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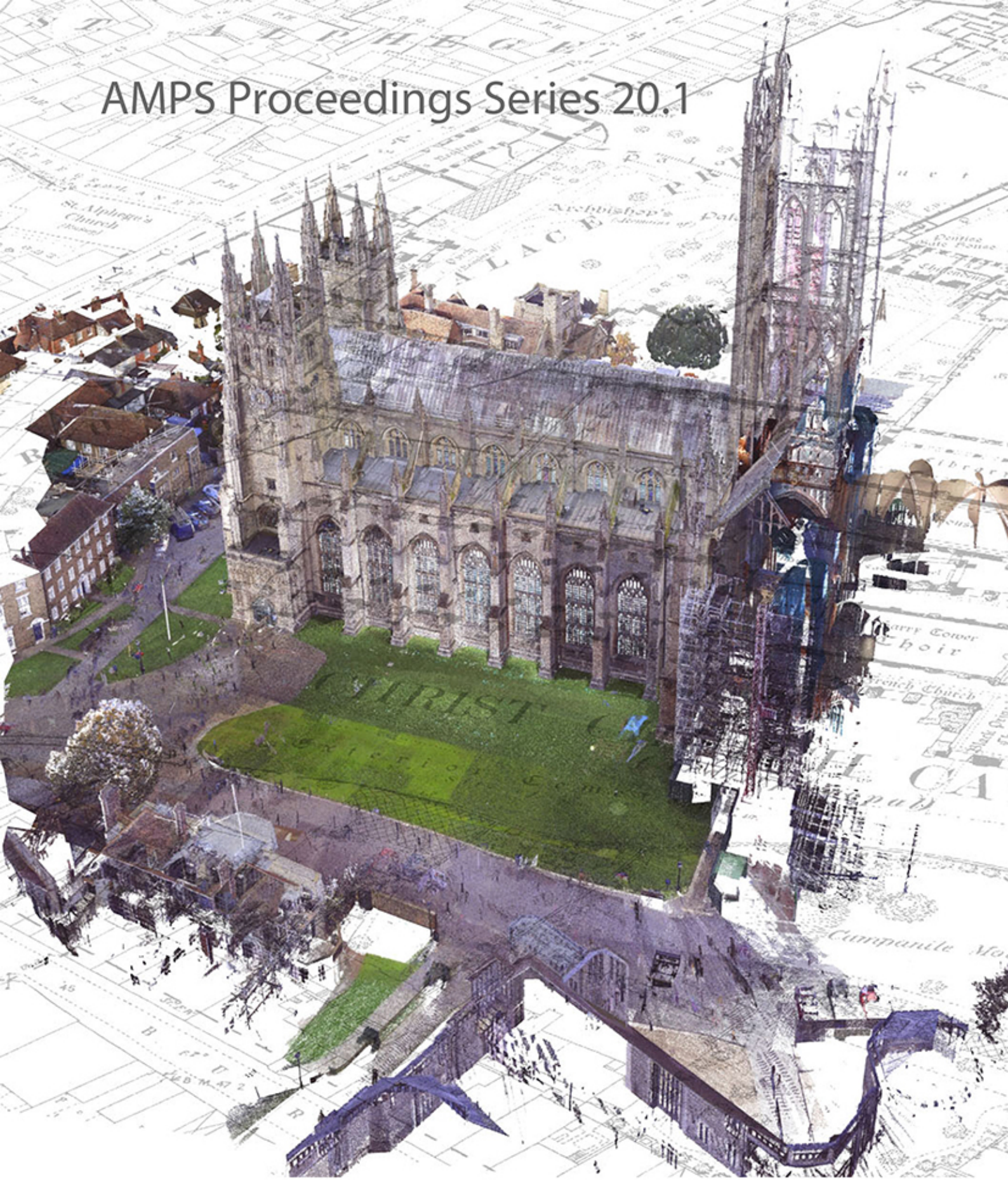

CONNECTIONS: EXPLORING HERITAGE, ARCHITECTURE, CITIES, ART, MEDIA

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INTRODUCTION

CONNECTIONS: EXPLORING HERITAGE, ARCHITECTURE, CITIES, ART, MEDIA

Today the digital is ubiquitous across all disciplines connected with life in cities: urban history, architecture, planning, art, design, media, communications, and more. Examples abound.

As the Western world comes to deeper understandings of its heritage in the 21st Century, technology is ever more present in our reading of the past. Data mapping is standard in conservation and social history. Archaeologists use digital tools in geophysics, laser scanning, and compositional analysis. Landscape and architectural visualizations populate museums across the world. In architecture, computational design uses algorithms to replicate biology. Coding produces self-generated architectural form. Information modeling presents planners with interactive design in real time. The city is seen as 'smart'.

In film and animation, digital models create fictitious places on scales unimagined. Installation artists make space interactive through digitising motion, sound and heat. Projection mapping allows artists to reinterpret the past in-situ. Photographers use digital cameras to document city stories. Marketing, technology and communication mediates the city experience 24/7. In every field, educators are responding.

As the tools we use today merge and blur across disciplines, this conferences asks educators and professionals to consider the following. How can we best manage, direct and utilize the unique potentialities of this interdisciplinary and technological moment? Are we rethinking objects of art and design from the past and future? Are we reconsidering modes of communication, styles of teaching and ways of living? Are we seeing new links between designed objects, visualized spaces and cultural meanings? Are we understanding creative, documentary and media practices in new ways? Are we developing our own knowledge through the technologies, tools or thinking of other disciplines?

Based on this interdisciplinary approach, this conference publication brings together the work of educators and professionals in a range of disciplines including architecture, urban design, history, archaeology, heritage, art and film.

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NEW TOOLS, NEW THOUGHTS: ACTIVITY THEORY APPLIED TO THE ARCHITECTURE LEARNING FIELD

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INTRODUCTION

The appearance of writing is understood as a technological shift in human evolution. According to Jack Goody[1], orality and literacy produced different modifications in cognitive processes. The introduction of writing systems created a greater "abstract", which gave oral communication a form to evolve. Thus, it allowed to open up the critical perspective and consequently, the reasoning. In architecture, the introduction of drawing computing technologies in early learning processes, can also create new associated cognitive significances, due to the use of these new tools.

Writing has been seen as providing speech with an "objective correlation", without analysing in depth the existence of distinctive features for spoken and written languages; since it is more than just a skill, but rather a change in the capacity of the one who practices it and therefore, gives the mind a special kind of device over reality.

Like writing, the graphic representation of space is a tool that can produce changes in the visual spatial capacity, this can be perceived as differences in modes of thought, or visual thinking. This paper presents the architectural learning field, as a fruitful context within which learning can be understood as a dialectical process of social and individual transformation. Activity theory tries to give a theoretical tool and shed light on the effects of changing context in the architecture learning field, understood as the relations between people, tools and artefacts. Viewing learning as dynamic cultural processes which students are connected to, in the particular constellations of practice, can change the activities that are routinely done. Thus, this paper specifically focuses on the effects of change in architecture learning, whenever graphic representation tools adjust for different generations.

The article begins by outlining how activity theory helps to understand the importance of mediation between actors and their objects, often produced through technologies that our humanity has constituted[2]. Activity theory is then presented in further detail, specifically highlighting its dialectical concept of personal and social transformation. The article goes on to explain the relevance of this concept in the architecture learning field, where students live surrounded with new powerful tools that are shaping them. The methodology used in the research is shown, based on an approach sustained with qualitative anthropological techniques. Then, it is described by participants' educational contexts, embedding different activity systems that direct the nature of their practice. Findings relating to personal and social transformation are presented and, finally, corresponding conclusions are made.

THEORETICAL FRAMEWORK

Adopting activity theory as a key theoretical approach, that is to say, theory that allows a deeper understanding focusing on the human relationship with technology, will help present an insightful analysis of how changes in architectural learning field, force to rethink the way we teach architecture students to use and enhance visual thinking, paramount capacity to be an architect.

Essentially, rather than focusing on individual psychology or on social structures, activity theory takes the activity that occurs between people in social situations as its phenomena of interest and unit of analysis. The comprehensive understanding of human work is a central aim of activity theory. In our case, design activity involves the use of tools that change alongside time. Looking closely at the way design activity is mediated by this liquid modernity[3] and the ways in which individual agencies can be affected and therefore, broader the social and cultural change in the architecture learning field, as a consequence. Activity theory directs the attention to the learning of systems, not individuals, and so activity systems should be the unit of analysis. So, a multi-level framework of operations, actions, and activities that constitute learning work is fundamental in the set of concepts and ideas of this theoretical approach[4].

