of the new building situated in an impressive urban spatial setting establishes Brooklyn as a rival to New York City across the East River.

Figure 2. 1850s View of City Hall Square (Source: New York Public Library)

Civic Merged with Everyday Life

As in many cases in European cities, this civic space is fully integrated into the urban structure, with the square at a major crossroads at the meeting of Fulton, Court, Joralemon, Willoughby, Remsen and Washington Streets, Montague Place and Myrtle Avenue. Fulton Street was the main street of Brooklyn in this early phase of the city's growth, and the other streets connected the neighborhoods to the west, south, east, and north to City Hall Square. Fulton Street, still largely aligned on the Lenape pathway, efficiently connected commuters from their neighborhoods to the City Hall Square, and further to the ferry connections to Manhattan. This urban network meant that City Hall Square was an important node along many Brooklynites daily travels around the city and to New York across the water. The square itself was more than a civic hub; it was an active space with commercial store fronts, cultural venues banks, offices, and residential, a genuine example of a mixed-use space. Amongst these commercial and cultural venues, the construction of additional civic buildings, a courthouse, a hall of records, and a municipal building, filled out the square and the streets around

City Hall. The additional public structures add a picturesque enhancement and layered complexity to the space, especially the domed courthouse through its subtle contrapposto compositional relationship to City Hall, set at an oblique angle, sitting behind City Hall and terminating one of the street views when observed from the north. At this point the space provokes the imagination through its aesthetic power, almost as a "set piece" baroque composition, as shown in figure 3. The sense of the place as a theatre for the drama of life in the city is solidified.

Figure 3. 1925 View of City Hall Square (Source: Viewing NYC)

Commemoration and Meaning in Place

The dynamic mixed-use square's significance to the community grows when Brooklynites decide to commemorate Henry Ward Beecher, a well know abolitionist preacher at the nearby Plymouth Church after his death. While there is consensus to commemorate Beecher, where and how to do it becomes a hot topic of discussion at public meetings in the city. While many speakers documented in the local papers support the placement of the monument in City Hall Square, others deem it too busy or perhaps too lowbrow in the 1880s to place it here, and instead propose a site in Prospect Park in the latest development region of Brooklyn. The proponents see the placement in the square as allowing the power of Beecher's legacy to be evident and inspiring in daily life as one passes through the square, as well as a tempering force when the community comes to the square to raise its voice in protest to the city government. One proponent notes that the working class should be encouraged by Beecher's example in this hub of life in the city. This type of debate is common in Brooklyn in the 19th century and reflects a robust civic engagement in the process of placemaking, with a conscious sense of purpose and meaning in the enhancement of public space.

With the Beecher monument installed facing City Hall, shown in figure 4, the square is further enhanced as it becomes the focus of community commemorations and celebrations. Newspaper articles and historic photographs document numerous events held in City Hall Square, ranging from the suffragette's annual rally at the Beecher monument, the celebration of a new reservoir and aqueduct, or the solemn remembering of fallen soldiers.[18] With each event, the square's significance and meaning deepens as the community memory of this place is shared from one generation to the

next. The square emerges from the engaged civic debate, and in turn conditions the experiences of Brooklynites attending these events as a rich symbolic place.

Figure 4. ca.1910 View of City Hall Square (Source: Library of Congress)

Community Representation in the Moulding of Public Space

The passionate discussion is evidence of engagement by some members of the community on issues regarding the city's development. It is important to note, however, that not all members of the community were equally represented at public meetings in the 19th century and early 20th century. There is a typical but unfortunate legacy of the moulding of the public realm by the establishment in the development of this space. As 20th century sees a significant demographic shift in the urban population, especially with the phenomenon of white flight to the suburbs, the continuing moulding and use of public space takes on a different momentum, and important urban transformations are implemented that have devastating impacts on the minority populations left behind in the city's neighborhoods.

THE REDEVELOPMENT OF CITY HALL SQUARE AND ENVIRONS

The major decisions made in the context of the demographic shifts of Brooklyn's population in the 20th century have critical impacts on City Hall Square. The changes explored by a generation of urban designers and plannings focus first and foremost on the accommodation of the car as the new major mode of transportation, especially for the newly establish suburban population. Schemes emerge for different strategies to improve traffic flow, usually by establishing new highspeed and/or high-capacity freeways and roads through the existing fabric of the city, requiring massive demolition of buildings and disrupting the existing street network. Recognizing the legacy of the City Hall building, now Borough Hall,[19] as a critical part of the arrival sequence in Brooklyn when traveling from New York City, the urban design schemes seek to merge the goals for the accommodation of the car with a

vision for a new gateway to Brooklyn, which includes remaking the civic center around a large-scale open space. Newspaper articles chronical the many variations and details of these schemes in the early decades of the 20th century, with the gateway concept prominent in the discussions. Amongst the ideas that emerge is the intention to visually link the Brooklyn Bridge, already a widely recognized monument of great engineering and artistry after its completion in 1883, with Borough Hall as a paired composition on either end of the new open space, as shown in a scheme developed in 1941 in figure 5.
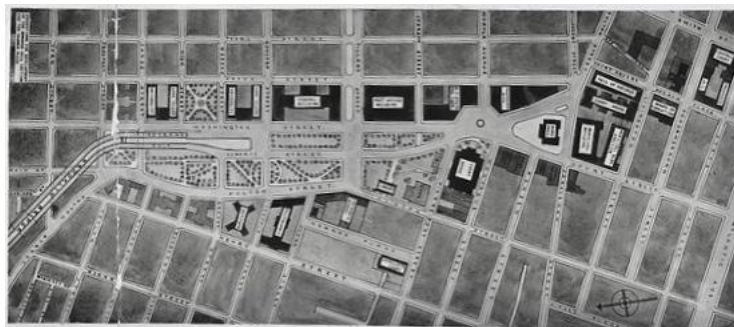

Figure 5. 1941 Brooklyn Improvement Plan
(Source: Brooklyn Daily Eagle)

Abandoned Goals

The discussion for Brooklyn's new gateway and civic center is rich and passionate, with many details hotly debated. Despite this passion, the actual planning and construction sequence moves further away from the central tenets of the vision for a new gateway to Brooklyn with each new phase. The only major goal that remains is the accommodation of the car. The ultimate guiding masterplan is developed in 1944, documented in the *Study for Brooklyn's Civic Centre and Downtown Improvements,* shown in figure 6.[20] With the development of this plan, the gateway concept falls apart. Cars are routed onto a widened street one block to the east of Borough Hall with a massive new courthouse building in-between; this configuration negates any relationship between Borough Hall and the arriving motorists. This shift ends the historic role of Borough Hall as the symbolic place of arrival in the borough.[21]

The vision for a new impressive civic center similarly never comes to fruition. In any assessment of monumentality and artistic quality, the civic ensemble in existence in the early decades of the 20th century surpasses the new civic ensemble proposed in the 1944 plan and executed in the latter half of the 20th century. In fact, the new civic center is a place of confusion, with pedestrians unsure where to find the right courthouse.[22] The historic civic center, with its unique configuration and high-quality architecture, was sacrificed for this largely underwhelming urban condition.

Figure 6. 1944 Brooklyn Civic Center Master Plan
(Source: New York Public Library)

The major contribution to the community of this redevelopment is the large-scale open space itself, a much-needed relief from the density of the territory planned without open space. Unfortunately, however, this open space performs poorly as configured, with green spaces like the Korean War Memorial Plaza feeling largely abandoned. With the massive clearance to create this space, a borough that was stubborn about open space suddenly has abundant open space, but this space comes at a massive price to the territory, including the major de-mapping of streets. This loss of a robust street network that connected people across the territory has a clear impact of impeding movement, a condition that remains to this day. Borough Hall now sits in an eddy of little movement surrounded by buildings that bring little activity to the extensive open space.

Further Impacts

Despite abandoning major goals, this large-scale planning effort was used to justify significant demolition of fabric around the square and beyond. This demolition includes many buildings admired by the community.[23] This demolition also eventually includes the full length of fabric along Fulton

Street north of Borough Hall down to the ferry landing, removing the "infrastructure of vitality" in these buildings with mixed uses and active storefronts. This has the effect of de-linking Borough Hall from Fulton Landing. To the east, the major roadway to accommodate traffic to and from the Brooklyn Bridge effectively de-links Borough Hall from Fulton Mall, a high successful and vital shopping district. These changes leave Borough Hall an isolated island, no longer a place at the crossroads of Brooklyn, and the great heritage of the Lenape pathway, now severed and unrecognisable, is lost.

CONCLUSION

Perhaps the 20th century planners can be excused for the massive remaking of this territory around the needs of the car, as this planning approach seemed inevitable at the time. The implementation of this redevelopment plan, however, sacrificed enormous urban territory unnecessarily, most significantly sacrificing the vitality and meaning of the historic square, an urban artefact of collective memory and a rich, meaningful place for the community. Despite the view of architects like Venturi regarding the culture of American public space, City Hall Square functioned as a vital place in both the everyday *and* civic life of Brooklyn until its major disruption by this mid-century planning. This loss robs Brooklynites and New Yorkers of a rare and remarkable emergent public square that developed and evolved over the course of a century. The current revival of Fulton Landing and the ferry itself is a sign that the urban culture and heritage of City Hall Square was not a historic anomaly in the urban morphology of Brooklyn.

This archeology is intended to reveal a poorly understood transformation of urban form that is often considered inevitable. Instead, this transformation should be viewed critically as an overly destructive action. In addition, this archeology is a case study of overlooking or ignoring embedded cultural heritage in the urban artefact as a vital asset of the community.

This archeology should now bring to the consciousness the possibility of a project that strives to re-establish essential urban spatial conditions that seed a new potential for a place that is meaningful as it speaks to the trajectory of the human condition and the legacy of intervention and occupation of this space, reflecting on a rich albeit also problematic heritage. The recent pandemic that shut down communal life for a substantial period of time challenges us to form new values and appreciation for inclusive life in public space, where the people of the city see each other, celebrate and commemorate together, and strangers meet and build new bonds. The protests sparked by the killing of George Floyd demonstrate the critical need for public places, meaningful places, to raise voices in times of political peril. Memorials like the Beecher monument remind us of the importance of our values and actions as we face our current social challenges for equity and inclusion. Reflecting on this loss, Brooklyn can build upon its urban heritage and improve it, building a new place, an inclusive public place for daily life, social gathering, memorialisation and commemoration, and civic engagement.

ACKNOWLEDGEMENTS

NOTES

[1] Kevin Lynch, *The Image of the City* (Cambridge: MIT Press, 1990), 119.

[2] Plans for New Haven, Savannah, Philadelphia, and Washington DC are the classic examples.

[3] In particular, Venturi challenged open space in American cities that emulate the Italian piazza, referring to the piazza as "un-American." Robert Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art, 1988), 130-131.

[4] These spaces are usually planned as entertainment or recreation hubs supporting real estate development, or green space mostly intended as an amenity to market to new residents or tenants.

[5] For a good foundation of the discussion of public space actual versus virtual, see: Alessandro Aurigi and Stephen Graham, "Virtual Cities, Social Polarisation and the Crisis in Urban Public Space," *Journal of Urban Technology* 4, no. 1 (1997): 19-52.

[6] Organised complexity is one of the critical breakthroughs of urban theory by Jane Jacobs, *The Death and Life of Great American Cities* (New York: Vintage Books, 1992), 428-448.

[7] For more on the potential of place to acquire meaning for individuals and the community and to evolve as repository of memory, see Kevin Lynch's repeated discussion of the critical role of memory in our relationship with cities, especially the concept of memory trace and place: Kevin Lynch, *The Image of the City* (Cambridge: MIT Press, 1990). See also Aldo Rossi, *The Architecture of the City* (Cambridge: The Institute for Urban Studies and MIT Press, 1989), 21-34.

[8] Aldo Rossi, *The Architecture of the City*, 34.

[9] Aldo Rossi, *The Architecture of the City*, 21-34.

[10] The critical content of modern cultural transmission is often built upon a first act of usurping territory by the colonial power and the erasure of the existing indigenous culture.

[11] Edwin G. Burrows and Mike Wallace, *Gotham: A History of New York City to 1898* (Oxford: Oxford University Press, 2000), 5.

[12] The trail network in this case is a powerful memory of the Lenape occupation of this territory. This network is a great artefact that can be drawn upon to deepen the meaning of place through memory and heritage. See James A. Kelly and C.W. Nenning, cartographer, *Indian Villages, Paths, Ponds, and Places in Kings County*, 1946, Brooklyn Maps Collection, Brooklyn Public Library, Centre for Brooklyn History, https://www.bklynlibrary.org/digitalcollections/item/947fdb9f-3324-46e5-a5f3-53ec7621a887.

[13] *The Greatest Grid: The Master Plan of Manhattan 1811-2011,* ed. Hilary Ballon, (New York: The Museum of the City of New York, 2012), 40-41.

[14] Spaces like Gramercy Park were specifically developed to attract buyers and increase land value. In this context, it is important to note that the notion of "civic" space dedicated to the public is less common in comparison to space that is fundamentally supporting real estate speculation. This is also true for Hudson Square and Stuyvesant Square. For Gramercy Square, now referred to as Gramercy Park see: Burrows and Wallace, *Gotham*, 577. For Stuyvesant Square see the NYC Parks history of the space here: City of New York Department of Parks & Recreation, 'Stuyvesant Square,' https://www.nycgovparks.org/parks/stuyvesant-square/history. For Hudson Square see: Burrows and Wallace, *Gotham*, 374.

[15] See a discussion on how the new towns in Brooklyn should be planned with squares here: Henry R. Stiles, *A History of the City of Brooklyn, Volume I* (Brooklyn: Published by Subscription,*1867),* 385.

[16] For an example of the discussion in the newspapers while Brooklyn is urbanizing, see: 'April Showers,' *The Brooklyn Daily Eagle*, 27 April 1842, https://www.newspapers.com/clip/91927209/public-space-advocacy-for-health-in-the/. See also: 'Summer Excursions,' *The Brooklyn Daily Eagle*, 8 July 1843, https://www.newspapers.com/clip/91927789/great-cities-have-great-public-spaces/. The positive effect of public open space on health is discussed here: 'Local Items,' *The Brooklyn Daily Eagle*, 14 July 1845, https://www.newspapers.com/clip/91936561/health-and-public-space/.

[17] Stephen M. Ostrander, *A History of the City of Brooklyn and Kings County* (Brooklyn: published by subscription 1894), 84.

[18] For example, the Brooklyn Public Library archives document this condition over many events in the 20th and 21st centuries. A search for Armistice Day provides several photographs from the 1930s and 1940s: *Armistice Day,* 1934,1936,1945, Photograph Collection, Brooklyn Public Library Digital Collections, https://www.bklynlibrary.org/digitalcollections/items?search=dat:1934,%201936,%201945.

[19] City Hall is renamed Borough Hall after the consolidation of Brooklyn with New York City in 1898.

[20] The formal proposal is documented in a book: City of New York City Planning Commission, *Study for Brooklyn's Civic Centre and Downtown Improvements,* 1944.

[21] As the pedestrian path on the Brooklyn bridge parallels the roadway, the arrival of pedestrians crossing the bridge is even more confounding as the arrival point has a feeling of being in the middle of nowhere.

[22] This is based on personal experience of confused pedestrians searching for the courthouse, even with the exact address in hand. There is no intuitive or easy logical way to understand the place as the buildings and the space do not form any type of compositional relationship.

[23] For example, the demolition of the Brooklyn Daily Eagle Building was a significant loss of both high-quality architectural fabric but also cultural significance.

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'IRISH CROCHET': DESIGN, PLACE-MAKING, AND THE INTERNATIONAL JOURNEY OF INTANGIBLE CULTURAL HERITAGE

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INTRODUCTION

In 1912, the Department of Agriculture and Technical Instruction for Ireland prosecuted a Killarney shopkeeper for selling falsely advertised goods – namely, a crochet lace collar from Austria, labelled 'made in Ireland.' This was not an isolated incident. Contemporary newspapers and industry reports highlighted the danger that imitation 'Irish crochet' posed to the Irish industry, which had been introduced as a form of famine relief over fifty years earlier. Industry experts sought to improve quality, educate consumers, and prevent misrepresentation in sales, even as they struggled to articulate exactly what made 'Irish crochet' distinct in design. This early-twentieth-century attempt to protect Irish crochet from foreign competition contrasts sharply with the emphasis on international teaching and intercultural dialogue promoted by the Irish crochet community today. Irish crochet lace and the distinctive regional style of Clones crochet lace are now listed on Ireland's National Inventory of Intangible Cultural Heritage (INIICH), which is intended to promote *both* the safeguarding *and* transmission of such practices.[1] Classes are taught online, patterns and designs are shared on Facebook and Ravelry.com, and 'Irish crochet' is now produced extensively in Eastern Europe, among other locations. This paper will compare coverage of early Irish crochet copyright cases with information gathered during classes and interviews with Clones, Co. Monaghan crochet historian and teacher Máire Treanor, to track the changing dialogue surrounding ownership – national, individual, intellectual, cultural – of this distinctive textile craft's designs and techniques, and explore its place in Irish culture.[2] How have the uses and cultural meanings of Irish crochet changed in the past century? What does it mean to 'safeguard' Irish crochet lace as a lived cultural practice or element of Irish intangible cultural heritage today?

Crochet and copyright in nineteenth- and early-twentieth-century Ireland

In mid-nineteenth-century Ireland, both private and religious philanthropists established lacemaking industries as a form of famine relief. Many of them produced crochet lace, which required few tools and could be constructed by a number of makers, completing individual motifs which were then joined together with a chained netting called the ground.[3] The industry slumped in the years following the famine to be revived with new designs and techniques in the 1880s.[4] In the late-nineteenth century, it found support in government bodies such as the Congested Districts Board (CDB), founded in 1891, and the Department of Agriculture and Technical Instruction (DATI), formed in 1899, which

provided teaching, funding and inspection. It faded around the time of the First World War, due to the conflict's massive disruption of industry, changing fashions, and competition from makers in other countries.

Crochet was the workhorse of Irish lace, and employed the most makers throughout the late-nineteenth and early-twentieth centuries. It was faster and cheaper to make than the other Irish laces (including Limerick, Carrickmacross and needle lace), as well as durable and washable for use by the less affluent.[5] It also could not be effectively replicated by machine – though it could be copied by hand. Irish crochet, in particular, was threatened by the rise of a government-supported program of craft schools, in Austria.[6] As in Ireland, the schools trained rural women and girls in lacemaking, and crochet became a popular medium because of the speed at which it could be produced. Some Austrian crochet could be quite difficult to distinguish from the Irish, replicating common Irish motifs such as the rose and shamrock as well as embellishments and edgings such as the distinctive three-looped border (fig. 1).[7] Government support of the Austrian industry brought it to such a level of excellence and efficiency in the early years of the twentieth century that it flooded the market, causing a depression in the Irish crochet industry in 1903 and 1904.[8]

Figure 1. (L) Design for a Collar in Crochet (rearranged from collar submitted by unknown designer). The Irish Homestead *Vol. 7 Iss. 1 (June 22, 1901): 424. (R) Austrian 'Irish Crochet' Collar, design by Fraulein Hofmanninger, executed in various Austrian lace schools.* The Studio *Vol. 36 (1906), 19.*

Trade bodies attempted to combat this threat to the industry by prosecuting sales of falsely advertised Irish lace under the United Kingdom's Merchandise Marks Act of 1887. For example, in 1908, the Irish Industrial Development Association of Cork brought "La Samaritame," a London clothing shop, to court for "(1) unlawfully exposing for sale a blouse to which the false trade description 'Irish Lace' was applied".[9] The DATI's lace inspector, Emily Anderson, testified that the thread used was "far too coarse," and the design belied its foreign origin; it was "more artistic than the Irish."[10] She may have said this with some regret, having spent her career creating and teaching 'artistic designs' for lace.

In 1911, Anderson reported that many rural festivals, or *feis*, were selling continental copies of Irish crochet to tourists.[11] In 1912, she again appeared in court as a witness in a case that the DATI itself brought against Miss Reardon, the owner of a Killarney lace and linens shop, and testified that she had inspected the purchased collar and thought it to be Austrian work.[12] Many of the teachers in these Austrian workshops were from Ireland; they brought patterns and techniques with them.[13] Though Anderson's reporting suggests Irish women relocated to Austria specifically to teach crochet, this transfer of techniques and designs also occurred through emigration and missionary or philanthropic

work. Anderson also notes that Italian women and children in New York City made 'Irish crochet'. It is easy to imagine that their teachers were recent immigrants from Ireland, women who shared their poverty and precarity in this early-twentieth century period. She also lists Switzerland, Italy, Lebanon, Syria, China, Japan, and the Philippines as locations for the production of 'Irish crochet'.[14] Crochet lace had been introduced to some of these places by Irish nuns, travelling as missionaries and replicating abroad the cottage industries for rural women that they had helped to establish in Ireland during the famine.[15]

CLONES CROCHET LACE AS INTANGIBLE CULTURAL HERITAGE

The fact that foreign 'Irish crochet' industries were seen as such a threat in the early-twentieth century contrasts sharply with the international networks of teaching and pattern-sharing that exist today. The context, of course, is different, as during this period crochet lace was an important, if supplementary, source of income, whereas contemporary Irish practitioners do not depend on lace production and sales for their financial wellbeing.[16] However, as I shift to a discussion of present day Irish crochet, I would also suggest that these differing perspectives on pattern copying and production outside of Ireland indicate a shift from thinking of crochet as a noun (as in, a product that can be bought and sold) to thinking of crochet as a verb: a set of skills and techniques, a way of building community and participating in Irish history and identity across borders. This way of thinking about heritage or cultural property is familiar in the context of intangible cultural heritage (ICH). Anthropologist Barbara Kirschenblatt-Gimblett phrases it like this: "Whereas like tangible heritage, intangible heritage is culture, like natural heritage, it is alive. The task then, is to sustain the whole system as a living entity and not just to collect 'intangible artefacts'."[17]

In this section, I will draw on crochet classes and a series of interviews with the Clones crochet lace teacher, designer, and historian, Máire Treanor, to consider contemporary Irish crochet making as an example of how a lived cultural practice is circulated and safeguarded in the present. Treanor is listed on the INIICH as the primary teacher of Clones lace in Ireland today.[18] Her association with the craft dates to the 1980s when along with Mamo McDonald, a women's and elders rights activist, she set up a lace training program, which led to the founding of the Clones Lace Guild and Clones lace summer school. Traditionally, Clones crochet lace was made by joining small squares (often called 'rose and shamrock squares'), or by joining individual motifs with a chained ground ornamented with small balls of looped thread called Clones knots. Though the first method was still practiced in the region, Treanor had to piece together information from older makers and study antique lace to revive what she calls the 'freeform' style of Irish crochet, where individual motifs are joined together by chains of crochet. Now, the term 'Irish crochet' tends to refer to the latter style of construction. Though she acted as an organizing and invigorating force for the craft, and revived the use of the Clones knot as a filling stitch, Treanor emphasises the fact that before the Guild, Clones crochet was a "living tradition" in the region, with many active lace makers, and "old pieces [of lace], many of which are precious family heirlooms" in homes.[19]

Since its foundation, the Clones Lace Summer School has become increasingly international, attracting students from North America and Europe. In 2012, Treanor began to invite guest tutors from other countries, working in traditions inspired by Irish crochet. Many of the summer school guest tutors have been makers from Eastern Europe who design, make and sell what is called 'Modern Irish Crochet.' Using the same construction method and many of the same motifs, but characterized by its thickness, bright colours, and use of Romanian cord, Modern Irish Crochet is primarily produced in Russia and Ukraine.[20] Treanor believes that Irish crochet technique and motifs reached Eastern Europe through early-twentieth-century needlecraft books and magazines, then exploded in popularity with the help of Russian magazines *Duplet* and *Mod*, which reproduced designs with no

concern for copyright and distributed them to a massive readership.[21] Other guest tutors have taught Merletto di Orvieto (from Italy), Hungarian Csetnek crochet and needle lace, and Picot Bigouden, from Brittany. These varieties of lace also evolved from Irish crochet, which had been introduced to supplement rural incomes in the early-twentieth century, just as it had in Ireland. In fact, historic makers of these crochet laces are likely some of the people Anderson refers to in her reports about foreign competition for Irish crochet.

'Storying' and Placemaking with Clones lace

Along with the spread of Irish crochet techniques throughout Europe and the rest of the world, Treanor's publishing, online presence, and international teaching prompts a consideration of what happens to intangible cultural heritage when it spreads from its home-place, migrating to different countries and practised online. If lived cultural practices "foster our sense of community and place," what does this look like when they become global phenomena?[22] Can this function be maintained as skills are shared internationally on digital platforms? Treanor's accumulated responses to this question – asked and answered multiple times in different ways – reveal what I read as an ethos of making and teaching that is firmly located in place, in historical narrative, and in a network of relationships extending around the world. Adapting, experimenting, innovating, and even copying are welcome, as long as they are accompanied by a recognition of one's place in this narrative and network.
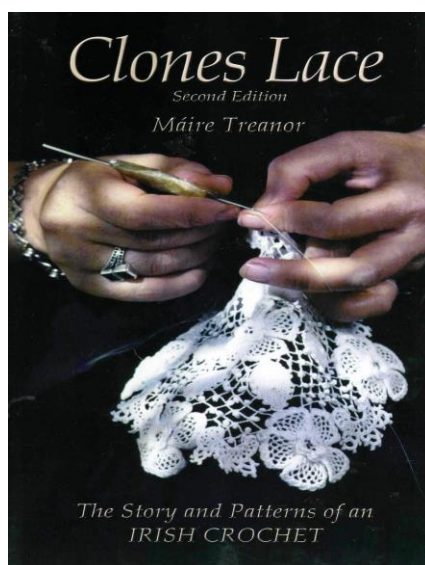

Figure 2. The cover of Máire Treanor's first book, Clones Lace: the Story and Patterns of an Irish Crochet *(2nd Ed., 2010).*

The title of Treanor's first book, *Clones Lace: the story and patterns of an Irish crochet* emphasizes the importance she gives to locating her making practice within a 'story' (fig. 2). The stories and patterns give each other life; they need each other. I see this most clearly in the pattern section of her book and the way she speaks when she is teaching. Motifs are named according to the person who made or taught them most often. In the book, interspersed with patterns, are profiles of crocheters that Treanor has known and learned from, crediting them for passing on certain techniques or motifs, and giving a sense of their place in the story of Clones crochet.

The Clones Lace International Summer School also invites the attendees into a cultural landscape, to inhabit Clones town and trace the steps of the women whose stories Máire Treanor and other Clones women weave together into a *her*story of Clones lace. For the first years of the Summer School,

Mamo McDonald led a tour of the 'Cassandra Hand Trail,' a selection of local landmarks associated with the nineteenth-century rector's wife and philanthropist who started the industry.[23] Lacemaking classes are still held in the Cassandra Hand School and Ulster Canal Stores, nineteenth-century buildings that provide temporal and geographical anchors for the group. Archaeologist Denis Byrne's imaginative exploration of how love and loss can become embedded in places and things serves to "raise the issue of empathy and of the role that objects and places, as transmitters of affect, have in our empathetic engagement with past others."[24] The Clones Lace Summer School invites participants to inhabit the affective landscape and built environment of nineteenth-century Clones, walking the 'Cassandra Hand Trail' and even entering the schoolhouse she fundraised to build. The Summer School pupils perform nineteenth-century school pupils, feeling the cool stone underfoot in June and wondering how it would have felt to sit in the schoolhouse in February, without the comforts of a fleece jacket and thick woollen socks.

Figure 3. The Cassandra Hand Centre, Clones, County Monaghan. Photo © Kenneth Allen (cc-by-sa/2.0)

The act of *making* lace is also a conduit for 'empathetic engagement,' heightened by its location in this distinctive, storied place but able to be practiced anywhere in the world. At the 2019 Summer School, a long-time attendee and talented needlewoman who travelled to the school from near Belfast every summer commented that she often thought about how much of a privilege it was to be able to make these lace for fun, rather than out of necessity.[25] Such conversations proliferate equally at the Summer School's 2020 and 2021 iterations, held online due to Covid-19 pandemic travel restrictions. Clones lace making today is closely conceptually tied to the resourcefulness and hard work of regional women during the Famine. Whether in Clones, California or Canada, the fine work strains the eyes, causes the hands to ache, and takes tremendous amounts of time and patience – physical sensations experienced by the generations of women in the story that Treanor weaves around Clones lace.

Sharing responsibly: skill, design, and international networks

Anchoring her making and teaching practices in place and story, Máire Treanor also situates herself within a network of lace makers that stretches around the world, formed by the spreading of Irish crochet techniques over the past two centuries, as well as new connections through Ravelry, Facebook, and the International Clones Lace Summer School. Makers from around the world share

patterns and techniques, but it is important to respect others' work with correct and clear attribution. Treanor points out that when a maker is participating in a tradition – especially one like Irish crochet, which has spread and evolved – ownership of designs is not always so straight forward. Sharing is balanced with a claiming of one's own creative work and place in a lineage of makers. In discussing the crochet articles I designed and made under her tutelage,[26] Treanor cautioned me against feeling proprietary about my own designs, while at the same time reminding me who I learned from, and who *I* need to credit in my story: "I feel that because you would have learned that from me, from my book, and you would have been inspired by me, and I don't have a thing that I wouldn't share, so I would be very annoyed if somebody else who learned from me had that attitude [...] I wouldn't like you to have that idea, that notion, that it's *your* design [...] there's so few people doing it that you can't afford to do that."[27]

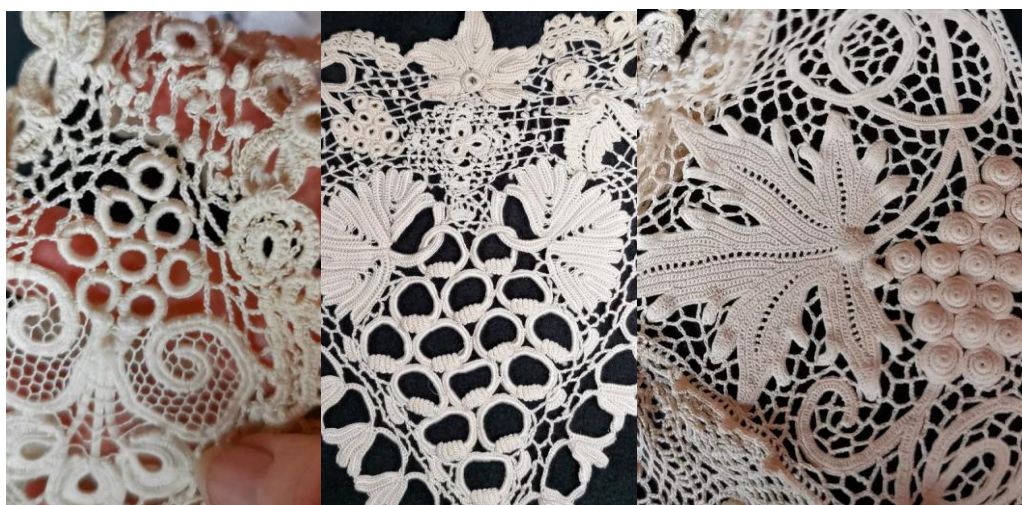*Figure 4. (L-R) Hungarian, French, and Italian variations on Irish Crochet, incorporated into The Wild Grapevine Collar (designed and attached with Irish crochet techniques by Máire Treanor).*

Using antique and newly-commissioned pieces from these traditions in variations on the grape and leaf motif, Treanor has constructed a Wild Grape Vine pattern collar, which she often wears while teaching. All of the five laces are inspired by Irish crochet, and have been taught at the summer school.[28] Treanor uses the collar to demonstrate the wide spread of the Irish crochet style an the differences between her own Clones crochet lace and these international variations. It also seems to be material evidence of friendship and community: many of the pieces were made and sent by women who had taught at the summer school and remained connected to the international web of makers Treanor has assembled through teaching, pattern sharing, Guild and Summer School activities.

CONCLUSION

I will conclude by highlighting the notion of sharing designs and techniques not as something that might endanger an industry, but as responsibility, something 'you can't afford' not to do. This is a certain kind of protecting, but it is different than seeking to protect Irish crochet from the economic effects of foreign competition caused by the transmission of skills and designs to different countries. Instead, Treanor is working to protect those very skills, techniques and methods themselves, and she does so precisely by sharing them, while at the same time anchoring them firmly in place, in a history and community of makers. A 2015 UNESCO report on ICH and sustainable development highlights the many ways that ICH can positively impact communities, ranging from peace building and social cohesion to research and development in environmental sustainability.[29] Literature on ICH tends to emphasize its potential to strengthen communities, focusing on the needs of the practitioners

themselves.[30] As a small town in largely rural County Monaghan, Clones does fall under the 'rural and regional' umbrella that marks it as a location in need of support in economic and cultural development. However, the story of Clones lace that I laid out above is not *primarily* one of economic or cultural development in Clones. The Clones Lace Guild played an important role in the lives of rural women during the time that it was active, but, as Máire Treanor herself states, was not prolific enough to be viable. Instead, the story of Clones crochet lace suggests that in this particular context, an ICH practice might function as a space for people from outside of a given region, or even country, to engage with a localized network of place, story and community in an embodied and affective way. Perhaps most promising is the fact that Treanor's teaching activities and online presence, and the networking of makers working in traditions inspired by Irish crochet around the world (North America, Ukraine, Russia, France, Italy, and beyond), suggest the lived cultural practice of Clones crochet as a way and a space for participating in Irish culture and identity that is deeply rooted in place, story, and community, but also holds the potential to be accessible, inclusive and diverse.

ACKNOWLEDGEMENTS

NOTES

[1] "About," Irish National Inventory of Intangible Cultural Heritage, accessed July 18, 2022, https:// nationalinventoryich.chg.gov.ie/about/. See also the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (2003), available in full online at: https://ich.unesco.org/en/convention.

[2] My fieldwork with Máire Treanor was conducted as part of broader doctoral research on Irish lace design and making from the late-nineteenth century to the present day. See Molly-Claire Gillett, "Meaning and/in Materiality: Learning and Making in Irish Communities of Craft" (PhD. diss., Concordia University, 2022).

[3] For more on how crochet developed in Ireland in this mid-nineteenth-century period, see Heather Castles, "Hybrid stitched textile art: contemporary interpretations of mid-nineteenth-century Irish Crochet lace making" (PhD diss. University of Ulster, 2011).

[4] See Alan Cole, *The Renascence of the Irish Art of Lace-Making* (London: Chapman and Hall Ltd., 1888), Internet Archive, https://archive.org/details/cu31924014557130.

[5] For the Irish laces in context, see Molly-Claire Gillett, "Irish Lace," *The Bloomsbury Encyclopedia of World Textiles Vol. 6: Trade and Industry* (London: Bloomsbury Academic, forthcoming).

[6] For a compilation of Austrian 'Irish Crochet' designs, see Barbara Ballantyne, *Irish Crochet Lace in Austria and France* (Printed in Australia by Barbara Ballantyne, 2012).

[7] "Miss Anderson (Inspectress of Home Industries) Reports," *Tenth Annual General Report of the Department of Agriculture and Technical Instruction for Ireland*, 1911, Cd. 5611, at 118. ProQuest House of Commons Parliamentary Papers Online.

[8] Emily Anderson, "Notes on the Irish Lace and Crochet Industry," *Journal of the Department of Agriculture and Technical Instruction* 14 (1913): 57.

[9] "Irish Lace Trademark Prosecution. Smart Penalty," *Evening Echo* Friday March 27, 1908. Irish Newspaper Archive.

[10] "Irish Lace Trademark Prosecution. Smart Penalty," *Evening Echo* Friday March 27, 1908. Irish Newspaper Archive.

[11] "Irish Lace and Crochet," Kerry Sentinel June 17, 1911, 3. Irish Newspaper Archive. The *Feis* were encouraged by the Gaelic League and other groups invested in Irish language and culture as part of the revival of 'ancient' Irish culture and traditions. They involved "music, dance, poetry, art and handicraft" (see Joseph McBrinn, "The peasant and folk art revival in Ireland, 1890-1920: with special reference to Ulster," *Ulster Folklife* 48 (2002): 36-38.

[12] "Merchandise Trademarks Act. Prosecution at Killarney," *Irish Examiner* September 13, 1912, 10. Irish Newspaper Archive. Crochet lace fraud was only one of the DATI's issues in this regard. Butter, eggs, and bacon were all sold under fraudulent Irish trademarks, and in 1906 the DATI appointed Lord Ikkerin (later the Earl of Carrick) to monitor fraudulent representation of goods in British markets (*Sixth Annual General Report of the Department of Agriculture and Technical Instruction for Ireland*, 1907, Cd. 3543, at 123. ProQuest House of Commons Parliamentary Papers Online).