The practical and concrete units of learning through work that architecture students manage on a daily basis have changed, since activity systems evolve over time. Activity theory explains that in architecture learning, human action tends to form an object-oriented approach, focusing on objects for activities and on object motives. Activity theory allows to undertake a piece of work that is methodologically sophisticated, grounded in real-world activities and address issues of complexity, which are commonly put to one side, therefore it allows access to the complexity and dynamism of real-life scenarios[5]. Activity theory's capacity to work with the complexities of architecture education is one of the main reasons invoked, as it brings light to gaps and contradictions between different educational tools, directing participant's processes and outcomes of learning.

The main system of activity discussed here is the mentoring activity of architectural studio design in different contexts. Such a system entails the enactment of reflective discourse through graphic representation supplied by the student which directs the mentor's action towards promoting students. So, it is paramount to turn to the notion of context, understood as constituted through the enactment of an activity involving people and artefacts, since it involves specific objects and goals and, at the same time, specific settings. Therefore, this conception of context is a transformative relation between people, tools and artefacts[6].

Furthermore, discussion regarding the student designer thinking process' is thus needed. Psychologists[7] assert that humans use mental simulations to learn or create new thoughts. That way, it is so important to develop a well-trained visual thinking in architecture students, that is to say, the ability to think of mental images acquired through sensory experiences or generated in the imagination. This gives them enough skills to operate with a process of problem-solving that requires spatial strategies, rooted in the creation of new, useful design elements[8].

According to Mataix Sanjuan, Leon Robles and Reinoso Gordo[9], the activities most effective for training spatial abilities are those that require the student to adopt an active role. For instance, sketching is not regarded as a simple design tool, but a tool to develop a student's visual thinking because it is a vehicle to explore new forms, see encounters with existing elements and a way to analyse contextualisation and, as a result, generate balanced designs.

The preferential use of some tools over others, requires reflection on another cognitive process that is the internal working models, a concept born in human development field that states that patterns of relating acquired in the early parent-child relationship are internalized and form the basis for how an

individual enters and subsequently maintains other close relationships[10]. However, this paper intends to be understood as patterns of acting acquired in the early information technology relationship. This special approach to representation takes into account some degree of isomorphism between the working models and what they represent, a 'relation structure'[11].

METHODOLOGY

Through an ethno-historic study drawn on the life stories of four students of architecture and two lecturers of architectural design-studio carry out in a school of architecture located in Portugal, architecture students learned to gain understanding towards the main causes implicated in the learning process of architecture. The choice of this ethno-historic technique is based on three essential points: First, it allows gathering collective representations that include mental and emotional attitudes. Second, on the choices made by individuals or groups to resolve the crucial issues of the work, mixed decisions are made at individual and collective levels, consciously and unconsciously, socially and personally. Finally, both social solidarity and the conflicts of daily life are expressions of the interaction of the objective and the subjective[12].

On the other hand, participant-observation as a lecturer of architectural design studio for seven years has been a paramount technique. As Burawoy[13] says, when social scientists participate in their study, particularly in studying social change efforts, they are better able to interpret the meanings of what is said and written. At the same time, their observations and content analysis in the service of explanation provides the scientific dimension of this work. This professional experience allowed a close knowledge of the activities of agents. This allowed a deeper investigation of the complexity of the architectural learning field.

The paper will aim also to provide a schematic account of the interactions between actors and processes operating on diverse spatial scales and the ways in which these interactions ultimately crystallize into specific change in architecture learning field.

THE SCHOOL OF ARCHITECTURE

Escola Superior Gallaecia is a small-scale architecture and arts school in northern Portugal. It has a faculty of 18 members, of which 8 are in charge of the architectural studio design subjects of the Integrated Master in Architecture and Urbanism. In total, there are 10–architectural studio-design courses throughout the academic journey. The teaching of these courses always has the joint participation of two teachers to guarantee the diversity of approaches and not to limit student's explorations.

In general teaching, two activities take place simultaneously. On the one hand, what is known as the academic task environment (ATE), and on the other hand, there is the structure of social participation (SSP) in class, that is to say, the way in which the sequence and the articulation of the interaction govern[14].

In the case of teaching architectural studio-design, the structure of social participation is especially important in order to reach the contents that must be addressed to ensure the achievement of the desirable skills by an architect. Cooperative and interdependent actions dominate the analysis of a design carried out by a student without a prescribed theoretical content (declarative knowledge). However, it is supported by spontaneity depending on the phase of understanding regarding the array of implications taken in each design, that might change the participation structure. It works from what Vygotsky[15] called the zone of proximal development, in which the lecturer reacts depending on the degree of internalization of the content treated by the student. This is known as "procedural knowledge",

the kind of knowledge that it is displayed in common behaviour, but it is unconscious[16]. Specifically, in the architecture learning field, it is about visuospatial skills training that allow reading a floor plant and to build a three-dimensional image of the represented object in the mind[17]. A key skill to follow the problem-solving method in architectural studio design used at esGallaecia. It is the cycle of user research, ideation, prototyping, iteration, and the refinement process.

FINDINGS AND DISCUSSION

In the current architecture education system students have had to develop the visual thinking, so they can capture the link between speech and sketch that teachers do, in order to open cognitive windows. That is to say, to make them think in a different way to enhance their design, plenty of complexity that architecture involves. Students have to simultaneously focus their attention to an array of dimensions, needed to keep in mind. To design architecture, there is the need to employ information based on experience or on an opportunistic encounter, but also abstract information based on what they already know or have previously studied, in order to establish appropriate designs linked to a specific culture. Therefore, appropriate mental visualization of the space is a key-skill to handle successfully, complex spatial visualization tasks[18].

At present, Computer Aided Design has introduced profound changes in the traditional practice of Graphic Expression, the main tool for the development of visual thinking, which until just a few decades ago was relied exclusively on manual techniques. It is generally accepted that spatial skills can be developed through three-dimensional solid modelling, such as CAD applications[19]. But there are conflicting positions in this regard. Several studies[20] reveal that the development produced by solid modelling does not exceed that obtained by working with traditional two-dimensional views and projections.

On the other hand, it is necessary to highlight that the educational context underwent a restructuring with the effective implementation of the European Higher Education Bologna Agreement, in 2009. At esGallaecia there was not an adaptation from the old traditional educational system to the new Bologna system, but it meant a real reorganisation of knowledge learning, and a multidisciplinary approach, balanced with transversal appropriation of competences and skills[21]. Through this new approach, the student acquired freedom to configure his/her own academic career, through a thoughtful analysis in the acquisition of knowledge. However, it was observed that some difficulties were faced by students during their first year in Architecture. This is due to the fact that students do not always face the architectural degree with the necessary skills properly developed. This situation can be aggravated by the fact that currently, a student can enter Architecture studies without having completed Technical Drawing in High School.

As aforementioned, activity theory points out the context as paramount to address the complexities by studying relations between micro-level behaviours and macro-level phenomena. Students background also becomes a key-data to analyse, in order to understand how they develop their visual thinking.

Students who are more used to the daily use of technology will lean towards computer-aided design from the beginning, since it is a familiar media that does not involve them making great cognitive efforts. This is what Shelley Taylor[22] called cognitive miser, which is the preference for the use of strategies that optimize cognitive resources. That means, if the students grew up surrounded by the use of technology, applying technological tools during their architectural studies will create an easier learning process for them. In these cases, communication barriers of understanding can be raised,

between professors and students, in architectural design-studio, since the forced use of manual work can produce disaffection from the student side. This is illustrated by an ethnographic vignette - the case of the student who maintains his computer drawing system and then passes the computer drawing by hand, to be delivered as the teacher demands.

Also, to keep in mind that students know that when they enter in the professional world context, the possibility of accessing the first work experience will be highly influenced by the mastery of the software tools, which increases motivation for the students early learning regarding the use of technological over traditional representation systems. In this case, individual agency is affected by context.

CONCLUSION

The issue is not that the appearance of this technology prevents an adequate development of visual thinking, but it should be integrated in the new and actual educational context, following the creation of the European Higher Education Area (EEES). With its implementation, the hours devoted to the development of visuospatial capabilities were reduced, in general, as well as a less control time over the planned acquisition of knowledge, in relation to an increasing complexity of architecture.

This technological context and the educational system require a through adaptation by professors, who are not technicians implementing curricula, but professional decision makers solving problems [23]. Therefore, this is a new challenge to consider.

In modern information technology, new opportunities arise for arranging joint human-computer task performance: instead of using technology only for presentations, technology can become the tool for the development of the project. This could become a new challenge - to use technology in a cooperative way and through a problem-solving approach.

The main risk is not to be aware of this transformative relation between people, tools and artefacts that it has happened, so to be anchored in an old context forgetting to give qualitative skills in these tools that are part of architecture learning field. It is necessary to think about a trade-off between the potential benefits of the tools and the possible misuse of actually using them. Such cognitive support may improve the students' performance, as long as the lecturer accompanies them, to create procedural knowledge properly in the early use. Therefore, the right title of this paper should had been "new tools, new teaching".

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FUTURE OF CONVENTS – THE REPURPOSING OF THE COMPLEX OF ST FRANCIS IN REUTE BAD WALDSEE IN GERMANY

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ABSTRACT

The German Convent of St Francis of the nuns in Reute Bad Waldsee is undergoing the demographic shift typical for religious communities in this day and age. Whereas 30 years ago the convent had over 600 nuns in 28 buildings that formed half of the entire village in the South of Germany, today only 289 sisters remain and the rapidly aging community is projected to shrink to 28 members in ten years. The attraction to join a convent and the role of religion in our society has changed and will keep changing. The architectural and urban design challenge was hence to repurpose the complex in a manner to maintain the core values of the convent, ensure safe-keeping of its history and create a new centre for the community. Following a historical and archaeological analysis, and the assessment of the future requirements of the convent and the community, it was decided to convert the complex into a new, more attractive and lively centre. The project, phased over ten years, establishes the core of the historic convent in the heritage listed building, reduces the over 12 chapels in the complex to three, and ensures a sustainable transition of the current religions buildings in a multi-functional use complex with a pilgrimage, a café, a hotel and an NGO foundation headquarter. Part of the existing, non-listed buildings will be demolished to form a new outdoor community place. Some of the architectural challenges were that no accurate plans existed of building nor the several underground connecting tunnels that crisscross the convent hill. The design and construction in a historic context and revitalization and contemporary demands on sustainability and economic efficiency became the design parameters to enable future proof project. The project can provide a model for other convents and monasteries in Europe.

INTRODUCTION AND CONTEXT

With a population of 83 million and an average age of 44 years old, Germany has 23.5 million Catholics, 22 million protestants, 4.55 million Muslims. The trend in religious communities across Europe is one of demographic over-aging as well as dwindling numbers of novices adjoining to them. Between 1965-1995 religious communities plummeted in Germany by 48%.[1] In total, religious organizations in Germany have over 17,700 nuns and monks, whereas the gender split is 3,500 monks (20%) and 14,200 nuns (80%). The country has 40 St Francis convents.[2] The nuns in Reute have an average age of 76 years (much higher than the national average), which is one of the reasons why the convent is seeking

new solutions to preserve its inheritance in different forms, while retaining the essence of the religious community and remaining accessible also in future.

The only regions that encounter some growth in their religious communities are in Asia and Africa, whilst worldwide the nuns' population is decreasing on average by 2.2% per year. Similar trends as in Germany are found instead in most developed countries, where religious institutions face comparable challenges. Italy has experienced a -55% decline between 1961-2011[3] and the nun population in USA dropped from 182,000 in 1965 to 47,000 in 2018. With 77% of them older than 70, the country is projected to see a 71% drop in the number of religious institutes in the next decade.[4]

Even so, religious tourism is still significant and Germany has over 861 pilgrimage sites and has close to 900,000 of visitors per year. Austria receives a proportionally comparable number of 200,000, but figures in Southern Europe, with the 4 million pilgrimage visitors per annum in Italy and Spain, may indicate a potential for further growth.[5] In this context, the convent will open to different types of visitors, with benefits for the local community at large. Reute Bad Waldsee is currently a small rural settlement with a population of just 2,400, over 10% of whom are nuns, and the village is centred entirely around the convent, spatially as well as social and culturally.

The history of this particular convent dates back to 1403, when five women established a small religious community on the site. Among them was Elisabeth Achler, later known as the Blessed Good Beth. The first church and tower were built in the 12th Century. Later, the first unit of the convent was added around another pre-existing tower of the 13th century and connected to the church, while the pilgrimage house was established in 1611, to be destroyed 22 years later by a devastating fire, after which the entire convent and church had to be rebuilt, and were completed in 1655. The expansion continued during the 18th century with new wings, a rectory house, a pilgrim hotel, a tavern, utilitarian buildings and landscaping works. The convent was then dissolved in 1784, within a wider process of secularization, and re-established in 1870 by a new community of Franciscan sisters. The new additions in the following decades included the Confessor House, the new east wing with St Francis Chapel and the sacristy, the cemetery, the ornamental garden and few agricultural buildings. At the beginning of 20th century, the complex had consolidated into the centre of the community of Reute Bad Waldsee and a notable pilgrimage site for the veneration of St Elisabeth. Its development continues with the Mother house, new chapels, connections, porches and a perimeter wall, until, in 1940, the population peaks at around 1,800 nuns. The most recent phase of construction, other than external additions, introduces a series of utilitarian and of public building, including a greenhouse, a swimming pool, a lecture hall and a parking garage. In 1990, however, the community has shrunk by two thirds, to 600 nuns, before halving again in 2020 to 600. In the next ten years, a further 90%-reduction is expected, considering the current trends in aging and the dwindling novice numbers.

Figure 1. The Franciscan complex of Reute Bad Waldsee in 1940, when the convent had grown into a community of 1,800 nuns[6]

REPURPOSING ST FRANCIS CONVENT

While the convent as a large and prominent religious community seems bound to wane in a relatively short time, its legacy as a pivotal entity for the local society and economy may last longer. The project under consideration seeks to ensure that the physical and functional transformations envisioned for the complex keep alive the spirit of the Franciscan nuns that settled on the hill 150 years ago to serve an ideal of solidarity and mutual assistance.

Process

In a secularised society, the best chance at survival for such values was found in the partial transformation into a lay entity, already started in 2000 with the establishment of St Elizabeth Foundation, which received in donation the facilities of the convent. Today, the foundation employs over 3,500 staff to assist and care for the people in the surrounding community and owns diverse other self-managed entities that provide food and services for the convent and affiliated organizations, such as agricultural and organic farms, bakery and butcher shops to just name a few. This guarantees financial stability and can partially fund the re-development of convent hill. For the rest, it will rely in a large percentage on the diocese, heritage and municipal and national funds as well as donations. For this, a team is working on securing funding and arranging initiatives, connections and networks to support the transformation of the convent hill, retaining the religious and cultural nature and making it accessible to future generations, ensuring to build a continuum in time and place. In terms of realization, the project is devised in three main phases, to guarantee both financial sustainability and functional continuity during the re-development. While the core buildings maintained for the convent will be upgraded for better accessibility and living standards, the nuns and the functions currently there will be temporarily relocated in the St Elisabeth building, which will be later demolished.

It is clear at this point that the endeavour is characterised by a high degree of complexity for a number of reasons, including the diversity of the architectural features, the presence of heritage buildings and sacred spaces, the variety of functions and programmes, the multiplicity of stake holders and funding sources, the duration in time and the change of leadership that will occur in the meantime in the convent (and in the wider society), with potentially different views and approaches on the future of the

community. Being the project also inevitably exposed to external factors, the risks and uncertainties which may delay its completion or even compromise its success are numerous. Other than a solid, credible and economically viable plan, synergies and collaboration will be critical for the success of such a challenging undertaking.

Programme

Past: In its modern configuration in the late 19th and 20th century, over 28 buildings provided over 12 chapels. accommodation for the nuns, a hotel for religious retreat and education with swimming pool that was heated by the exhaust air from the bakery, agricultural farm facilities, laundry, large scale kitchen and bakery, garden center and a butcher shop that served surrounding hospitals and schools in addition to the convent own demands. In addition, a group of capuchin monks are settled to ensure the church service can be fulfilled in the 12 chapels and the main church that is located on the top of the convent mountain and serves the community.

Present: In 2020, with under 300 nuns still living on the convent hill, the large-scale laundry facility has been closed, the agricultural farm and butcher shop has been sublet. The swimming pool is in process of being dismantled, since it did not fulfill current health and safety requirements and would have required extensive refurbishment. A large care home for the nuns served the age demographics and subsequent physical and mental care needs that are being required for the aging convent population. Further, a house for burn out managers and people from the general public is also located on the perimeter of the convent mountain offering a time out opportunity and a rebalancing of body and mind.

Future: By 2030 the convent community will be shrunk to merely 28 nuns. They will occupy two buildings at the center and top of the convent mountain adjacent to the main church of the community. One of the buildings will form the main quarters of the convent with work-live sections, chapel and pilgrimage site of Saint Beth (Elisabeth). Whilst the second building would house an opportunity of experiencing temporary convent life for the ones interested. The current main residential quarters would be demolished. The current care home facility would be converted into the foundation headquarter of St Elisabeth with a café that will be staffed by physically and mentally challenged people from the region. The terrace will offer a view to the convent as well as form a view axis to the archeological site on the grounds of the convent. The 120 beds hotel would be sublet and reduced to a 60 beds facility which is more appropriate for the location and current market. Upgraded to fulfill current standards. Agricultural and large-scale laundry building and storage facilities will be demolished to make space for views into the cultivated countryside. Exploration of possible micro housing developments are at their initial stage at the foothill of the convent mountain, where the farm buildings once stood, currently occupied by refugees from Africa, Syria and Iraq.