[13] Anderson, 57.

[14] Anderson, 57.

[15] Pat Earnshaw, *Youghal and Other Irish Laces* (Shamley Green, Guilford, Surrey: Gorse Publications, 1988), 31. For an in-depth study of one of these industries as it survived into the twentieth century, see Maria Mies, *The Lacemakers of Narsapur*. 2nd Ed. (Chicago: Spinifex Press, 2012).

[16] That said, others using their patterns and teaching traditional techniques without proper attribution are an issue for these contemporary Irish makers. What is at stake does not seem to be the money, but the cultural, artistic and intellectual property (Máire Treanor, in discussion with the author, online on Zoom, October 29, 2020).

[17] Barbara Kirschenblatt-Gimblett, "Intangible Heritage as Metacultural Production" *Museum International* 56 Iss. 1-2 (May 2004): 53.

[18] "Clones Crochet Lace Making," Ireland's National Inventory of Intangible Cultural Heritage, accessed July 18, 2022, https://nationalinventoryich.chg.gov.ie/clones-crochet-lace-making/.

[19] Máire Treanor, *Clones Lace: the story and patterns of an Irish crochet*, 2nd Ed. (Berkeley: Lacis Publications, 2010), 38-39. *Clones Lace* also includes images from family collections of women in the Clones area making lace in the early-twentieth century and 1960's (41).

[20] For examples of Modern Irish Crochet, see Ukranian crochet maker Antonina Kuznetsova's online Etsy shop: https://www.etsy.com/ca/shop/AntoninaCrochet?ref=simple-shop-header-name&listing_id=839154545

[21] Máire Treanor, in discussion with the author, online on Zoom, October 22, 2020.

[22] When announcing the addition of Clones Crochet Lace Making as well as several other practices to the INIICH, Irish Government Minister Catherine Martin TD stated that: "These eight living cultural heritage practices require knowledge and skill, and foster our sense of community and place. These practices thrive through the dedicated communities who sustain and pass on their skills and way of life to succeeding generations ensuring the continuance of these important traditions" ("Minister Martin Announces State Recognition of Key Practices of Ireland's Living Cultural Heritage," Irish National Inventory of Intangible Cultural Heritage, last modified August 4, 2021,

https://nationalinventoryich.chg.gov.ie/minister-martin-announces-state-recognition-of-key-practices-of-irelands-living-cultural-heritage/).

[23] Treanor, *Clones Lace*, 46

[24] Denis Byrne, "Love & loss in the 1960s," *International Journal of Heritage Studies* 19 No. 6 (2013): 606, DOI: 10.1080/13527258.2012.686446.

[25] Discussion with Clones Lace International Summer School participants, Clones, Co. Monaghan, June 5, 2019.

[26] Making lace, and in particular *learning* how to make lace, are critical to this research, facilitating the exchange of embodied and local knowledge and highlighting the nature of craftwork as both a social and material practice. Incorporating this sort of creative, material engagement with a topic of investigation may take different names and forms according to region and disciplinary affiliation. It is known as "practice-based/practice-led research" in the U.K. and Australia, "artistic research" in Germany and the Netherlands, "arts-based research" in the United States, and "research creation" in my own Canadian context (see Chris Salter, *Alien Agency: Experimental Encounters with Art in the Making* (Cambridge: MIT Press, 2015), 13; Owen Chapman and Kim Sawchuk, "Research-creation: Intervention, Analysis and 'Family Resemblances'," *Canadian Journal of Communication* 37 (2012): 6, https://doi.org/10.22230/cjc.2012v37n1a2489; *Natalie Loveless, How to Make Art at the End of the World: a Manifesto for Research-Creation* (Durham: Duke University Press, 2019), 4-8).

[27] Treanor, discussion, October 29, 2020.

[28] Treanor, discussion, October 22, 2020.

[29] UNESCO, *Intangible Cultural Heritage and Sustainable Development* (2015),

https://ich.unesco.org/doc/src/34299-EN.pdf.

[30] Indeed, the language of intangible cultural heritage has been challenged by scholars who argue that it entrenches western hierarchies of value in heritage, often being applied to non-western, indigenous, and 'folk' practices; intangible cultural heritage often seems to be the property of cultures and subcultures deemed by predominant Eurocentric heritage discourse as 'other' (see Laurajane Smith & Gary Campbell, "The Tautology of "Intangible Values" and the Misrecognition of Intangible Cultural Heritage," *Heritage & Society* 10 No. 1 (2017): 26-44, DOI: 10.1080/2159032X.2017.1423225)

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"E-MONOIA" DIGITAL MAP AND THE SONG OF THE SIRENS

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INTRODUCTION

With the charming "*Song of the Sirens*", the homonymous sea nymphs (Naiads) escorts of Persephone in ancient Greek Mythology, trapped the unsuspecting travellers of the seas. They were lured to "destruction", to the loss of consciousness. They were led to the transcendence of Self, passage to the beyond. The article analyzes the importance of a multi-layered and pluralistic narrative for the city by tapping into the transformative dynamics of the New Media through an example: the digital interactive map for the centre, "navel" of Athens, *e-monoia* (Embroidery Omonoia). The map, part of a research program, comes to expand physical and digital experience, enriching the tours with new narratives, images and words. Like the "Song of the Sirens", stories, personal experiences, conscious and unconscious embedded recordings can be "heard" during tours. Blanchot says: "*Their imperfect songs were just one song to come*".[1]

Intangible words come to give voice and to make sense of non-tangible inheritances. Realizations come through words. We see to name and name to see again. It always takes words to gain a certain consciousness. Traces, footsteps, signs of deterioration of the city are activated, connected, revealed, and ultimately weave new levels of historiography. In e-monoia historical, personal, literary, sonic, photographic, cinematic, mainstream but also marginalized stories, weave an endless collage of wandering. Dissolving the univocal hierarchical narratives words and images seek diversity and variety. They shape new identities and ways of recording and experiencing history. The aim is to highlight, update and promote cultural heritage and modern culture through the diversity and pluralism of experience. The visitor/browser activates fragments that are scattered and invites him or her to reconstruct his or her own interactive story / wandering experience. New narrative voices make it possible to perpetually construct and refresh for new public historical-social narratives and identities.

Open digital navigation app

The project explores how an open-ended digital browsing platform can support the personal involvement of the visitor/user/walker. The research development of e-monoia emphasizes on enhancing the end user experience and aims to highlight and promote the identity of a place and the contemporary culture.

On the basis of a survey conducted, the following indicators were recorded:

    ☐ Wandering / Route / Habitation
    ☐ Contact
    ☐ History / Memory
    ☐ Public space / Symbolism
    ☐ Underground square
    ☐ Eye contact

The above parameters are highlighted through the different documentation of the City of Athens in the area of Omonoia (cartographic, architectural, urban planning, photographic, cinematic, literary, sonic). The combination of parameters and means aims to create a combinatorial digital narrative visualization of the exhibits. Activation takes place through microhistories in an interactively timeless and continuously evolving approach to the spirit of "place". It attempts to highlight Omonoia as a common ground, through the different levels of narrative / media and to trace a digital narrative path. By introducing fragmentary content details to the application, the user mobilizes personal skills of spatial sensory perception, reconstructs them projectively and recreates them synthetically, physically performing an autonomous cultural experience.
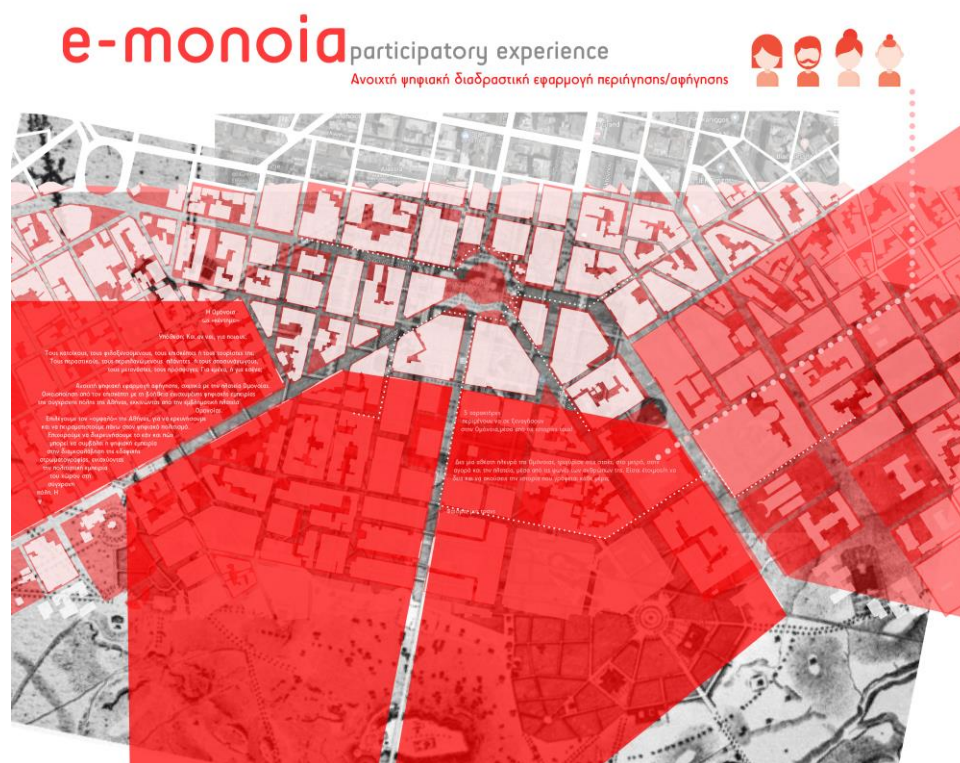

Figure 1. draft itineraries

Objectives, characteristics, functions

Through the formation of a structured alternative tour experience in the present of the contemporary city, e-monoia aims to:

(a) cultural mediation in an urban environment, route(s) in a place of high traffic and concentration/movement of the population, interactive tour,

(b) promotion of an area of social and factual interest,

(c) promotion of public autonomous pedagogy.

The local - in this case the palimpsest of Omonoia Square in Athens - through the arrogant interactivity of the digital, they are invited to intertwine in order to highlight and promote a deepened cultural "visibility". Through the formation of a structured alternative experience of touring the past and the present of the modern city an attempt is made to articulate evidence, visible traces, different identities, othernesses and imaginary representations.

The narrative technique of audio-visual applications "directs" in its own way and contributes to the promotion of the locus of Omonoia Square in Athens, offering an open field of reflection that enhances the personal involvement of the public with the space, sharpening its critical and social clarity.

THE AREA-CASE OF STUDY

The choice of the area of Omonoia, the central square of Athens, involves particularity and difficulty as it is part of the city in which social, cultural and anthropological changes have always been reflected.[2] Omonoia Square, within a repeatedly staged performance - thanklessly most of the time -, played a role in these trends, unable, however, to follow its occasionally projected centrality and highlight its particular anthropological characteristics. In the field of social representations Omonoia is recognized through a series of hierarchical comparisons as a "centre", in the way individuals represent Athens and reconstruct the experience of urban everyday life. Omonoia Square, as objective in the research of the digital interactive map - a communicative message with its peculiarities, constitutes an exceptional case of study, as its official representations come to meet and be enriched by the subjective-anthropological.

The public space of the city as a place of appeal for meanings, together with its architecture as an expression of its material imprint, constitute in the case of Omonoia the central cultural narrative which has a social impact on different audiences, transformed by their reformatting role, revealing and ultimately producing new meanings. Modern forms of cultural expression, transcending the traditional narrative, open up new paths of understanding. The images of the city, the architectural drawings that represent it, the narratives of its different temporalities, its sounds, etc., meta-form in the digital equivalent "a set of active centres ("image map"), an enlarged area of hyperlinks ready to reconstruct new multiple creative experiences / representations / narratives.[3]

DIGITALITY

Storytelling is a key element of mediation. Linear narration is not adopted. On the contrary, it is proposed to introduce multiple options, so that the one (the user) can take on the role of the creator of the story, involving one's personal experience.

• The possibility of different routes, combined osmosis of documents, presupposes simple narrative guiding scenarios, based on an organized open interactive project of cultural / educational mediation.

• The activation of narrative data / elements through narrative loops, which are formed on the trunk of recorded indicators, invites the user to move and compose the context, to adapt the spatial, aesthetic, institutional data offered by the work. The user / walker / visitor / traveller, through the digital embroidery practice that undertakes them, is invited to rearrange the narrative material, to activate excerpts / fragments that are scattered and invite him, to structure or re-structure one's own interactive story / wandering experience, to contribute one's personal tactical rearrangement of the material, to compose a critical reconstruction of the public historical-social narrative, to perform a mechanism of perception and physical conquest of the square.

DIGITAL CONTENT: COMMUNICATION / LEARNING / INTERACTION

With the proposed digital browsing application an attempt is being made to organize a tool to enhance the cultural "visibility" of the spirit of the place of Omonoia Square and its surroundings, an educational opening of routes approaching the different interpretive ways, places and races of the city, its history but mainly its present. The connection with the world is inherent in every human activity. The reality with which we engage every day subjects us to a constant exercise of connection. We try, we experiment - most of the time unconsciously - we participate in an active process with which we approach and understand. We communicate with words, symbols, images, we react to stimuli.

DESIGN / USER / EXPERIENCE

The digital application is intended to provide scenarios / connections to the user but also an opposite possibility, connection of one's personal data / choices, in order to develop one's personal path: either spatial or digital, an experimental process in progress with multimodal odyssey logic. One will be offered direct access to sources - the loops mentioned above -, which open up a variety of possibilities, depending on the interests and parameters one wants to activate each time: literature, cinema, art, architecture, music, articles, series of photographic illustrations, digital games, blogs, soundscapes, various interfaces, etc., about Omonoia and its wider area for which a competent source trust is available. The design aims at the combined discovery / exploration of the user of the widest possible range of combinations for an experience that will be tailored to him or her.

The app can potentially include an audio guide to help the approach route to the square. It will offer path shortening information depending on the approach context. It will incorporate audio suggestions composed of city sounds depending on where the visitor / user will be located, which will be activated by an appropriate sensor, depending on one's location, as well as the ability to enter in an audio environment with more options if the user does not prefer to visit the square. Such topics can be sounds of the city imprinted in everyday life: the dominant sound of the water / fountain, the sounds of pigeons that seasonally flood the square, but also the garbage truck that empties and deposits the garbage bins, the hose that splashes water and cleans the square late at night or early in the morning, sounds and conversations of outdoor vendors, sounds of the "inhabitants" of the square, indexed sounds of gatherings of strikes, election speeches, fan celebrations, sounds of silence, and panicking with the crying of cars in the diapause during their perpetual movement, the thickenings and dilutions of their frequency of movement, sounds of hospital and police sirens, etc., recorded snapshots and other narratives about the square. It will give possibilities of correlation with different spatial shapes of corresponding thematic and spectacle.

The application concerns the city, the public space and is self-acted. A constant transition is taking place. User identities are constantly shifting. The ongoing interaction of history, culture and power create a constant transformation, placing people within the narratives of the past and the future. The city in this sense, is considered as an effective capacitor of identity formation, because it is loaded with symbolic power capable of enhancing its dimension and value. For the city, this is one of the most effective forms of participation of different audiences, as the interactive route that opens up can highlight its different cultural realities, identify new possibilities, stimulate emotions and assimilate experiential concepts.

The interaction challenge that is woven aiming at the emergence of *locus* Omonoia.[4] It acts as a structured communication tool that opens successive windows to disparate events of the city, a series of moments / tensions / changes that address the senses and emotions of people. Individuals can express themselves, connect with each other and with the place. To understand, to experiment with content creation and the challenge of meeting through very different opportunities / possibilities of expression. To share thoughts, ideas, feelings. To "play" in different formats, even different versions

of their own on different platforms. To "disguise", testing meanings, constructing a diverse and complex universe. To be transformed after all.

In the application, a key constitutive condition is the transformative possibility of public open pedagogy as well as the social change and cohesion that can be gained from the practice of open design narrative. The dialogue with the place of Omonoia creates an internal flow of thought and emotions. It synthesizes questions, mobilizes interests, activates a process of duration on a physical, emotional and cognitive level. It leads to the will to meet, spatial and digital, personal and cultural. It seeks to share experiences. The audience is constituted into body that participates, co-creates, co-designs, thus revealing the power of design as an anonymous discipline. Omonoia is approached realistically, in complete territorial sincerity. The crucial search in the relationship with her has to do with the experience in which her visibility opens up and at the same time opens up sightings. The pragmatic element that enters into a discourse that concerns her, resorts to the lived experience with her, to the interaction with her "place". Its changing scenery, its ever-moving protagonists, document its psychogeography.[5] Let's turn to Giorgos Ioannou. Does he not treat it as an aesthetic object from above, as beautiful or ugly, in what terms and cantatas? She kneads with her place and her people, "enters" her skin, breathes her smells, rides the taxi and wanders in her roundabout, takes what she has to offer him, lives her, lives her, lives her. She ultimately chooses with her reality. And this happens through the personal codes and the cultural context in which both: Omonoia/Ioannou are composed, producing an aesthetic and socio-political experience of interaction.[6]

META-KNOWLEDGE / META-NARRATIVE

"Visitors" meet Omonoia digitally and performatively. In the state of "hypermodernity" and the comparative post-humanist condition, the positions of the local symbolized reality, the public space of the city, are occupied by the unified space of the planet. "Visitors" therefore have the opportunity to connect through their locality. We are concerned to see cities depersonalized, spread, assimilated. Despite this, the cities still remain partially a combination of places. The city, being multiple, exists in a unique way in our imagination, in the memories of each of those who inhabit and visit it. So, in the narrations about Athens and Omonoia, it becomes the city of walkers who create a special image of it. The choice of a route, a free path, becomes, with the help of the digital map, a field of expression of freedom. It is the beginning of utopia to demarcate a space that does not exist anywhere else, through the break with the surrounding world, a spatial disengagement. Here the time of the collective and the individual times respect the normal rhythm. This infiltration of time, at a slowing taste rate, is a denial, questioning and rebellion against the "instant" time of email, chat, in time that has no ground, no territory. The syntactic limitations, which the city plan reveals to us, as we see it from the top of a skyscraper, do not contradict the freedom of writing, with the style that is "defined as a personal and unique manipulation of the language". To M. Augé, the individual imaginary carves its own path between the great urban symbols, and reveals to us the "why wandering in the city is one of the great themes of European literature"[7]. Is this a delight of pure representation? As R. Barthes notes: "Something else is happening, which is, undoubtedly, connected with another meaning of the word representation"[8].

The narrative path that is being created enables users to train themselves critically, creating their own narrative about the square, "to develop their potentialities with the depth of the self"[9]. The digital application delivers an environment open, a recording canvas on and through which the interpretation of the spirit of the place will be organized. By configuring in an accessible way paths / readings / obsessions, they will mentally and digitally inscribe their narrative stamp.

The application has a research character both in terms of how to structure its content, as well as in the way it is shared. It is proposed to deposit in the blockchain registry, a chain of decentralized data storage, publicly open to the web, which cannot be modified in terms of its history.[10]

The produced result forms a metadata, which in turn will follow a distinct path of address to the paths of free and open sharing, creating a next common ground, a zone of critical effect that can welcome successive visits, a meta-narrative meta-text, an exercise in the formation of inter-subjectivity with both the self and others, in an interactive architecture of space.

CONCLUSIONS

Omonoia Square, in its marriage with the interactivity of the digital, re-composes the net worth of locus within an open, digital, hyper-temporal hyper-space oriented to the experience. The place of Omonoia does not simply belong to history, as Rossi deals with it.[11] The urban factor Omonoia abandons its individuality, in order to be represented dialectically with reality. To delve into the global cultural history of the new digital/physical interactions and transactions of modern nomadic communities that star in roles that are implicit and diagonal, designing/substituting new spatial cultural experiences. The central boundary of Omonoia, shaped coherently,[12] is transformed into a spatial VS digital text. The recording and decoding of the multiple symbols / messages that an experiential audience experientially retrieves through the digital, intersects creative meanings and narratives, magnifying its cultural visibility, minimizing its consumption as an aquatic phantasmagoria for fun. As De Certeau deciphers, "in the labyrinth of powers, he relentlessly recreates shadiness and ambiguity".[13]

Therefore, the digital application for Omonoia Square, open, participatory multi-prismatic, inclusive of differences and objections, apart from being spatially performative, aggregates and ultimately realizes a discourse of cultural practice, participatory, collaborative, symbiotic and therefore socially productive for all. The open work, according to Bourriaud, emerges from the reader / viewer, in our case the recipients / users of the application, who by participating "complete the proposed scheme".[14] He directionally urges: "The historical task of the beginning of the 21st century is to rewrite modernity: not to start from scratch or bend under the weight of history, but to record, index and select, use and copy in the current system".[15] Following a similar tactic, a type of public open cultural policy of everyday life is formed. This concludes the urgent need to be a performative essay of a pragmatic post-humanist discourse,[16] which offers views on one of the comparative stakes of the cultural field, the planetary symbiotic challenge.

Returning to the "Song of the Sirens", the digital narrative stratigraphy Embroidery Omonoia, is called upon to (inter-)solve the "trap" of the introductory ancient myth, to lead to an in-body representational arrangement where differences, differentiations, opposing and antithetical views can constitute the constitutive and not confrontational content, in a socially relational rosary or even digital realities that are creatively marched in search for their autonomy and at the same time form the common future.

ACKNOWLEDGEMENTS

NOTES

[1] Maurice Blanchot and Charlotte Mandell, *The book to come*, (Stanford University Press, 2003).

[2] Athens, became the capital of Greece only in 1834 as well as it undertook to fulfil a plethora of heteronormative symbolisms through the materiality of the landscape and the universality of its ancient *kleos*.

[3] Lev Manovitch, *New Media from Borges to HTML*, into Manolis Patiniotis, Introduction to Digital Studies, Translated by Panagiota Razi, 229 - 255, (Athens, Ropi, 2020), 241.

[4] Aldo Rossi, *The Architecture of the City*, Translated by Vassiliki Petridou, (University Studio Press, Thessaloniki, 1987), 146.

[5] "Psychogeography: Study of the laws and specific effects of a geographical environment, consciously arranged or not, acting directly on sensitive behavior", in *Spatial Planning / Internationale Situationniste 1958-1969*, Translated by Claude Loran & Panagiotis Tournikiotis, (Akmon, Athens, 1979), 7, 20.

[6] "We immediately go out for a walk in the city in search of the unknown, the anonymous, which does not scream, to find what we finally share behind the illusion of the difference of our individual destinies. We chase pictures. The repertoire of our lives in the paths of urban folklore. A taxi. Trademark. We are somewhat comfortable in the front seat between the digital radios, the cassette recorders and the tiny TV, the pictures and the icons. First stop: provincial in Omonoia. Welcome my soul", into Giorgos Ioannou, *Omonoia 1980*, (Kedros, Athens, 1988), 36, 40.

[7] Marc Augé, *Non-Places: An Introduction to Supermodernity*, Translated by Despoina Sarafeidou, (Alexandria, Athens,1999), 161.

[8] Roland Barthes, *Image-Music-Text*, Translated by Giorgos Spanos (Plethron, Athens,1997), 75.

[9] Michel Foucault, *The Microphysics of Power*, (Athens, Ypsilon, 1991), Translated by Lila Troulinou, 22.

[10] The application of blockchain technology was first used in the field of digital currencies. It can now be applied to a variety of human activities such as that of preserving and transparent cultural archives. This connection is chosen due to the cryptographic nature of the adopted technology, which protects the profiles of its users from surveillance, privacy breakdown and the collection of behavioral data, which otherwise may become objects of uncontrollable use.

[11] Rossi, 146.

[12] Vassiliki Panagiotopoulou. *Metamorphic marginality: From "fiction" to #ThisIsACo-op*, into: Catalogue of the Assembly for the 15th Venice Architecture Biennale 2016, (Athens, Futura, 176-177, 2016), 176.

[13] Michel De Certeau, *The Practice of Everyday Life*, Translated by Kiki Kapsambeli, (Smili, Athens 2010),111.

[14] Nicolas Bourriaud, *Postproduction*, Translated by Dimitris Ginossatis, (Athens School of Fine Arts, 2014),110.

[15] Bourriaud,117.

[16] Rosi Braidotti, *A Theoretical Framework for the Critical Posthumanities*, (into Theory, Culture & Society 2019, Vol. 36(6) 31–61, first publication May 4, 2018), 52,53, and Braidotti, *The Posthuman* (Cambridge, Polity, 2013).

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THE ARCHIVE: EVIDENCE OF UNREALIZED HISTORY

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INTRODUCTION

The built environment embodies the values, economies, technologies, possibilities, preconceptions, biases, needs and hopes of the period and the culture that produces it. History, in its distillation, has presented seemingly objective records of the development of the built environment, and architectural publications have cemented that reality. Within history, heritage highlights tangible and intangible aspects of a culture, "generally regarded as a shared common good by which everyone benefits,"[1] as expressed by authors Silverman and Fairchild Ruggles. However, the authors also recognize that "Heritage [like history] is by no means a neutral category of self-definition nor an inherently positive thing." It is a process of selection by which aspects of culture, deemed as essential, are preserved and transmitted. Questions about who defines what is to become heritage, what is to be included in history, or how selected works are to be credited also underscore the omissions and the biases perpetuated through time in detriment of the shared common good.

Dr. Milka T. Bliznakov (1927-2010)[2] founded in 1985 the International Archive of Women in Architecture (IAWA), to remediate vast gaps in the knowledge of architecture and design-related disciplines as a consequence of the exclusion of women from the written history. Bliznakov understood that, in the absence of proper historical credit, the original papers of women were the only records to prove their contributions and substantiate their inclusion in history. Beyond acting as proof, and beside the factual information imprinted on them, the preserved artifacts also hold a wealth of intangible information – "practices, representations, expressions, knowledge, skills"[3] – worth incorporating into architecture's canons. This paper studies archived artifacts and reflects on current initiatives of the IAWA Center that aim to capture and disseminate both tangible and intangible knowledge of women's practices.

THE IAWA ARCHIVE

Bliznakov became a faculty member of Virginia Tech in 1974, and by 1985 — joined in her effort by the University Libraries — the archive was finally established.[4] With almost five hundred collections representing forty-seven countries, the IAWA remains the only archive of its kind in the world today.[5] The IAWA seeks to rectify the exclusion of women from the canonical history of architecture, which remains unilaterally masculine[6] as a result of centuries of habitual omission or intentional erasure in support of the patriarchal ideal of the master creator. The archive focuses on the pursuit and preservation of professional and personal papers of women across the globe, via multiple initiatives, and fosters its dissemination through research and publications.

BUT WHAT SHOULD BE PRESERVED?

In the short piece, *On Exactitude in Science,* Jorge Luis Borges narrates the unfortunate fate of the "Map of the Empire"[7] that cartographers, aspiring to perfection, struck at the same size of the Empire. Rendered useless, the map was eventually abandoned and neglected becoming a ruin — a "Relic of the Disciplines of Geography."[8] The story questions what should be archived, and whether it is possible or even necessary to preserve it all. Surveying the historical landscape in the 1980s Bliznakov advocated for preserving everything. She did so because, beyond the fundamental need for the material, she understood the magnitude of the omission.

In *Privacy and Publicity,* Beatriz Colomina contrasts the attitudes of Loos and Le Corbusier toward the preservation of their own work, "Loos vacates a space and destroys all traces behind him," preserving nothing. "Le Corbusier fills a space ahead of him,"[9] preserving everything. As a result, "the research into Loos is organized by the gaps in the archive," whilst "the research into Le Corbusier is organized by archival excesses;"[10] however, both have been profusely written about.

The authors of Loos' monograph had to rely on small fragments, contextual information and, what could be considered, peripheral material in the form of "conversations with Loos' friends, clients, and colleagues"[11] — which they deemed as rather subjective and "deformed by interpretation." But isn't history, with its conventions and methods, and limited by the challenges inherent in archiving, already subjective? Can it ever be free from interpretation?

Colomina suggests that Loos had no archive. He was, nevertheless, written into history, confirming that a wealth of information resides elsewhere, latent in the fertile periphery.

REALITY ALSO INCLUDES THE PERIPHERY

In *Book of Ages: The Life and Opinions of Jane Franklin*, historian Jill Lepore portrays the life of Jane Franklin, younger sister of one of the Founding Fathers of the United States, Benjamin Franklin, and bases the reconstruction of her life, in great part, on their decades-long relationship recorded through correspondence.[12] It is worth noting that Jane Franklin cherished and preserved until her old age every letter that she received from her brother and diligently bequeathed the documents to ensure they would be preserved after her passing. Benjamin kept only but a few of hers. Yet it was in Benjamin's letters, replying to Jane's inquiries and stories, that a portrait of Jane begins to emerge; where the story of her life and of the time is found. These stories urge the uncovering of history residing in fringes, and demand the expansion of the canons in order to include material that may have been deemed as subjective but which nevertheless holds truth and sheds light on history, especially in the absence of what is considered to be conventional material.

Lepore cites American novelist and historian Charles Brockden Brown, who in 1806 published an essay called "Historical Characters Are False Representations of Nature,"[13] where he questions the emphasis that written history has placed on 'greatness', and the impact this has had. He argues that, "[i]f it were possible to read the histories of those who are doomed to have no historian, and to glance into domestic journals as well as into national archives,"[14] we would realize the unfairness of this tendency toward the vast number of those that have been obscured by the idealization of a selected few. Lepore asks, "What would it mean to write the history of an age not only from what has been saved but also from what has been lost? What would it mean to write a history concerned not only with the lives of the famous but also with the lives of the obscure?"[15]

The IAWA's mission is to bring into the light and give voice to the many women that have "participated, in any capacity,"[16] and impacted architecture in diverse ways. But this mission goes beyond elevating women, and it is not its goal to stage a confrontation between men and women, but rather to defy the ideal with the real.

BEYOND INDIVIDUAL EXCEPTIONALISM

History has traditionally revolved around the illusion of exceptionalism privileged by the patriarchal value system, that of the ideal hero. The IAWA strives, instead, to reveal the exceptionalism that lies in the aggregation of actions and contributions made by the global community of individual women toward a larger cause.

There are myriad examples in the archive's collections of women that, while unrecognized, have expanded the boundary of what was admissible and allowed, or what was expected of the profession and of women. Every item in the collections is, in this regard, consequential.

Figure 1. Graphite sketch by Han Schröder

In the collection of architect Han Schröder (1918-1992),[17] for example, her sketch[18] of the living space in her childhood home turns the spotlight toward her mother, Truus Schröder. Although not an architect, Truus Schröder designed, in partnership with architect Gerrit Ritveld, the Schröder House (1923-24) in Utrecht, Netherlands, among several other projects. While Truus' contributions have been mostly ignored, Rietveld unequivocally attributed the interesting architectural ideas to her.[19] With conviction, during the design process, Truus Schröder "emphasized her need for a home in which parents and children would be brought together in an open space, where conversations would be wide-ranging."[20]

Rejecting the traditional model of discrete rooms defined by fixed walls in favor of sliding panels, the resulting open living space with a "unique flexibility…offered its users a new environment in which to redefine family life, women's rights, and the responsibilities of individuals."[21] Living in this experimental environment from a very young age, as recorded on the photograph,[22] undoubtedly made a strong impression on Han Schröder and facilitated her path into architecture.[23] Reciprocally, the work that Han developed throughout her prolific career, exhibiting a heightened awareness for interiors affordances, lightly traces out her mother who, from the periphery and with vision, "helped to shape and define the course of modern architecture."[24]

Figure 2. Truus and Han Schröder at the table

In another large collection, that of German architect Hilde Weström (1912-2013),[25] an extensive curriculum vitae[26] records her pioneering career. Over 800 condominiums and housing units are listed among her many confirmed projects produced independently during the post-war rebuild of Berlin. Project # 125 in the CV lists her design for the *Interbau* model flat,[27] part of the special exhibit "The City of Tomorrow"[28] held in Berlin in 1957 at the international architectural exhibition *Interbau 57*. Sharing similarities with Truus Schröder's ideas, Weström's design offered a new form of living that was flexible and granted, with its sliding walls, spatial variability in response to preferences for privacy and leisure.[29]

Figure 3. Interbau model flat, built for "The City of Tomorrow"

Weström was invited to give a lecture on "the technology of quiet living" at the "Forum for Beautiful Living," during *Interbau 57*, beside "Aalto, Altherr, Bartning, Rossow, Mia Seeger, Frh. von Waech,

Weström, Witzemann," as listed under project # 126. It is worth noting an additional layer of nuanced information embedded in the factual CV. Of the panelists listed, Seeger, not captured in the event's photograph, is the only architect to include her first name, thus disallowing the typical assumption of the architect being male. Many years later, in 1971, Weström worked with renowned architect. Prof. Hans Scharoun on the project for Berlin's Staatsbibliothek.[30] Initial searches have returned no published information about the project that mentions her or clarifies what her contribution to the project might have been. The only evidence of this collaboration is the entry on her CV under project # 166; a fact that not only highlights the significance of preserving CVs in archive collections, but also exposes, should it be omitted, the precarious nature of information.

Figure 4. Hilde Weström (left) during Interbau 57

Elsewhere in the archive one finds Latvian born architect, Vera Jansone (1915-2004),[31] who studied under Auguste Perret at École des Beaux-Arts, in Paris (1945-49). Upon completing her studies, she worked full-time in the Atelier Le Corbusier on the reconstruction of Paris until she obtained her French professional license. She was later awarded a full scholarship to attend the Illinois Institute of Technology (IIT), where she studied under Mies van der Rohe, and from where she received her Master degree in 1952. Jansone eventually emigrated to the US, first to New York, and finally settled in California, where job opportunities for women were more available. In spite of her contributions and her academic and professional lineage, Jansone has remained marginalized.
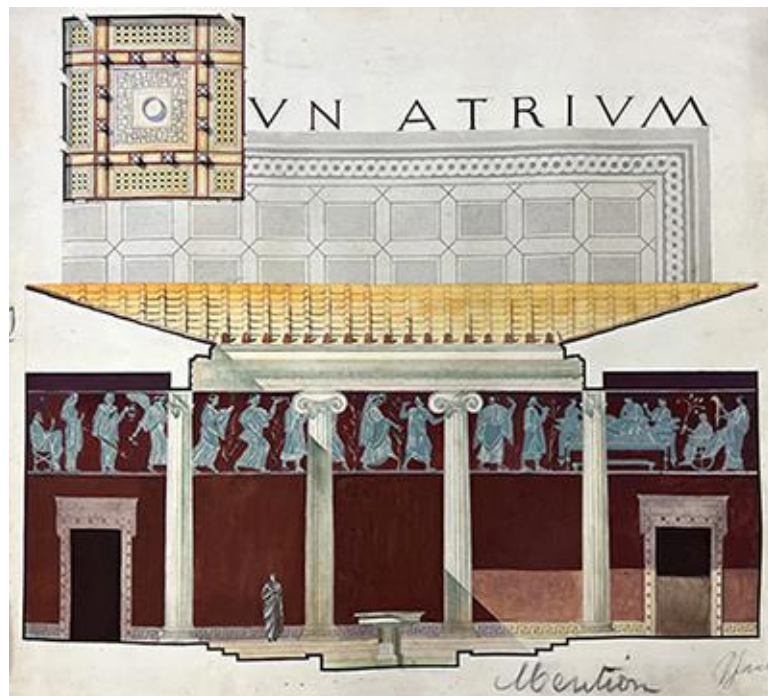
Figure 5. Watercolor section drawing (1940s) by Vera Jansone

Her collection consists of 89 drawings documenting her career as a student at École des Beaux-Arts, in Paris –during the early stages of her education-- and as a professional architect in California – where she practiced last.[32] The existing material frames the glaring gap in her collection between those periods and raises questions as to the possible reasons for the absence. A productive absence that, like in the histories of Loos and Jane Franklin, can propel investigation forward.
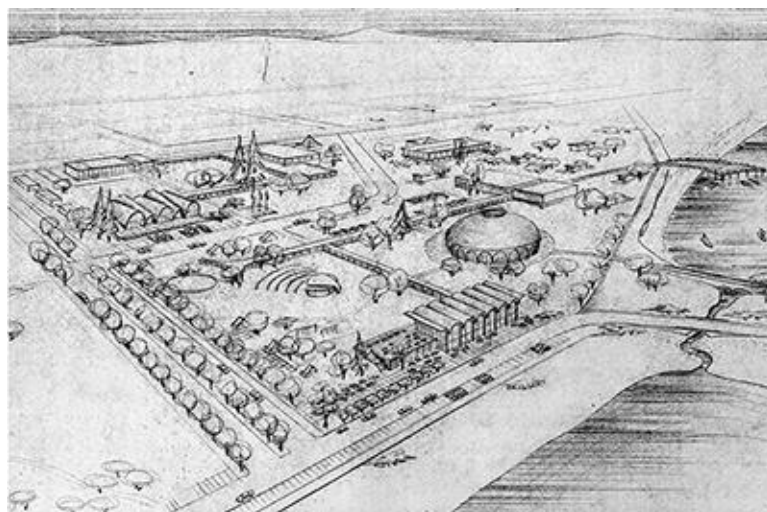

Figure 6. Perspective for Crescent Beach Recreation Center (1964) by Vera Jansone

FINDING AND PRESERVING

The IAWA's mission is simple, yet finding and gathering the work of 'invisible' women to be preserved is evermore challenging. The collections focus mainly on women born in the nineteenth and twentieth centuries, whose work is mostly pre-digital — handmade — and, as one-of-a-kind artifacts, risk being easily lost to history without trace. Around the world there are flat files in offices, tubes and

boxes in attics, inside closets, in storage units, and under beds holding professional papers of women whose names are known only to their families and personal circles, which quietly await to be uncovered and included. Given enough time to reflect, every person will remember a woman— in their family, neighborhood, or context — that has practiced or contributed in some form to the built environment. Therefore, every individual can act as a bridge, and is encouraged please to do so. Whether in the IAWA or in any other invested institution, it is imperative to preserve the work.