Adding social value while contributing to the material development of Reute Bad Waldsee is seen as key in the conservation and strengthening of the social stance and role of the convent.

Architecture and Landscape

The current architecture of the convent is a typical regional architectural collage of the past couple of hundred years of construction of an expanding convent community that now has to be consolidated in modern manner. The 28 buildings are connected through a zigzag of tunnels that were constructed during the various wars to protect the community, these had all been individually built and undocumented until the archaeological team of students from a local university completed the mapping and surveying. The interconnecting tunnels and basements are still in use and should be maintained throughout the redevelopment.

The current landscape design is based on a 1970's ideal of garden with English garden grass and flower beds to meadows with an array of flowers. There are two main gardens. One, secluded and accessible to the convent community, features a terraced rose garden with manicured lawns and English garden flower beds, beehives and an array of fruit orchard trees down to the convent walled minimalistic graveyard. The other garden is located close to the current residential quarters of the nuns and hotel, and is fully accessible to the public, with a large 1920 conservatory glass-timber building, close by pizza baking oven and park benches located between the tall mature trees to rest, relax and meditate. It connects to a medicinal convent garden with an herb labyrinth added recently to offer a haptic experience for all, in close proximity of the convent garden house.

The buildings that had been added 40-60 years ago are planned be removed to allow visual axes to the surrounding landscape such as the alps to the south, visible in clear weather conditions from the convent and the archaeological site to the north, dating back to 3,500 before Christ, that is also on the ground of the convent. The archaeological site corresponds to the historical settlement site originally at the crossroads from east-west and south-north of important European trade route. The oldest copper sword in existence was found there, persevered by the peat soil together with over 3,000 artefacts now on display in Berlin's museum.

The historic buildings of the convent mountain at the top of the development will need to be sustainability and functional wise upgraded to current standards, to the requirements of the aging population of the convents and to the expectations of the future generations who will inhabit it.

A company was hired to assess and develop together with the convent a historical and future use analysis, which formed the basis for the 2030 plan for the convent. Landscape architects have developed a modern and fully accessible vision for an experiential modern garden development.

Two architecture firms developed conjointly the concept vision. The larger practice will assist to translate the design into reality over a 3 phased construction process.

Sustainability

Last renovation of the convent buildings happened in the mid 1980's, where buildings were upgraded to then current sustainability and energy codes, and central block gas heating system were installed. The new repurposing will provide an opportunity to upgrade further the extant buildings and to develop new the ones on a higher standard. In fact, even though the constructions will be reduced on the convent hill, the ancillary buildings on the north-eastern side of the perimeter are likely to be replaced by a zero-energy housing development. Further one or two small museums are under consideration to preserve the cultural and religious heritage of the site and to valorise the archaeological area. The three aspects (existing convent, housing and museum) will be object of research-by-design initiative at Xi'an Jiaotong-Liverpool University. These will include students work in design studios and design workshops held in collaboration with international partners. The objectives the collaborations will be to explore the different design problem posed by the theme, including the introduction of new buildings in the historically-rich context and the possible approaches to the upgrade of the existing complex.

Figure 2. The complex of Reute Bad Waldsee at the current state (left) and as designed (right) with St Elisabeth and St Antonius buildings (late 18th Century) replaced by a garden[7]

Whilst a sustainability-oriented design for the new additions is relatively straightforward and can take advantage of the favourable normative and cultural environment in Germany, the energy and environmental upgrade of the existing buildings is more problematic, as evidenced by a number of studies[8]. Some of the key difficulties that are common to most heritage and religious buildings include the following:

- Energy and sustainability do not take priority, and the (limited) transformations focus on conservation, adaptive reuse, accessibility and fire safety.
- Code energy requirements are more relaxed, or completely absent for listed buildings.
- Possible interventions on the building envelope are very limited, both in the adoption of conventional measures such as increasing the level of insulation and in the integration of more innovative solutions like the use of adaptive façade components.
- Possible interventions on HVAC systems are also problematic because potentially invasive.
- The use of building-integrated renewable energy production are heavily restricted by architectural and landscape considerations.

The planned experimental design will try to overcome such obstacles exploring alternative solutions, such as specialised solutions for the envelope (e.g. thin insulation and high performance glass), use of more advanced and automated thermal control systems for the interior spaces and district-scale renewable energy production.

DISCUSSION AND CONCLUSIONS

The convents demographics is ahead of the national average but forms a path on how religious and public communities need to be forward looking and plan and translate visions to be accessible for future next generation, ensuring a time, space and value continuum.

St Francis Convent in Reute Bad Waldsee has been facing challenges that will be common to most catholic religious communities in Europe and in the West. Its ongoing transformation into a more secularized, but still spiritually and socially engaged institution, can provide a possible model of adaptation to the changing society. In material terms, the repurposing and redevelopment of the area can also provide a possible model for conservation and financial and environmental sustainability. The success and effectiveness of such model though, is yet to be fully understood, as a number of challenges, risks and uncertainties that could interfere with the realisation of the plans have been identified. The critical conditions for its realisation include continuity in leadership and vision, support from the local stakeholders and securing external funding.

ACKNOWLEDGEMENTS

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[1] Ziegler & Olson, Nuns Worldwide, Catholic World Report, (2011)
https://www.catholicworldreport.com/2011/05/12/nuns-worldwide/
[2] www.orden.de
[3] Isabelle Jonveaux, "*Future of Catholic Monasteries on new Monastic continents: the case of Africa*" in Exploring the Future of Christian Monasticisms, ed. Greg Peters, (MDPI, 2019)
[4] Vatican - Catholic Church Statistics 2018, Agenzia Fides,
[5] Gisbert Rinschede, Wallfahrtsorte und Pilgertourismus, http://archiv.nationalatlas.de/wp-content/art_pdf/Band10_50-53_archiv.pdf
[6] www.kloster-reute.de
[7] Hofmann & Dietz - Architektur - Landschaftsarchitektur – Stadtplanung, Project for the repurposing of ST Francis Convent in Reute Bad Waldsee (2019)
[8] Amanda L. Webb, "Energy retrofits in historic and traditional buildings: A review of problems and methods", Renewable and Sustainable Energy Reviews, Volume 77 (2017): 748-759

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READING CITIES THROUGH ELECTRONIC EYES – STREET PHOTOGRAPHY IN THE DIGITAL AGE.

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INTRODUCTION

Some of history's best known photographers spent their careers photographing the urban environment and those who lived there – for many people the defining image of the urban environment will come from a photographer's portrait of it, such as Weegee's pictures of New York[1], McCullen's work in the slums of East London[2] or Silva and Marinovich's images of apartheid era Johannesburg [3]. But in an age of ubiquitous smart phones, always-on social media and constant media bombardment, what is the place of the street photographer? How have our tools changed, and what is the impact of that upon the eventual work? And when anyone can take a picture, what is the place of a photographer?

All of this raises the question of whether photography has truly benefited from the dawn of the digital age. Is the artwork being swamped by a tide of algorithm selected mediocrity? With the decline of print publications, who is left to fund truly incisive imagery?

And when every image we see comes pre-filtered through a corporation's for-profit platform, can we really trust the evidence of our own eyes?

I aim to highlight these questions through my own artistic practice, including my work on recent events such as the Extinction Rebellion protests of 2019 – events organised and publicized through new media platforms, but driven by image-focused protests and online awareness.

This essay makes the case for the dedicated photographer in the urban environment, drawing on the author's own experience of street photography and of covering urban protest. It also covers the changing possibilities of urban photography enabled by changing technology, the place of the impartial observer in protest, and the impact of online platforms on the genre.

STREET PHOTOGRAPHY

Street photography is an urban art form. While it's a nebulous concept, with many different definitions, one point that has rarely been disputed is that in order to create street photography, you need streets.

My own definition of an art form I've worked in for five years is similarly nebulous. Street photography can include portraiture, but will also involve the environment. It is not staged, although you may sometimes ask people to pose. Its intention is not newsgathering, although the images captured may be newsworthy. The best I've yet managed is that it's the capturing of a moment which prompts an emotional response from the viewer - the phrase I've often heard used is "The Decisive Moment", from

the work of street photography pioneer Henri Cartier-Bresson[4]. My own approach tends to be spontaneous, I rarely connect with the subject (although it's been known), and I tend to look for the odd notes, the things in the urban environment that don't quite fit, or the things where you know they'll be viewed as history in the making. Things are complicated further by the fact that some of the best photographers of the urban environment have been well known for their reportage work – Don McCullin is a classic example[5].

People thinking of New York might well have their mental picture provided by the iconic images captured on those streets - the sailor on VJ Day[6], Weegee's crime scene pictures, Bill Cunningham's street-fashion pictures[7] - it all goes to giving people their image of the mean streets. The times when Weegee was tearing around Manhattan with a police radio, snapping pictures of murder victims sprawled on sidewalks, capture a few years a long time ago – but it's a part of the city's visual history that has become iconic. The same goes for the elegant interwar years in Europe (and further afield) , when Cartier-Bresson was pioneering street photography as a genre[8.] Even the idea of the English as a nation of eccentrics has been reinforced by the works of Tony Ray-Jones[9].

But I have something that they did not – a new wave came to photography, and it's name is digital.

The difference? I see it in three parts. Technical, Accessibility, Reach.

- Technical – the things that can be done using a modern digital camera that couldn't be done with film.
- Accessible – the fact that everyone now has the ability to carry a camera, that they are more user friendly than they have ever been.
- Reach – the fact that anybody can make their image accessible to anyone else in the free world.

Running through them, particularly from a street photography perspective, we immediately hit problems. There are many things I can do with a digital SLR that I couldn't do with 35mm film – I can take two hundred pictures in twenty seconds, lit only by street light, and have them viewed two minutes later by somebody in Japan. Well that's fantastic for news gathering, but as we've discussed news gathering and street photography are different if overlapping disciplines. Street photography isn't about taking two hundred images – it's about the right image, at the right moment.

What is helpful however, is the fact that I can work with light levels that would have caused a photographer fifty years ago to bite through his tripod. Cartier-Bresson would have no truck with flash photography[10], and on this I agree with him. On an artistic level, flashguns break the spell by intruding forcefully into the world you're merely trying to observe. On a practical level, it's not always a smart idea to be advertising what you're doing, who you're shooting, or how much expensive equipment you might be carrying. But now that our film has been replaced with ever more complex and sensitive digital sensors, we know no such limits. Cities are never truly dark – shooting by streetlight is always possible. Over the years my scenes have been illuminated by floodlamps, Christmas decorations and not a few Police cars.

Accessibility. It's an old truism that the best camera is the one you have with you, and by that logic we're the best equipped photographic society in history. I'm not an especial fan of camera phones -they tend to lack a lot of the features I'm used to (especially in terms of ergonomics) – but a huge amount of truly spectacular work has been done with them, because they're ubiquitous and can give a good result.

Turning to digital cameras, digital has made things (I think) more user friendly. DSLR's are set up to walk the user through how it works, automatic functions are there to ease the beginner into it, and you can see immediately what has worked – and crucially if you move quickly you may get a second shot

at capturing the image. In fact one of the few things that hasn't shifted is price.. While we may no longer be paying for film or development, equipment now becomes obsolete at a truly staggering rate.

And reach – that picture I just took has gone all over the world. Free from national boundaries, censorship, any other form of state interference, I spread my images across the globe to wheresoever my fellow man might be. Or do I? Because if I want to reach a global audience, I need to use a global platform. If I want to be seen by a lot of people, I have to use a platform that many people use. I personally use Twitter, Facebook, Instagram and my blog hosted by Wordpress.com. Four platforms, three owners, all run for profit.. And they all use a system of complex algorithms to show people what it thinks they want to see[11.]

So, to conclude. Yes, there are images I can take with a digital camera that couldn't be managed on film, but the breadth of its impact can be very easily overstated. Parts of it could be seen as more accessible. And as for reach? My image can be seen all over the world, but how many people can see it is in the gift of large, for profit, media empires – just as it would have been decades ago if I were publishing through a newspaper.

Let's take the theme of accessibility to move forward with. There's a saying often associated with the United States Marine Corps - "Every Marine A Rifleman"[12]. Well, since everyone with a smart phone can take a picture, does that mean "Every Citizen A Photographer"?

I don't think it does. It means we can all take pictures, but I'd argue that photography is about more than that. It's about capturing a moment of time, it's about creation with intent. I don't call myself an artist because I own a pencil and a sheet of paper, and I have trouble with the idea of people calling themselves a photographer because they have the means to take a picture. Photography is an art form – it needs to be treated with just a little respect for it to be worth anything. Being a photographer isn't something you do, it's something you can't help.

And creation with intent is central to my argument as to why the dedicated photographer still has an active role to play. To take a good picture, you need to be in the right place at the right time. It doesn't matter if you're a professional photographer or not[13], and the specific equipment you use is irrelevant if it gets the job done. But the crucial thing is that you have to realise that the moment is right. If you're splitting your attention, then that's less likely to happen. If you're marching, if you're protesting, if you're just standing there with your hands in your pockets, if you're not engaged with the process of trying to create images, then you're going to miss things. And even if you're in the right place at the right time, that's no use if you're not aware of it and ready to work. The "right time" could well be measured in hundredths of a second. It's easy to miss. And a photographer - whatever their background, training or equipment - will be the person who realises that the moment is right. There's no other hard and fast rule. As I said earlier, plenty of great work has been done with camera phones. Many have used rangefinder cameras - Cartier-Bresson popularised the use of an inconspicuous Leica[14], but nobody has to be inconspicuous. Bruce Gilden famously uses close up lenses and flash photography to ambush his subjects[15]. Vivan Maier used twin lens Rolleiflexes[16]. Again - it's not the equipment that makes an image. It's the artist. And while studio or news photographers may be trained (either by apprenticing to an established photographer, or in more recent times through a course of study) there is no such expectation on a street photographer.

And despite what some people might like to think, in my opinion constant live-streaming is not a substitute. It seems to have become popular just lately, and it's easy to see why. It gives a protest movement (my personal experience is with Extinction Rebellion, but I'm sure it's just as true with any other group) a way of connecting with the big wide world. But it's not photography - its intent is different.

So yes – the role of the photographer is still, for me, a valid one.

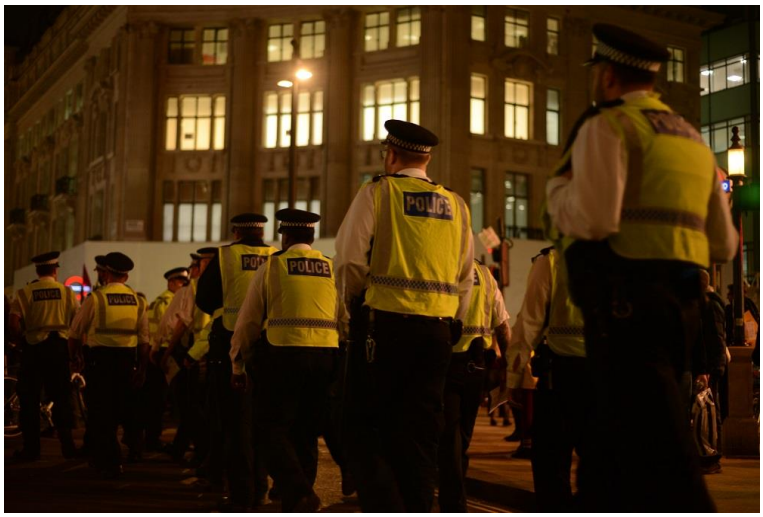

Figure 1

One experience that sticks in my mind was in April 2019, when I'd gone to London to see Don McCullin's retrospective at Tate Britain and run straight into the Extinction Rebellion protests. As you can imagine, I very quickly began photographing . I wasn't there to gather news, I was just taking the opportunity to photograph something that was vibrant, colourful, something that was making history right in front of me. As I said, it's a strength of digital that I could shoot all day, then figure out later what was worth keeping. But it was later on – around twenty past eight on the second night – that I started to look at things from a different angle. It was quite literally a different angle, because I'd been working for fourteen hours, my feet were killing me, and I was sitting on the kerb twenty or thirty yards from the green yacht moored in the centre of Oxford Circus. So I was there, at ground level, when a file of police walked by to make arrests. Flourescent jackets stand out well under low light. That image (Figure One) is terrible as news gathering - there's no especial sense of who, what, when or where. But I feel it captures the moment, and the mood. Not very long before that I took another picture, of a man holding an XR leaflet in the air (Figure Two). In the low light I had the lens wide open, the depth of field was shallow, the background indistinct – again a terrible news image, but people who go through my work over those few days will tend to pick it out.

Figure 2

And that's a digital image – I'd have had severe trouble getting that image on film, the light being as low as it was. In fact I'd have had so much trouble that I most likely wouldn't have wasted a frame on trying – I'd have known that my odds of capturing this thing were low, and that later on I could use that frame on something that I would definitely capture.