INITIATIVES REACHING OUT

A deep learning and emotional experience occurs when holding a unique, original artifact with traces of its author. Unfortunately, this irreplaceable experience is only available to archive visitors and, while profoundly impactful, leaves too small an outreach footprint when compared to the scale of the archive's mission. The IAWA Center's multiple initiatives strive to make the archive known as a beacon and safe repository of original material while incentivizing researchers to draw out the history held in it. Digitizing the collections, although arguably diminishing some of the material's qualities, has been pivotal in this regard. While slow and laborious, the digitizing process has widely extended the IAWA's reach by allowing multiple publicizing formats.

Some initiatives promote the writing of history --like the Milka Bliznakov Research Prize[33] for research conducted in the IAWA collections, or the IAWA Kristine Fallon Prize[34] for publication-ready manuscripts highlighting women practicing in large corporations in the twentieth century-- while others focus on collection and/or dissemination --like the IAWA Instagram feed,[35] IAWA annual international symposia,[36] exhibits, presentations, and oral histories, among others.

Concentrating on broadcasting the IAWA globally, for example, the Instagram feed, *iawa_vt,* digitally publishes the treasures of the IAWA to educate the general public, to attract researchers, but also to reach women in architecture (or their relatives) who may consider bequeathing their materials. Beyond displaying artifacts, the weekly posts share personal bios and close-ups of selected material revealing intangible knowledge within individual practices and their particular circumstances. As a totality, the growing visual archive exposes a range of practices, know-hows, roles, and obstacles women across the globe have navigated through, contributing to architecture's heritage. The challenge remains reaching the generations that do not have a digital presence. As the social network following *iawa_vt* continues to expand, the probability of reaching them may increase.
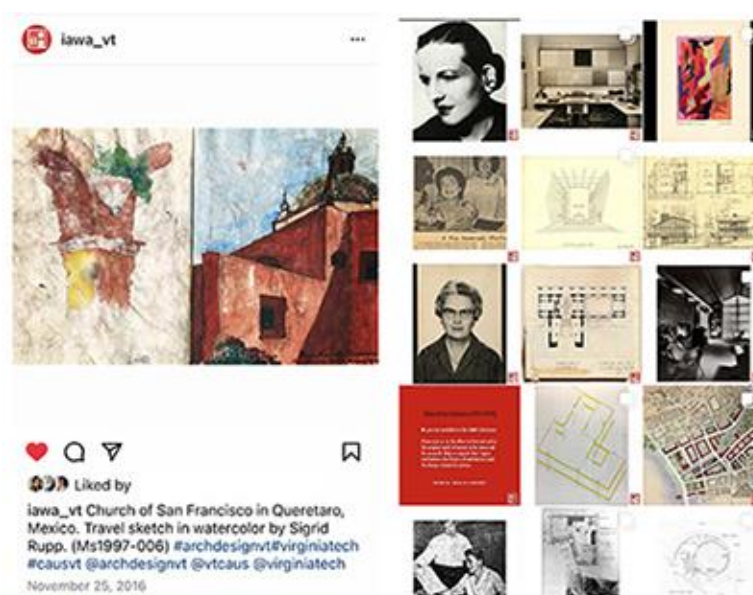

Figure 7. Instagram feed samples (iawa_vt)

Exhibits are another proven disseminating strategy. The digital exhibits, *30x30*, and *30x30: Expanding the Legacy,* for example, showcase work, map the collections, and offer insights into the lives of its authors, like traditional exhibits would. However, they are unique in their scale, producing an immersive, changing, luminous environment in which visitors are provided architectural and spatial experiences of the women's work, rather than solely didactic ones.

Figure 8. Immersive exhibit, 30x30

The multimedia scripting software[37] employed for *30x30* enables the customization of the show offering the ability to generate multiple exhibits with the uploaded material, as well as introducing randomness in their sequencing. These initiatives carry their particular set of trials mostly related to software, hardware and their built-in obsolescence. Sizable resources are necessary to ride the steep learning curve that sets these initiatives in motion, and sustain them through time in an academic environment. Yet, they have been reportedly impactful and moving; creating, with the enveloping soundtrack and slow pace of projection, a reflective space of awareness and inspired activism.[38]

Figure 9. Architectural experience, 30x30

Among the collecting initiatives, the *Oral Histories Project* seeks to gather and record qualitative and nuanced forms of knowledge from conversations with the women in architecture, or with their "friends, clients, and colleagues," not unlike Loos' historians did. The project proposes inviting the women to the archive and, while revisiting their personal collection, record the memories triggered by their projects and the contexts in which they were created -- all valuable information that cannot be gleaned from studying the artifacts alone. In spite of the technical exigencies of performing and

editing video interviews, the difficulty for this project lies in its logistics. The full-scale pilot for it, for example, was stalled by the onset of the Covid pandemic. It is uncertain if the pilot architect will be able to visit in the near future as her age advances, an important factor that adds to the complexities of funding and hosting such a project. However, the wealth of intangible information communicated through the spontaneous facial expressions and the tone and cadence of the human voice can only be captured in the immediacy of a recorded, unscripted conversation.
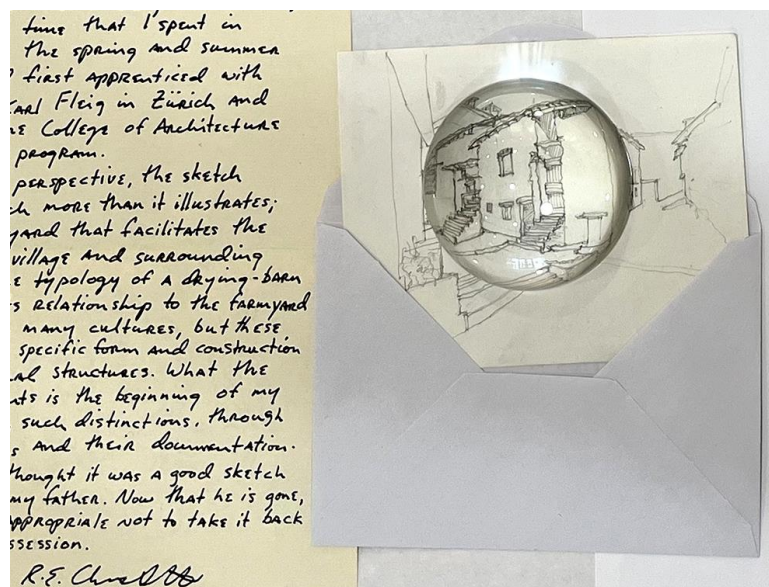

Figure 10. Submittal for 1x1 Initiative, by German architect Rebecca Chestnutt

The ongoing initiative *1x1,*[39] is critical in the collecting quest of the IAWA Center, and concentrates on the initial step of identifying women. Launched in 2019, *1x1* aims to collect just one flat original item (not a copy), authored by every woman in design and architecture around the world, past and present — an item that captures a breakthrough in her education or practice. The submittal is accompanied by the CV of the author and a handwritten narrative explaining the relevance of the donated piece.[40] The CV is essential, as seen in Weström's case, for it defines the scope of her practice, influences, impact, and associations. The brief handwritten narrative, on the other hand, is an invaluable treasure that captures the inner voice of the individual while bringing specificity to the work. Not unlike the *Oral Histories Project*, the handwritten text reunites the work with its maker providing a more complete understanding of both, yet in crafting the handwritten text the information distilled is of a different nature than that of the interview's spontaneous flow.

The critical obstacle for *1x1,* as for the IAWA in general, is reaching women that have no digital presence; a hindrance that can only be surmounted with the help of an activated broader network. It is with this brief submittal that an individual collection is established in the IAWA for every woman whose work is collected and, with it, ensure her place in history is recorded. In addition, all submittals are simultaneously entered into the *1x1 Collection.* Resonating with Jane Franklin's *Book of Ages,* the book that she created to keep record of the growing family tree, the *1x1 Collection* will record and materialize the developing network built by individual women — one by one — an emergent map of the unrealized history waiting to be written.

NOTES

[1] Helaine Silverman and D. Fairchild Ruggles, "Cultural Heritage and Human Rights," in *Cultural Heritage and Human Rights,* eds. Helaine Silverman and D. Fairchild Ruggles (New York: Springer, 2007), 3. Accessed July 1, 2022, https://doi-org.ezproxy.lib.vt.edu/10.1007/978-0-387-71313-7_1

[2] IAWA guide to Milka T. Bliznakov Papers and Architectural Drawings 1946-2010, accessed July 1, 2022, https://ead.lib.virginia.edu/vivaxtf/view?docId=oai/lib.vt.edu/repositories/2/resources/1835.oai_ead.xml

[3] UNESCO, "The 2003 Convention," in *Kit of The Convention for the Safeguarding of the Intangible Cultural Heritage* (UNESCO, 2011), 4. https://ich.unesco.org/doc/src/01852-EN.pdf

[4] Paola Zellner, "Expanding the Legacy," in *The Routledge Companion to Women in Architecture,* ed. Anna Sokolina (Abingdon: Routledge, 2021), 329-31.

[5] The International Archive of Women in Architecture (IAWA), accessed July 1, 2022,
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[6] Dörte Kuhlmann, *Gender Studies in Architecture: Space, Power and Difference* (New York: Routledge, 2013), 201.

[7] Jorge Luis Borges, "On Exactitude in Science," in *Collected Fictions*, trans. Andrew Hurley (New York, New York, U.S.A.: Viking, 1998), 325.

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[9] Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge, Mass.: MIT Press, 1994), 3.

[10] Colomina, 3.

[11] Colomina, 3.

[12] Jill Lepore and Cairns Collection of American Women Writers, *Book of Ages: The Life and Opinions of Jane Franklin* (New York: Alfred A. Knopf, 2013).

[13] Published in *The Literary Magazine and American Register,* vol.5, no. 29 (February 1806), 32-6.

[14] Jill Lepore, "Just the Facts, Ma'am. Fake memoirs, factual fictions, and the history of history," New Yorker*,* March 17, 2008. Accessed July 1, 2022, https://www.newyorker.com/magazine/2008/03/24/just-the-facts-maam.

[15] Lepore, *Book of Ages*, 242.

[16] Excerpt from the template letter authored by Milka T. Bliznakov broadcasting the creation of the archive and inviting women to donate their personal and professional papers to the IAWA. (IAWA Records, Ms1985-021, Box 3, Folder entitled "Collection Development—Mailings—Typical Letter, English 1985." Special Collections, Virginia Polytechnic Institute and State University, Blacksburg, Va.)

[17] A guide to the Han Schroder Collection, 1914-1992, accessed July 1, 2022,
 https://ead.lib.virginia.edu/vivaxtf/view?docId=vt/viblbv01284.xml

[18] Sketch of open living space, dated 1937. (Han Schroeder Architectural Collection, Ms1987-064, Box 5, Folder 36, Special Collections and University Archives, Virginia Tech, Blacksburg, Va.)

[19] Kuhlmann, *Gender Studies in Architecture,* 26-7.

[20] Alice T. Friedman, *Women and the Making of the Modern House: A Social and Architectural History* (New York: Abrams, 1998), 74.

[21] Friedman, 81.

[22] Black and white photograph of the open living space in the Schröder House, ca. 1925-6 (Han Schroeder Architectural Collection, Ms1987-064, Box 10, Folder 1, Special Collections and University Archives, Virginia Tech, Blacksburg, Va.)

[23] Rixt Hoekstra, "Regarding De Stijl Through a Gender Perspective, The Life and Work of Han Schröder," in *The Routledge Companion to Women in Architecture,* ed. Anna Sokolina (Abingdon: Routledge, 2021), 145-6.

[24] Friedman, *Women and the Making of the Modern House,* 81.

[25] A guide to the Hilde Weström Collection, 1952-2000, accessed July 1, 2022,
 https://ead.lib.virginia.edu/vivaxtf/view?docId=vt/viblbv00140.xml

[26] Hilde Weström Architectural Collection, Ms1987-061, Box 1, Folder 3, Special Collections and University Archives, Virginia Tech, Blacksburg, VA.

[27] Hilde Weström Architectural Collection, Ms1987-061, Box 1, Folder 10, Special Collections and University Archives, Virginia Tech, Blacksburg, VA.

[28] History of *Interbau 1957* and the "The City of Tomorrow," accessed July 1, 2022,
https://hansaviertel.berlin/en/interbau-1957/die-stadt-von-morgen/

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[30] Translated from her CV: "1971 (166) - Staatsbibliothek (Stabi) Collaboration at the Ibero-American Institute, honorary contract with Prof. Hans Scharoun, later employed in the construction management Garski for the further processing of the implementation plans."

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https://ead.lib.virginia.edu/vivaxtf/view?docId=vt/viblbv00082.xml

[32] Watercolor section drawing ca.1940s produced while a student in Atelier Labro, (Vera Jansone Drawings, ca. 1940s, 1961-75, Ms2001-026, Box 1, Special Collections, Virginia Polytechnic Institute and State University, Blacksburg, Va.), and a perspective dated 1964 produced as a practicing architect in California. (Vera Jansone Drawings, ca. 1940s, 1961-75, Ms2001-026, Oversize Folder 2, Special Collections, Virginia Polytechnic Institute and State University, Blacksburg, Va.)

[33] "Milka Bliznakov Research Prize," The International Archive of Women in Architecture (IAWA) Center, accessed July 1, 2022, https://spec.lib.vt.edu/iawa/center/bliznakov.html

[34] "IAWA Kristine Fallon Prize," The International Archive of Women in Architecture (IAWA) Center, accessed July 1, 2022, https://spec.lib.vt.edu/assets/documents/iawa/2021FallonPrize.pdf

[35] Launched in 2016 under "iawa_vt," The International Archive of Women in Architecture (IAWA) Center, accessed July 1, 2022, https://www.instagram.com/iawa_vt/

[36] Information about them can be found on the Instagram feed (iawa_vt) and the IAWA Center's website, accessed July 1, 2022, https://iawacenter.caus.vt.edu/

[37] Max developed by Cycling'74

[38] Zellner, "Expanding the Legacy," 336-38.

[39] "1x1 Initiative," The International Archive of Women in Architecture (IAWA) Center, accessed July 1, 2022, https://iawacenter.caus.vt.edu/1x1-initiative/

[40] Paola Zellner Bassett. "La Periferia de la Historia Arquitectónica," VAD. Veredes, Arquitectura y Divulgación, no. 7 (2022):130-132.
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DIGITAL STORYTELLING FORMATS FOR THE COMMUNICATION OF INTANGIBLE CULTURAL HERITAGE IN RURAL AND MARGINAL TERRITORIES: THE CASE OF THE "QUATTRO PROVINCE" AREA

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INTRODUCTION

Despite most people's perception of urban reality, cities occupy only about two percent of the landmass. All the remainder is thus comprised of rural areas, countryside, forests, or wilderness. Nevertheless, trends indicate a steady increase in concentration toward cities, with estimates suggesting that 68% of the world's population will live in large cities by 2050[1]. Rural realities, on the contrary, are destined to an ever-increasing abandonment process, facilitated partly by technological and agricultural developments that threaten the role of suburban areas within the global economic system.

The situation of the Italian territory, which is the focus of this research, is significant in this regard. Inner areas cover 54% of the national surface area, and two-thirds of Italian municipalities are classifiable as 'small municipalities'. However, such depopulation issues are still highly pronounced and are by no means new issues for internal areas. Since the second half of the 20th century, a significant portion of inland areas has undergone a process of marginalization that has manifested through very intense de-anthropization phenomena such as the reduction of the population below critical thresholds, demographic aging, and significant decreases in employment.

Ultimately, the severity of this process has also been evident in the gradual decline in the supply of those public, private and collective services that define the quality of citizenship. Today, with the extreme expansion of the center-periphery paradigm, every territory outside metropolitan cities is rapidly declining, leading struggling areas toward almost unavoidable demise. Although many of Italy's residents live in these remote territories (more than a quarter), issues regarding the development of these areas oscillate between political disinterest and temporary, non-systemic solutions that fail to address the underlying concerns.

Rural territories as collective heritage

From the point of view of cultural heritage, and especially from a conception of collective territorial heritage, it is remarkable to think that, as far as productive peculiarities are concerned, small municipalities are the center of the kind of cultural heritage famously expressed by typical products: in the case of Italy's 290 certified territorial typical products, 273 are, in fact, linked to the identity of small municipalities.[2]

In Italy, one of the first acknowledgments of this kind of heritage emerged in the early 1960s[3] when, in the context of a discussion on urban expansion, a nationwide debate related to the heritage of Italian suburban territories was included, with the aim of recognizing a wide range of anthropic and natural resources that make up an extensive system of historical-artistic centers within the national context.

From this point of view, the territory does not represent a closed entity. On the contrary, it combines physical spaces with their relational and social dimensions,[4] determined both by human presence on the territory and by lifestyles in today's society.[5] Viewed as a space capable of hosting and collecting skills, knowledge, culture, material goods, and historical and environmental heritage, the territory has the potential to become a vehicle of knowledge capable of creating innovation at the local level. An engine that can provide the infrastructure necessary for facilitating the flow of ideas and related creative processes.[6]

Intangible assets for marginal territories

In this context, territorial traditions constitute in every respect a heritage closely intertwined with the environmental and historical context in which they arise and are transmitted. They represent concrete symbolic objects and expressions that embody and transmit meanings in various tangible and intangible forms; they are a "shared significance embodied in form. […] a socially meaningful expression that is audible, visible, or tangible or that can be articulated. [they] tell a story, and that story may be sung, told, set in stone, enacted, or painted on the body".[7] In this context, the greatest threat to folk traditions, even those that have stood the test of time, is the loss of their forms of meaning.

Even when recorded through modern documentation techniques, visual documentation of cultural and traditional expressions is not always enough to ensure the communication of those connotative traits typical of every folk tradition. The essence of culture is difficult to convey only through video or photographic recordings, and tools can only help to give an idea of the atmosphere and context in which a particular song or dance is immersed. These considerations seem at odds with the intent of documenting and narrating traditional heritage in order to make it known to other interested people who are geographically distant: does it make sense to document what, by its nature, is intangible and lives only in terms of experiences?

METHODS

Building on the analysis of the evidence and speculations expressed in the previous sections, the need for a revitalization of fragile territories emerges with the objective of allowing them to adapt to the unstoppable technological progress while still being able to preserve their identities. This is the context in which this research is positioned: the goal is to use the tools of Communication Design to connect the features and benefits of interactive digital media with the need for a greater awareness of marginal and fragile realities, with the aim to overcome the barriers imposed by physical proximity. Greater awareness and consequently a more appropriate representation of those suburban areas that, despite presenting a rich and varied cultural heritage, are often overlooked when considering the social and economic system of the national territory.

In this scenario, the design work has been effectively directed toward the exploration of new ways of investigating, by digital means, those territories that are both marginalized and unreachable, not only on a physical level but also because they are distant from the cognitive awareness of the vast majority of citizens. To support this intent, the research focuses on visualization and interaction patterns that, by harnessing digital media, are also able to create an emotional reaction in the reader.

Context of application

In order to develop such experiments in immersive digital storytelling, a very significant though little-known area of application has been selected: the "Quattro Province" area (Four Provinces) is a group of mountains and valleys identified within the first northern section of the Apennines and shared between four provinces of four different regions: Genoa (Liguria), Alessandria (Piedmont), Pavia (Lombardy) and Piacenza (Emilia Romagna). The distinctiveness of these lands, in addition to their particular political arrangement, lies in their cultural homogeneity, as people have lived in somewhat similar ways for hundreds of years. The heart of this unity is evidenced and represented above all by traditional folk music, which as early as the 1970s was described by the first ethnomusicological researchers as "Quattro Province" folk music.

From a historiographical point of view, due to the scarcity of documentation regarding typical everyday objects, the object of the study belongs not so much to the main historical narratives but is rather more adequately described by the approach proposed by "microhistory",[8] i.e., the branch of social history focused on the value of regional or local cultures, closely associated with social and cultural history.[9] Accounts of everyday situations and anecdotes hidden deep in people's memories have contributed largely to the writing of research on folk music. While most records are limited to oral recollections of a few specific musicians, tales that can be dated back to the early nineteenth century are still handed down by the few remaining village elders.

RESULTS

Working with this research framework, the first step in the outreach process was to contact local residents and associations dedicated to the Quattro Province area and its traditional musical heritage. Based on an initial connection with some informed counterparts, it was subsequently possible to establish a dialogue with researchers, musicians, local producers, performers of traditional folk dances, artists and singers who provided information and tales, references and bibliographies. These sources made it possible to identify the critical plot components of the digital narrative and references to historical materials and quotations related to the context of traditional music.

In addition to interviews with the protagonists of the music scene, the historical research relied heavily on the online source "Dove comincia l'Appennino",[10] a collective effort entirely dedicated to the territorial knowledge of the Quattro Province with the aim to collect and disseminate information on music and local cultures. Besides this, bibliographic sources such as the book "Coi nostri strumenti",[11] which delves into the history and personalities involved in the musical traditions of the Quattro Province, and other digital archives, such as "Lombardia Digital Archive"[12] or the "Baghet" website,[13] were also consulted to collect archival materials and visual documentation. As for first-hand knowledge in the field, the fieldwork of exploration and familiarization proved valuable in allowing us to interpret the themes of the narrative through the notions learned from the local experts.

Narrative structure and visual language

Building on these materials, by analyzing the various connections and relationships that exist in the territory, the research focused on designing a digital storytelling format capable of framing both the history of the area and its current perspectives. As a storytelling format, the project was developed exclusively on digital media in order to provide a narrative mode able to exploit visual, audio, and video content in combination with textual commentary able to give them the necessary context for interpretation.

The model, from an editorial point of view, comes from long-form journalism, a digital communication format that, through the interaction between text and rich multimedia content, is able

to build a rich reading experience in which different types of content are effectively conveyed by combining them into a pleasing reading experience.

In terms of the expressive concept, the reading experience replicates a kind of "digital attic" where historical materials are imagined as emerging from conceptual dust. In line with this concept, a noisy bichromatic effect applied to the visual content (also instrumental in equalizing the different qualities and hues found among the archival materials), the choice of a contemporary color palette muted by a slightly retro filter, and a mixed typographic selection, have tried to emphasize the dimension of a contemporary reinterpretation of historical contents, which are rediscovered through digital means.

Starting from the aforementioned raw materials and the visual and narrative concept, the design activity later focused on the design of a digital storytelling structure made up of autonomous sections, developed with the explicit aim of expressing the unique kind of content related to the examined territory.

Homepage

The main function of the homepage is to introduce the topic of the narrative. The visual effects applied to the title introduce the themes of discovery and digital "dusting off" of the Quattro Province heritage. The screen shows a short introductory paragraph and a summary where the different sections of the story are listed to introduce the story's themes and structure.
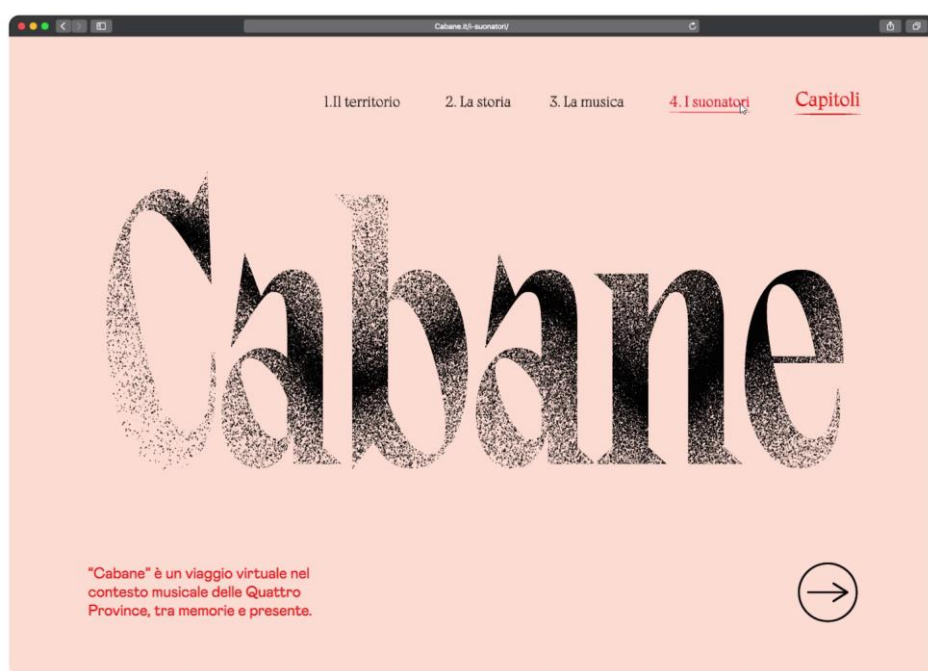

Figure 1. Project Homepage

Territory

The first section marks the actual virtual access to the territory of the Quattro Province: in order to best introduce the research context, the user is shown an illustrated map of the valleys and mountains that compose the region. The purpose of this first screen, and of the section in general, is to be able to provide a closer look at the geographical features and spatial distribution of natural elements.

A button in the upper portion of the map allows the user to view the surrounding environment in two or three dimensions to depict the territory's morphology as accurately as possible. Next, a second screen consisting of a photo gallery shifts the territorial narrative to a more candid look that visually

describes the area. The section ends with an interview with a local, who shares a personal interpretation of the territory.
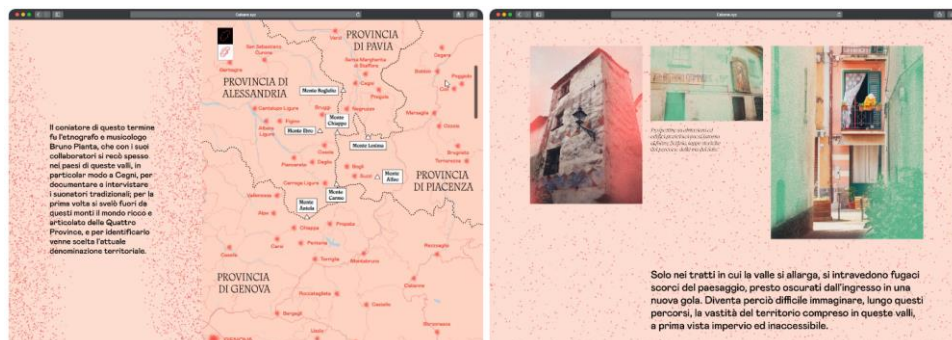

Figure 2. Screenshots from the "territory" section

History

The second section of the project focuses on the most fundamental historical notes related to the Quattro Province area, including the origins of its traditional instruments. For this reason, after the introductory cover page, the user interacts with a map that displays two ancient trade routes overlaid on top of the current territory and some of the main milestones. A chronological narrative then unfolds, consisting of paragraphs of text, dialect quotations, and images that show the most iconic paintings depicting traditional musicians in the area. The purpose of this section is to reveal some of the evidence that can be useful in understanding how deeply rooted these folk traditions are in the cultural milieu of the area.
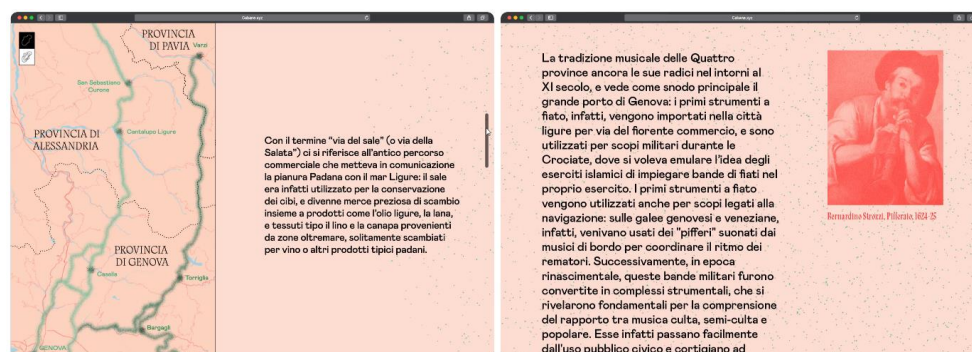

Figure 3. Screenshots from the "history" section

Instruments

The third section is focused on traditional musical instruments. While opening with an introductory cover, the section then follows with a summary of the instrument's history, consisting of text, two-color photographs, and local quotations. The intention is to offer the best possible presentation of fife, muse, and accordion to provide the reader with the relevant artisanal context.

On a second screen, technical sheets built around faithful illustrations of the instruments and complemented by in-depth explanations related to the musical instruments' different parts are introduced with the aim to describe the instrument and honor the local craftsmanship.
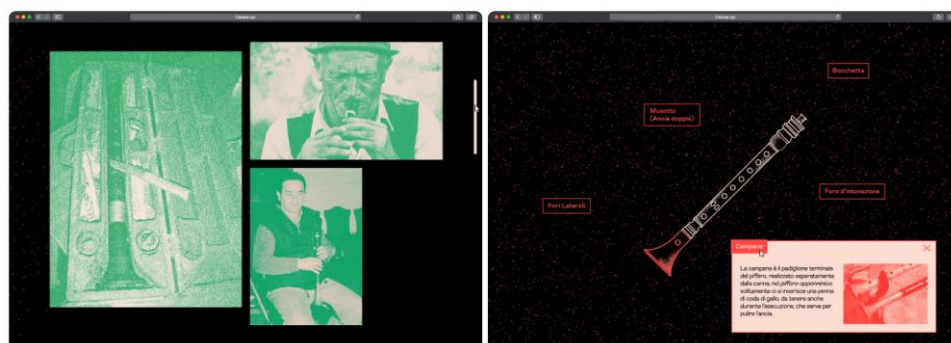
Figure 4. Screenshots from the "instruments" section

Players

In the fourth and final section, the subject of the narrative shifts to the local protagonists, namely the folk musicians. They represent the connection that still persists today between the different valleys of the Quattro Province, bound together by the melodies of village festivals. Specifically, the section consists of two different timelines, relating to historical musicians (who lived at the turn of the 19th and 20th centuries) and modern musicians (born in the second half of the 20th century). Beyond presenting the time sequence of events, these timelines are also meant to acknowledge the most significant individuals who have shaped the history of local traditional music.

Figure 5. Screenshots from the "players" section

CONCLUSION

This research stems from the desire to experiment with a digital format capable of responding to the need for a more substantial and widespread awareness of those marginalized contexts that, despite presenting a rich and varied cultural heritage, often remain forgotten in studies related to social and economic systems.

From a content standpoint, due to the richness of the territory and to the limited freedom of movement allowed during the research period (corresponding with the Covid19 pandemic), the cultural and musical heritage taken into consideration during the research does not cover the entire traditional knowledge of the Quattro Province. In fact, this research provides a first prototype, to be further expanded, focused mainly on the provinces of Alessandria and Pavia, which were more easily accessible and presented stronger connections with the local community.

Also due to the epidemic, it was not possible to document the actual venues for traditional music, namely folk festivals and fairs, which were postponed due to travel restrictions. The project, built on previous experiences with interactive long-form storytelling, experiments with formats for describing intangible cultural assets related to fragile territories and minor histories, which are often neglected

and rarely find adequate ways to express their potential. Rich storytelling formats can help convey the complex nature of cultural territories and intangible heritages, and the prototype designed for the Quattro Provincie area can be used in different contexts characterized by similar types of contents and materials. The narrative structure, based on the use of modules with varying roles in the overall narrative, can be expanded to include different types of content and experiences, depending on the specific needs of the context to be described.

NOTES

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MAPPING MEMORY: AN EXPLORATION OF SENSORIAL ARCHIVING

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INTRODUCTION

Before Google Maps, there was Apple Maps. Before there was 1978 Aspen Movie Map by MIT and then Mapquest. Before there was the Thomas Guide. Before, there were traditional wayfinding using landmarks and signage.

The layering of information upon mapping our built environment has shown an increasing need of the reinsertion of additional senses and detail. Before the age of global positioning systems, society navigated our position through wayfinding, asking around, landmarks and references, etc.

The basic process of wayfinding involves four stages: orientation, route decision, route monitoring and route recognition.[1] However, maps are not the territory.[2] Mapping is a more complex exercise that involves not only a recognition of the multiplicities of the present, but also a very specific interpretation, a critical approach that claims a position and assigned value linked to the former. Take for example the Seven Sisters Indoor Market in London, a highly contested place where the proposal for developer condos is to demolish and replace the market, overlooking its socio-cultural heritage as an important immigrant community centre. How can then mapping multiple on-site layers of somewhere render visible the value that is not immediately visible?

How can we redefine and reincorporate our senses within the context of wayfinding? Combining GPS along with traditional methods, the archiving of the built environment is no longer only used for position, but for future positioning, planning and even reminiscing.

With the Covid pandemic still ongoing, we have observed our built environment change from bustling city centres and markets to empty spaces collecting trash; from multiple social agglomerations to a notorious social phobia. In addition, also repurposing space to adapt to new obstacles presented by the virus. What this represents is not only the present, but the trajectory of where our neighbourhoods are heading next.

Building off of our past workshop for the Anti-University 2020 "Remembering Smell: A Sensorial Landscape of Your Practice" and the research project "Mapping Microcosms: value and contestation at the SSIM" in London, UK, we invited participants during the latest workshop held in May in collaboration with NYCOBA NOMA to document the urban environment or territories with not only wayfinding, ethnographic research or architectural representation techniques, but also through smell, hearing, touch, taste and sight.

The value in this documentation is that by starting with analog methodologies, we can start to fuse natural processes with digital mapping to strengthen and enhance the utilisation of our senses. What

this data can potentially reveal is a multiplicity of information layers that can manifest ways in which architects, urbanists and policy makers can analyse the rapid changes that are taking place in our immediate contexts, in areas that are both for the better and the worse.

MAPPING AND MEMORY

What this process aims to overlay on mapping is memory, and in order to understand what that memory is, is through the senses and interpretation of those experiencing an environment.

A Brief History of Mapping

If the first maps have been traced back to more than 5,000 years ago, their aims haven't changed much since then. They still "record the location of places of interest" and act as a pedagogical learning tool to apprehend a given geography.[3] As a retranscription of reality, a map gathers a wide range of spatial information, two-dimensionally depicted onto a paper or digital support.[4] While maps were, even in their early days, a navigation tool, the frontier between art and the science of cartography was nonetheless porous. The depiction of reality was refined and altered with the geographer's perspective and modelled through his impressions. "For example, features in the centre of the map would be shown in great detail, but features closer to the map's edges were much more basic".[5] Rather than a lost interest, the choice of detailing some parts more than others could equal today's zoom button and in some way lays the emphasis on what had left a greater mark in the cartographer's mind or the brief that was handed to him.[6]

Maps have transcended their inaugural purpose and have also become an important both research and analysis methodology for various fields. For example, the anthropologist and researcher Alex Rhys-Taylor explored concepts such as gentrification, class antagonism, new ethnicities and globalisation. His work focuses on the multisensory experience of urban space, the new forms of association and exclusion mediated through it. He shows how London is characterised by its rich history of socioeconomic change and multi-culture, exploring through sensory analysis of food, taste, and disgust as integral to understanding both its history and the reality of London's urban present. That approach through the relationships between our multisensorial experiences, to uncover parts of their history and reality, is a crucial input to this fieldwork, assisting in ways of comprehending the role of cities in disrupting and transforming territories. On another hand, Jane Rendell's site-writing becomes relevant, in which the boundary between subjects and objects is porous, and "arguments are not only made directly, but indirectly through association and implication".[7]

What we want to question through this paper is the qualitative and somewhat emotional data that rational mapping doesn't succeed in conveying, as well as how different layers of information provide added value to insight research.

Memories, Senses and Space : The Inextricable Formation of an Experience

"You have to experience a city through your senses. Looking, seeing, smelling, touching, walking, reading, and imagining to understand its totality."[8]

In his latest book, Metropolis: A History of the City, Humankind's Greatest Invention, the historian Ben Wilson explores many cities worldwide and throughout history. He employs the image of a "connective tissue binding the organism together", and just like that he takes the reader from the flat image of an assembly of dwellings to something not only granular but most of all, alive. Nourished by its inhabitants, the city exhales sensations, which are then experienced by its people and inversely. In that sense, many researchers are looking into mapping the urban area as a peculiar exercise. As if the streets, buildings, monuments are not sufficient to navigate the city. Moving away from a two-dimensional mapping activity, Dr. Kate McLean, research interests fall into "smellscape mappings",[9]

and explore "how social performative mapping might contribute to communication of non-visual sensory olfactory information". By focusing on the human olfactory perception, Dr. McLean interrogates how these senses contribute to our understanding of the world around us, and how we can capture this ephemeral information by essence and use it as a way to visualise the human experience of a city, notably, and of an area, in general. In her specific project "*Carte des Odeurs: Lausanne, Suisse*", Dr. Kate McLean has shown that three entities enter in symbiosis : urban smells, memories, and the experience of the present moment. In that sense, walking the city with your olfactory senses awakened will "summon memories that are not always related to the experience of the present moment".

Visualising the human experience would lead us to understand better what memories are recorded by and into these experiences. *What if we were all to write our personal biographies? What would count? What would we like to record? Consider all the places one has visited, all the streets one has walked by, all the things the person has read, written or told.*[10] But also all the familiar smells, all the meals he/she has tasted, all cultures one has discovered through recipes and herbs, everything the person has ever felt, experienced and sensed. As Priya Basil puts it in Be my Guest, Reflections on Food, Community, and the Meaning of Generosity, ''You are distinguished simply by being you - with your own particular constellation of knowledge and experience, your own sensitivities, limitations and oddities''. [11]

Scientifically speaking, ''Memories are not stored in a single location in the brain. Instead, the sensory components of a memory—sight, smell, sound, etc.—are distributed to different areas of the brain, and the act of remembering occurs as the brain pieces those bits back together".[12] Harvard Health Publishing continues with, ''In many ways, our memories shape who we are. They make up our internal biographies—the stories we tell ourselves about what we've done with our lives. They tell us who we're connected to, who we've touched during our lives, and who has touched us. In short, our memories are crucial to the essence of who we are as human beings''. Harvard Health Publishing - Harvard Medical School.[13]

MAPPING THROUGH SENSES: CONNECTION TO A PLACE
Distillation of an Experience
How do we take the experience of a set of people and extract applicable data? Taking the fluid concept of memory and shaping it into an archive of defined artefacts must first be looked at through a focused lens; one of distillation. To accomplish this, a process was formed using a series of experiences overlayed with a series of actions.
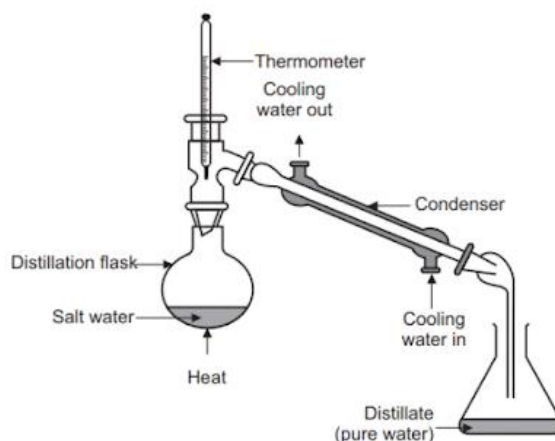

Figure 1. The distillation process

The Workshop

The workshop began with the introduction of a worksheet and consisted of four steps that revolved around the experience of an environment. Because of practical constraints, the environment was experienced digitally with sound. The workshop was open to both remote and live participants. Step one was a brainstorming of words in order to allow the participant to think freely without constraint. Step two was then a narrowing and refining of those words into senses, in which the participant put into context taste, touch, sound, smell, and sight. Using a radar chart, the five words were then "ranked" from a scale of 1-10. Step three then asked to further refine the five words from step two to the one word that best describes the experience. Step four, then asked the participant to use the back of the page to sketch their own experience of the space. This process was repeated three times. One for each scene.

Figure 2. Worksheet provided to participants

RESULTS

After the four steps, the three environments were revealed to be Alexanderplatz in Berlin, Germany; Tsukiji Fish Market in Tokyo, Japan, and Sierra Nor-oriente in Puebla Mexico.

Video #1: Alexanderplatz, Berlin, Germany

In looking at the radar chart, sight shows that it proved to be the strongest sense in the scene, followed by touch and sound, then taste and smell. We visualised the words participants' used as they wrote their first impressions while watching the videos. You can see the one word participant's chose, and in bold those that were repeated. In reviewing, we were looking for the amount of words that came to participant's minds, repetition, diversity in our way of describing perception, and also points of shared interpretations. In reviewing the sketches of the large public square and transport hub in the Mitte District in Berlin, most participants focused on the Euclidean geometry of the buildings. The similarities between the participants showed a commonality of the grid. Other elements included were the people; while most focused on multiple people, one participant chose to represent each element as a singular concept. Another recurring element was the world clock, which is also known as the Urania World Clock. The observation of remembering this element being a recurring feature reinforces the impact of landmarks on a space.
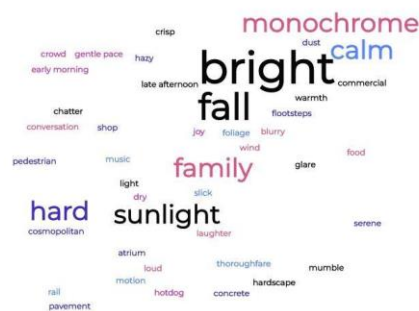
Figure 3.Graphic representation of all words chosen from Video #1

Video #2: Tsukiji Fish Market, Tokyo, Japan

Sight, sound, and smell seemed to be much higher in this scene, with taste and touch seeming to have less of an impact. However, both taste and touch seemed to have a bit more of an impact. In this case, shared perception was more predominant. **"Fishy"** and "wet" appeared all throughout the participant's results. Smell was also visually triggered. In reviewing the sketches of the scene, most participants focused on the clutterings of booths, signage, fish and people throughout the market. While some chose to focus on individual elements, the layering of the many elements seemed to be a commonality between the sketches. While many recurring elements were more obvious, there were a few abstract representations that seemed to resemble a rhythm of some sort, similar to a heart beat wave. Another sketch chose to show how the different elements come together to form an amorphous shape. The Tsukiji fish market was the largest wholesale fish and seafood market in the world. It was closed in 2018 as it moved operations to the new Toyosu Market.
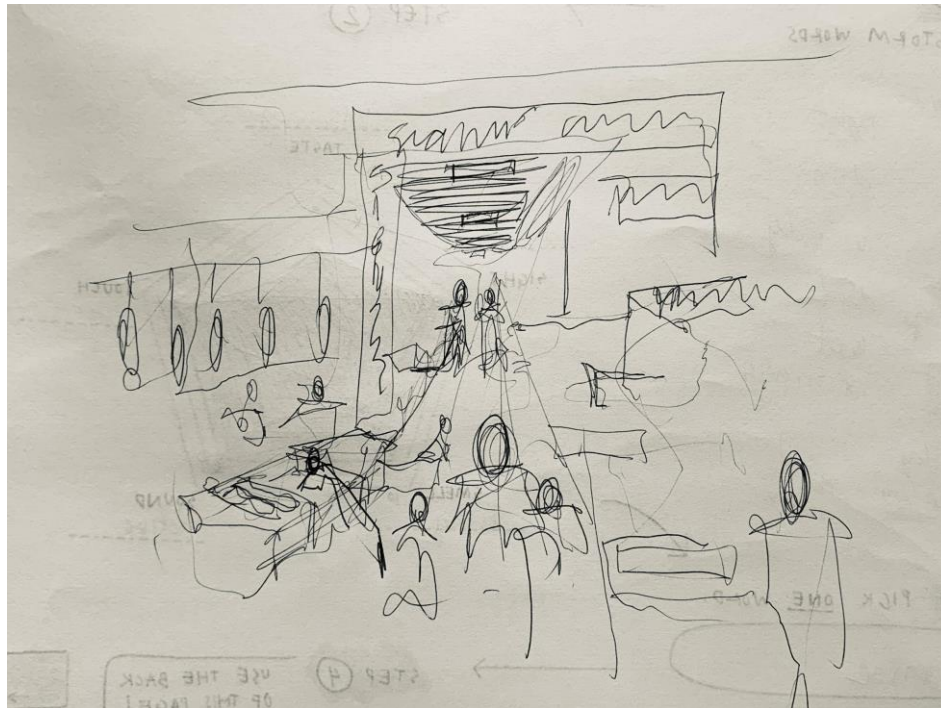
Figure 4. A participant's sketch in reaction to Video #2

Video #3: North-east mountain range, Puebla, Mexico

While sight seemed to have the highest impact, sound, smell, and touch were at a similar level. In all the used words we see that adjectives are not necessarily predominant in descriptions, but nouns. Recurring elements referring to the sensation generated by this space and nature, predominantly through sight and sound of air and leaves, but transporting to more introspective. In reviewing the sketches from the scene of Puebla's Sierra Nororiente in Mexico, participants chose to focus on shapes of the landscape, the trees, and the horizon line. This scene differed a bit in that there were no people in the scene. One participant chose to represent a single individual in the scene, standing upon the mountain. The more abstract sketches chose to show the perspective from a view from outer space, putting the perspective further out from the scene itself, and another drew what looked to be a plan view, with topography lines. The Sierra Norte de Puebla is a rugged mountainous region accounting for the northern third of the state of Puebla, Mexico. It is at the intersection of the Trans-Mexican Volcanic Belt and the Sierra Madre Oriental, between the Mexican Plateau and the Gulf of Mexico coast.

Figure 5. Overlay of mean radar charts from Videos #1 (blue), 2 (red), and 3 (green)

ANALYSIS

What do the results say about the elements of memory and their relationship to the senses?

In diving into specific comparisons, one could say that when it comes to word choice, "bright", "fishy", and "breeze" were chosen as the most relevant words corresponding to the scenes. With "bright", describing sight, "fishy" describing a smell, and "breeze" describing touch and sound, the three different scenes were translated to language in differing ways. In comparing the radar charts, one could say that the way one perceives a place has differing concentrations on the senses. When comparing this variation, it's apparent that smell and sound had the greatest variation, with sight holding the highest "rated" sense from all three.

In relating this to the last step from the participants, it seems that the type of experience that one translates to a sketch translates differently based on the type of scene. In the plaza scene architecture, landmarks, the intersection of elements plays a much larger role, while in the fish market the layering of elements is what drove the direction of the sketches the most. The most consistent across participant sketches seemed to result from the last scene in the mountains, with the shape of the range appearing in most of the sketches. It also seemed to produce the most unique; with some sketches changing the perspective of the experience. What causes this uniqueness? Could it possibly be a result of introspection as it was there only scene with no other people present in the scene?

POSSIBLE APPLICATION AND CONCLUSION.

Asking these questions in comparing the results leads to a larger discussion on understanding or memory of an environment. While this is only the start of a research project looking into gathering data at a larger scale, the initial workshop brings into mind some questions: how can mapping sensorial information influence/complement the shared experience of a place? Can designers influence the memory of a place in a controlled way? What is the value of having an archive of both popular and unknown places with this kind of data? How can we make intangible experiences quantitative and qualitative data to inform research and design processes? With these three locations being chosen to be a diverse set of scenes, with stark differences in mood and materiality, what future

insights would be uncovered with a wider range of environments? In revisiting the case studies we mentioned at the beginning of this paper, themes of value, agency, and reinvention come to mind in pursuing this area of research further.

In looking at future applications, we can look to such case studies as smart cities. Smart cities such as Amsterdam, Netherlands and San Francisco, California bring together infrastructure and technology to help better connect citizens to the urban environment. What makes the data so useful is the fact that they can have immediate feedback. The interaction can be broken down into two steps, gathering the data, aggregating that data and using that data for an effective use. Using IOT, the smart technology movement has created a network of objects capable of smart interactions through the internet, which could help daily aspects of life such as traffic flow, energy usage, and safety.

The Netherlands has tested the use of IoT based infrastructure in Amsterdam allowing technology to adjust in real time traffic flow, energy usage, and public safety. LYT (pronounced "light") uses data and machine learning to control traffic lights and increase the flow of traffic. LYT gathers data from GPS systems in cars, trains, and buses, and phones, aggregating them in the cloud creating a real time accurate representation of traffic at any given time.[14]

In American cities such as San Francisco, smart trash cans relay how full each receptacle is to ensure the most efficient pickup route possible. Nordense Inc, manufacturers sensors for trash cans. Not only can the sensors track how much trash is inside a bin, but they can also detect movement, and can analyse that movement to determine whether it is a human reaching in, or a rodent. The next generation of sensors can also detect odour, which if used in the right way can have a healthy sanitation ripple effect across an entire city.[15]

Looking at diverse counter-cartographies and alternative mapping examples across the globe, we can only assure how such exercises are an entry point to planning not from vertical distance, but from a horizontal proximity to space, through lived experience in flesh and bones –individually and collectively.

Yi Fu Tuan's premise on place and body remarks how our bodies are the first territory we can map and relate to positions in space. Placing our own bodies in space is a first critical step into understanding places both as locations and also universal artefacts through the nature of experience. In an era in which we produce more information as ever, from time spent looking at images to the pennies we've spent, from the locations we inhabit to the movements we make, feeding emotions and memory into larger data sets must be taken into account for a multi-layered and more profound understanding of place, meaningfulness and its values.

The subjectivity of the body as a vantage point enables us to critically address questions often neglected in the discourse of architecture, landscape and urban design: Which (mind-)bodies and communities are we building for? Which agencies and responsibilities are we entitled to as space-makers? Which senses do we want to engage with and how? How fast or slow do we want to move?

The Mapping Memory workshop attempts to link Yi Fu Tuan's concept of humanistic geography with the Smart City concepts of real time feedback loops. The workshop uses both of the communication tools of language and sketching to create a distillation of multiple mediums of feedback loops. The case studies discussed here create thoughts of possible applications for mapping locations in unexplored pathways to human awareness.

ACKNOWLEDGEMENTS

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LONG-FORM MULTIMEDIA STORYTELLING FOR THE COMMUNICATION OF SUBCULTURAL HERITAGE: A CASE STUDY FOR A DOCUMENT-BASED PORTRAYAL OF SUBCULTURES AND YOUTH CULTURES

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INTRODUCTION

The idea of subculture inherently assumes that of culture. As with the latter term, there is no agreement on the definition of the former; however, there is widespread consensus on its usefulness as a tool for attempting to understand particular behaviors that take shape within our societies.

Like cultures, subcultures provide belief systems, customs, practices and codes of social interaction, and lifestyles. Compared to the former, however, subcultures stand in an asymmetrical relationship to the dominant culture in which they are included. Subcultures feed on symbolic materials, rules, paradigms and patterns of conduct that originate from the incumbent system and reformulate them into new, more or less deviant configurations, placing themselves in competition or conflict with the hegemonic culture.[1] The degree of autonomy a subculture can achieve with respect to the culture from which it originates is variable, as variable are the factors that contribute to the expansion or reduction in this separation. A subculture may exacerbate the rigidity of the models it receives from the culture, or it may differentiate itself from it to the point of producing opposing patterns, without escaping this relationship of inclusion. Subcultures are a significantly distinct – but not autonomous – sector of extended culture.[2]

Cultural production in subcultures

In this pursuit of distinctiveness of a specific group of social actors with respect to a more complex cultural system, the group defines a set of behaviors, develops styles, and defines relationships with the world capable of distinguishing them and placing them in opposition to the hegemonic system of values. They elaborate customs, practices, artistic expressions and values which become part of the group's identity and the heritage of its members. They develop, in other words, a cultural or rather a *subcultural heritage* that allows for a self-representation of the group and its recognition in the broader context. In this context, cultural production is not a secondary effect of a way of life but an essential mode of expression of the subculture that finds an alternative dimension within the society in which it is located.

The emergence of subculture – whether politically motivated by the condition of oppression of certain subaltern classes, by the emergence of a cultural distance between young workers and the previous generation,[3] or by a temporary collective sharing of tastes and lifestyles[4] – gives rise nevertheless to a

cultural production that appropriates elements of the hegemonic culture, and reinterprets them by subverting their meanings in a manifestation of resistance against the dominant social structure.[5] Mass products, commodities, and fashion are appropriated and consumed in different cultural contexts, thereby re-imagining practices and meanings in opposition to prevalent cultural references.[6]

Subcultural heritage

In recent years, a growing body of research has examined the relationship between the cultural production of so-called subcultures, youth cultures, and alternative cultures and the field of cultural heritage. The topic of graffiti and writing, for example, initially mentioned exclusively in terms of the risk of damage to existing heritage sites, is now more frequently embraced in the context of cultural heritage, recognizing a historical and artistic value to at least *some* of the artworks in *some* of the contexts.[7] Likewise, a substantial body of research examined the relationship between popular music and cultural heritage, aiming to define the field of inquiry[8] and investigate its relations to cultural memory, local identity, and geography.[9]

Nonetheless, the tendency to integrate subcultural production into the context of traditional cultural goods is not without its problems: elements of opposition to the institutionalized culture, such as copyright infringement, anti-commercialism, and anti-conformism, challenge the possibilities of this integration into formal heritage frameworks and introduce elements of complexity concerning the preservation, documentation, and communication of such cultures through the traditional instruments of cultural heritage.[10]

Representing subcultures

In this context of opposition to hegemonic culture, alternative and youth cultures exhibit a complex relationship with mainstream culture. Even in the context of communication processes, the relationship with the dominant culture is multifaceted and gives rise to a multiplicity of forms of representation. Firstly, although mass media and society are inherently critical of cultural movements that find their definition in opposition to the hegemonic culture,[11] this unsympathetic relationship plays a crucial role in determining the existence of a given subculture. It helps to shape its identity and to spread its ideas, styles, and values beyond a strictly local context. Concurrently, subcultures develop their own media that give rise to distinct types of languages and codes. Examples include independent publishing (with particular reference to fanzines), pirate and free radio stations, forums, websites, and social networks.[12] Finally, once a specific subculture is absorbed within mainstream culture, it enters the collective memory as a particular moment in history: it is historicized, critically interpreted, and musealized.[13]

Designing a choral narrative

Because of the conflicting nature of subcultures, it follows that different accounts of subcultures propose conflicting points of view, which tend to highlight different aspects. While mass media tend to present a picture that is often superficial and caricatured, highlighting the most spectacular and sensationalistic elements, on the other hand, media developed by the subculture often propose self-referential and celebratory narratives that are difficult for non-adepts to interpret since they are expressed through subcultures' own language: a vocabulary and aesthetic which, by definition, deviates from the dominant culture. Moreover, while mass media are easily accessible by anyone, subcultural media are accessible almost exclusively by subculture members. They are not promoted to the general public, and their distribution is not widespread, so they are enjoyed almost exclusively by those who frequent subcultural circles.

In this contribution, through the tools of Communication Design, we want to share an experiment in the construction of a storytelling format that aims to knit together the diverse voices that describe and portray subcultures to reconstruct some "histories" of complex subcultures, chronicling their exponents, places, events, and ideas. Presenting the point of view of both mass media and subcultural media, we aim to create a dialogue between irreconcilable perspectives. The objective is to overcome the stereotypes and superficiality that often characterize the former and the self-referentiality typical of the latter in an attempt to give a choral vision of a complex phenomenon. The proposal is thus to create a cultural journey between communication artifacts and historical documents produced by a subculture, recordings, and excerpts from mass media reports of the time, integrating cultural materials produced by the societal context and referencing interviews of some of its exponents. The goal is to seek integrity in the narrative, not so much through the identification of an "official story" gathered through interviews with the protagonists of the cultural movement, who inevitably become the bearers of their own "historicized" interpretation of past events, but, on the contrary, through the juxtaposition of partial and "biased" narratives that can give a polyphonic account of the context and the subculture.

The medium chosen to convey the narrative is the web, which allows for maximum dissemination and accessibility and allows for the integration of different types of artifacts and media, such as images, music, and video.

From the point of view of communication formats, the starting points are *long-form articles* heralded by "slow journalism"[14] and so-called *archival documentaries*, i.e., documentaries constructed through the montage of archival materials, whether footage, photographs, documents, or other visual materials. These communicative types, although belonging to different worlds, share both the stylistic attention and the use of the documents as the backbone of the narrative, creating an immersive experience through the careful use of period images, music, and video.

METHOD

In order to experiment with this type of document-based storytelling, a suitable case study in the area of subcultural heritage was selected, namely, the Pordenone punk scene that developed in Italy beginning in the late 1970s, also known as "The Great Complotto". This artistic movement constitutes one of the first Italian subcultures that, although inspired by British and American punk, developed autonomously and eventually succeeded in establishing one of the few Italian punk subcultures that managed to emancipate itself from a position of geographic marginality. It gave rise to movements that still remain apparent in the Italian independent music scene, whether through musical projects, record labels, or artists.

In addition to the authors' familiarity with the characteristics of this subculture, several factors led to the choice of this subcultural context as a case study: the circumscribed temporal and geographic extent of the subculture; the unexpected relevance in terms of impact (both nationally and internationally) in the context of music and youth cultures; the wealth of documentation available in terms of period sources and materials; and finally the willingness of some historical figures to share clarifying accounts related to the less understood aspects of the period.

From a subcultural point of view, the Pordenone punk scene was born from an aggregation of young people with shared mentalities, tastes, goals, references, and languages who gradually organized themselves into a movement.[15] As with most subcultures, media plays a central role in *The Great Complotto*. Free radios, acting both as a channel of cultural dissemination and as a recruitment platform, play a significant role in the development of the movement: those who join *The Great Complotto* also begin to participate in radio broadcasts run by subculture exponents and become part of the communication system. Likewise, *fanzines* chronicle the state of affairs of young Pordenone

punks through a collage of self-referential and allusive articles describing artistic initiatives, concert reviews, organizational and operational issues, and self-celebration.

Main sources

In telling the story of this subculture with the aim of exposing the different viewpoints that examined it, the matter of source gathering has been a core concern. The research aimed at delineating the history and characteristics of the punk subculture in Pordenone relied mainly on two monographs focused on *The Great Complotto*: "The Great Complotto Pordenone", by Mauro Mazzocut,[16] provides a detailed historical reconstruction of the life of the Pordenone movement by thoroughly describing the cultural and social context in which it was embedded; "The Great complotto. L'antologia definitiva della straordinaria scena punk di Pordenone", by Oderso Rubini,[17] provides a collection of testimonies from members of the main bands that shaped the scene. Starting with these two primary sources, collecting a valuable bibliography of period materials was also possible, going back to articles in music-related magazines such as Frigidaire[18] and Bassa Fedeltà.

In a second step, interviews were conducted with some of the movement's leading figures to shed light on some historical facts not fully explored within the books. Thanks to the meetings with the protagonists of the Pordenone scene, it was also possible to identify many other books and magazines containing accounts of the said movement and interviews with its members. Examples of this are the in-depth studies on Italian punk produced by Luca Frazzi[19] and distributed as a supplement to the music magazine Rumore; books that focus on punk in Italy, such as those written by Stefano and Fabrizio Gilardino,[20] and books written for a more generalist audience dedicated to the world punk scene, with brief insights related to the Italian scene.

Documents and audiovisual materials

In addition to the sources mentioned above, an effort to collect materials that could be useful in illustrating the story and documenting its unfolding through original materials was also undertaken. Such documents can be divided into four main categories:

- The first category includes the direct testimonies of the members of *The Great Complotto* and those who, although not part of it, came into contact with it. These testimonies were collected through period documents that surfaced during the historical research phase.[21]
- The second category includes visual artifacts, photographs, and fanzines. The collection of this type of material was carried out in parallel with the historical research, making it possible to build a substantial archive that proved valuable in telling the story of *The Great Complotto* through period images and artifacts. More of such material was collected by contacting people involved in the Pordenone and through online forums focused on Italian punk.
- Next, in the third category, are the music-type documents. Once the movement's discography was tracked down from the book "The Great Complotto Pordenone"[22], the tracks were retrieved from music streaming services such as YouTube and Spotify. In some cases, vinyl reissues were also found.
- Finally, the last category refers to video documents. Unfortunately, in the case of the Pordenone scene, these are quite rare. They were mainly made by RAI (Italian national public broadcasting company) on the occasion of television reports for programs such as "Mister Fantasy" and "Mixer". In the case of the former, it was possible to find the material online, either on the broadcaster's online archive or thanks to YouTube uploads.

RESULTS

Once the main narrative was reconstructed, and the supporting materials were collected, they were then categorized in terms of people, places, events, artifacts, and ideas. Quotes, images and videos were indexed within the various categories according to their relevance, and a storyboard was created in preparation for the production of the actual digital narrative. As a first step, major events were identified, and elements belonging to the different categories were identified in order to create a narrative based on period documents. The storyboard was divided into chapters so as to mark the main moments in the history of the artistic movement.

The narrative unfolds through a mostly chronological progression, except for the two in-depth sections that momentarily interrupt this flow to highlight some of the key aspects of the story. In terms of story elements, the storyboard refers to the categories previously presented (characters, places, events, artifacts, and ideas). For each category, the most significant elements are presented without excessive detail. In this context, the storyboard proves to be a very useful tool: not only it gives structure to the narrative, but it also helps maintain a level of depth suitable for such an agile medium as digital storytelling, which favors narratives built around main topics, enriched by anecdotes capable of maintaining a degree of playfulness and freshness, in line with the ironic vein that characterizes the Pordenone scene.
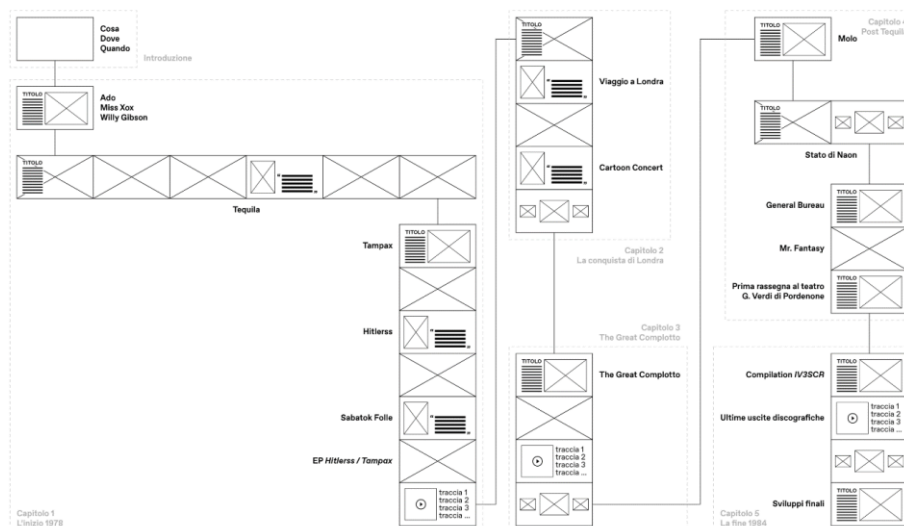

Figure 1. High-level diagram of the narrative structure, identifying main topics and modules

Once the storyboard was finished, content modules were designed in order to compose the final digital product. The module system is useful to give visual consistency to the narrative and to ensure adequate presentation structures for the various types of content.

Among the main modules of the project:

• Cover modules introduce the theme of the narrative, illustrating it with images or optionally with a map of the location referenced in the narrative, together with a brief introductory text.

Figure 2. Cover modules with images and with map

- Descriptive modules present more extensive text, always paired with photographic or video materials, highlighting period documents.

Figure 3. Examples of descriptive modules

- Modules meant for the fruition of music include images of the front and back of album covers to accompany the audio content, thus giving space to the visual artifacts produced by the subculture besides the musical ones.

Figure 4. Examples of audio modules

- Modules designed for collections of images propose different carousels and layouts, with the possibility to allow for audio to be added whenever beneficial (e.g., in case a concert was photographed and recorded but not filmed).
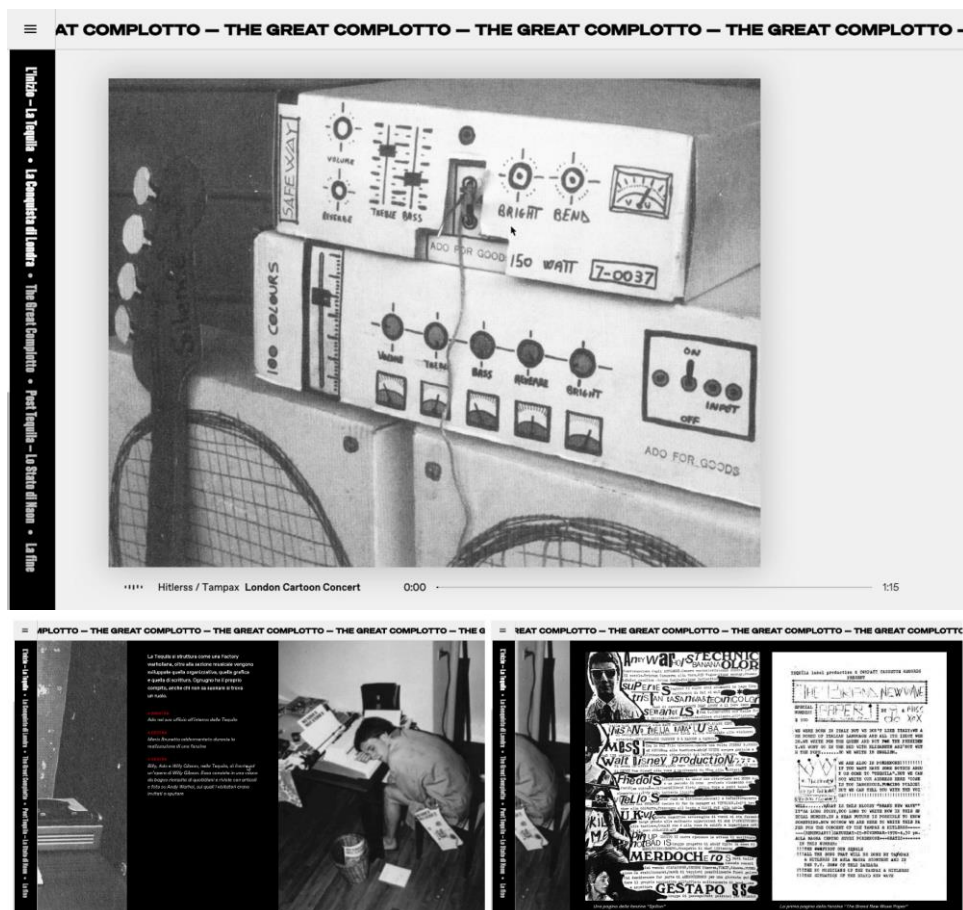
Figure 5. Examples of gallery modules, with images, captions, and documents

- Modules for the display of quotes use an italicized version of the main font to emphasize this type of text more than editorial descriptions, and they include references of the author and the source of the quotation.

Beyond the modules listed, the storytelling format allows for the introduction of different contents when needed. The structure is not intended to be rigid and unchanging, but to serve as a guideline, allowing for a certain degree of fluidity in order to quickly adapt to different types of content.

The progression through the entire narrative is distributed within a single scrollable page, with the events arranged in chronological order. The user has the ability to control the speed at which they scroll through the narrative and on which content to dwell.

To support this storytelling approach, the online platform also offers an archive section dedicated to the documents that the user can browse freely. In this section, the user can choose to enjoy the material geographically, discovering the images in the place where they were made, chronologically, through a timeline divided by years, or visually through a continuous stream of images. By interacting with the pictures, it is possible to discover their details and the history they conceal.

Figure 6. Archive views

CONCLUSIONS

Objective of this research was to experiment with digital storytelling formats, in order to propose a narrative framework for valorization of the cultural heritage produced by subcultures and youth cultures, through the creation of a dialogue between mass media sources, subculture-internal sources and historical records, presenting them in a single narrative that takes advantage of the possibilities of digital media. The method used is applicable to similar contexts: the modular structure encourages the possible reuse of such a framework in order to tell the story of different subcultures, with appropriate adjustments in terms of modules and visual languages.

NOTES

[1] Pier Giorgio Solinas, "Subcultura," in *Enciclopedia Delle Scienze Sociali* (Roma, 1998).

[2] P. B Hammond, *Introduction to cultural and social anthropology* (Macmillan, 1978).

[3] Phil Cohen, "Subcultural Conflict and Working-Class Community," in *Rethinking the Youth Question: Education, Labour and Cultural Studies*, ed. Phil Cohen (London: Macmillan Education UK, 1997), 48–63; Stuart Hall and Tony Jefferson, eds., *Resistance through Rituals: Youth Subcultures in Post-War Britain* (London; New York: Routledge, 2011).

[4] Michel Maffesoli, *Le Temps Des Tribus. Le Déclin de l'individualisme Dans Les Sociétés Postmodernes* (Éditions de la table ronde, 2019).

[5] Dick Hebdige, *Subculture: The Meaning of Style* (Routledge, 2012); Hall and Jefferson, *Resistance through Rituals*.

[6] Paul E Willis, *Profane culture* (Princeton: NJ: Princeton University Press, 2014),

[7] Lachlan MacDowall, "In Praise of 70K: Cultural Heritage and Graffiti Style," *Continuum* 20, no. 4 (December 1, 2006): 471–84.

[8] Amanda Brandellero and Susanne Janssen, "Popular Music as Cultural Heritage: Scoping out the Field of Practice," *International Journal of Heritage Studies* 20, no. 3 (April 3, 2014): 224–40.

[9] Sara Cohen et al., *Sites of Popular Music Heritage: Memories, Histories, Places*, 1° edizione (New York: Routledge, 2014).

[10] Samuel Merrill, "Keeping It Real? Subcultural Graffiti, Street Art, Heritage and Authenticity," *International Journal of Heritage Studies* 21, no. 4 (April 21, 2015): 369–89.

[11] Stanley Cohen, *Folk Devils and Moral Panics: The Creation of the Mods and Rockers*, 2015, 2.

[12] Sarah Thornton, *Club Cultures: Music, Media and Subcultural Capital*, 1st edition (Cambridge: Polity, 1995).

[13] As an example of such process, cfr the Museum of Youth Culture (MOYC) in which the photographic archives of one of the most fashionable club culture magazines of the 1990s, Sleazenation, is first transformed into the Youth Club Archive, a nonprofit organization founded to preserve, share, educate, and celebrate the history of youth culture, and then gives rise to a series of exhibitions and calls for materials that lead to the collection of more than 150,000 documents, photographs, and objects with the goal of opening a museum that tells the story of the world of youth cultures.

[14] Multimedia "long-form" articles are online articles that create immersive journeys through documents, places and testimonies using a careful combination of text and audiovisual elements.

[15] While presenting points of contact with other international punk scenes, the movement concurrently develops a distinctive identity in terms of music, artistic expression, political and socioeconomic heterogeneity, rejection of drugs, and in general around the rejection of provincial Italian bourgeois culture, which in turn becomes the object of provocations and challenges.

[16] Mauro Mazzocut, *The Great Complotto Pordenone* (Pordenone: Biblioteca civica, 2005).

[17] O. Rubini, *The Great complotto. L'antologia definitiva della straordinaria scena punk di Pordenone.* (ShaKe Edizioni, 2009).

[18] Giacomo Mazzone, "The Great Complotto," *Frigidaire*, 1981.

[19] Luca Frazzi, *Punk Italiano, Parte Prima. Mamma Dammi La Benza - Le Radici (1977-1982)* (Edizioni Apache, 2003); Luca Frazzi, *Punk Italiano, Parte Seconda. Hardcore: Gli Anni Furiosi (1982-1990)* (Edizioni Apache, 2003).

[20] Stefano Gilardino, *La storia del punk* (Hoepli, 2017); Fabrizio Gilardino and Stefano Gilardino, *Il quaderno punk. 1979-1981. La nascita del nuovo rock italiano.* (Firenze: Goodfellas, 2018).

[21] The aim has been to refer to period testimonies as much as possible, using newer interviews only as a tool to fill in any gaps that may have emerged in relation to the historical account. This is done in an attempt to restore a historical perspective on the subculture, avoiding the integration of successive opinions of the protagonists who may inevitably historicize and reinterpret events.

[22] Mazzocut, *The Great Complotto Pordenone*.