That brings us back to the theme of accessibility, because I've now photographed quite a few of these events, and that's made easier by the fact that they're all publicised online. After years of walking miles along freezing streets in all weathers, looking, searching and waiting for the images I know are there to be made, I can now find out weeks in advance where these events will be taking place. I know there'll be action and colour and history and human emotion, and all the ingredients that can go to making these images. I love the drama of these events, the people you meet, the tension in the air. I love the contrast of the brightly coloured signs flourished in front of lines of police.

However - when I shoot these types of events, I shoot with two cameras - one digital and the other shooting monochrome film. Over a few days I will gather thousands of digital images, and perhaps a hundred on film. But if I take the best three of each, the three that are most impactful, which sum up the day, the event, the mood - or just the three which I feel are strongest - it's unusual for film or digital to be artistically better. I'll have a lot more useable digital images- that's simply how it works. But that one great image, that one moment - it will have been captured by whichever camera I had in my hand at that moment. And that's a strength film does give to street photography. When you only have thirty six exposures, you have to consider how they're going to be used, you have to wait for that extra second. You shoot more carefully, you frame more consciously. If I want to go somewhere and come back with a dozen good images then digital is the way to go. But if you want to come back with one work of art, then it's less about the tools and more about about how and where you're going to use them.

This is not to say that we should all ditch our digital cameras and go back to shooting on film. It's just an easy way to say that the "digital revolution" has been overhyped. That's been easy to do, because it's accessible and easy to use - and also, a cynic might say, because a high-spec film camera will last you the rest of your life while you'll need a new digital version every few years. But I don't see that it has made us all better photographers, just added a few new tools to the arsenal.

CONCLUSION

Digital photography has done a number of wonderful things for photography and art in general, but its impact can very easily be overstated especially, I think, in artistic terms. There are things that are technically possible with digital sensors rather than thirty five mm film, but fewer than people might think - where digital really scores is that it makes things both easier and more portable. We can take thousands of pictures, we can transmit them more easily, but street photography is not about that. It's not about the hundred images, it's about the right one at the right second - again, it's Cartier-Bresson's "decisive moment". Digital makes us more likely to take it, but it cannot take it for us.

What has not changed is that it is the artist and not the medium that makes for a really great picture. The best photographs ever taken have not used the best cameras or the most cutting edge techniques, they were simply held by people who knew how to use them and were dedicated to the craft of doing so. And it is for that reason that the role of the dedicated photographer, while assailed on all sides, is one that I believe still has an important place. They are not necessarily a professional - just someone with an artist’s eye - but the field of street photography is one that rewards the person who puts in the most hours. I have personally lost track of how many pairs of shoes I have worn out proving that point.

NOTES

[1] Weegee's (real name Arthur Fellig) work, and its connection with the streets, are discussed in depth in Miles Orvell's *American Art* article - Miles Orvell "Weegee's Voyeurism and the Mastery of Urban Disorder" *American Art* Volume 6, No.1 (1992)

[2] Don McCullin's career to date was shown in his 2019 retrospective at Tate Britain. The exhibition covers a long career and large amount of material - for his work in the urban setting, I would direct the reader to the chapters "The East End" and "Bradford And The North" in the exhibition catalogue: Aïcha Mehrez, Editor, *Don McCullin*, (London: Tate Publications, 2019), 56-86.

[3] The pictures and exploits of Silva, Marinovich and other members of what came to be called "The Bang Bang Club" are covered in their autobiographical work - *The Bang Bang Club - Snashots From A Hidden War.*

[4] The phrase "The Decisive Moment" was the title of the English language edition of Henri Cartier-Bresson's book - Henri Cartier-Bresson, The Decisive Moment, (New York: Simon and Schuster, 1952).

[5] Don McCullin's career, now entering its eighth decade, has made him probably the greatest conflict photographer of all time. Although known for his images of war, he has worked in many other genres. In addition to the images presented in his 2019 retrospective, a great deal of useful information can be found in his autobiography Unreasonable Behaviour. His work with the United Kingdom, particularly in the street and documentary genres, can also be seen in Adrian Sibley's documentary *Looking For England*.

[6] VJ-Day In Times Square", Time 100 Photos, accessed July 28, 2020, http://100photos.time.com/photos/kiss-v-j-day-times-square-alfred-eisenstaedt#photograph

[7] Bill Cunningham, who photographed and wrote for the New York Times between 1978 and 2016, was best known for his fashion conscious street photographs in his column "On The Street". He was also profiled in the 2010 documentary *Bill Cunningham New York* directed by Richard Press.

[8] Clément Chéroux, *Henri Cartier-Bresson* (London: Thames and Hudson, 2008)

[9] Toby Ray-Jones, *A Day Off - An English Journal - 120 Photographs* (London: Thames and Hudson, 1974

[10] Henri Cartier-Bresson." *Variety*, August 9, 2004, 44.

[11] "How Do Social Media Algorithms Work?" Digital Marketing Institute, accessed July 26, 2020, https://digitalmarketinginstitute.com/en-gb/blog/how-do-social-media-algorithms-work

[12] Marion F. Sturkey, *Warrior culture of the U.S. Marines : axioms for warriors, marine quotations, battle history, reflections on combat, corps legacy, humor, and much more, for the world's warrior elite* (Plum Branch, S.C, Heritage Press International, 2002)

[13] A classic example of this would be Vivian Maier, who while amassing a collection of superb street-photography images, worked as a children's nanny. She is not known to have ever submitted or published any of them, and her archive only came to light after her death. She was profiled in the 2014 documentary *Finding Vivian Maier,* by John Maloof and Charlie Siskel.

[14] As well as noting his aversion to flashguns, Cartier-Bresson's obituary in Variety notes his preference for inconspicuous equipment, stating that, "Cartier-Bresson shot with a Leica, the quietest of cameras, working only with black-and-white film, and, notably without a flash. Thrusting a subject in the limelight, he once said, was a sure way to destroy it.": "Henri Cartier-Bresson." *Variety*, August 9, 2004, 44.

[15]Bruce Gilden's technique is the polar-opposite of Cartier-Bresson's, using flash photography (in daylight as well as after dark) at extremely close range. His work and techniques are covered in depth in Episode Seven of the 2014 documentary series *Contact.*

[16] For a discussion of the cameras that she used, as well as the strengths of twin lens reflex cameras in street photography see Maloof and Siskel's documentary *Finding Vivian Maier* (2014) as well as John Maloof's book, *Vivian Maier: A Photographer Found,* (New York: Harper Design, 2014)

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#HERITAGE IN THE AMERICAN MIDWEST: DIGITAL AND AUGMENTED REALITY IN LIVING CITIES

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INTRODUCTION

Following the rise of digital media and personal digital photography, the average historic site visitor has more ability than ever to influence the presented narrative of a particular place. For decades, archaeologists and historians have endeavored to meticulously research and piece together histories for public understanding of historic or heritage sites, yet this work has become viewed less by the general public at times than internet accessible images and applications. With the significant rise in available digital media exacerbated by the evolution of smartphone and photographic technology, the general public is also able to more significantly impact the narrative presented to the outside world by providing images and updates on a regular basis and shared through the internet.

These pictorial stories can be curated through engines such as Instagram, Facebook, Twitter, and Pinterest, and present a mere snapshot view of history or heritage (complete with caption), which is easily transmitted worldwide. For heritage sites with already-complicated historical pasts, or living heritage cities, this additional media can begin to construct a passive, crowd-sourced narrative of the site outside traditional research paradigms, and based on the popularity of photographs chosen for representation and sharing. While expert interpretation is still a predominant method, the volume and availability of amateur or community media provides a consistent program for engaging these viewpoints in the interpretation. These impressions must be mediated for physical or virtual tourists, who are asked to understand "place" through the available information. For living heritage cities such as Columbus, Indiana in the American Midwest, digital technology and specialized exhibits may provide this mediation, helping tourists access accurate information about the history and artifacts, while promoting the coexistence or symbiosis of the population with the heritage.

DIGITAL IMAGERY, SOCIAL MEDIA

Personal photography in tourism is at an all-time high. The proliferation of smart phones means that digital photographs are easily produced and published. Unlike previous efforts where film would have to be processed and manually shared, digital photographs can be shared for free through social media and stored in the palm of a person's hand. The significant number of photographs shared publicly is the latest evolution of trend in tourism, known as "I was here' tourism," that was reported by Bell and Lyell in 2005.[1] The phenomenon describes the perpetuation of various tourist images that are reproduced in

an effort to establish a personal position within a tourism landscape. As the images are taken and shared, other potential visitors view the images, visit the site, and recreate the same image, only to share it again with additional people. This gives social precedence to certain imagery, and generates narratives associated with those images that are out of the control of the heritage site being visited. Not only are visitors now able to relay images of a place, but are able to also include their personal perceptions and associations of the material that is presented. This introduces both significant opportunities and challenges to heritage sites that have a particular narrative that they wish the public to understand, and may impact interpretive planning strategies by redistributing control of the narrative to outside forces.