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HOW TO PRESERVE INDUSTRIAL HERITAGE: THE MEMORY AND SIGNIFICANCE

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INTRODUCTION

Considering the impact of a factory in a city, and its role in the past, that transformed and marked a city for about a century and a half, now, after closing, we seek to understand: What value does this type of heritage have? And for whom? For the same community? Does the new generation care about this type of heritage? Does the inheritance, of a once important industrial building, awake memories for the preservation of this heritage? So, in this paper, we want to reflect on how the intangible values (memory) of the factory have an impact on the community and the preservation of industrial heritage. This study is part of the POR1FIO[1] project, which is intended to contextualize the remaining materials of the Companhia Nacional de Fiação e Tecidos de Torres Novas (CNFTTN, National Spinning and Weaving Company of Torres Novas) and find a way to return this heritage to the community.

The CNFTTN was founded on October 2, 1845, and in 1881, it ranked 12th on the list of the 50 largest companies in the Portuguese manufacturing industry. Located in the city's border area, along the Almonda River, after 166 years of existence, due to the economic difficulties faced and the impossibility of restructuring, was shut down definitively on July 29, 2011.[2] Due to its importance and significance for the city through the years, it has been getting attention from several sectors, although, until now, there has been no investigation into its remaining collection.

The CNFTTN context

The CNFTTN was created in 1845 and had a very relevant development, by the end of the 19th century it already assumed a very important role in the economic and social fabric of the city of Torres Novas.[3] This development led to successive transformations in the surroundings of the factory's initial nucleus, namely in the early 1930s, corresponding to the period of greatest expansion.[4] This expansion gave place to a complex of large dimensions, where we can witness deep transformations in terms of production processes and materials produced there.[5] As for the buildings, they remain, essentially, with the same configuration, without any activity, accentuating their degradation, namely at the level of the roofs.[6] Of the equipment currently little remains. Part of these assets, essentially heavy machinery, was acquired and remains in the custody of the Municipality of Torres Novas. They represent only a small part of what would have been the factory, some perhaps already obsolete or at least showing a marked degradation of the constituent materials. These assets, as well as other small objects, are stored in a sports hall, empty of any conservation or maintenance

plan. The space is not adequate for the conservation of this kind of asset, nor does it have any relative humidity or temperature monitoring system. The assets have no protection, accentuating the metal corrosion process and promoting the accumulation of dust and dirt. The collection storage area has limited access and is also used to store other collections, namely industrial archaeology, and ethnographic goods. There is also a significant part of the estate that corresponds to factory documentation. These items are inventoried and their digitalisation process is not yet concluded. These documents are in the Torres Novas municipal archive and can be consulted by the public.

METHODOLOGY

Bearing in mind that cultural identity is constantly being updated, as it is directly linked to memory, it is considered that all the social work developed by the CNFTTN also had an impact on the community of the Torres Novas region. It is therefore relevant to understand if the collective memories of these experiences still an impact on the memories of the community have so that this type of industrial heritage can be valued and preserved. For that, a survey was created to understand these immaterial values that the factory still preserves beyond the building and its assets.

The survey was conducted with the population of the region of Torres Novas and surrounding areas and was exclusively answered online using the Google Forms platform and disseminated on the Facebook social network. The questionnaire, anonymous, was organised into 15 closed-ended questions to facilitate its completion and, simultaneously, enable a more effective data processing and a more objective analysis, and 3 open-ended questions so that we could obtain information from the respondents in an impartial way.

RESULTS

So, considering that the industrial heritage of the factory is a part of the identity, the memory and heritage of the community, this study is focused on understanding if the collective memories of these experiences still have an impact on the memories that the community have so that this type of industrial heritage can be valued and preserved.

The first five questions of the survey focused on the characterisation of the sample. It was found that most of the universe surveyed are female (66.5%), in the age range between 26 and 45 years (51.1%) and between 46 and 65 years (36.9%) and have higher education (56.8%). A relevant piece of data for this study was the assessment of the respondents in the Torres Novas region, in terms of residence. A significant number of participants indicated they live in the municipality of Torres Novas (80.1%). This aspect is of particular importance for the validation of the sample within the objectives of this study since the high number of resident respondents presupposes a good understanding of the context of the CNFTTN. Of the respondents, 42.6% study or work in the municipality of Torres Novas, 38.6% study or work outside the municipality of Torres Novas and the remaining 11.9% are retired and 6.8% are unemployed.

In the second part of the survey, composed of ten questions, we sought to characterise the respondents' opinions and attitudes towards their memory of the factory. In this sense, was asked about what was produced in the factory, in which, naturally, the majority of what is remembered is the most recent production, of terry towelling (Figure 1). However, it can also be seen that despite this, people still remember other productions, such as hemp and hoses (Figure 2).
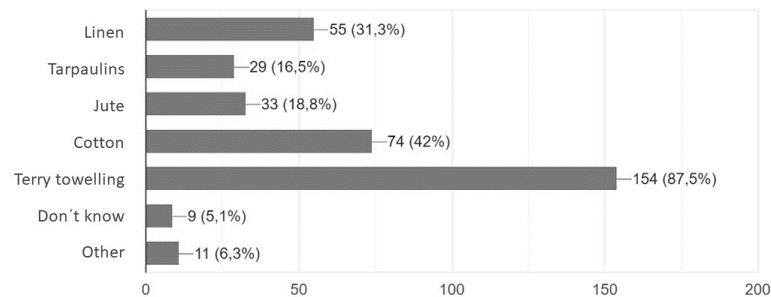
Figure 1. Graph with the responses to the question 'What do you think the factory produced?'
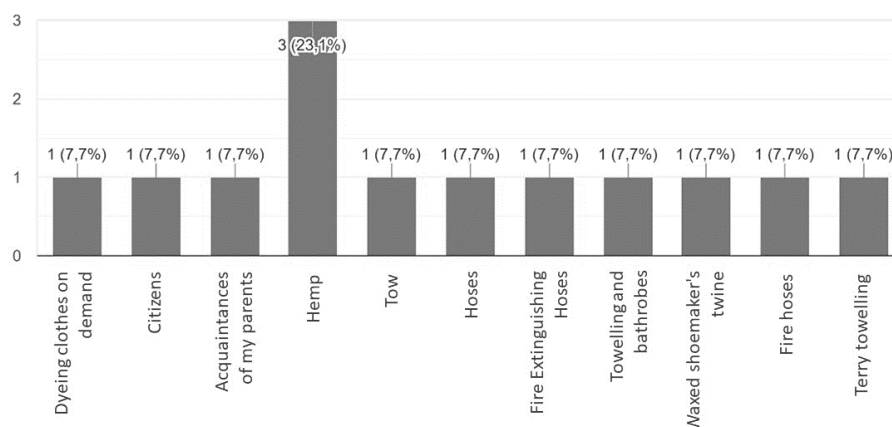

Figure 2. Graph with the responses to the question 'Relative to the previous question in case you had chosen the option "other", which one?'

We also tried to verify if the CNFTTN still has some impact on socialization among individuals, verifying a good tendency of response with 30.1% and 43.8% of the participants stating that quite often and sometimes, respectively, a reason for conversation with relatives, friends, or acquaintances (Graph 3).
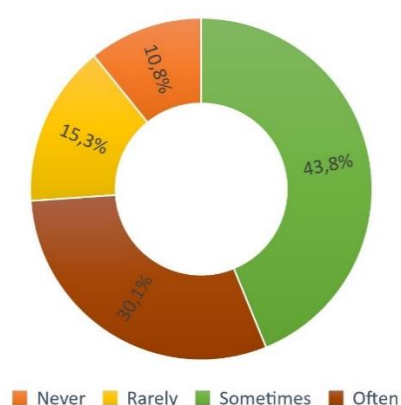

Figure 3. Graph with the responses to the question 'Is the factory usually a reason for conversation between friends, relatives, acquaintances, etc.?'

When assessing the type of memory and impact that individuals have on the CNFTTN there was a good trend, where 83% of the respondents consider that the factory generated good memories for them and only 1.1% disagree (Figure 4). Regarding the impact, 97.8% consider that the factory was

important for the social and economic development of the city of Torres Novas and 98.3% consider that the factory had a positive impact on the region.
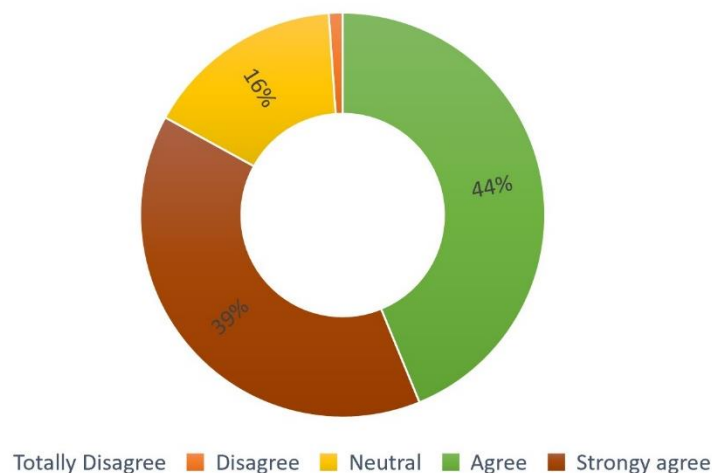

Figure 4. Graph with the responses to the question: 'The factory generated good memories?'

In one of the open answers, to the question: Could you tell us about any memories you have of the factory? We obtained testimonies such as:

"I remember **attending kindergarten** and our kindergarten teachers/carers taking us on top of some support 'cars', which were used to put the terry towelling on, to **watch our mothers work**."

"I was part of the Factory Maintenance, **I knew places** in the factory where only 2 to 3% knew of its existence, namely for example an **underground tunnel** that existed from the dyeing plant to a water exit that was under the Lime tree at the entrance, where there were **hidden people persecuted by the former regime, on the walls, there were the names and dates**."

"Memories of the **contrast between the silence and bustle** of the factory street once the workers got off work, and the **post-work conversations**."

"**The colour of the Almonda River** that varied according to the colour of the terry-towelling that was dyeing that day."

"I remember the characteristic **smell from inside the factory** that made the process of transforming cotton into yarn. A place that no longer exists today."

"The memories are many. For example, mornings **"fishing" in the river with yarn** that our mothers used to give us."

"I remember when my mother worked there, and I would **meet her in the changing rooms** and when I attended the nursery."

"There was a nursery inside the space, with some friends, still girls, we got to go and **meet/visit/watch the babies being nursed - we were well received**!"

Finally, three more questions were asked about what the participants consider heritage and what is important for them to preserve. Of the respondents, 93.7% consider that the CNFTTN is a historical and cultural heritage of the city of Torres Novas (Figure 5).
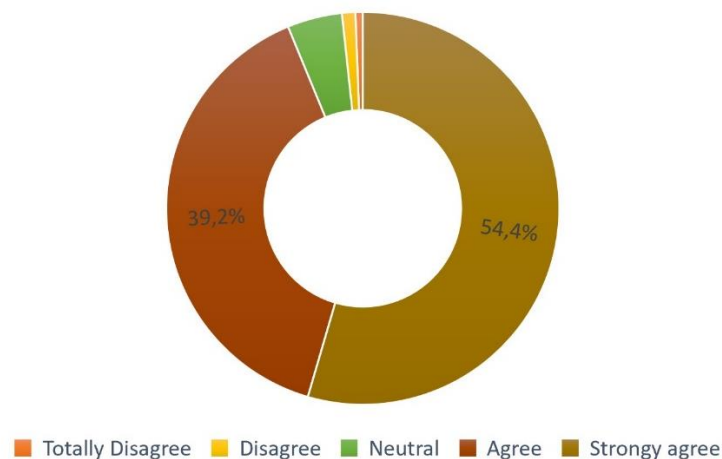
Figure 5. Graph with the responses to the question 'Do you agree with the following statement: "The Companhia Nacional de Fiação e Tecidos de Torres Novas is a historical and cultural heritage of the city of Torres Novas"?'

Regarding what they consider to be the most important to preserve, 88.1% consider that graphic and photographic documentation is the most important to preserve. However, the percentage relating to machinery and buildings is also considerable (Figure 6.).
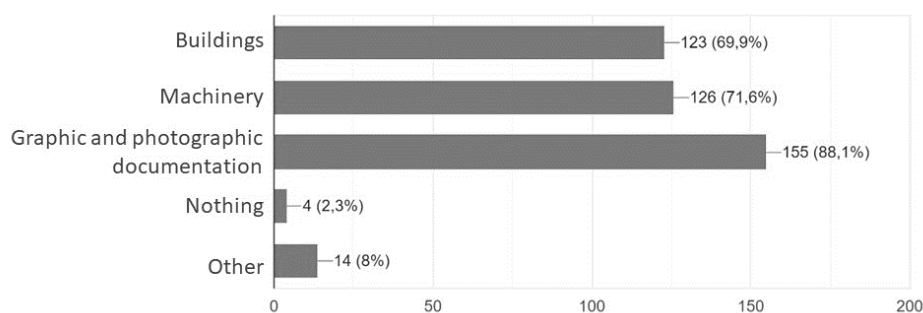

Figure 6. Graph with the answers to the question 'In your opinion, what do you consider most important to preserve for the future memory of the city?

This answer may lead us to understand that the population considers that it is the graphic and photographic documentation that is the most important to preserve for this community, however, we must take into consideration that the industrial heritage is relatively recent, even more so when we talk about its preservation. And it is necessary to consider that the community may not yet understand what industrial heritage is. However, what is interesting to note, when we asked to clarify what other things are needed to preserve, is the fact that the respondents consider that oral testimonies are also something that should be preserved. So, it is certain that they recognise the need to preserve the immateriality of the factory, through the memory of its users.

DISCUSSION OF RESULTS

The survey gives us a set of results that provide the opportunity for reflection on the preservation of the CNFTTN from a holistic perspective. The conservation of these various aspects presents some complexity, in part due to their intangible nature, or to the options of use of space and buildings in the process of transformation of the city.

Starting with the final questions of the survey, we can say that there is a strong belief in the value/significance of the factory to people, as 93.7% consider it a historical and cultural heritage. Although this concept can be very heterogeneous for the respondents, there is at least the idea that the physical preservation of the space should be at the level of other spaces with an impact on the history of the city. If we consider Françoise Choay's definition of historical heritage, we can easily recognise this association with this group of buildings[7]. The author also mentions that this transformation process brings its problems, namely in the transfer of the initial value of the space to another for economic purposes and the tendency to leave the local community aside. In this sense, the POR1FIO project intends to focus its action exactly on what are the legitimate expectations of the local community, through the preservation and sharing of these memories and experiences.

If we take these memories and experiences of the community as a starting point, we will surely be minimizing these problems arising from the patrimonialization of the CNFTTN space and at the same time giving it meaning and content.

According to J. Carman: *"The point about heritage objects—what makes them heritage, rather than anything else—is that they represent intangible qualities we value. But heritage does not only consist of objects: it consists of memories of objects and of memories of activitie."*[8] From the author's perspective, heritage is not only the objects but the memories of them and the activities associated with them. For most of the people inquired, the memories are more important than the buildings and the objects. For them, what gives these objects significance is the memories that they have of them, and the memories that they stimulate in them. However, when thinking about preserving this heritage, it is important to bear in mind that the significance of an object can change over time.[9] We cannot think of just preserving for the future without reflecting on what that future will be.[10] Yet, it is also important to preserve it for the present, and for the people who still value it and give it meaning. So, as Holtorf said, *"heritage is about people, not about monuments, conservation must always be informed by the question of what we want the heritage to do in, and to, society in order to benefit specific people in present and future generations"*.[11]

Another relevant aspect of this survey is the recognition of the economic and social impact of the CNFTTN on the region (98.3%) and that, essentially, it brings back good memories (83%). This number is in line with the fact that 80.1% of respondents live in the municipality, which is also an important number in validating the survey. Another aspect that is understood as relevant in this study is the fact that around 74% of respondents recognise that reference to the CNFTTN is a frequent or occasional topic in conversations with people close to them. This particular set of questions says a lot about the intangible legacy of the factory that it is also urgent to preserve. Perhaps this is the reason for most of the respondents' choice about the need to preserve graphic and photographic documents, and through respondents' comments, some mention that it is urgent to record on video the testimony of former workers for future memory.

CONCLUSION

It is the memory and identity of places that allow, or do not, the preservation of cultural heritage. In the case of the CNFTTN, this is exactly what is observed. Analysing the answers to the survey, we perceive that the population considers that the factory had a positive impact on the region beyond considering it as a city heritage. However, as we verified, what individuals consider most important to preserve is the documentation and oral testimonies, representations of their memory and factory identity.

This study makes it clearer that it is urgent to collect the oral testimonies of former workers and other indirect participants in the activity of the factory. It is important to find better conditions for the conservation of assets, namely machinery and equipment, but more urgent is the definition of what to

do around the industrial complex. It is necessary to define policies that will meet the expectations of the community and that this may become a space that congregates the goods and people and the memories and experiences that give it meaning.

ACKNOWLEDGEMENTS

NOTES

[1] To know more about this project, see http://www.techneart.ipt.pt/por1fio/en/

[2] See more in Companhia Nacional de Fiação e Tecidos de Torres Novas. Companhia Nacional de Fiação e Tecidos de Torres Novas: 1845-1969. (Torres Novas: Companhia Nacional de Fiação e Tecidos de Torres Novas, 1969).

[3] See Joaquim R. Bicho, *A Fábrica Grande. Subsídios para a história da Companhia de Torres Novas* (Torres Novas: Câmara Municipal de Torres Novas, 1997). And also see Filipa Oliveira, *Torres Novas industrial 1784-1999* (Torres Novas: Câmara Municipal de Torres Novas, 2005).

[4] See Joaquim R. Bicho, "Companhia Nacional de Fiação e Tecidos de Torres Novas 150 Anos de Actividade." Nova Augusta 9 (1995).

[5] See Francisco Canais Rocha, "Torres Novas nos primórdios da industrialização." Nova Augusta (1991): 33-43. https://biblioteca-catalogo.cm-torresnovas.pt/cgi-bin/koha/opac-detail.pl?biblionumber=92067

[6] See more about the state of the buildings in Maria Neves Correia, "Reabilitação da antiga fábrica da Companhia Nacional de Fiação e Tecidos de Torres Novas". Vol. I/II, Master's thesis, 2016. http://hdl.handle.net/10316/41859

[7] See Françoise.Choay, *Alegoria do patrimônio* (Lisboa: Edições 70, 2008).

[8] See page 197 from John Carman, "Where the Value Lies: the importance of materiality to the immaterial aspects of heritage." Taking Archaeology Out of Heritage (2009): 192-208, https://research.birmingham.ac.uk/en/publications/where-the-value-lies-the-importance-of-materiality-to-the-immater

[9] See Sarah Staniforth and Helen Lloyd, "Use it or lose it: The opportunities and challenges of bringing historic places to life." Studies in Conservation (2012): 286-294, doi: 10.1179/2047058412Y.0000000053 Also see page 197 from Jane Henderson, "Beyond lifetimes: who do we exclude when we keep things for the future?" Journal of the Institute of Conservation (2020): 195-212, doi: 10.1080/19455224.2020.1810729

[10] To more understand about this topic see pages 19-24 from Miles Olethorpe, "Making our past work for a sustainable future", In *Cultura Material. Cultura Científica: Património Industrial para o Futuro*, ed. Alison Wain et al. (Lisboa: Universidade Nova de Lisboa – Faculdade de Ciências e Tecnologia, 2021). And Rodney Harrison et al. "Heritages Futures: Comparative Approaches to Natural and Cultural Heritage Practices". London: UCL Press, 2020. doi: 10.14324/111.9781787356009

[11] See page 6 from Cornelius Holtorf, "Conservation And Heritage As Future-Making." A contemporary provocation: reconstructions as tools of future-making (2018): 1-13. http://openarchive.icomos.org/id/eprint/1857/

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RHETORICAL AMBITION IN THE BOTANICAL DISPLAYS OF HARVARD UNIVERSITY

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INTRODUCTION
Botanical Rhetoric In Harvard's Exhibitionary Complex

As a private institution with semi-public spaces, Harvard University performs its status for public audiences, including students, parents, alumni, scholars, and tourists every day. Seen in this context since the late 19th century, botanical displays have been integral to Harvard's stature as an exhibitionary complex. The term 'exhibitionary complex' relates to Tony Bennett's theory of museums as a site of socio-institutional compliance, arising during the late 19th century as nationalist and colonial interests sought to stabilize and consolidate their cultural gains.[1] Harvard University exemplifies how an ambitious institution may amass the resources and reputation to build an exhibitionary complex independent of, but rivaling, that of the state.

Museums of the late nineteenth century were instrumental in disseminating "official" cultural and social knowledge to the general public. They were object lessons that arranged both things and bodies *en masse for* inspection and surveillance.[2] In essence, as a tool for socialization, museums and public gardens supplanted 18th-century institutions of physical discipline (prisons, workhouses, schools, asylum) with 19th-century bastions of culture (art museums, scientific collections, reference libraries, arboreta, and botanical displays).[3] The purpose of these zones of exhibition is to "show and tell" historically situated institutional ideologies through representations of knowledge and nature. Enacted in both open and closed public spaces, zones of exhibition are material and symbolic acts that allow social and political leadership to exercise the rhetorical appeal of cultural power.[4]

This study focuses on understanding the role of botanical displays in Harvard's exhibitionary complex since the late 19th century. In so doing, we trace both Tangible (sites/ artifacts/ and practices) and Intangible (knowledge/ curation/ and meaning) aspects of both the Glass Flowers and gardens of Dumbarton Oaks. In addition to those two sites, between the mid-19th and mid-20th centuries, Harvard acquired several other major landscape components. Among the earliest was the Arnold Arboretum, originating in a modest donation of agricultural land in Jamaica Plain (now part of Boston) in 1842; this was later enlarged and transformed into an arboretum in 1872.[5] Today comprising 281 acres, the Arnold Arboretum is the oldest public arboretum in the US, and an important jewel in Boston's famed open space system–fondly known as the Emerald Necklace.

The Arnold's website proudly trumpets a form of scientific colonialism: "Since its founding, the Arnold Arboretum has led the way in plant exploration. Our efforts to collect diverse species from around the globe remain central to our mission. … Our living collections, library and archives, and herbarium are steeped in the work of plant explorers, past and present."[6] To preserve and catalog its

growing botanical holdings, the Arnold Arboretum Herbarium was built in 1909, expanding the capacity and reputation of the Horticultural Library & Archives along with the diversifying outdoor collections.[7] About the same time, a 4000-acre forest field laboratory in Petersham, MA, was donated to Harvard College for its new School of Forestry, established 1907. Shortly after, in 1914, Harvard Forest became the living laboratory for the new Forestry School's graduate-level programs.[8]

Harvard's landscape holdings generally, including Dumbarton Oaks and the Glass Flowers collection specifically, represent a multi-scalar spectrum of botanical displays. Botanical displays exhibit partial perspectives or a "way of seeing" woven with assumptions of what is and what is not valuable, desirable, or venerable. Such resources rely on rhetorical appeals to maintain their value, currency, and especially public (and donor) support. Simply put, rhetoric is the human ability to use textual, visual, or material symbols to communicate with one another. Rhetoric operates through four formal categories of persuasion or appeal—*logos, pathos, ethos, Kairos*—that is to say, logic, emotion, and credibility, contextualized by the time, place, and mode of communication.

Gardens are also rhetorical concepts: they are (1) unique forms of art involving "natural materials" beyond the control of the designer; (2) they blend nature and culture as a sophisticated and refined form of placemaking; (3) they represent an art of *milieu,* simultaneously existing as both place and physical objects experienced by a subject; and (4) gardens appeal rhetorically to audiences through both visual and verbal forms (Hunt 2000). Materially and rhetorically then, we may analyze Harvard's institutional forests, sites, buildings, and interior plant collections as a manifold exhibitionary complex of gardens.

Rhetorical analysis of these botanical displays should highlight four relationships active in both sites (re. Lawrence Prelli):

1. How developmental history of a place (at nested scales) shapes or inculcates the attitudes and expectations held by an audience (History);
2. How the choice and realism of botanical/display materials influences proof claims and guides audience response (Production);
3. How exhibition design may reveal, conceal, confuse, or substitute feelings, lessons, processes, socio-intellectual performances, and programs (Visitor Experience);
4. How these displays achieve broader impacts, influences, and availability (Circulation) and through discursive reception may shape audience beliefs, values, and desires (Reputation).

The Ware Collection Of Blaschka Glass Models Of Plants

History

By the mid-1800s, Harvard University was a major center for botanical study, which participated in the worldwide movement to construct public natural history museums.[9] In 1879, George Lincoln Goodale (1893-1923), the director of the Harvard Botanic Garden (a now demolished site once located in Cambridge, MA),[10] and the first director of the **Harvard University Botanical Museum**, was tasked with finding and displaying life-like models of plants for botanical study and public display (Figure 1). Goodale's goal was "to make the collection an authoritative cabinet type of specimens to be described in an illustrated series of studies" for private study and public display.[11]

The *Ware Collection of Blaschka Glass Models of Plants* (the Glass Flowers) exhibited at Harvard University was produced from 1886 to 1936 grew to include 4,300 glass sculptures with 847 life-sized models representing over 750 species and enlarged anatomical sections. Though commonly referred to as the Glass Flowers, the models "can actually be thought of as composite objects, made of glass, paint, organic materials in the form of adhesives or surface coatings, and metal."[12] The collection became a vivid display of trompe l'oeil sculptures of nature that brought to life Goodale's vision for the Botanical Museum.

Figure 1. Harvard Botanical Museum, circa 1970; designed by William A. Davis.[13]

Production

Goodale's aim with the Glass Flowers exhibit was to match Harvard University's existing faultless zoological and mineralogical displays in the Museum of Comparative Zoology (MCZ).[14] There, Goodale focused on a collection of life-like glass marine sculptures created by Leopold Blaschka (1822-1895) and Rudolf Blaschka (1857-1939), a father and son glass-working team from Dresden, Germany (Figure 2a and b). In the marine invertebrates Goodale saw potential for development of botanical models. Goodale was also aware that other museums and colleges as far-flung as New Zealand, Japan, Calcutta, and Ireland, respected, revered, and collected the Blaschka models.[15]

Figure 2a-b. Leopold Blaschka (left) and Rudolf Blaschka (right). The Archives of Rudolf and Leopold Blaschka and the Ware Collection of Blaschka Glass Models of Plants, Harvard University[16]
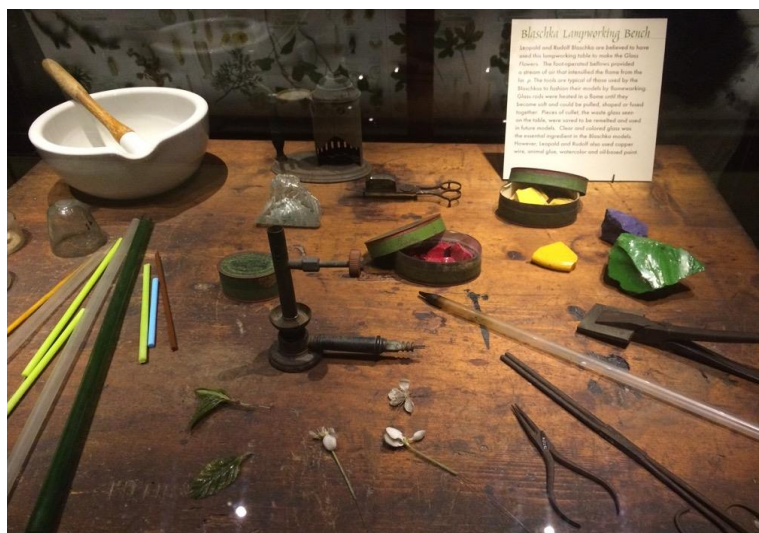
Figure 3. Glass working bench at the Harvard Museum of Natural History; photo by Mackenzie Bullard, April 15, 2020

Goodale strove to secure the Blaschkas' services. In 1886, after repeated refusals and much coaxing, Goodale eventually persuaded the Blaschkas to produce a few flower models for Harvard University.[17] Beginning with the first of many contractual agreements in 1886, the Blaschkas agreed to spend half of their time on constructing botanical models while still fulfilling mail-orders of marine invertebrate models. By 1890, the Blaschkas agreed to devote their full-time efforts, expertise, skills, and knowledge to Harvard's Botanical Museum (Figure 3).[18] Much to the disappointment of the larger community of museums and colleges, now deprived of their services, the Blaschkas became exclusive botanical modelers to Harvard for over 40 years to come.

Experience

By securing the Blaschkas' modeling skills, the botanical models were perceived, reputed, and trusted as scientifically accurate forms. Promoted as exact copies of living plants, audiences were subject to a botanical 'virtual reality' that blurred the line between living specimens and stable, manufactured facsimiles, displayed securely in cherrywood cases (Figure 4). Great concern and effort were made to protect the models and discipline museum visitors, and audiences were trained to inspect and enjoy without touching.[19] The cases themselves were arranged to direct the bodily movement and attention of visitors through the exhibition space in an organized pedagogical fashion.[20]

Figure 4. The Glass Flowers on display at the Harvard Museum of Natural History[21]

Circulation

Despite their fragile materiality, the Glass Flowers have been promoted far beyond the confines of Harvard's museum walls. For instance, in 1893, a few select models were shipped to the Chicago World's Fair for a series of institutional displays with "relics and curios that cannot be purchased for gems or gold."[22] In 1974, three models were temporarily exhibited inside a department store in Tokyo, Japan as part of an exhibition titled "Harvardiana."[23] More recent displays include several models on loan to the Corning Museum of Glass, a museum dedicated to telling the 3,500-year history of glass.[24]

Reputation

The Glass Flowers also make their appearance in other popular cultural forms from a mystery novel to a poem, as museum ephemera as postcards or in coffee table books. Notably, in 1986, images of the Glass Flowers were used by visual artist Christopher Williams to make a political statement about human rights in an exhibition entitled, "Angola to Vietnam."[25] In 2006, it was reported that "the Glass Flowers have so filled the landscape of popular culture that the collection has been featured in nearly 400 articles since records were kept in 1893."[26] And on Harvard Museum of Natural History's website, the Glass Flowers are promoted as "one of Harvard University's most famous treasures."[27]

Figure 5. Mansion house at Dumbarton Oaks Research Library and Gardens, Washington DC[28]
Figure 6. Portrait of Mildred Barnes Bliss (1879-1969)[29]

Dumbarton Oaks Research Library

History

As with the Glass Flowers, the developmental history of an institution tends to shape the expectations of its constituency. This is equally true for Harvard's Research Library and Gardens at Dumbarton Oaks. The Queen Anne-era land grant and its mansion–encompassing over a century of Italianate renovations and additions to the original Federal-period house and orangery–were purchased by Robert and Mildred Bliss in 1920; renovated from 1922 on, planned as a bequest in the 1930s, and gifted to Harvard in 1940 (Figures 5 & 6).

At DO, the gardens were designed by eminent landscape architect Beatrix Farrand (1872-1959),[30] niece to Edith Wharton, famed American author and an expert on Italianate gardens.[31] Farrand's work (and client list) was shaped in part by her **studies with botanist Charles Sprague Sargent at the Arnold Arboretum**, and frequent visits to European gardens of England, France and Italy.[32] The Blisses' own wealth, connections, and contributions, in turn, anchored the special collections of the Museum and Library in Pre-Columbian, Byzantine, and Garden and Landscape Studies.

Production

Confidence in, and reputation of, the DO 'brand' was produced in association with its owners as well as its designers. Over the course of Farrand's close 30-year collaboration with Mildred Bliss, her construction/planting expertise and choice of materials and objects transformed 54 acres of forest and farmland into an Italian idyll (Figures 7, 8a and b). Through a variety of tropes, including local and exotic materials, Italian inscriptions and iconography, and the sequencing of terrace rooms and circuits, visitors were invited to appreciate the gardens. Garden visitors thus comprised a sort of elite club–a "textual community" of visitors to Europe, as well as to one another's gardens–whose appreciation was educated and assured by design.

Figure 7. Beatrix Farrand. 1930. Mélisandes's Allée, Dumbarton Oaks Garden, Washington, DC. [33]

Figure 8a-b. Italian Garden (left) and Wisteria Pergola (right); photos by M.E. Deming, May 4, 2018.

Already in practice as a respected 'modern' professional woman at the turn of the 20th century, Farrand's deep understanding of horticulture was steeped in a traditional Eurocentric canon.[34] She understood her clients' needs to display eclectic collections of plants, as well as objects amassed during the heyday of acquisitive tourism, when wealth could buy nearly any kind of exotic botanic novelty or antiquity. It is undoubtedly due to the reputation and largesse of the Blisses, Farrand's renown and celebrated connections, as well as the Harvard scholarly *imprimateur*, that the gardens of Dumbarton Oaks remain so beloved, well maintained, and protected as a cultural site.

Experience

Cultural intertextuality, well understood by Farrand and the Blisses, is today sustained by elite scholars who experience the gardens during musical programmes, annual pilgrimages to scholarly events/symposia, and residential Fellowships. Dumbarton Oaks offers an elaborate system of public

(usually outdoors), semi-public (ticketed/indoors-outdoors), institutional (library and museums), and private events (usually indoors or both). Such events attract a clientele who are uniquely predisposed to appreciate and protect its landscape, architecture, and other special aesthetic amenities, seeking "the lustre" of Harvard, as well as the elegance of the venue.

As artful botanical displays, gardens too may reveal, conceal, or substitute new experiences for those of the extant site or context. Docents and visitors teach one another how to move, traverse the paths, appreciate views, 'read' the iconography, and to behave as decorously as those for whom the gardens were originally designed. The gardens are themselves exclusive, guarded, protected. The city of Washington DC is held at bay; its problems, its politics, and its diversity temporarily ignored. While inside Dumbarton Oaks, certain realities or identities may be formed, limited, or obscured altogether. A visitor is visually, imaginatively, and socially transported to another place, another time, even to another class (Figure 9).

Figure 9. Panorama from the beech terrace looking east; photo by M.E. Deming, May 4, 2018

Circulation & Reputation

The complex of institutional resources comprising Dumbarton Oaks Research Library and Gardens allows Harvard to extend its intellectual reach from a secure and cherished cultural stronghold.[35] Indeed, the rituals surrounding residency at Dumbarton Oaks are on par with those of the American Academy in Rome.[36] As in Rome, the *intellectual exclusivity* of Dumbarton Oaks, is explicit in Mildred Bliss's *Last Will and Testament* (ca. 1969):

…[R]emember that Dumbarton Oaks… is *the home of the Humanities*, not a mere aggregation of books and objects of art; that the house itself and the gardens have their educational importance and that all are of *humanistic value*…. that *the Mediterranean interpretation of the Humanist disciplines* shall predominate; that *gardens have their place in the Humanist order of life*. …The distinction of the scholars themselves as well as of their writings; the interpretation of the texts and the arts; the quality of the music performed; the *free discussion within the limits of good deportment*, and the whole tempered by the serenity of open spaces and ancient trees; all these are as integral a part of Humanism at Dumbarton Oaks as are the Library and the Collections. The fulfillment of this vision of high intellectual adventure seen through the open gates of Dumbarton Oaks will *add lustre to Harvard*, to the academic tone of our country and to scholarship throughout the world.[37]

CONCLUSION

By examining various forms and mechanisms of the exhibitionary complex, we may apprehend ways in which botano-spatial constructions operate rhetorically, influencing society and its belief structures. In such constructions, Nature is often presented as an intangible value, leisurely and bucolic, where the tangible material realities of labor, decay, disarray, danger, and potential disruption are concealed. In botanical displays, however, our relationships with ideals of nature and natural process may also transform our social relationships as well.

Institutional as well as national ambitions are often manifest in **codes of representation** that deploy 'Nature' or naturalism to disguise and purify any attempt to gain and consolidate power. Images of the American West, for example, were used to sanitize genocidal assaults and betrayals of native peoples and instead to cloak the expansion into Western territories as 'Manifest Destiny'–an almost biblical sanction. We see this representational project adopted wholesale by the contemporary exhibitionary complex, for instance at the 1893 Chicago World's Fair, and in the National Parks movement that preceded it. In *Landscape and Power* (1994), WJT Mitchell makes this point explicit with regard to landscape painting in the colonial period. In a truly post-colonial awareness, the role of landscape representation in naturalizing injustice and privilege has to be examined and exposed.

Harvard's collection of Glass Flowers and the research complex at Dumbarton Oaks are comparable in their similarities—as representations of natural process they both play with the tensions between stasis and dynamics of natural process–in terms of life cycle and seasonality, and in the soft fascination of botanical form and diversity. Yet both gardens are expressions of Foucault's heterotopic mirroring; and they remain very different places. Where Dumbarton Oaks is a **tangible** 'real' place, it refers to a mythical ideal, conceived in a late Gilded Age fantasy of Italian grace and wealth–**intangible** and imaginary. And where the Glass flowers are essentially 'unreal'—artificial representations of 'real' botanical referents, they are indeed **tangible** manifestations of manufacture by the human hand, disciplined artifice, and craftwork.

Both sites may be understood as **Gardens**: the garden understood as an art form that must eternally engage with, and attempt to, *overcome dynamism* (e.g. time, climate change, growth, decay, entropy, loss, forgetting). And yet both may be understood also as representations that strive, through artifice, for animated and sensual experience–that struggle to *overcome stasis*, the single image, the stale encounter. In this respect, both gardens must use invention and enact constant renewal. Where the Glass Flowers use material innovations to overcome their fragility; to transcend repair and restoration issues in the face of time and chemical degradation, the gardens at Dumbarton Oaks must use programming and constant reinvention to maintain its currency, relevance, and ensure its value to the wider world.

NOTES

[1] Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (ser. Culture, Policy and Politics) (London UK: Routledge, 1995). Also see Tony Bennett, "The Exhibitionary Complex," *New Formations* 4 (Spring 1988): 73-102.

[2] For example, in the American Natural History Museum, overlooking Manhattan's Central Park, Gillian Rose observes how the mutual gaze works as behavioral reinforcement, where "visitors are always aware they are being watched by other visitors." This is true of behavior in many public gardens, parks, and open spaces, and explains how public decorum has been inculcated without necessarily being policed. Gillian Rose, *Visual Methodologies. An Introduction to Researching with Visual Materials*, 4th edition (London: Sage, 2016), 245.

[3] "Exhibitionary Complex, Miniature Worlds," Ipek Tureli, accessed May 23, 2022, https://miniatureworlds.wordpress.com/gallery/exhibitionary-complex/.

[4] This essentially Foucauldian lens is readily applicable for analysis of the botanical collections and museums of Harvard University. Some have argued that if "museums are a symbol of power, greatness, wealth, and progress," then "museum goers are subjected [to] a role of obedience under national identity," where they are taught how to move, to gaze, to behave, to value the largesse of the institution and, presumably, the national ambitions it serves. N.A. April 15, 2013. "Why Museums are Important: The Exhibitionary Complex," The Keystone Journal. https://wp.me/p3hch0-2Y.

[5] Horticulture Professor Charles Sprague Sargeant conceived of the scientific organization of the arboretum and worked with landscape architect Frederick Law Olmsted on the layout and design. The Arnold Arboretum is now managed by Harvard University under a 1000-year lease. "Arnold Arboretum," Emerald Necklace Conservancy, accessed May 23, 2022, https://www.emeraldnecklace.org/park-overview/arnold-arboretum/.

[6] Advancing Harvard's exhibitionary aspirations, the Arboretum supported several international expeditions to add to its domestic and exotic plant collections: between 1899 and 1919 for instance, six expeditions to East Asia were undertaken by collector EH Wilson. "Plant Exploration," Harvard University Arnold Arboretum, accessed May 23, 2022, https://arboretum.harvard.edu/plants/plant-exploration/.

[7] "Library and Archives," Harvard University Arnold Arboretum, accessed May 23, 2022, https://arboretum.harvard.edu/research/library/. Also see "Herbarium of the Arnold Arboretum," Harvard University Arnold Arboretum, accessed May 23, 2022, https://arboretum.harvard.edu/research/herbarium-of-the-arnold-arboretum/.

[8] "Harvard Forest," Harvard University Faculty of Arts & Sciences, accessed May 23, 2022, https://harvardforest.fas.harvard.edu/history.

[9] Carlo G. Pantano, Susan Rossi-Wilcox, and David Lange, "*The Glass Flowers,*" in *The Prehistory & History of Glassmaking Technology*, ed. Patrick McCray et al. (Westerville: The American Ceramic Society, 1998), 61.

[10] "Botanic Garden [Demolished]," Harvard University Harvard Property Information Resource Center, accessed May 15, 2022, https://harvardplanning.emuseum.com/sites/1646/botanic-garden-demolished.

[11] Oakes Ames, "George Lincoln Goodale (1839-1923)," Proceedings of the American Academy of Arts and Sciences (1925): 642.

[12] Rika Smith McNally and Nancy Buschini, "The Harvard Glass Flowers: Materials and Techniques," Journal of the American Institute for Conservation (1993): 232.

[13] *Photographic Negatives of the Exterior of the Harvard Botanical Museum, circa 1930: William A. Davis [1970's] Botanical Museum (seq. 3).* Black and white photograph, Harvard Library Archives, accessed May 20, 2022, https://iiif.lib.harvard.edu/manifests/view/drs:53375611$3i.

[14] Rishika Mehrishi, "Harvard Blaschka Glass Flowers," Marg: A Magazine of the Arts (2018): 92.

[15] David Whitehouse, "Nature's Wonders in Glass: The Art of the Blaschkas," Corning Museum of Glass Newsletter (1991), 1.

[16] (a) *Blaschka, Leopold 1892 [portrait] {seq.2}.* Black and White Photograph, Harvard Library Archives: The Archives of Rudolf and Leopold Blaschka and the Ware Collection of Blaschka Glass Models of Plants, 1886-2020, accessed May 20, 2022, https://iiif.lib.harvard.edu/manifests/view/drs:52486489$2i.
(b) *Blaschka, Rudolf 1892 [portrait] (seq. 3)*. Black and White Photograph, Harvard Library Archives: The Archives of Rudolf and Leopold Blaschka and the Ware Collection of Blaschka Glass Models of Plants, 1886-2020, accessed May 20, 2022, https://iiif.lib.harvard.edu/manifests/view/drs:52486491$2i.

[17] George L. Goodale, "The Blaschka Glass Flower Collection," The Harvard Graduates' Magazine Association, (1893): 602-606, url: https://babel.hathitrust.org/cgi/pt?id=hvd.32044048695498&view=1up&seq=9.

[18] Whitehouse, *Nature's Wonders in Glass*, 2.

[19] In preparation to display the Glass Flowers, Goodale reflected on his experience at the Harvard Botanic Garden, where unattended and misguided visitors picked living specimens, moved labels, and made bouquets from the garden exhibitions. In an Annual Report from 1885-1886, Goodale complains that "casual visitors have disregarded the reasonable rules established for the protection of our [living] plants." (George Lincoln Goodale, "The Botanic Garden," in Annual Reports of the President and Treasurer of Harvard College, 1885-1886 (Cambridge, MA: Harvard University, 1887), 121.)

[20] Visitors to the museum can schedule on-site or virtual tours as an individual or with a group with a knowledgeable docent.

[21] "Glass Flowers: The Ware Collection of Blaschka Glass Models of Plants," Harvard Museum of Natural History, accessed May 10, 2022, https://hmnh.harvard.edu/glass-flowers.

[22] Hubert Howell Bancroft, *The Book of the Fair*, *volume 2*. (Chicago, IL; San Francisco, CA: The Bancroft Company Publishers,1893), 237.

[23] Richard Evans Schultes, Davis Hillel, and William A. Burger. *The Glass Flowers at Harvard.* New York: Dutton, 1982, 13.

[24] "About Us," Corning Museum of Glass, accessed May 17, 2022, https://info.cmog.org/.

[25] "Christopher Williams: The Production Line of Happiness," This Is Tomorrow, accessed May 12, 2022, http://thisistomorrow.info/articles/christopher-williams-the-production-line-of-happiness.

[26] Susan Rossi-Wilcox, "Art or Science? The Glass Flower Models at Harvard University," in *Kunstformen des Meeres: Zoologiche Glasmodelle von Leopold and Rudolf Blaschka, 1863-1890.* (Tübingen: Universitätsstadt Tübingen, 2006), 49.

[27] *Glass Flowers: The Ware Collection of Blaschka Glass Models of Plants*, https://hmnh.harvard.edu/glass-flowers.

[28] "The History of Dumbarton Oaks," Dumbarton Oaks, accessed May 23, 2022.
https://www.doaks.org/about/history

[29] "Portrait of Mildred Bliss (1879-1969)," Dumbarton Oaks, accessed May 23, 2022.
https://www.doaks.org/resources/bliss-tyler-correspondence/annotations/mildred-barnes-bliss

[30] In 1899, Farrand joined ten other founders (the sole woman) of the American Society of Landscape Architects. Her work included public gardens at the White House and National Cathedral, elements of Yale and Princeton University campuses, the Peggy Rockefeller Rose Garden at the Brooklyn Botanical Museum, as well as over 100 private gardens including what would become the J. Pierpont Morgan Library and Museum in New York, and the Abby Aldrich Rockefeller Garden on Mt. Desert Island, Maine. Her husband Max Farrand was the first Director of the Huntington Library, in Pasadena CA. In her honor, "approximately 2000 herbarium specimens were given to the University and Jepson Herbaria at the University of California, Berkeley, where they serve as a permanent record of her choice of plants and localities." See "Beatrix Farrand: A Bibliography of Her Life and Work: Home," Berkeley University Library Guide, accessed May 23, 2022,https://guides.lib.berkeley.edu/farrand.; See also "Beatrix Farrand," Wikipedia.org, accessed July 14, 2022, https://en.wikipedia.org/wiki/Beatrix_Farrand.

[31] *Italian Villas and Their Gardens* (1904) presented a kind of European Tour for wealthy American travelers; Wharton's novel about Gilded Age New York, *The Age of Innocence* (1920), won that year's Pulitzer Prize; Henry James was also a close family friend.

[32] Wikipedia, Beatrix Farrand.

[33] Beatrix Farrand. *Dumbarton Oaks Garden, Mélisande's Allée, Washington, D.C..* Color photograph, Harvard University Library: Hollis Images, May 20, 2022.
https://images.hollis.harvard.edu/primo-explore/viewcomponent/L/HVD_VIA8001601725?vid=HVD_IMAGES&imageId=urn-3:DOAK.RESLIB:39011799&adaptor=Local Search Engine

[34] Eurocentrism was widely prevalent during the Country Place era (ca. 1890-1930), when Farrand was engaged by clients among the wealthy, powerful, and nouveau-riche.

[35] The President of Harvard University writes, "As the nation's oldest institution of higher learning, Harvard has a special responsibility to champion intellectual traditions that have defined educated men and women since the dawn of civilization. We do more than deliver a body of knowledge to our students—we expand their humanity. By teaching young people to appreciate what is beautiful in art, society, and nature, we help them to discover what makes life truly worth living." (Lawrence Bacow. "Our Mission and Culture," *HARVie* website, accessed May 23, 2022. https://hr.harvard.edu/our-mission-and-culture.)

[36] "About," American Academy in Rome, accessed May 27, 2022, https://www.aarome.org/

[37] "Dumbarton Oaks," Wikipedia, accessed July 15, 2022, https://en.wikipedia.org/wiki/Dumbarton_Oaks.

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HERITAGE TRAUMAS AND THEIR OVERCOMING: RELIGIOUS ARCHITECTURE AS A COHESION ELEMENT FOR UPROOTED COMMUNITIES BY HYDROPOWER DEVELOPMENT

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INTRODUCTION

According to Sabina Loriga, trauma was defined between the late nineteenth and early twentieth centuries as a psychic damage left by an unexpected and extremely violent event, in a subject who may have the impression of imminent death. One of the most interesting advances in the field has been the possibility of analysing the impact of a trauma not only at the individual, but also at the collective level. In this way, several studies regarding specific groups - such as people affected by armed conflicts or terrorist attacks, as well as concerning communities or population groups that have suffered the consequences of whether natural or human-caused catastrophes -, have been carried out. The development of this type of studies has permitted to establish and define concepts such as 'historical trauma' - understood as the negative effect caused by a collapse in the ordinary world, like wars - and 'collective trauma', established by Kai Erikson, and defined as a shock to the basic social life network.[1]

The systematisation of these ideas, together with analyses linked to collective memory, have led to the appearance of new terms such as 'cultural trauma'. Jeffrey Alexander and Neil Smelser[2] agree that cultural traumas are those events, or situations, that affect a community that feels having undergone a horrible event, which indelibly marks its memory and changes the group identity.

Bearing in mind that Cultural Heritage is understood as the support of collective memory and identity,[3] it is considered that it could be possible to suggest the existence of heritage traumas, as a subcategory within cultural traumas. In other words, it is believed that it is possible to understand heritage traumas as events or situations in which attacks and/or destruction of cultural property have resulted in the emotional disturbance in the individuals belonging to the communities that receive, conserve, and transmit that legacy to future generation.

Traumatic destruction and monumental recovery

Since restoration was established as a scientific discipline in the 19th century,[4] there have been many challenges, debates and experiences that have shown that the link between heritage and communities is so strong that interventions in monuments are common practice after shocking and destructive events.

María Pilar García Cuetos has already analysed the concept of authenticity in relation to contemporary restoration theory, as well as regarding the praxis developed in the interventions carried out after different and traumatic heritage destructions.

On the one hand, we must bear in mind case studies related to natural disasters or catastrophes. In this sense, García Cuetos[5] includes examples such as the rebuilding of the San Marcos Campanile and La Fenice Theatre in Venice; the interventions that had to be faced in different Italian regions due to the seismic activity in the country; or Windsor Castle, among many others. On the other hand, García Cuetos has also analysed monuments and historic centres rebuilt after the devastation caused by different war conflicts that have ravaged Europe during the 20th century. Examples such as the reconstruction of the centre of Warsaw, or Montecassino Abbey after the Second World War, and the pretended mimetic reconstruction of the bridge in the city of Mostar, in Bosnia, after the Balkan wars are also indicative of the inevitable need of cultural communities to recover their lost referents.[6]

Recent history proves that it is possible to establish that both catastrophes affecting heritage and destruction caused by armed conflicts have an undeniable impact on communities at all levels. The destruction of a heritage asset is understood as a loss and it is considered that, in the face of such a situation, the need for recovery is inherent to human beings.

For this reason, although it may not be the most theoretically appropriate option, it is understandable that there has been a demand for rebuilding, which involved the recovery of monuments while returning them to the same state before the destruction, since they allow the community to overcome the mourning for what was gone.

It is not our intention to establish here a debate on the intervention criteria to be applied, but to try to show how the recovery of Cultural Heritage allows cultural communities to overcome traumatic events also in a collective way. In fact, what we would really like to reflect on is what happens when the loss is suffered by a community that has no possibility of recovering their lost heritage.

THE IMPACT OF HYDROPOWER DEVELOPMENT POLICIES ON UPROOTED COMMUNITIES

The water stored in reservoirs can be used for various purposes such as irrigation, industrial use, and hydroelectric production, among others,[7] which explains the reason for the proliferation of these megastructures since the 20th century.

Dam building policies, and material infrastructures, have been approached from different disciplines, especially Engineering and Economic History.[8] However, in recent years, several studies have been carried out regarding the way in which this activity affected the cultural properties in the area where those dams were built.

We should think that the analysis from a cultural, and heritage, approach can offer us the tools to achieve a knowledge that goes beyond recognising dams as integral elements of our Industrial Heritage. There are other questions of interest for our discipline, such as the monumental affectation caused by the construction of these infrastructures together with the processes of heritage recovery, or the creation of new associated heritages, among which we can include, for example, the villages destined for the workers of the dams, as well as those destined to house displaced populations.

However, there have also been situations in which the communities forced to abandon their homes have been responsible for promoting the creation of new heritage elements that have served as a way of not forgetting these tragedies and preserving their identity and memory.

In this sense, it is essential to highlight the fact that dam building is an activity with an undeniable natural and landscape impact, but its cultural and social implications are also far-reaching. It is considered that the traumatic consequences of the construction of a dam combine, on the one hand, the catastrophe itself due to the destruction caused by the flooding of territories, and, on the other

hand, the unquestionable decision by the political spheres to put development, industrial and hydroelectric in this case, before the demands of the communities.

In this way, it might be possible to speak of the trauma and psychological effects triggered by the destruction - assimilated to a catastrophe, which can overload the community's resources-,[9] but also by the intentionality, that is, the programming of these disasters by other individuals who held power and who forced the communities to move, giving rise to a process of uprooting, of loss of cultural references and previous social conditions.

Figure 1. The waters filling Almendra reservoir and flooding Argusino in 1967. Photograph preserved in Bar Argusino

We believe that this otherness also contributed greatly to deepening the wounds caused by these development policies. In fact, there are authors who state that traumatic events caused by human beings can have a more profound effect on the population than those caused by natural.[10] In this sense, it is aimed to present the cases of Argusino de Sayago and Capel Celyn, two villages formerly located in rural areas of Spain and Wales, respectively, which were destroyed and flooded by the waters of the Almendra reservoir, in the Spanish province of Zamora, in Castile and León, and Llyn Celyn reservoir, in Merioneth, Wales, in the 1950s and 1960s.

Case studies. Capel Celyn and Argusino de Sayago

In the 1950s, the Liverpool City Council presented a bill to Harold Macmillan's Conservative government in order to flood Welsh land in the vicinity of the Tryweryn River valley to build a reservoir to provide drinking water for the English city. One of the towns in the area to be flooded was Capel Celyn, a small village noted for its land wealth, the presence of a Quaker community and the fact that it was one of the few Welsh-speaking communities in the area.

Reactions in Wales were swift. There were popular demonstrations in the city of Liverpool itself in 1956;[11] Gwynfor Evans, representative of the Welsh nationalist party Plaid Cymru went so far as to write directly to the British Prime Minister, explaining the importance of Welsh cultural heritage, while making clear the Welsh political position on the bill and the defence of their heritage;[12] there were attacks (intentional explosions) on the dam during the construction process, and protests even continued on the very day of the dam's inauguration, 28 October 1965. Nothing, neither political will nor community protest, could prevent the flooding of the Tryweryn valley and the disappearance of Capel Celyn. This, among many other cases, was a direct confrontation between Wales and England, as well as a reinforcement of the Welsh nationalist cause,[13] insofar as the flooding was seen as an attack, a way of wiping out the country's culture and heritage.
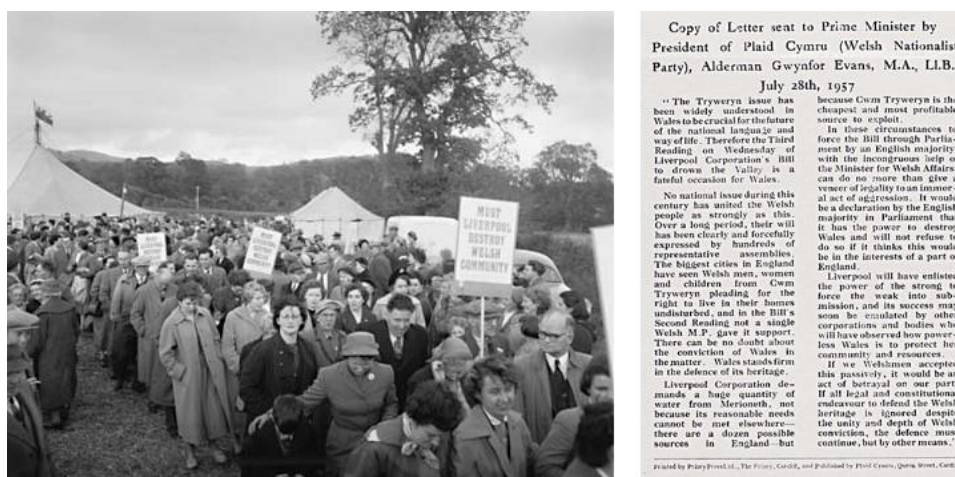
Figure 2. Save Tryweryn rally at Bala (September 1956) and copy of the letter sent by Gwynfor Evans in 1957 Source: National Library of Wales
https://web.archive.org/web/20051027191019/http://www.llgc.org.uk/Ymgyrchu/Dwr/Tryweryn/index-e.htm

In the 1960s, Franco's dictatorial regime, as part of its policy of reservoirs, [14] planned the construction of the highest dam in Europe to date, the Villarino dam, with its corresponding reservoir, Almendra. This construction affected, among others, the village of Argusino, whose origins dated back to the 13th century. [15] According to the testimonies of the villagers, not only trauma was present, but also coercion: the company's compensations to the villagers became forced expropriations if they were not accepted, and there was not any possibility of mobilisation or protest due to the dictatorship. The village was dynamited and demolished in the presence of its inhabitants and even a concrete slab was placed over the cemetery to prevent the bodies from being found after the flooding. [16]

Moreover, unlike what had happened with other displaced communities in Spain, the inhabitants of Argusino were not offered the possibility of resettlement in a new village, so the uprooted community began to disperse. Therefore, there was not even the possibility of preserving the community's intangible heritage, its uses and customs collectively.

Thus, the impacts derived from this construction activity in both cases were varied. Although it is true that hydroelectric development has allowed us to advance technologically since the beginning of the 20th century, its consequences have been not simply positive.

The destructive capacity of this type of construction does not only affect the natural environment in which the dams are located, but also the communities that inhabit these territories, and not only in a material way. It is thought that these communities were forced to undergo a process similar to that experienced by deportees, insofar as they were deprived of all previous social support after the disintegration of the community, but they also had no place to return to, even occasionally, and no tangible or intangible heritage elements that would allow them to preserve their identity and memory.

Religious architecture as an element of collective cohesion

Since the 19th century, with the birth of anthropology and ethnology, attempts have been made to study the concept of religiosity, or "the religious", in search of the origins of the human being, facing questions such as its universality and diversity in cultural terms. [17] At the beginning of the 20th century, Freud, for example, analysed the religious phenomenon as a form of protection. The religious has the capacity to offer the human being a reassuring space [18] that allows us to continue with our lives, however difficult it may seem. And, in the cases mentioned here, religious architecture was the chosen resource in order to remember what happened both in Capel Celyn and in Argusino. In

addition, it is considered that religion played an important role for both communities. In the case of Capel Celyn, its name gives us the key to understand the relevance of religion and religious architecture for the toponomy; and, on the other hand, religion was one of the main pillars to support Francisco Franco's dictatorship in Spain for almost forty years.

Near Llyn Celyn reservoir it was decided to build a memorial chapel, designed by the Welsh sculptor R.L. Gapper of Aberystwyth. Gapper worked with Liverpool city architect Ronald Bradbury, who drew up the plans for its construction in 1966. Its completion was timed to coincide with a regional landmark, the National Eisteddfod in Bala in 1967. It was decided to use ashlars from the school, post office and houses that had been destroyed at Capel Celyn as building materials, showing the survival of the village in the church.[19]

The chapel was declared a monument with protection level II* on 1 August 2019, which means that the chapel is recognised as a property of special interest and its conservation is guaranteed. The reasons for the protection of the chapel are both artistic - in that it is an interesting example of modern architecture and has been described as a chapel "beautifully modelled and adapted to its site" - and of historical interest, as it commemorates both Capel Celyn and the people of his community who were buried there, as well as being a symbol of the troubled history of Llyn Celyn and its place in the history of modern Wales.

Figure 3. Memorial chapel in the vicinity of Llyn Celyn reservoir.
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In the Spanish case, it was decided to build a hermitage, to remember the people and their ancestors, on land donated by former neighbours and located in the vicinity of the reservoir, shortly after the disappearance of Argusino. This first hermitage was inaugurated in 1972 and was built and liturgically equipped thanks to donations from private individuals. From then on, this hermitage became the meeting place for the prior community, especially at the beginning of May, coinciding with the celebration of the pilgrimage of the Holy Cross, a tradition that had also been revived. The response from the old neighbours was so great that it was decided to enlarge the hermitage in 1981.[20] The pilgrimage has continued to be celebrated until the present day and both the old neighbours and their descendants take part in it. In addition, on the fiftieth anniversary of the disappearance of Argusino, in 2017 and with the creation of the *Argusino Vive* Association, various activities were organised, including the presentation of a hymn for the disappeared village, with the intention of vindicating its continuity and vitality in the people linked to the locality and who still, today, fight to ensure that it is not forgotten.[21]

Figure 4. Holy Cross hermitage near Almendra reservoir. Photograph by the author

Another initiative carried out by the *Argusino Vive* Association was to join in the celebration of the European Year of Cultural Heritage in 2018 and to recover the ringing of the Argusino bells, since the importance of the bells for the village was such that representatives of the association claim that there were "up to twelve different rings of the three bells that crowned the church of Santa María Egipciaca, depending on the type of event".[22]

Figure 5. Former parish church in Argusino, dated in the 15th century and devoted to Santa María Egipciaca. Photograph preserved in Bar Argusino

CONCLUSION

It is thought that the construction of the dams and reservoirs described here involved traumatic events for the communities that were affected and displaced by them, since dam building policies may implicate a certain kind of symbiosis between a disaster and an attack on the community, as it is a "programmed catastrophe" conceived from the political spheres

It is considered that, despite differentiating factors such as the political contexts in Spain and Wales, which marked the constructive development of the projects for these dams and reservoirs, the impact

caused on the communities was similar. The disintegration of the community due to the lack of a housing alternative in which to gather again - with the consequent disappearance of their community traditions, uses and customs, including language - and their uprooting were reinforced by the disappearance of the material cultural references flooded by the waters of the reservoirs, their ruins being visible only in times of drought and prolonging both the trauma and the mourning.

The need not to forget, together with the attempt to overcome this collective cultural trauma and, at the same time, to keep alive the memory of the flooded localities and their inhabitants, led to the construction of religious architecture on the banks of the reservoirs. We believe that this is not surprising, especially in the case of two traditionally Christian-majority countries such as Spain and Wales, and because of the opportunity offered by religion to help human beings overcome the feeling of loss, which in this case is also linked to uprooting.

These temples constitute new material heritage that have served to maintain the unity of these dispersed communities, creating new references to which new intangible values can be attributed, and even allowing some of these communities to recover their own traditions, identity, and memory, and to pass them on to their descendants.

ACKNOWLEDGEMENTS

NOTES

[1] For further information regarding historic traumas and its consequences, see Sabina Loriga, "Sobre el trauma histórico", Pasajes 54, (2018): 92-110.

[2] See Jeffrey Alexander, Ron Eyerman, Bernard Giesen, Neil J. Smelser and Piotr Sztompka, *Cultural Trauma and Collective Identity* (Berkeley: University of California Press, 2004).

[3] See chapter four in María Pilar García Cuetos, *Patrimonio Cultural Conceptos Básicos* (Zaragoza: Prensas Universitarias de Zaragoza, 2012): pp.69-88.

[4] García Cuetos, 22-23.

[5] See María Pilar García Cuetos, "Succisa Virescit, o el viejo anhelo de la resurrección de la materia monumental." Papeles del Partal: revista de restauración monumental 2, (2004): 45-82

[6] See María Pilar García Cuetos, *Humilde condición. El patrimonio cultural y la conservación de su autenticidad* (Gijón: Trea, 2009).

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[8] Josep Joan Mateu González, "Política Hidraúlica e intervención estatal en España (1880-1936): una visión interdisciplinar." Estudios agrosociales y pesqueros 197, (2002): 35.

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[10] Antonio Cano-Vindel, Esperanza Dongil-Collado, Itziar Iruarrizaga, José Martín Salguero-Noguera and Cristina María Wood, "Consecuencias psicológicas de las crisis y catástrofes: los atentados del 11M en Madrid" in Estudos sobre Intervençâo Psicológica em Situaçôes de Emergência, Crise e Catástrofe (Portugal: ISMAT-Instituto Superior Manuel Teixeira Gomes, 2011): 3

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[13] John Davies, *A history of Wales* (Suffolk: Penguin Books, 2007): 640.

[14] For further information regarding dam building policies in Spain during Francisco Franco's dictatorship, see Begoña Fernández Rodríguez, *Las nuevas Atlántidas. La afectación de monumentos por la política hidráulica española en el siglo XX* (Santiago de Compostela: Andavira, 2021).

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[16] Estefanía Vega, "Argusino, 54 años sin poder llorar a sus difuntos." ZamoraNews, November 1, 2021, accessed February 5, 2022.
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[17] See Mónica Cornejo Valle, "Las definiciones de lo religioso en la antropología social. Conceptos y discusiones clave en la búsqueda de un universal cultural," Bandue 9, (2016): 68.

[18] See Genís Fullat Octavi, "Antropología de lo religioso," Bordón 58, (2006): 469.

[19] See "Capel Celyn: Memorial chapel reopens after conservation work," BBCNews, September 15, 2021, accessed February 5, 2022. https://www.bbc.com/news/uk-wales-58569060

[20] See "La memoria viva de Argusino." La Opinión de Zamora, Jose A. García, May 6, 2017, accessed February 5, 2022. https://www.laopiniondezamora.es/comarcas/2017/05/06/memoria-viva-argusino-1080511.html

[21] See Noelia Fernández García, "About churches and floods. Religious architecture as a memory and identity element in urbanism after reservoir building in francoist Spain,", in *La Città Palinsesto. Tracce, sguardi e narrazioni sulla complessità dei contesti urbani*, eds. Francesca Capano and Massimo Visone, (Naples: Federico II University Press, 2020): 1043-1044.

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CULTIVATION: REIMAGINING HERITAGE THROUGH URBAN MICRO-FARMS

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INTRODUCTION

A rich quality of the contemporary world is the prevalence of hybridity. Most interesting conditions, including architecture, are hybrid, exhibiting a vibrant spectrum of contrasting characteristics that are curiously interconnected and interdependent. Architecture operates across many scales and generations. It is the site where many design disciplines overlap conceptually and physically. Rather than sorting out those myriad disciplines, scales, and timelines, as 20th-century modernists might have done, we stand to gain more insight from appreciating the "sum of the parts" of the expanded design ecosystem.

This paper examines as a case study the speculative design and operation of a micro-farm, a self-sustaining garden structure designed as a prosthetic addition to the facade of a building. This design experiment demonstrates how architecture can technologically entwine resources, climate, and shelter to cultivate plant-based food in unlikely territories. This architectural exoskeleton, though small, is an example of an emerging discourse of living architecture, one that reframes architecture as deeply connected to immediate and distant ecosystems. Conceived as an autonomous designed ecosystem, the micro-farm is an active device bridging scales and tapping into systems by connecting people to food networks, connecting structures to climate and watersheds, while also generating microclimates and bio-habitats for a diversity of animals and plants.

Studying this case study allows us to explore fascinating aspects of heritage, including how we might re-examine agricultural practices aided by architecture and technology, particularly in a hyper-local or domestic setting. Two timely factors, expanded urbanisation coupled with pandemic-driven care for artisanal practices, could drive public interest for incorporating micro-farms within architecture. If so, work like this could further our reading of architecture's role as an active participant within the ecosystem, perhaps serving as a call to action for increased environmental sustainability through architectural performance.

LIVING ARCHITECTURE
Architecture's ecological entanglement

Contemporary philosophers explain that our understanding of the world has moved far beyond seeing things as discrete units easy to position within clear taxonomies. We live in a post-dichotomy world, recognizing instead the full complexity of systems that surpass simple categorization or oppositional conditions. We should instead look at the world as an intricately interconnected and interdisciplinary set of systems that transcend scales. Design can help us cope with this complexity. The most

interesting conditions, including architecture, are fundamentally hybrid, simultaneously engaging many disciplines, possessing multiple qualities, and operating across numerous scales. Philosopher and futurist Koert van Mensvoort argues that contemporary life is sufficiently complex that attempts to classify conditions as either natural or artificial are futile, producing irrelevant and inaccurate connotations. In his essay "Real Nature is not Green," he writes: "Insofar as we still wish to make a distinction between nature and culture, we will draw the line between 'controllable' and 'autonomous'. Culture is that which we control. Nature is all those things that have an autonomous quality and fall outside the scope of human power. In this new classification, greenhouse tomatoes belong to the cultural category, whereas computer viruses and the traffic-jams on our roads can be considered as natural phenomena."[1] Van Mensvoort offers the compelling direction to embrace the entanglement of nature and culture as fundamentally hybrid. Applying that viewpoint to architecture, we are challenged to expand beyond the aspects of a building we can design for, plan for, and generate through construction, to also embrace the fullness of the complex and competing forces of its broader ecosystem.

Architects can anticipate and design around intended uses, and perhaps we can inspire intended moods in the people who inhabit the building. But the opposite is also true. Buildings become animated by many forces of performance, use, and occupation that far exceed the architect's control or forethought. Moreover, a building has many subsequent effects on its site, ecosystem, and community throughout its life. Architecture and the built environment are profoundly impactful across many scales, times, and disciplines.

Expanding sustainability

Sustainable design is undergoing re-evaluation and evolution appropriate to its substantial importance and effects at many scales. Though we fully recognize the negative effects architecture has on the environment—with buildings taking 45% of all energy consumed and contributing 39% of climate-changing emissions produced annually[2]—it is appropriate to reassess key tactics of sustainable architecture. How do we bridge the scalar gap between constructing and operating one building and the ecological health of the planet? A full evaluation of the relative benefits of sustainable design at the scale of a building can be difficult to substantiate.[3] This, in part, supports a shifted focus looking at architecture's potential to increase ecological resilience when studied across the expanded ecosystem.[4] We also recognize the need to expand our readings of sustainable architecture to care for the social and health impacts of environmental pollution and climate change. Architects have been conditioned to approach sustainability through technical means—specifying materials that contribute less carbon over the project's life cycle, designing for high-efficiency heating and cooling systems, conserving water, and reducing stormwater runoff. The emphasis on tangible and reportable metrics, while a needed part of comprehensive action,[5] misses the point of sustainability, which is to care for our environments so that generations of people can access and enjoy them equitably. Instead of "being less bad," as architect William McDonough might chide,[6] comprehensive climate action led by architects and designers must be radical and comprehensive. The field of environmental justice argues that architects must act to mitigate both the technological and social impacts of design, broadening sustainability. Significant social justice work is being done by Prof. Bradford Grant of Howard University who argues for the architect's professional potential to promote climate activism,[7] and by Dr. Robert Bullard who writes about the environmental effects of injustice.[8] Sustainability in architecture must hybridize and must care for both the technical and the social.

Crafting hybrid ecosystems

The immediate ecological, social, and health crises present the opportunity to reframe architecture as a living and animated endeavour. The prototype micro-farm presented in this essay (Figure 1) is situated within the context of living architecture. Adopting the stance of living architecture, architects can explore productive exchanges between buildings and living agents. Every building responds to and affects a wide-ranging set of constituents who animate the work—people/animals/plants, infrastructure/technology, territory, and climatic forces/weather phenomena. Architects should design for these agents, the predictable and the unpredictable. This way of thinking positions architecture as a living construct, always situated within a greater environment, and where the building itself is a hybrid of artefact and living agents. Rather than valorising the architectural object as a singular, heroic, and static creation, living architecture is characterized by flux and is reconstituted as a system of ecologies, resources, and technologies entangled and entwined in the service of exuberance. When understood as a hybrid ecology of inert and living elements, architecture is constantly changing, influenced by and influencing a much-expanded set of constituents beyond simply the client, occupant, and facilities team. Architecture is entangled with the world.

Figure 1. Photography of installed micro-farm prototype, by J. Akerman

Through the lens of living architecture, nature and architecture are fundamentally entangled; architects make choices that significantly impact the health of people and ecosystems. Writing about the ecological imperative, Daniel Wildcat adopts an opportunistic stance in his book *Red Alert! Saving the Planet with Indigenous Knowledge*: "Hopefulness resides with the peoples who continue to find their identities emerge out of what I call a nature-culture nexus, a symbiotic relationship that recognizes the fundamental connectedness and relatedness of human communities and societies to the natural environment and the other-than-human relatives they interact with daily."[9]

Architecture as conduit

We are surrounded by life, even in surprising places. Nature writer Helen Macdonald recognizes that the atmosphere is teeming with life—the sky is full of insects and birds. In her essay "High Rise," Macdonald recounts watching thousands of birds passing over Manhattan as viewed from the observation platform of the Empire State Building. For Macdonald, architecture becomes a conduit connecting the urban realm of people and the animal realm of the atmosphere, noting, "High-rise buildings, symbols of mastery over nature, can work as bridges towards a more complete understanding of the natural world—stitching the sky to the ground, nature to the city."[10] Architecture is full of life we are not conditioned to see, anticipate, or design around. Architect Liz Diller has argued for architecture's capacity to produce forms of "assisted nature," states where technology and architectural intention cause the viewer to notice, examine, and question the status of the natural.[11] A promising claim of living architecture is to use buildings to cultivate and amplify forms of life—animal and plant, through bio-habitat and food production—using materials harvested from the immediate environment, linking the building more explicitly to multiple ecosystems, and further hybridizing the built environment.