Susan Sontag famously suggests that "To collect photographs is to collect the world,"[2] although for Sontag, the ability to share pictures was dependent on having them printed. While film photography and physical photographs are not as common nowadays, the public desire to "collect" world monuments remains, and developments in digital technology have helped photo-sharing instead to reach an all-time high through social media. These souvenirs can help to spread the knowledge of what exists at the site with the immediacy of which they can be shared with others. In recent years, however, social media has also become an established method of publicity for growing user bases,[3] providing an ample platform from which to engage new audiences in heritage sites. If heritage sites are able to leverage this response by promoting Instagram and Twitter "hashtags," and using their own mobile applications for engagement, they can regain control of the site narrative and use social media and digital photography to their advantage.[4]

Alongside evidence of its power to promote even little-known heritage sites, social and digital media also provides a platform for researchers investigating user interpretation, by understanding successes and failures of presented material as it is later related by everyday patrons. Social media may provide not only a paradigm shift in the way that sites communicate with patrons, but also in how they understand patron experiences. The traditional patrons survey of ten years ago is now being replaced with research into hashtags and captions and their ability to explain public takeaways and interests.

INAUTHENTICITY, INACCURACY, AND PASSIVE NARRATIVE

Despite evidence that social media may be used to successfully promote heritage sites, site organizers should be wary of the crowd-sourced method of collecting information and publicity, as well as the quickly evolving digital landscape and look of social media. The creation of new social media sites that quickly find audiences with younger members of society suggest that even the latest methods of utilizing social media have already fallen by the wayside. This suggests that in order to continue to have an impact through social media, organizers must be able to keep up with evolving platforms if seeking to continuously engaging younger audiences. While the method of distribution may be slightly modified, however, the principle remains the same as it has been since the beginning of interpretation practice—engage the audience and provide accurate and authentic information.

Crowd-sourced information also reveals a number of biases of which site organizers should be wary. The possibility of promoting inaccurate or inauthentic information is high, as the public is able to publish descriptions without specialized knowledge, experience, or peer-review. Patrons post what they enjoyed and understood, which may not be the moments that site organizers wish to most promote. Patrons angry about a particular moment in the interpretation or upset about something else entirely may not provide the most objective feedback for the experience, but this is a problem whether using social media or traditional survey sourcing methods. Social media is available worldwide and potential visitors can see all information related to the site from their cell phone or computer. As patrons passively produce more of the publicly-available narrative through social media and web platforms, the site risks

being usurped by information from the general public and not historians or experts. When patrons have expanded ways of providing information, the site begins to lose control of the narrative, for good or bad.

As with employing traditional methods of soliciting feedback, social media platforms require front-end investment, as these programs require people associated with the site to operate them, whether paid or volunteer. While marketing conglomerates are often employed to run commercial social media accounts, that investment may be significantly more than heritage sites can afford, particularly in times of financial insecurity. Sites may additionally run the risk of hired employees having less knowledge about the heritage site they are promoting or accidentally or purposefully presenting views in contrast to the values of the site, and thus incurring negative feedback or inauthentic promotion.

EVOLVING TECHNOLOGY AND INTERPRETIVE NARRATIVES

There is a significant benefit to the growing trend toward smart phones and digital imagery in the ability of the average user to use smart phone applications, suggesting that using personal technology might be easier than learning new technology provided by the heritage site, and extrapolate fewer expenses for heritage sites delivering digital presentations. As heritage sites shift between digital and physical audiences, new technologies are able to make the transition to accommodate both through augmented or computerized interpretations. Augmented Reality (AR) or Virtual Reality (VR) simulations or media provide a user experience that enhances engagement through digital means, particularly amplifying the user's perception of objects, architecture, or space. When used as part of informational interpretation, both AR and VR are able to provide additional digital media to supplement a stationary object, at times allowing the visitor to choose which enhanced media is depicted. While VR requires additional hardware, such as headsets and potentially a full monitor system, AR can better utilize mobile application technology, making it more available to the general public with less initial investment.[5]

Johnson and Smith suggested in 2005 that the use of AR would become more commonplace in a number of different disciplines, including museum and heritage design in the following years, and many heritage sites have invested in technology to meet this demand. In 2017, the Smithsonian National Museum of Natural History in Washington DC, USA introduced a free augmented reality mobile application and web platform titled "Skin and Bones"[6] that works in tandem with their "Bone Hall" exhibition to enhance visitor understanding of the skeletons displayed in their collection. Amid the 2020 COVID-19 pandemic, many heritages sites began offering virtual tours through mobile and desktop applications, making an engaging experience even more personal while quarantined.[7]

DIGITAL HERITAGE IN LIVING CITIES

The emerging availability of virtual and augmented technologies to meet the rising needs of the average or specialized heritage visitor also coincides with the ability to develop less- or non-invasive strategies for the interpretation of heritage sites. While many sites employ non-invasive strategies to protect sensitive materials or landscapes, these strategies can also be of benefit to living, functioning heritage cities that experience substantial tourism. Columbus, Indiana is one such city, with extensive architectural heritage, much of which remains privately-owned and inaccessible to the public. This constraint, however, has not discouraged visitors, who travel to Columbus in the hundreds of thousands each year.

The city houses seven United States National Historic Landmark buildings, and numerous other buildings, sculptures, and landscapes produced by world famous designers dating to the mid-19th century. The investment in Columbus, a relatively small midwestern city, was due in large part to J.

Irwin Miller, chairman of the Cummins Engine Company during that period of time, who felt that enhancing the city with exciting, modern design would attract better employees for his company and factory. His personal and family investments in local churches, and the other religious institutions that followed suite resulted in three of the national historic landmarks: First Christian Church (Eliel & Eero Saarinen, 1942), North Christian Church (Eero Saarinen, 1964), and First Baptist Church (Harry Weese, 1965). Additionally, Miller invested in buildings for his own company, with Eero Saarinen designing the Irwin Union Bank (1954), and even Miller's house (1957). In 1960 the Cummins Foundation[8] developed its own Architecture Program that focused on educational innovation, granting money to schools to hire signature architects for their new buildings. The first grant was given to Lillian C. Schmitt Elementary School, to pay the design fees for Harry Weese. Another prominent elementary school was later designed by Carl Warnecke, a California architect who encouraged communication with the outdoors in his architectural design of Mabel McDowell Elementary School. The school was later named a National Historic Landmark. A total of 52 projects by elite architects of the day were completed, and include most of the public buildings around the city, such as schools, parks, fire stations, city hall, the community jail, memorials, and golf courses.[9] As a result of the dense collection of historic buildings and landscapes in Columbus, the city provides an ideal opportunity to explore less- or non-invasive interpretive techniques. As most of the landmark buildings remain privately owned, interpretation through non-physical means is necessary to make these spaces available to the public.

The Columbus Indiana Augmented Reality Application Project was developed to meet this specific need for Columbus, Indiana, with the intention of enhancing public education regarding the important architecture around the city, without the imposition of invasive signage. The aggregation of monuments in the living city is substantial, so signage would detract from the overall functioning. Instead, a mobile application ensures that information is available at all times, and accommodates visitors with hearing and visual impairments without leaving a permanent footprint in the city.

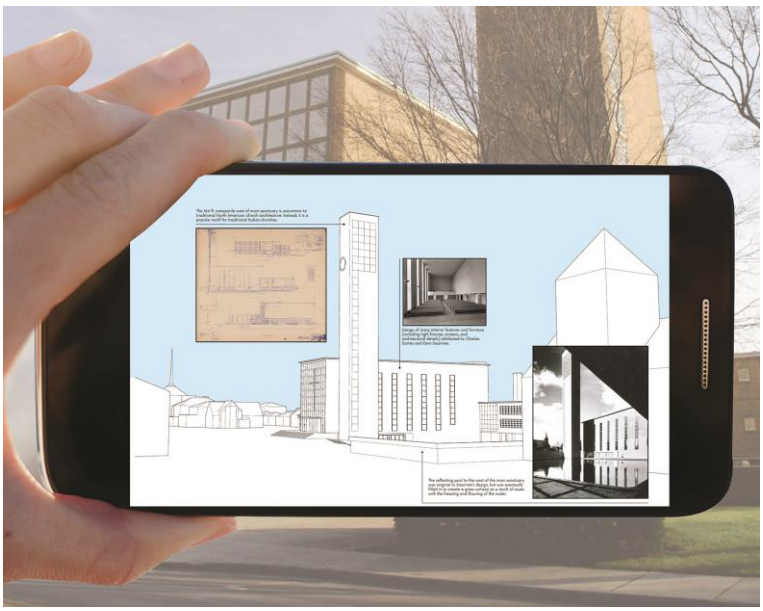

Fig. 1: Early Augmented Reality (AR) Columbus Application concept by Ball State University students.