Figure 2. Photograph of the cultivation bed's structure, by J. Akerman

MICRO-FARM DESIGN EXPERIMENT
Overview of the STELLA prototype

STELLA is a prototypical micro-farm designed, fabricated, and operated on the façade of an industrial building. In addition to being a functional built prototype, this work includes developing a series of drawings and representational strategies to help complicate or blur expectations for construction documents or presentation renderings. The name is in homage to American artist Frank Stella whose influential work in the areas of minimalism and abstraction embraces intense colour, strong geometric forms, and repetition, all evident in the form of this structure (Figure 2).[12] Sited on the exterior of a design and fabrication shop, the micro-farm symbiotically engages a window unit. The assembly shields undesirable views, deters potential vandals or intruders, and provides a new

pastoral condition of extreme agricultural production. The system is comprised of minimal materials: a folded steel support bed, a steel cable suspension structure, a manufactured growth medium, and irrigation tubing with misting nozzles. Water is channelled to a reservoir, filtered, and recirculated as a cloud of mist to keep the coconut mat growth substrate moist enough to support the growth of select agricultural plants with a high market value: micro-greens, wheatgrass, green beans, and chia (Figure 3). The economic strategy is to generate monetary value drawn from the resources of the city—the architectural host structure, sunlight, and water—using a minimal material footprint, effectively hiding in plain sight.

Figure 3. Photograph of the sowing process, by J. Rice

This micro-farm system is a demonstration prototype for how we can use architecture to cultivate food, construct microclimates, and host larger ecological systems at work in the environment (Figures 4 and 5). This crafted ecosystem is continually in flux, producing cooling mists and humid surfaces, while also animated by the circadian shifts of a range of weather phenomena from the site including rain, airflow, temperature, and solar conditions. The tensile support system is adjustable, allowing the bed to follow the sun or seek shade, to open or conceal viewsheds, depending on the system's needs.

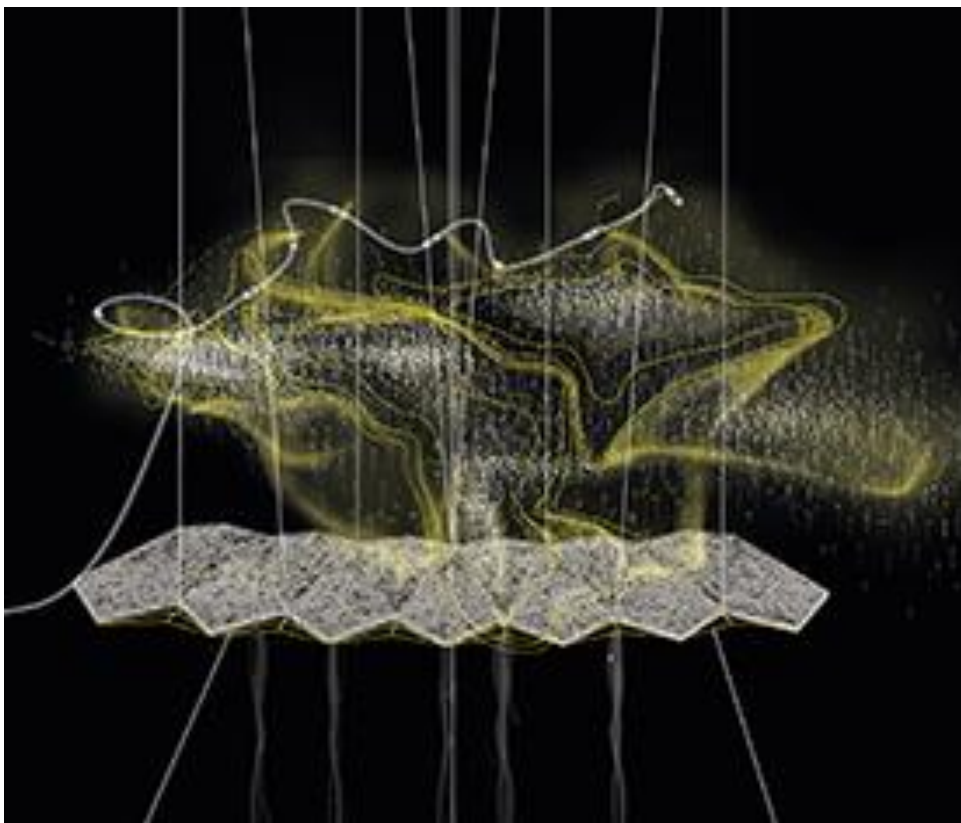Figure 4. Perspective of key living systems at work throughout the micro-farm, by G. Hooper

Figure 5. Drawing of irrigation system and its effects, by G. Hooper
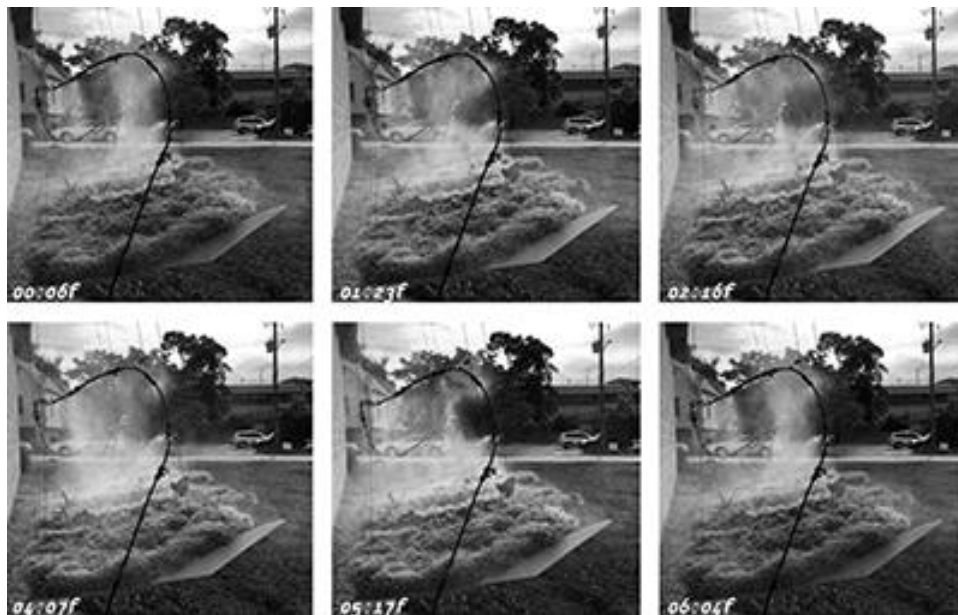
Figure 6. Photo-collage of irrigation mists studied over time-lapse video, by J. Rice and J. Akerman

The micro-farm generates its own climate, at times self-shading, at times using mist clouds to lower the ambient temperature, expanding the cultivation range needed to support the food it generates (Figure 6). The construct is a bio-habitat for micro-greens and vegetables. Beyond their utility in producing food for humans, the roots of these plants generate nutrients for other organisms and their flowers are attractors for pollinators who travel miles in their lifespan (Figure 7).
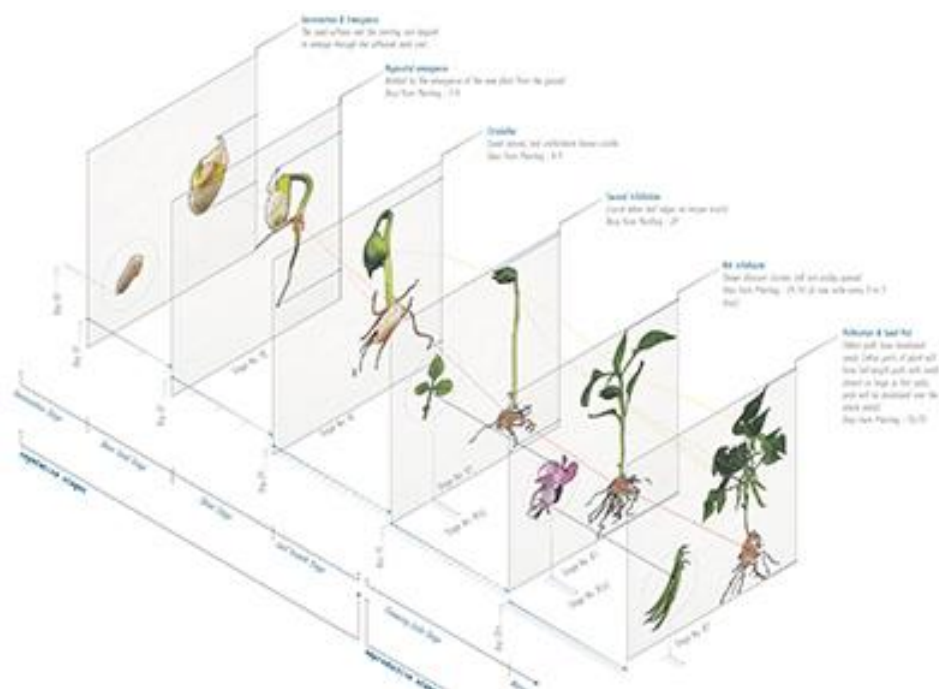
Figure 7. Diagram of bean plant development through time and space, by J. Rice

Further applications for STELLA emerge from increasing the number of grow beds, envisioning a manifold of shingles or petals, and amplifying the tensile support system, capitalizing on its ability to move (Figure 8). Like a cloak, cultivation beds could expand or contract to transform the appearance of a building or to tailor-make productive climates. It could be a tower, taking advantage of very few

anchorage points needed to support a surprisingly large amount of productive surface. It could be a screen, strategically conditioning the atmosphere to create habitable microclimates in the city. Such speculations expand architecture's capacity to create literal atmospheres, beyond phenomenal ones.[13]
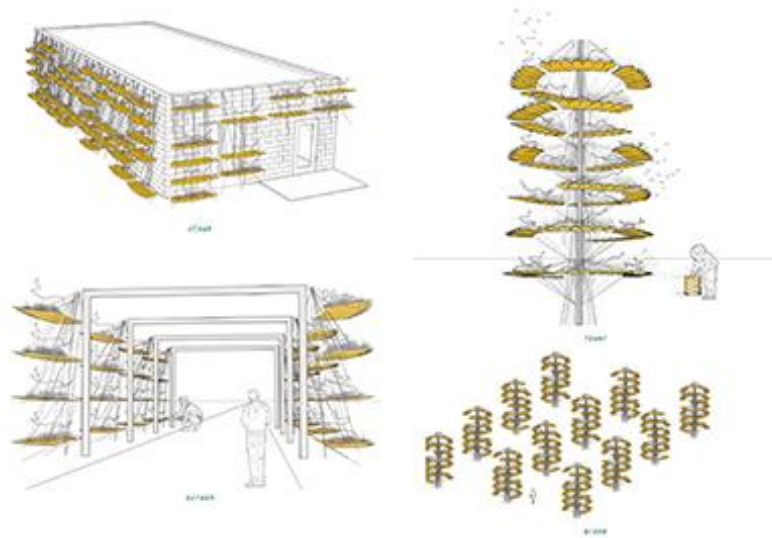
Figure 8. Drawings of aggregations of multiple micro-farm elements, by G. Hooper and J.Akerman

Imagining the productive surface

Mason White of Lateral Office co-edited the journal *Bracket*'s inaugural issue, *Almanac 1: On Farming*. He argues for a re-reading of architectural and landscape surfaces as productive, writing, "The productive surface is a constructed terrain that has the ability to, simply put, yield something. In other words, it has a tangible, positive by-product—energy, biotic, or abiotic components, for example."[14] The STELLA micro-farm operates in this expanded reading of the productive surface, generating food, a cooled and water-abundant climate, and habitat, in addition to its capacity to transform both the reading of the architecture and the landscape beyond (Figure 9).

Figure 9. Photo of micro-farm prototype screening the window, by J. Rice

FARMING WITH ARCHITECTURE: RETHINKING HERITAGE
The architect's farm

Though some throughout modernity have explored connections between architecture and urban farming, there is a great opportunity to revive interest in architecture-aided farming. Meredith TenHoor writes: "Architects have long sought to improve both the food supply and social relations through designs for farms and food distribution centres."[15] Her essay "The Architect's Farm" contextualizes the architectural farm installation *Public Farm 1* by architects WORKac at PS1 MoMA (2008) by describing historical examples such as late eighteenth-century Parisian sewer gardens, Ebenezer Howard's proposed *Garden Cities of To-Morrow* (1898), and LeCorbusier's *Radiant Farm* project (1934-5). Each of these precedents sought to restructure accepted definitions and associations for rural and urban and to re-centre food production as part of urban life. Contemporary examples, including "cyber gardening" design interventions for domestic algae production by ecoLogicStudio,[16] or Phillip Beesley's *Hylozoic Soil* installation (2009),[17] and the *I'm Lost in Paris* house (2008) by R&Sie(n) / new territories,[18] take on automated qualities that challenge assumptions of comfort and leisure in the domestic sphere.

Heritage through farming rituals

Fascinating aspects of heritage can be explored through this case study, including how we might re-examine agricultural practices as aided by architecture and technology. Our farming rituals might evolve based on the adoption of micro-farms. Hyper-local food production could become common, expanding food justice in communities previously dependent on unsustainable agricultural practices. Micro-farms of this type could change people's relationship with food, turning building occupants into farmers, tending to their automated mechanisms as one currently tends to the air conditioning or Wi-Fi service in a home. Rituals of caring for, harvesting, cooking, sharing, and eating the food produced would reframe critical relationships between people and architecture through the post-occupancy period. The potential interest of the public to incorporate micro-farms in their architecture could be one outcome of the global pandemic, akin to the increased interest in contemporary artisanal domestic practices. One thinks of young professionals reviving time- and labour-intensive baking practices from past generations, and charismatic influencers using social media to promote Black houseplant ownership, like Jade who posts as @BlackPlantChick on Instagram.[19]

Wider adoption of these contemporary farming rituals could expand our understanding of architecture's role as a symbiotic and active participant within the ecosystem, serving as a call to action for increased environmental sustainability through architectural performance. Positioned in this way, micro-farms as extensions of buildings hold the potential to radically change how architecture performs technically, environmentally, and culturally, and would fundamentally alter architecture's future heritage.

FROM ARTEFACT, TO BUILDING, TO ECOSYSTEM
Generating futures that act as catalysts

Even at the prototype scale, there is agency in strategic installation work of this kind. In *Speculative Everything: Design, Fiction, and Social Dreaming*, designers Dunne & Raby position their products as part of "critical design," which they define as "use[ing] speculative design proposals to challenge narrow assumptions, preconceptions, and givens about the role products play in everyday life."[20] They design "everyday philosophical products," ones with no actual market, existing as provocations in the questions they elicit. These include intricately crafted hand-held personal robots (*Technological Dreams Series: No. 1, Robots*, 2007), and prosthetics for harvesting hard-to-reach fruit in a post-apocalyptic agrarian future (*Designs for an Overpopulated Planet: No. 1*, 2009). Dunne & Raby ask

pointedly, "What would have to change for a need like this to emerge?"[21] Perhaps the same question could be provoked by the STELLA micro-farm prototype. Having experienced massive disruption to livelihood, personal safety, supply chains, and our connection with friends, family, and community, has the pandemic primed us to re-centre food production at home to benefit our physical and mental health?

Reframing architecture as a systemic endeavour

This prototype is an example of a novel and alternative form of architecture produced when the design process relies on a multitude of contingencies outside of the architect's control. Historic models for training architects position certainty as paramount to decisive action in the built environment. This research argues otherwise, asking us to consider the limits of certitude in light of the complexity of our environmental, social, and material milieu. Designing living architecture opens questions about our professional responsibility in the future. What if the architect's role becomes one of orchestrating controlled unpredictability, seeking unexpected behaviours as the catalyst for further work?[22] STELLA as a cultivation system continually in flux would likely generate unpredicted spatial conditions that are uniquely tied to its living matter, unable to be perfectly anticipated, represented, or reproduced.

Perhaps more significantly, design holds the potential to bring about social change, and thus holds great ethical agency. Dunne & Raby argue, "Designers should not define futures for everyone else but working with experts, including ethicists, political scientists, economists, and so on, generate futures that act as catalysts for public debate and discussion about the kinds of futures people really want."[23] We're well into an era of radical disruption: a protracted pandemic, racial injustice, political extremism, climate crisis, financial inequity, and labour collapse—each fuelling the need and social desire to act. Paola Antonelli argues "One of design's most fundamental tasks is to stand between revolutions and life, and to help people deal with change."[24] She continues, "Designers have the ability to grasp momentous changes in technology, science, and social mores and to convert them into objects and ideas that people can understand and use."[25] As is true in many creative fields, architectural projections reveal the complexities of the present. Engaging the living through architecture with the specific goal of being productive could generate a more nuanced relationship between architecture and nature, and may also be a model for more profound critical practice in future generations.

ACKNOWLEDGEMENTS

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1 Koert van Mensvoort, "Real Nature is Not Green," *Next Nature Network* (June 11, 2006), *https://www.nextnature.net/2006/11/real-nature-isnt-green/*.

2 American Institute of Architects (AIA), *Architect's Guide to Building Performance*, (Washington, D.C.: 2019), 8, *https://www.aia.org/pages/6201381-architecture-and-climate-action-the-path-f*.

3 Kiel Moe, "Compelling Yet Unreliable Theories of Sustainability," *Journal of Architectural Education* 60, no. 4 (2007).

4 The work of SCAPE, headed by Kate Orff, is a constructive example of ecological and social resilience promoting change, designing landscapes to both frame and act on complex problems. See: Kate Orff, *Toward an Urban Ecology* (New York: Monacelli Press, 2016).

5 Janette Kim and Eric Carver argue for comprehensive action, posing the question: "After all, in a climate crisis, shouldn't every option be on the table?" See: Janette Kim and Erik Carver, *The Underdome Guide to Energy Reform* (New York: Princeton Architectural Press, 2015), 20. Thanks to Zachary Orig for the reference.

6 William McDonough and Michael Braungart, "Waste Equals Food," in *Cradle to Cradle: Remaking the Way We Make Things*, (New York: North Point Press, 2002), 92.

7 Bradford Grant, "Architecture, Climate Change & Society," in *A'21: AIA Conference on Architecture* (Digital Experience, July 8, 2021), Seminar.

8 Dr. Robert D. Bullard has written extensively on environmental justice. See: Robert D. Bullard, *Growing Smarter: Achieving Livable Communities, Environmental Justice, and Regional Equity*, Urban and Industrial Environments, (Cambridge, Mass.: MIT Press, 2007); Robert D. Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality*, 3rd ed. (Boulder, Colo.: Westview Press, 2000). Robert D. Bullard and Beverly Wright, *The Wrong Complexion for Protection: How the Government Response to Natural and Unnatural Disasters Endangers African American Communities* (New York: New York University Press, 2012).

9 Daniel Wildcat, *Red Alert! Saving the Planet with Indigenous Knowledge* (Wheat Ridge, Colo.: Fulcrum Publishing, 2009), 20.

10 Helen Macdonald, "High Rise," in *Vesper Flights* (New York: Grove Atlantic, 2020), 40.

11 Elizabeth Diller, "Agri-Tecture," in *The Return of Nature: Sustaining Architecture in the Face of Sustainability*, ed. Preston Scott Cohen and Erika Naginski (New York: Routledge, 2014), 163. Architecture's capacity to augment nature is explored in several profound DS+R projects, including *Pure Mix* (2004), *Abores Laetae* (2008), and the *Blur Building* (2002).

12 See: Frank Stella, *Working Space* (Cambridge, Mass.: Harvard University Press, 1986).

13 Mark Wigley insightfully refocuses the architectural construction of atmosphere toward the phenomenological. See: Mark Wigley, "The Architecture of Atmosphere," *Daidalos*, no. 68 (June 1998).

14 Mason White, "The Productive Surface," *Bracket* Almanac 1: On Farming (2010): 99.

15 Meredith TenHoor, "The Architect's Farm" in *Above the Pavement—the Farm! Architecture & Agriculture at P.F.1*, ed. Amale Andraos and Dan Wood,(New York: Inventory Books, 2010). 166.

16 See, for instance the ecoLogicStudio projects *H.O.R.T.U.S. XL astaxanthin.g* (2019) *https://www.ecologicstudio.com/projects/h-o-r-t-u-s-xl-astaxanthin-g or bl.O.serie* (2020) *https://www.ecologicstudio.com/projects/bi-o-serie* .

17 Philip Beesley, "Hylozoic Soil," *Leonardo* 42, no. 4 (2009): 360-361, *https://doi.org/10.1162/leon.2009.42.4.360.*

18 R&Sie(n) / new territories project I'm Lost in Paris (2008) *https://www.new-territories.com/lostinparis.htm* .

19 Black Plant Chick (Jade)™ on Instagram *https://www.instagram.com/blackplantchick/?hl=en*

20 Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming* (Cambridge, Mass.: MIT Press, 2013), 34.

21 Dunne and Raby, *Speculative Everything*, 36.

22 Jennifer Akerman, "Out of Control: Embracing Indeterminacy in the Design Studio," in *T Squared: Theories and Tactics in Architecture and Design*, edited by Samantha Krukowski, 73-88. London: Intellect Press, 2022.

23 Dunne and Raby, *Speculative Everything*, 6.

24 Paola Antonelli, *Design and the Elastic Mind* (New York: Museum of Modern Art, 2008), 14.

25 Antonelli, *Design and the Elastic Mind*, 15.

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VIRTUAL TOURISM STAYCATION REVIVE (VTSr) –TO CONVEY THE INTANGIBLE THROUGH AUGMENTED REALITY

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INTRODUCTION

The drastic increase in extreme weather due to excessive CO_2 levels in the atmosphere[1] requires all industries to cut down on unnecessary transport, therefore tourism should develop fossil-free Staycation[2] into an in-demand tourism. Domestic travel such as Virtual Tourism Staycation Revive (VTSr) can reduce the carbon footprint of tourism, when a destination's intangible storytelling is effectively communicated. How this could be realized and complied with is the focus of this paper. Tourist consumption, from flights to souvenirs, accounts for about 8% of the total global greenhouse gas emissions and in recent years alone, transport-related emissions have increased by 60%.[3] In addition, the annual IPCC report emphasizes the urgency of a dramatic 45% reduction in CO_2 emissions by 2030,[4] for limiting the earth's warming to 1.5°C, otherwise, the heat effect becomes a fact which is thus achieved within 20 years.[5] This study examines how virtual tourism is received as Staycation to revive hidden and intangible historical layers through digital feasibility studies to augmented reality (AR). Research investigating the possibility of turning fossil-free domestic travel such as Staycation into attractive tourism is lacking, which explains the relevance of this study. In 1962 The New York Times announced *"It is high time for people to know about these rapid changes in their environment…that may shape the future of all life on earth"*.[6] The newspaper quote referred to Carson's "Silent Spring," a book release that led to a sudden awakening and an environmental awareness.[7] Carson saw the obvious danger in the reckless and increasing use of synthetic pesticides. With the contemporary Keeling Curve publication,[8] based on Arrhenius and Fourier results,[9] which proved how increasing CO_2 levels affected global warming, concerns about the future climate grew. Just a few years later, Hetzer introduced the new travel concept *Ecotourism* based on four principles[10] where "Minimizing environmental impacts" reflected the spirit of the times. In 1987 *Sustainable tourism* acquired the legitimate status through the World Commission on Environment and Development's report.[11] Yet it took half a century, after the publication of Silent Spring, before sustainable tourism was adapted to three of United Nations World Tourism Organization's (UNWTO) Sustainable Development Goals in 2017.[12] Sustainable tourism has later specialized into Active tourism, Responsible tourism and Voluntary tourism.[13]Along with this increase, the tourism industry has had problems setting up guidelines and being able to certify destinations according to the new tourism concepts, as their definition criteria changed regularly and were subjective.[14] Unfortunately, tourists have sometimes not even connected the new travel trends with environmental awareness.[15]

Unclear branding of tourist destinations can be misused as greenwashing[16] and even be misleading to climate-conscious travelers.[17] A present trend is *Slow Tourism,*[18] which has its origins in the slow movement founded back in the late 1980s as a reaction against fast food.[19] It is noteworthy that slow tourism is actually considered to be the valid collective term for the last decades tourist concepts[20] in other words, the conscious and responsible holiday travel of the 21st century.

The Analogous, Digital and Post Covid **tourist phase**

The major changes for tourism in the 21st century mean that the industry can be divided into three clear eras. The first *Analogous tourist phase*[21] with the printed travel guides as a characteristic, started already in the 2nd century AD where "Description of Greece" by Pausanias is considered to be the first travel guide.[22] The development through the centuries made the exclusive trip an affordable pleasure for more people, not least during the 19th century. The real travel boom came in the 1990s during the digital tourism phase[23] which was triggered by the now affordable home computers that enabled all information about tourism and travel destinations to spread rapidly over the Internet.[24] Travel sales soared when everyone became their own travel agency as the price per ticket dropped radically. This era unfortunately led to overtourism in popular destinations[25] and to the highest greenhouse gas emissions ever recorded.[26] Despite strong local protests the era's abrupt end came in 2020 only because of global fear of the invisible threat of the Covid-19 virus. Travel more or less halted during the 2020 pandemic, which obviously had negative consequences for the tourism industry[27] which generally led to unimaginable economic losses.[28] Ever since 2021, we have been in the *Post-Covid tourist phase* (PCtp), which meant new challenges but for the first time also contributed with new perspectives. Above all, a new and unique knowledge of opportunities and limitations around holiday travel. First, travel restrictions showed that it was, and still is, possible to reduce CO_2 emissions, which happened in 2020 by 17%.[29] Second, that an alternative domestic travel pattern, the Staycation trend established in the US in 2008, (stay at home + vacation) so quickly became popular thanks to the strong power of social media.[30] Ever since environmental awareness began to spread, thanks to the Silent Spring & Keeling Curve, the tourism industry has repeatedly supplied the market with new in-demand travel products. The new challenge today is to create a completely fossil-free travel model as only a drastic reduction in indispensable transports would reduce greenhouse gas emissions.[31] In the PCtp era, travel agencies' unlimited right to arrange long-haul flights for short weekend getaways should be questioned and it is urgent. In 2021, vaccines and fewer travel restrictions yielded results which even succeeded in creating global tourism growth of 4%.[32] Yet, all kinds of restrictions of tourism require careful consideration because the maintenance of historic cities, buildings and destinations is dependent on tourism revenues, just like 300 million jobs worldwide.[33] The real challenge is, both to ensure tourism's employment market and slow down future climate change. Virtual tourism (VT) for this reason might be the solution consisting of computerized animations of the cultural heritage. These images are transmitted digitally on the Internet and to initiate relocation they are experienced at a distance via the computer.[34] In addition, to encourage new Staycation trends, they can be displayed on-site via smartphones or head-mounted displays. The purpose of this study is to scrutinize whether virtual tourism consisting of different digital media has the capacity to establish in-demand Staycation. In other words, could these feasibility study images of augmented reality (AR), through the visitors' perspective, revive two medieval castles to feel historically real, despite being vague and intangible today?

METHODOLOGY
The field studies at Skanör borg and Månstorps Gavlar

The study objects are two medieval castles, which today are unclear and intangible because they were partially demolished in the 18th century. The castles are located in Skåne/Scania, which was Danish until 1658. Important to the study was the selection of forgotten cultural heritage sites, which hid unexpected historical treasures that would be exciting to revive.[35] The requirements were fulfilled by selecting Skanör Castle and Månstorp's Gables for the field study, see Appendix A.

Figure 1. The Motte of Skanör castle (Skanör borg) seen from the south where the double moats become visible during high tide, to the left. The Motte of Skanör castle around 1905, to the right.

Figure 2. To the left Månstorp's gables seen from the south. Månstorp in the 1920s prior the conservation work, to the right.

APPENDIX A
Study object
Skanör Castle (Skanör borg)

The rich supply of Europe's best herring was what initiated the construction of the fortified Skanör Castel in the 13th century to secure the royal treasury for more than 300 years.[36] On the Falsterbonäset peninsula, norther Europe's largest international trading place Nudinae Scanienses was established until the 16th century. All market fees and taxes were collected and stored in the castle. These profits used to provide the largest income for the Danish crown during three decades. The king's men secured market peace, which made it possible for around 20,000 barrels of salted herring to be shipped out from Skanör daily, from May to November.[37] Political circumstances and, but not least, the Reformation put an end to the herring markets, which used to be the only dish allowed during Lent. Today, the only remaining sign of Skanör Castel is the round fortification hill or Motte[38] where it once stood. The hill was built from standing wooden stakes, peat, stones. These were secured by earth that was built up to the top as terraces.[39] To protect the castle from invaders, a moat was built around the

foot of the hill which was actually the trench from which the soil for the moat construction was excavated. A second moat and all additional watercourses at the castle site were secured by piling as were the still traceable four bastions that framed the hill as a square.

Månstorp's Gables/Månstorp Castle (Månstorps Gavlar)

The Danish knight, governor and king's confident Eske Bille inherited the Mahgentorp estate in the 1530s. Ten years later, construction work began on Månstorp's castle and in 1547 this facility was completed, which was both a defense and pleasure castle. With its unique Renaissance design, the rectangular plan-shaped and more than 25 m high tower cut perpendicularly into the circular defensive wall, which was thus able to hide two casemates on either side. The drawbridge crossing the surrounding moat led to the entrance on the perfectly rounded east gable. On this floor were the soldiers' quarters and the exit to the protected yard. On the second floor, the piano nobile, the high window signaled the imposing knight's hall, which could only be reached from the castle yard via a separate staircase over the defensive wall. Bille's private floor was on the 3rd floor and the steep roof offered a generous volume for storage on the 4th.[40] Bille's previous involvement in castle building and great wealth explains why Månstorp's exterior and interior were so richly decorated and technically advanced. In 1678, Danish soldiers captured and burned the castle, which then belonged to Sweden. The castle was abandoned, but used as a pigsty and a building material resource[41] during the construction of the new colonel's residence in 1829. The ruin was left to decay, but in 1928 a major restoration and excavation began with the aim of partially rebuilding and securing all the masonry, which was also covered with bricks.[42] A small museum was established on site and outdoor concerts were held during the summers for the last two decades.

APPENDIX B
The 1st Interviews
Participants and procedures

The sample for the first interview was made up by 16 respondents who represented two main groups. One was the Laymen (L), who knew the monument well because they lived or worked close to the cultural heritage sites and the other were the professionals (P) who work in tourism. The Skanör laymen had five representatives where as Månstorp only had three. The eight professionals worked with tourism both locally, regionally and centrally in Skåne (South Sweden). Given the modest number of participants in the study, it should be noted that as a result after the regrouping, due to the thematic evaluation and coding, the professional and the laymen corresponded to 24 individual each, thus leaving a total of 48 respondents in study 1 (Table 1). Since some respondents knew one castle better, they instead became objective tourists when commenting on the other. In the P-group the age span was between 30-60 years old, with three male and five female. In the L-group five were male and three female and it also had a wider age span between 18 and 78 years old. Though the sample structure individually was incomplete, yet through the subdivisions they received an acceptable coverage with 10F-6M among the professionals and 6 F-10 M in the Laymen group. In total P+L consisted of 16 female and 16 men. (226)

The 2nd Interviews –digital interventions
Participants and procedures

The sample for the second round of interviews, six months later, was the same respondents as in interview 1. Although fewer in number, they still consisted of the two main groups laymen (L) and professionals (P). Skanör's laymen still had five, but Månstorp now only one representative. The professionals had also been reduced to seven respondents. With the regrouping after the thematic

evaluation and coding, the number of individuals in the other interviews instead corresponded to 23 professionals and 18 laymen, leaving a total of 41 respondents remaining in the study 2 (Table 1). In the P-group the age span was between 30-60, with three male and four female. In the L-group five were male and one female. The coverage changed to 8 F-6 M among the professionals and 2 F-10 M in the Laymen group. In total P+L consisted of 10 female and 16 men.

The 1st Interviews –natural state

Skanör castle and Månstorp's gables

The purpose of the first interviews was to register the respondents' preconceptions of the castles in natural state. All respondents were interviewed in real time over Zoom where 11 mixed illustrations[43] were shown to them one at a time. Månstorp's gables was first presented in the slideshow because as a standing ruin it is easier to absorb, the Skanör castle followed and the slideshow concluded with three open ended questions to answer.[44] All responses were manually registered directly during the interview and the thematic coding provided the observable variables indicating available responses per question to evaluate quantitatively.[45] The use of an inductive approach was to reach a deeper understanding about Virtual Tourism as such, but in dialogue with the potential visitors. The sample for interview one was made up by 16 respondents who represented two groups Laymen (L) and professionals (P).

Participants and procedures, see Appendix B and Table 1.

Professionals			Laymen			Professionals			Laymen		
P 0			L 60-80	0F	2M	P 60-80	0F	0M	L 60-80	0F	2M
P 40-60	3F	1M	L 40-60	2F	1M	P 40-60	3F	1M	L 40-60	1F	1M
P 30-40	2F	2M	L 18-30	1F	2M	P 30-40	1F	2M	L 18-30	0F	2M
P lo-C	2F	2M	L lo M	3F	0M	P lo-C	1F	2M	L lo M	1F	0M
P R	3F	1M	L lo S	0F	5M	P R	3F	1M	L lo S	0F	5M
to	10F	6M		6F	10M	tot	8F	6M		2F	10M

Table 1. In interview 1, left, and interview 2 to the right the two main respondent groups were Professionals (P) and Laymen (L). The subgroups of Professionals were by age (2) and work position that is: P lo-C/local+ central, P R/regional. The laymen's subgroups were also by age (3) and place of residence (2).

The 2nd Interviews –digital interventions

Skanör castle and Månstorp's gables

The goal of the second interview was to empirically examine how the respondents would react when confronted with the digital pre-study images. These had been designed to reveal the historical importance and great splendor that the castles once held. Of particular interest was to record the extent to which the respondents' opinions had possibly changed regarding the castles between the 1st and 2nd interviews and which images produced that effect. The intention was to determine what impact the digital images had and to define which might be best suited to use for VT Staycation Revive. In future research, these will be the basis for designing tools for augmented reality. All respondents were interviewed in real time over Zoom where 38 mixed illustrations were shown to them one at a time.[46] Each castle's slide show ended with five open questions to answer.[47] Again, all responses were recorded simultaneously, coded thematically, and the variables finally evaluated quantitatively. Participants and procedures, see Appendix B and Table 1.

Figure 3. Here a detail from Waghenaer, L. Janszoon's map dated 1586 showing the Falsterbonäset peninsula with illustrations of the important castles along Scania's western   coast. The northern silhouette shows Skanör Castle with its tower and to the south, the younger Falsterbo castle and town.

Figure 4. On the left, Meyer's map of Skanör from the 1650s with a fortification wall in the east. In the north lies Skanörs Castle with its four bastions, the two moats and the waterways. These connected the castle with Hölleviken harbor in the east and Öresund in the west. On the right, the satellite photo of the castle site with Meyer's depiction of Skanörs castle drawn in white. A red circle to the north markes the spot where the tower may have stood.

.

Figure 5. To the top, the iron spur was one of the few artefacts remaining from the dig at the local museum. Here digitalized into a movable textured 3D-model. A woodcut detail from a medieval church door showing the castle tower, bottom left and bottom right, the survey plan, from the excavation with the rectangular foundation stones to Skanörs castle north.

The digital feasibility study images for Skanör Castle

For a Virtual Tourism Staycation revive (VTSr) to be a cost-effective concept, it was important to digitally convert and reuse already existing and archived artifacts from the castle sites. Skanör's slideshow therefore contained two maps from the 16th and 17th centuries (figures 3-4) but also a satellite photo with an overlay (figure 4). In particular, the hand-drawn objects from the excavation report must be included such as dice, weapons and buckles.[48] An iron spur was one of the few remaining artifacts from the excavation preserved in the local museum. To convey a sense of storytelling about a soldier's life in the castle, the spurs were transformed into a moving textured 3D model (Figure 5). In order to similarly visualize or revive the historical significance and great splendor of Skanörs castle, however, other solutions were required. The non-existent condition of the castle building therefore precluded the possibility of registering the cultural heritage through scanning. During the second interview, therefore, Archi Cad 3D reconstructions instead became the digital media that the respondents got to see (Figure 6).
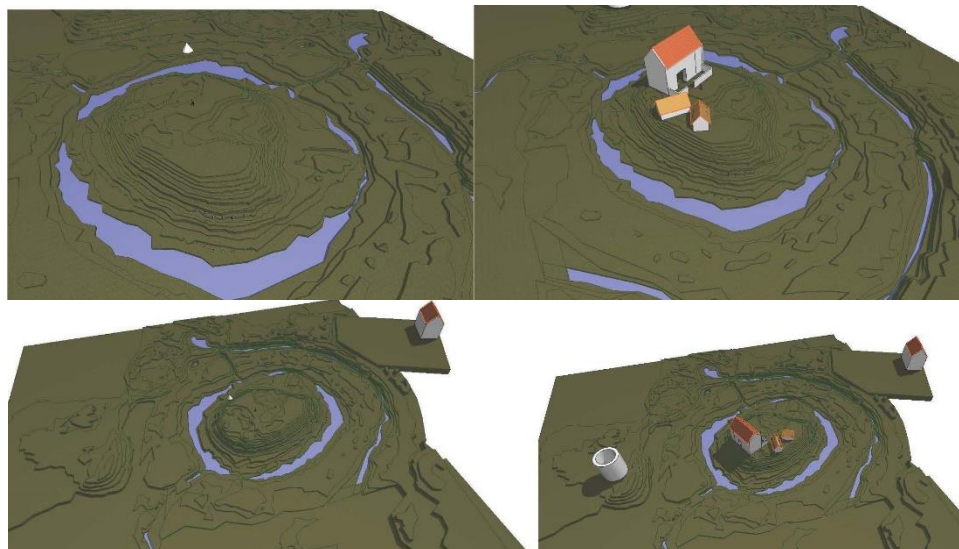
Figure 6. Archi Cad 3D reconstructions showing the intangible development of Skanör Castle

In chronological order, these gradually revealed the intangible building history of the castle, in other words the complicated process of building heavy masonry in a swamp. In addition, a hypothetical reconstruction was made of the three buildings that once stood on the hill. It was a castle of masonry and two half-timbered cottages. The foundation of the main castle building was described in the excavation report,[49] but the two smaller houses could only be deciphered from the excavation's site plan where one probably was the kitchen. The castle's tower, however, was a mystery. In fact, the only two surviving images of Skanör's castle (figures 3 and 5) always show a tall and probably round tower, but the drawing from the excavation shows that it cannot have stood on Motte. Since all that existed before the castle was built in the past was flat marshland, therefore every hill on the castle grounds is artificial, that is, both the Motte and the four bastions. However, a find was made in connection with Archi Cad's reconstruction work which was based on a level map and a satellite image. A likely location for the tower was discovered on the north-west bastion of the castle. It was a circle where nothing grew. This most likely indicates that a round stone foundation is hidden in the bastion hill. A cylindrical shape, mimicking a tower is therefore also drawn in at the supposed location of the castle tower (Figure 4-6).
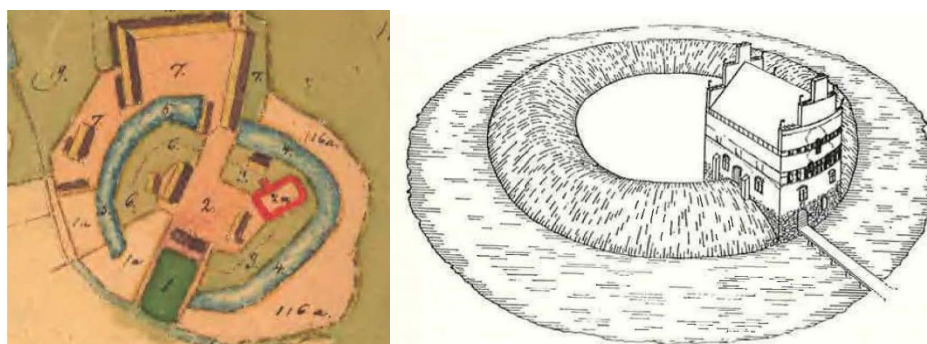

Figure 7. Måstorp's gables with the newly built main building on the royal estate in 1820, left. To the right Månstorp with the circular fortification rampart, reconstruction according to Sandblad.

Figure 8. The big-nosed soapstone mascheron, left, probably comes from a demolished Norwegian Romanesque church. The decorative gable globe of sandstone, right –story tells of the castle's former glory. Movable textured 3D-model Aquired from photos, postprocessed with Agisoft Metashape
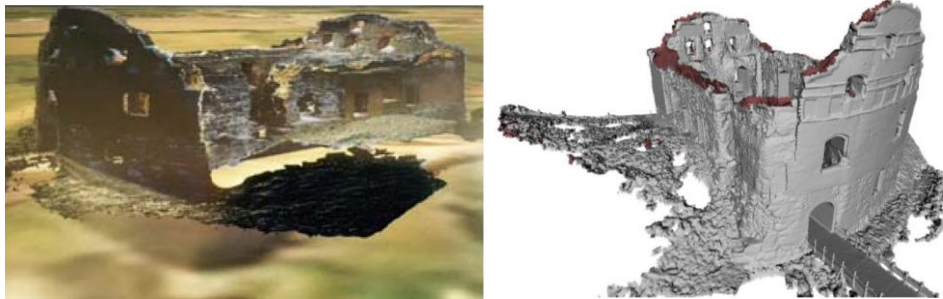

Figure 9. Left, Månstorp gable digitalized as a textured 3D-model and visualized in 3D GIS. To the right Månstorp, here digitally acquired with a Faro Laserscanner, post processed and mesh created into a movable model

The digital feasibility study images for Månstorp- scanning

Since Månstorp's gables are still a partially intact ruin, this time there were more opportunities to visualize the historical significance and importance the castle once possessed. The oldest available map in Månstorp's slideshow was from the 1820s (Figure 7). Hand-drawn building details in stone, photos and survey drawings from the excavation report[50] were included or used to achieve the cost efficiency intended for Virtual Tourism Staycation Revival. In one of the castle's casemates there is a small artefact museum. From here, a mascherone and a stone gable globe (figure 8) were selected to be photographed and post-processed with Agisoft Metashape to thereby become mobile textured 3D models and thus tell the story of Bille's lovely castle. The castle's ruin structure provided unlimited opportunities to make scans at Månstorp and therefore two different types were tested (Figure 9). One, which is a work in progress, was a structured 3D model that had been visualized in 3D GIS (ESRI ArcGiS PRO) and the model was obtained from photos that had been post-processed in Agisoft Metashape and then exported and georeferenced to match the basemap. The second scan was done with a Faro Laser scanner, the point cloud had been post-processed and the mesh created in Meshlab. Finally, it was presented on the web using 3dhop.
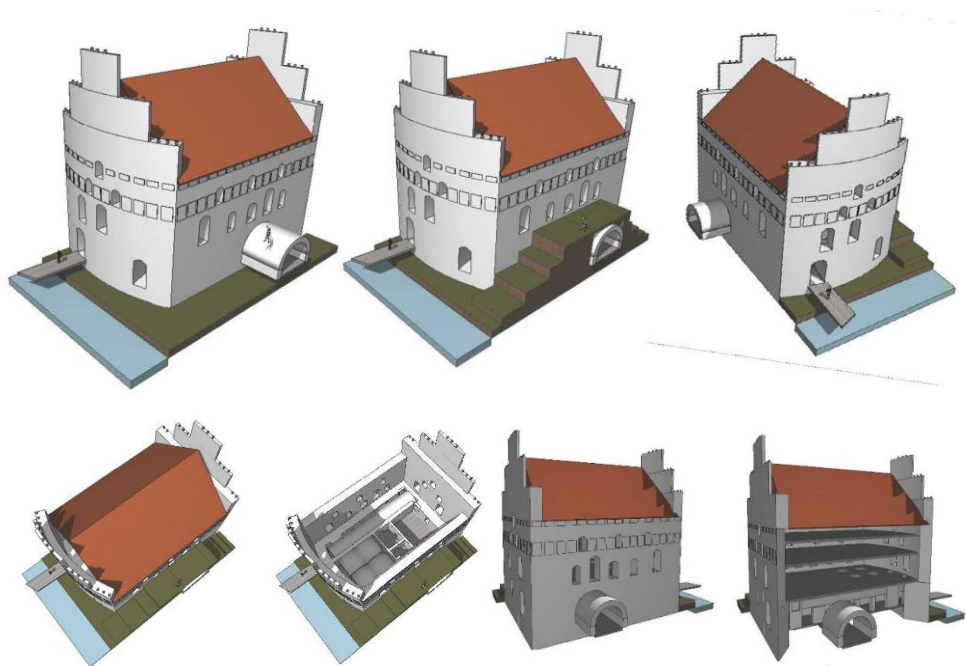
Figure 10. Archi Cad 3D reconstructions showing the intangible interior of Månstorp Castle

Although many different types of scanning methods had been used for Månstorp, none of them could revive the historical significance and great splendor of the castle from before. Only the fragmented condition that Månstorp has today was possible. For this reason, Archi Cad 3D reconstructions were designed (figure 10) based on the written sources from the 17th century[51] and Sandblad's plans and elevation drawings[52] were indicative.

RESULTS
The 1st Interviews –natural state (6)

The professional groups

C-respons	Månstorp		Skanör	
	Beautiful ruin	No tourism	Uninteresting hill	Great importance
P 40-60				
P 30-40				
P lo-C				
P R				
Quantity	75%	25%	100%	

The Laymen groups

C-respons	Månstorp		Skanör	
	Beautiful ruin	No tourism	Uninteresting hill	Great importance
L 60-80				
L 40-60				Neutral
L 18-30				
L lo M				Neutral
L lo S				
Quantity	100%			60%

Table 2. Question 1. What do you think of these cultural historical sites? Variables: Beautiful ruin, No truism, Uninteresting hill, Great importance. (P-group) believes M has the best chance of being launched as Staycation of the two, only P 30-40 differs. (L group) agree with M, but are also convinced that S has a chance.

The professional groups

C-respons	Månstorp		Skanör	
	History		History	Synergy effects
P 40-60				
P 30-40				
P lo-C				
P R				
Quantity	100%		50%	50%

The Laymen groups

C-respons	Månstorp		Skanör	
	History	Music	History	
L 60-80				
L 40-60				
L 18-30				
L lo M			Neutral	
L lo S				
Quantity	60%	40%	80%	

Table 3. Question 2. Why should they be noticed and what would be the benefits? Variables: History, Synergy effects, Music. (P-group) again M is rated higher, although S seems to be improving its position. P 40-60 and Region at least see that S can be useful to others. (The L group) has high hopes for both venues, but the concerts at M are a dear tradition.

The professional groups

Månstorp & Skanör

C-respons	Guides	Build s. digital	Tourist package
P 40-60			
P 30-40			
P lo-C			
P R			
Quantity	50%	25%	25%

The Laymen groups

Månstorp & Skanör

C-respons	Social media	Text on site	History t. school
L 60-80			
L 40-60			
L 18-30			
L lo M			
L lo S			
Quantity	60%	20%	20%

Table 4. Question 3. How would you suggest this can be done at Månstorp's Gables/at Skanör Castle? *Variables: Guides, Build something digital, Tourist package, Social media, Text on site, History teaching school. (P-group) have many suggestions but primarily prefer the old fashion solution. (L-group) on the contrary see qualities in the new media.*

The 2nd Interviews –digital interventions

The professional groups

C-respons	Månstorp		Skanör	
	>interest-know+	Cool story	>interest-know+	>interest
P 40-60				
P 30-40				
P lo-C				
P R				
Quantity	50%	50%	50%	50%

The Laymen groups

C-respons	Månstorp		Skanör	
	>interest-know+	>interest	>interest-know+	>interest
L 60-80				
L 40-60				
L 18-30				
L lo M				
L lo S				
Quantity	60%	40%	60%	40%

Table 5. Question 1. How do you now see Månstorp/Skanör? *Variables: > interest-know more, Cool story, >interest. (P-group) a real change in attitude has taken place as no difference is noticeable between M and S. P 30-40 and P local-Central are somewhat more moderate, but the gaps are the same. (L group) a majority are now engaged, it is only M locals who are a bit more reserved towards both castles.*

C-respons	Månstorp		Skanör	
	AC reconstr.		AC reconstr.	Satellite image
P 40-60				
P 30-40				
P lo-C				
P R				
Quantity	100%		75%	25%

The Laymen groups

C-respons	Månstorp		Skanör		
	AC reconstr.	AC rec.+GIS	AC reconstr.	AC rec.+ Maps	AC rec+Satellite
L 60-80					
L 40-60					
L 18-30					
L lo M					
L lo S					

Table 6. Question 2. Which of the illustrations made you see new qualities or arouse your interest in Månstorp/Skanör? *Variables: Archi Cad reconstructions, Satellite image, Archi Cad reconstruction + GIS, Archi Cad reconstruction+ Maps, Archi Cad reconstruction+ satellite. (P-group) is convinced that the Archi Cad reconstructions are superior. That apply to both castles. (L-group) chooses Archi Cads in combination with GIS scan for M, but mainly Archi Cads for S.*

The professional groups

C-respons	Månstorp		Skanör	
	Hidden parts –visible		Hidden complex –visible	
P 40-60				
P 30-40				
P lo-C				
P R				
Quantity	100%		100%	

The Laymen groups

C-respons	Månstorp		Skanör	
	Hidden parts –visible		Hidden complex –visible	
L 60-80				
L 40-60				
L 18-30				
L lo M				
L lo S				
Quantity	100%		100%	

Table 7. Question 3. What was it about the picture or illustration that caught your attention? *Variables: for both groups Hidden parts visible apply to M and Hidden complexes visible to S.*

The professional groups

C-respons	Månstorp		Skanör	
	Historically int	Insufficient mat.	Historically int	Insufficient mat.
P 40-60	▓		▓	
P 30-40		▓		▓
P lo-C		▓		▓
P R	▓		▓	
Quantity	50%	50%	50%	50%

The Laymen groups

C-respons	Månstorp			Skanör			
	School children	Danish tourists	Everyone	School children	Locals	Everyone	Historically int
L 60-80		▓					
L 40-60	▓				▓		
L 18-30			▓			▓	
L lo M			▓				
L lo S	▓			▓			▓
Quantity	40%	20%	40%	20%	20%	40%	20%

Table 8. Question 4 Which new target groups do you think might make a site visit if corresponding visual information were readily available on the Internet? Variables: Historically interested, insufficient material, School children, Danish tourists, Everyone, Locals. (P-group) only those who are already historically interested as more is required for the castles to attract new groups. (L groups) for M school children is the news, but that all visitors would come to S.

DISCUSSIONS AND CONCLUSION

The purpose of this study was to investigate whether virtual tourism, consisting of various digital media, has the capacity to establish demand for Staycation. In other words, could these digital prototypes for augmented reality (AR) revive Månstorp and Skanör to be experienced as historically credible, despite being vague and intangible today? In order to assess future tourists' experiences of the places, qualitative interviews were held with professionals and laymen on two different occasions. The purpose of the first interview was to document the respondents' preconceived notions about the castle sites in their natural state. Striking, in the first interviews, was the large gap between the professionals' and local laymen's opinions about the castle's quality from a future tourist destination perspective. Comments such as "...Skanor is a bit risky given rising sea levels...but hopefully school children will have to visit...", female professional age 52. "...I'm not interested in heritage.. .the beach is better. .. . ..", "... Skanör is just a hill...although I've been told it used to be a castle...", male professional age 38. These contrast with "...they need to be preserved...history is really important..people should be more interested in it...", male layman age 18. It was clear that the existence of masonry such as at Månstorp was more appreciated, even if the appearance of the current castles is hardly authentic (figure 2). Surprisingly, the laymen suggested social media as a marketing tool, while the professionals preferred the old guide solution, but with the exception "...younger generations...maybe gamification?..." female professional age 52. The radical change of opinion came in the second interview after the showing of the new slideshow which was a mix of digital feasibility images. Reactions like "..this is a completely different story than I knew before when I was just passing by...", "..this is an extremely important cultural heritage...", male professional age 59. Even now the P 30-40 preconceived notions about the castle changed, "...when I see how the place was once laid out..and the fact that so much of it remains today...", female professional age 37. Also " .. the fact that the hill is an artificial construction.... the waterways still visible ..", male layman aged 38. The original hypothesis was that all illustrations based on scans would be preferred over others, but 3D GIS (Figure 9) was the only one mentioned due to being able to zoom in on building details.

Surprisingly, instead, it was the Archi Cad reconstructions (Figure 6 and 10) that everyone referenced. Admittedly, these were the only ones that could illustrate the lost the structures, but they also seem to have become a key that managed to unlock the ability buttons to read the other 2D illustrations of the slideshow (Figure 3-10). ACrs "...are like real physical models.." male layman 78 years reveals "..everything you can't visualize yourself..", male layman age 28. As an ensemble, the ACrs seemed to have tied up loose ends, giving the castles a more complete story that involves all the hidden and intangible layers. Finally, only laymen were sure that a wider group of visitors would see the castles if the digital images were published as virtual tourism on the Internet. Despite the positive reaction from the professionals after the second interview, they still claimed that no new visitors would be interested in the castles apart from the already engaged history lovers with comments such as "...a museum without a roof how can it even be solved.." , female professional age 52 .This fact highlights a real problem. As it will always be the tourism industry, from travel agencies to tourism authorities, who decide what will be the next exciting tourist destination, in a top-down perspective (just as the clothing industry decides the next fashion), there is a risk that anything outside their area of expertise, such as cultural heritage often is, falls away. This explains why it must be the local people or the grassroots who are best equipped to initiate fossil-free Staycation destinations of a cultural heritage character and then with social media as a trigger. The strong commitment can either be due to a long familiarity "..S is close to my heart.." male laymen age 74 or "..when I was little... my father told me a a lot about the history of the Middle Ages. ..." male layman age 78 or because of an environmental awareness" ..you learn a lot about biology by analyzing all the life in the moats..." female layman age 24. When published on the Internet, Staycation tourism may also erase barriers "..the castle is no longer an area only for experts, but thus becomes available for everyone to take part in..", male layman aged 28. In summary, the results show that not only Augmented or Virtual Reality effects can convey enticing experiences by reviving intangible historical depth of cultural heritage. Even less advanced digital images are good enough to make Virtual Tourism Staycation revived into desirable tourism, but preferably created in a bottom-up perspective.

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Figure 4.Meyer (1650) *Skanör alt und neu*. Konglige Bibliotekt, Copenhagen. Otto Rydbeck, *Den medeltida* borgen i
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https://kartor.eniro.se/?c=55.421646,12.855678&z=15&l=aerial&q=%22skan%C3%B6r%22;geo.   Overlay   with Meyers map, free hand Pålsson Skarin, I. 2022.
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PRACTICES OF MAPPING AS A STRATEGY OF MEMORIALIZATION

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INTRODUCTION

Mapping practices are increasingly being used as a strategy for memorialization, not only because of the widespread use of digital media and the Internet, but also the offer of interesting participation opportunities. Besides mapping, as mentioned by Orhon specifically new media, enables "polycentric political initiatives such as citizen journalism and video-activism".[1] As these initiatives indicate "horizontal" and "democratic" possibilities in memorialization by the use of the Internet; they are also relatively free of constraints on "institutions and financial resources".[2] In Turkey, these new media opportunities have become an important strategy for non-governmental organizations operating in the field of memory. Kerem Çiftçioğlu, who carries out projects on human rights and creative ways to convey difficult histories to the (Truth Justice Memory Center, Turkey), explains the use of the digital realm for memorialization in their work. According to him, their use of the digital realm is related to the loss of public spaces in Turkey and the absence of governmental support to a certain extent. On the other hand, it is also related to their search for new and creative ways of expression, as well as "innovative methods" which can generate engagement for new generations.[3]

One of these innovative methods that have been used in Turkey for memorialization resembles mapping practices. In this study the three main issues that enable the use of mapping as a spatial memorialization practice were examined to understand these practices. The first section deals with the relationship between place, identity, and memory. In the latter section, the transformation of museums and monuments into places of memory was illustrated. The third section focused on the methodological and semantic transformation of mapping practices. Lastly in the final section, two mapping practices that establish the relation between place and memory in Turkey in this context were discussed. Public interviews, project websites, and news are used to investigate and reveal the production processes of the maps, the motivation and aims behind the maps, the form of the maps, and their ways of representation. As a result, this study revealed the use of mapping as a strategy for - connecting architectural narratives, places, and the past as well as personal and collective memory - memorialization.

PLACE MEMORY AND IDENTITY

The place is full of meaning. This meaning is obviously not given; it is built by experience, accumulated over time, and permeates places and objects. The places we pass every day, the houses we live in, the city, a shop, a park, or a street... The place becomes an integral part of our personal and collective narratives, identities, and memories. As mentioned by Proshansky and colleagues, the

relation that one has with the place creates an image, a sense of place, and is also affected by the "environmental past" of individuals. This kind of relationship with places builds the "place-identity".[4] To construct a place identity is beyond the individual. Likewise, it always takes place within the social environment and is linked to group identity. Maurice Halbwachs also defines memory and remembering as a social phenomenon. For him, space and identity are directly related as well. Here, a person is understood in terms of being a member of a group and the meaning of the place constructed and shared within the group. These shared images of places play a significant role in building collective memory.[5]

Jan Assmann argues that collective memory as conceptualized by Maurice Halbwachs refers more to a communicative memory.[6] He distinguishes two different modes of remembering within the concept of collective memory: cultural and communicative. Cultural memory acts as an institution that takes highly exteriorized and objectified forms to enable the transmission of generations and situations; while communicative memory relies on daily social interactions with generational limits. However, in both modes of collective and personal memory, the role of external objects remains stable. Even if things are memory-free, they become "sites of memory"[7] in the form of reminders. Since remembering is an individual act, socially, memory is constructed through these collective or shared externalizations, whether objects, anniversaries, monuments, museums, libraries, archives, etc.

CONSTRUCTING MEMORY THROUGH SPATIAL PRACTICES

These "sites of memory", according to Pierre Nora, can be seen as a result of the "acceleration of history" and the "loss of memory".[8] The lost memory that Nora mentions seems to be the loss of "communicative memory" in everyday life, which does not need "sites of memory" institutionalized throughout history. For Nora, memory has been taken over by history and became the property of history. Thus, this loss of memory forces everyone to write their own history, to find their past, origins, and identity. "Those who have long been marginalized in traditional history are not the only ones haunted by the need to recover their buried pasts (…) every established group, intellectual or not, learned or not, has felt the need to go in search of its own origins and identity".[9] That need is also fulfilled by creating "sites of memory" through museums of monuments.

The new places of memory: The Changing Meaning of the Monument and the Museum

Certain changes in the meaning of museums and monuments as "sites of memory" began to be observed especially during the second half of the 21st century. Those sites of memory as ideological apparatus of states, which transmit their narratives, have gained new appearances with the involvement of various segments of the society in the memory, history, and processes of identity construction. Particularly the museums and memorials of the genocide have radically changed the meaning of these places. Memorial places and museums, identified by heroism, victory, and national identity, have become places of mourning and healing. Besides they have begun to carry an educational meaning, aimed at ensuring that what happened in the past does not happen again.[10] Places of memory have become spaces that encompass diverse narratives and identities. Thus, different social groups (social movements, events, etc.) that could not obtain a spatial representation in the public sphere until this century (such as women or various ethnic groups) started to build their own memory and subsequently their own places of memory[11] This situation challenged the architectural meaning and conservation value of the urban space and the architectural structure, which has become a part of building memory and identity of different segments of society. Thus, discussing the value of space based on official history or formal authenticity has become insufficient.[12] In addition, the space-related processes were also opened up to non-experts throughout social history and collective memory.

The counter-monument

Lewis Mumford, in 1937, claims "The Death of the Monument" as the monument is the manifestation of the ancient civilizations' desire for immortality.[13] For Mumford, the modern monument points to a contradiction, as the change became the defining paradigm for modern times. After the destruction of the traditional monument, the modern monument is the city itself, which must be open to all kinds of transformations in modern times. Heynen also emphasizes the impact of modernity and industry on the concept of monuments and monumentality of modern cities in rapid evolution and transformation as well as where memory resides: "The site of 'slowness' and 'memory' is now one's own body rather than one's house or one's town. The petrified memory, once the major site of remembrance, now has its counterpart in individual archives, kept at home, or in the image archives of the media".[14]

In the light of these changes in the meaning of memory, James E. Young introduces us to the counter-monument.[15] According to him, the monument calls for not remembering; because the notion of remembering is taken from the person and loaded on the substance and is somehow guaranteed. Young describes the counter-monument through the anti-fascist monument built by Esther Shalev-Gerz and Jochen Gerz in Hamburg. The monument, planned to draw attention to the increasing neo-fascism in Hamburg, was opened to competition in 1986, and Gerz's project was chosen. The project consists of a 1x1 meter wide, twelve-meter-high column that will be buried in the ground over time. The column and its accompanying text, written in seven different languages, invite the audience to be part of the monument.

Figure 1. The Monument Against Fascism, Hamburg, Germany,
1986, Esther Shalev-Gerz ve Jochen Gerz
Source: https://www.shalev-gerz.net/portfolio/monument-against-fascism/

As the example shows, in the counter-monument, where the materiality and closed meaning of the monument is problematized, the responsibility for remembering returns to individuals and groups through its absence. In this sense, John R. Gillis [16] stresses that the counter-monument goes beyond the dualities of history and memory. The counter-monument detaches remembering from materiality and makes it an element of daily life. This makes it possible to establish subjectivity against the objectivity of the monument. From this point, our study argues that maps and even mapping itself seem to open up new possibilities as a counter monument.

MAP AS A COUNTER-MONUMENT

The mapping practices that have been monopolized by the state, western map houses, and academies for centuries faced with critiques and critical practices.[17] With the use of the internet and personal computers mapping as a practice became available to the general public. The mapping practices and maps themselves have been transformed, and their definition and usage areas have expanded. Digital possibilities change not only who makes the maps but also what is mapped and how it is mapped. As mentioned by Presner et al. all kinds of information about the place become mappable by the GIS and Geo Tagging. [18] The map has become a tool for mass communication beyond geographical representation.[19] All these developments have given birth to some mapping practices conceptualized as deep mapping or thick mapping that contains layers of information in the form of digital cartography. These mapping practices not only contain different media but also converge multiple narratives. Thus, they offer the inclusion of unofficial, subjective, under-represented, layered, dynamic aspects of life and space.[20] The deep map establishes the relation between memory and space, heritage and culture in a "wiki-like" way.[21] While such openness allows for participatory approaches, it also leaves the map in an incomplete position for the other participants. Presner and colleagues also conceptualizes deep mapping as "thick mapping". "Thickness means extensibility and polyvocality: diachronic and synchronic, temporally layered, and polyvalent ways of authoring, knowing, and making meaning."[22]

Digital media and the Internet are not the only breakpoints of mapping practices. In particular, the emergence of issues such as polyphony, participation, and the inclusion of non-expert knowledge dates back to earlier times. As mentioned by Wood, it can be traced back to the works of artists and architects on maps since the 1950s. As well as the debates after 1980, questions on the relationship of the map with power and the desire for "scientific", gave birth to some critical, counter-mapping practices.[23] An example of counter-mapping can be found on community maps, or Parish Maps led by Common Ground at the end of the 80s. Common Ground is a non-governmental organization established in London in 1983, to work on the arts and the environment locally.[24] This project is based on a research proposal in the conservation area where the local people participated. The project also revealed the idea of creating a "community map" in addition to oral history studies, archives, and field studies. In 1987, eighteen artists created maps of the regions in collaboration with the communities. The maps in this project are used to create a call for "local action" by showing the spatial memories of the communities, as well as by making their demands on the space visible.[25]

Figure 2. Parish Map, Simon Lewty, 1986
Source: https://www.commonground.org.uk/parish-maps/

Indigenous maps are another example where western mapping practices are questioned and the map is used as a tool for resistance. As Pearce and Louise mentioned,[26] indigenous maps emerged as a result of indigenous rights struggles in Australia, Canada, and the USA. These practices have served as a strategy to protect cultural sovereignty since the 1970s, by transferring the cultural memory beyond the community. What is meant here by indigenous maps is the "translation" of not only the relationship between indigenous communities and space but also their original mapping practices into western mapping practices. However, this "translation" has become largely problematic because the objectives and the ways of spatial representation (such as performances, songs, recordings on stone, trees or walls, tattoos, etc.) can be radically different from the western mapping traditions. This makes it impossible to transfer these maps and forms of spatial representation without losing their originality. If this translation is explained by Nora's terms, reducing the "milieux de memoire" of the indigenous peoples to the "lieux de memoire" of the west carries the risk of accompanying the collapse of collective memory. However, the technological change in mapping has also taken the indigenous maps to a different level. The project enabling users to virtually discover Uluru's "songlines" in collaboration with Google Maps Street View and Story Spheres is an example of how non-western mapping practices and technological developments can cooperate.

Figure 3. Screen Capture from the Digital Tour of the Story Spheres of Uluṟu-Kata Tjuṯa National Park Source: https://www.blog.google/products/maps/experience-songlines-of-uluru-with-google-maps-street-view-and-story-spheres/

EXAMPLES OF MEMORIALIZATION AND MAPPING IN TURKEY
Beyoğlu, I Will Survive Map

"Beyoglu, I Will Survive" map can be considered as one of the examples of how both new media and mapping are used as memorialization practices. In 2018, against the rapid spatial transformation experienced in Beyoğlu, this project of the "Center for Spatial Justice" aimed to map the "places of memory" through the experiences of the citizens. In a participatory manner, the center is collecting the stories of citizens of the place through an online survey. The first version of the map[27] is created in printed form and the map is layered with the narratives of memory holders (A digital version of the map is also being prepared).

Figure 4. Yıkılmadım Ayaktayım İstanbul Haritası
Source: https://beyond.istanbul/beyo%C4%9Flu-haritas%C4%B1n%C4%B1-aramaya-devam-ediyor-daaaadd02228

A second call was opened in November 2019 to monitor the continuous transformation of Beyoğlu in recent years, where the speed and destructive effect of urban transformation has increased. The map calls for action for the conservation of Istanbul and Beyoğlu in the call for participation:

"Beyoğlu has always been the heart of Istanbul. This heart is quite tired right now. There is no other Beyoğlu, no other Istanbul. There is nothing to do but to take care of…We want to create a map for Beyoğlu together with Beyoğlu lovers. On this map, we will include both the memory places of Beyoğlu that no longer exist and the original places that have tried to survive without being demolished. We will share your stories." [28]

Beyoglu Map also has an Instagram account where places, people, memories, and events are shared. This initiative can be described as an effort to build urban memory by making the places of memory visible through the map. In addition, it is an example of activism in the fields of urban transformation and heritage preservation through memory.

A City That Remembers Map

"A City that Remembers" map, prepared by the Truth Justice Memory Center in 2019, is another example that uses digital and print media. The map is based on the "Istanbul Memory Tour" again organized by the Center in 2015 and 2016. The tour and the map consist of a route of 17 places, selected by Asena Günal based on their meaning in terms of multiculturalism and social movements. Both the interactive map and the printed book share the content of this tour. Beyond the traditional narrative of the place, the map tells the social and political history of those places. This narrative reflects a history of "extortion and violations, injustice, power (...) as well as struggle". [29]
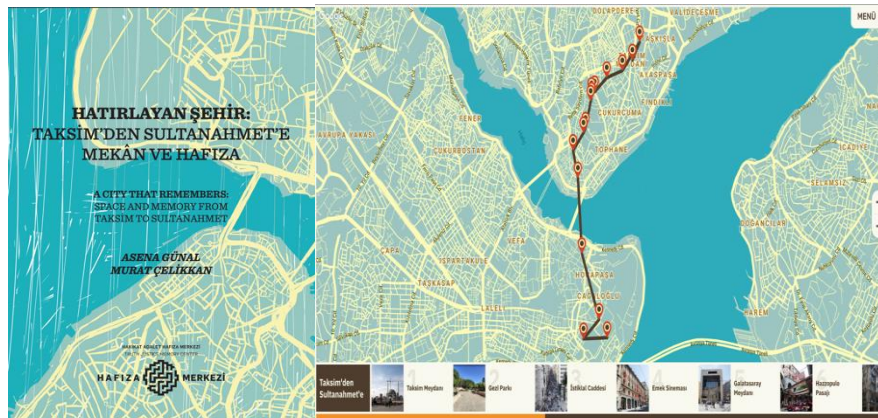
Figure 5. The Remembering City Book Cover on the Left, Map View from the Website on the Right
Source: https://hatirlayansehir.hakikatadalethafiza.org/taksimdensultanahmete/

The project first appeared as a book idea and then was decided to be transferred to an interactive map on a website. As one of the project partners Murat Çelikkan mentioned,[30] unlike the book, the digital map has the potential to add new places and tours, which can keep the possibilities to add new narratives. This interactive map, which can be described as a counter map, uses Google maps, street views and information about the designated places (text, photo). This configuration allows the map to be seen as an example of deep mapping or thick mapping practices.

CONCLUSION

After the investigation of this study, mapping practices are found to be one of the areas where space is socially negotiated as part of memory. In addition, it can be said that the use of maps is related to the difficulty of producing physical places of memory in Turkey. When the counter-monument is considered, interactive and digital mapping practices enable more democratic, participatory, open, and multicultural processes, in terms of both production and dissemination processes.

These processes also offer a new framework for reflection on physical memory spaces. For architects, designers and artists, is it still possible to think and design a monument, a museum, or a place of memory by following traditional definitions, processes, and media? Let us consider works based on urban memory and daily life, in terms of architectural history and conservation; can the space be discussed in a way that refers only to itself? While the relationship between space and memory reveals the need to discuss space in relation to its social and political context within the framework of architectural history; it also shows that conservation decisions and processes should and could be established in this relationality. Therefore, mapping practices can also allow us to think about participatory and inclusive approaches in conservation processes.
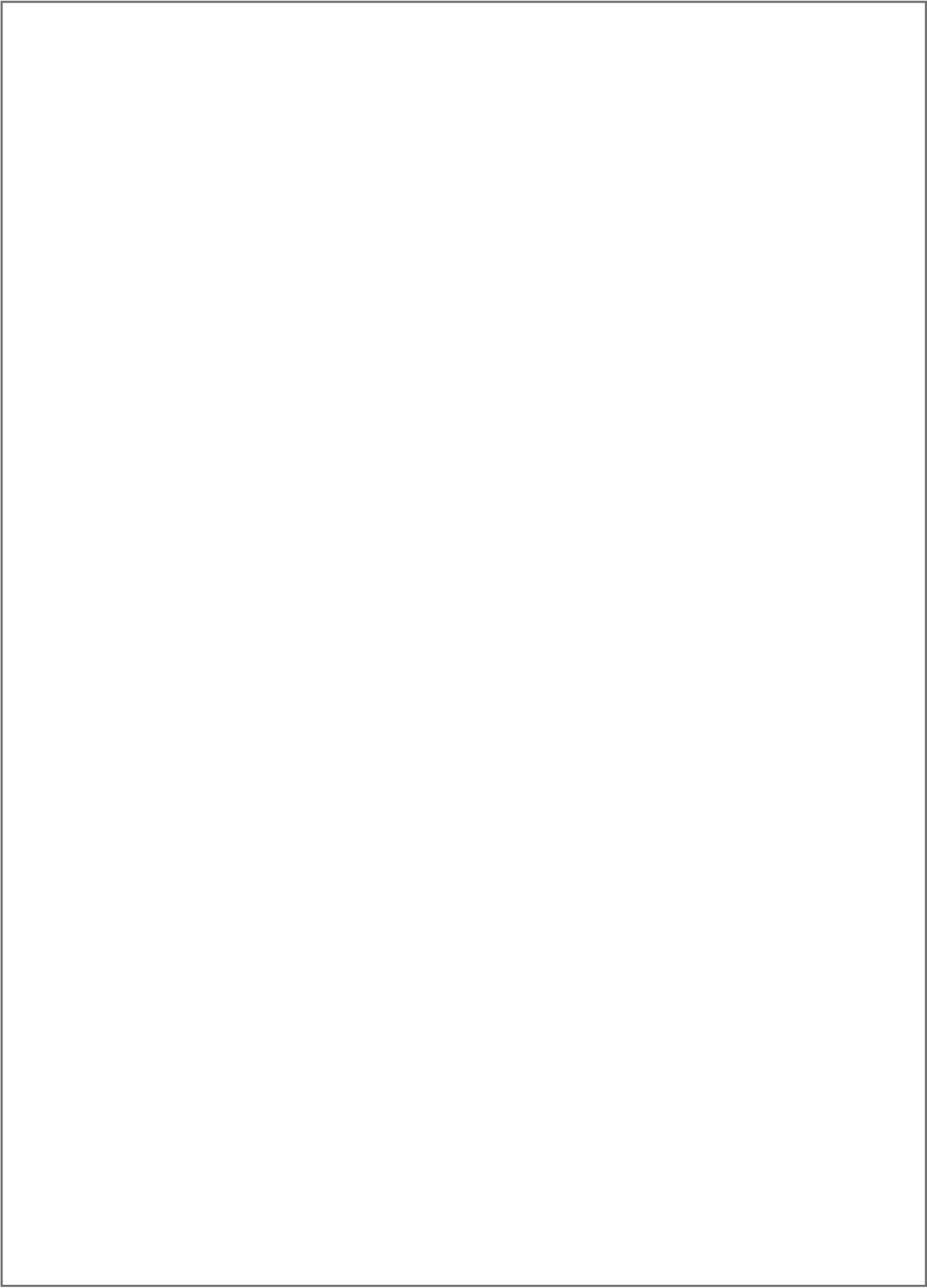
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