As a way to introduce concepts of digital interpretation to the next generation of heritage interpreters, the project was incorporated into an immersive learning seminar at Ball State University, which utilized

assignments intended to make students think about digital heritage techniques and how skillsets might be developed. The seminar included students from the Ball State University architecture program, who visited Columbus twice and made determinations based on their understanding as tourists. Students produced digital models of the landmark buildings based on original architectural drawings provided by partnerships with the Columbus Indiana Architectural Archives and Ball State University Drawings and Documents Archive. Extensive primary and secondary source research conducted by students was paired with the digital models to provide context and information for visitors to replicate the use of traditional signage. The seminar was conducted by the author and Carol Street, archivist for the Ball State University Drawings and Documents Archive, to facilitate students' research goals and design strategies.

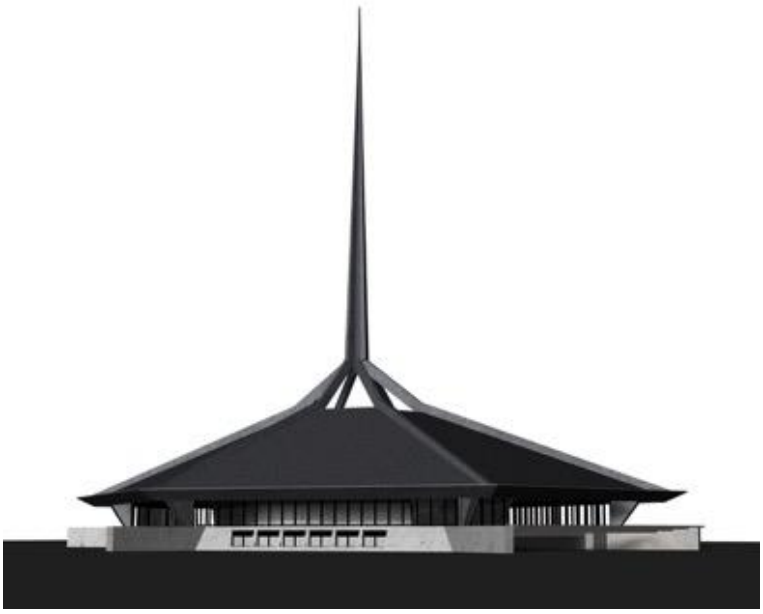

Fig. 2: Student-produced digital model of North Christian Church in Columbus, Indiana

This seminar was intended to provide the content for the application, which at the time of this presentation is in the funding state to provide for programming. The eventual application and web platform will be constructed by professionals as part of the Ball State Institute for Digital and Intermedia Arts Lab, which has developed the proprietary technology to produce the application and recently launched a similar virtual companion application for Mounds State Park in Indiana.[10] The Columbus, Indiana application is scheduled for testing in 2020.

While the Columbus, Indiana mobile application is being developed to benefit the city, it reintroduces previously-discussed challenges, particularly the cost to produce such an endeavor up front and the ability of the city itself to continue to utilize and update it. The Columbus, Indiana application was developed as part of a university program, and will be supported through grant funding, which means that the heritage sites themselves are not taking on the cost of production. Once the application is handed over to the Columbus Area Visitors Center, however, it will be up to city tourism staff to update it as needed over time, which suggests investment by the city. Important to note, however, is that all means of interpretation require updating and associated funding. In the United States, there are a number of granting organizations, including the National Endowment for the Humanities, that are specifically invested in digital strategies, which provides some relief for heritage sites.

Mobile AR and informational applications also provide an important benefit to patrons with vision or hearing impairments. This ability has been explored since the beginning of the 21st century, producing accommodations that allow for digital reading and spatial awareness for visitors with vision impairments and enhanced white noise reduction, and visual interpretation for visitors with hearing impairments.[11] The use of inclusive technology and augmented displays at heritage sites not only provides inclusion for patrons with impairments, but also an engaging interpretation for the general patron. In contrast to accommodating based on legal requirement, the technology has the opportunity to engage multiple types of learning styles, including auditory, visual, or kinesthetic learning alongside accommodation, as each of these requires particular associated strategies. As these technologies become more available at heritage sites, traditional interpretation methods of single or multi-language stationary signage may soon be completely replaced with interactive interpretations aimed at multiple user groups.

Fig. 3: Columbus Indiana application graphic design by Ball State architecture students

IMPLICATIONS FOR FUTURE INTERPRETATION OF INDIANA HERITAGE

In an increasingly digital world, particularly one where the average traveler/tourist carries at least one digital mobile device, the use of these often-free services can attract new audiences and eliminate the need for external or rentable hardware, which will be increasingly beneficial in the post-COVID-19 tourism environment. If a visitor's personal device is available to provide the service for free, heritage and historic sites can subsequently eliminate the need for audio or printed media in multiple languages, offering a democratic approach to information sourcing. Additionally, previous investments into the procuring and printing of such translations could be instead invested into the upkeep and modification of digital platforms, where information is updated as discoveries are made. Augmented and Virtual Reality applications provide a universal space for interpretation, making information about heritage structures accessible to a wide audience, and present the opportunity to engage the public in demolished or partially-existing structures as well. With endless possibilities, a studied approach to virtual engagement is necessary to develop a timeless, authentic interpretation.

NOTES

[1] Bell, C. & Lyall, J. (2005). "I was Here": pixilated evidence. In D. Crouch, R. Jackson & F. Thompson (Eds.), *The Media and the Tourist Imagination* (135-142). New York, NY: Routledge.
[2] Sontag, S. (1990). *On Photography*. New York, NY: Anchor Books, 3.
[3] See Stelzner, 2016.
[4] Leveraging this type of free publicity is key for many historic or educational places, as "going viral" could bring in significant new audiences. Well publicized examples, including the 2017 Twitter war between the Science Museum and Natural History Museum in London represent how embracing new media platforms could introduce collections to audiences never before dreamed of (see Andrews, 2017). In the series of responsive tweets, each museum was able to showcase often-unexpected artifacts in their collection to a wide and diverse public in a friendly interaction that encouraged the participation of other institutions. This was followed in October by World Architecture Day during which the social media controller for St. Paul's Cathedral sparked a showcase of cathedrals of the United Kingdom, some serious, some not (see Doré, 2017). As with the Science and Natural History Museums, this irreverent approach to public promotion allowed for many to cathedrals to accurately represent their history to an international audience.
[5] For an expanded literature review of the development of augmented reality, please see Yu et al., 2010.
[6] See naturalhistory.si.edu. (2017). A Hall Through New Eyes: Skin and Bones. [online][Accessed October 20, 2017].
[7] Even heritage sites that would normally require admission are opening up virtual tours for free to digital patrons, presenting new opportunities for knowledge transfer. See Gowans, 2020 and Sroka-Holzmann, 2020.
[8] The Cummins Foundation is a charitable organization associated with the Cummins Engine Company, who established their headquarters in Columbus, Indiana at the behest of J. Irwin Miiler. An American Industrialist who was integral in the administration of the Cummins Corporation from 1944-77.
[9] A full list of the projects can be found at: https://dnissen-wpengine.netdna-ssl.com/wp-content/uploads/2016/07/Cummins-Foundation-Architecture-Program.pdf.
[10] See Idialab.org. (2017). Launch of Virtual Companion iOS app by IDIA Lab. [online][Accessed October 28, 2017].
[11] See Griffin-Shirley, et al., 2017; Hakobyan et. al., 2013; Lisney, et. al., 2013; Plaza, et. al., 2011.

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MAN, MYTH AND SPACE: THE ARCHETYPAL DESIRE TO BUILD

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INTRODUCTION

The aim of this paper is to present a visual imagination of the possible consanguinity in-between cultural narratives and the architectural design activity that helps in establishing spatial experience in our day-to-day urban places. In this quest, the debate will be narrowed down to focus on a universal cultural narrative which is built on collective archetypes, while it simultaneously structures ideal forms of space in architecture. In this perspective, the 'myth of Eden' is considered a universal and ideological standard. The myth of Eden will be explored through a visual novel in three stages. The first reconstructs possible spatial arrangement of the metaphorical drama that ensued in Eden, revealed by carving out the layers of philosophical descriptions of place in myth where quest of curiosity, desire, attraction to unknown and reaction on first restriction in presence of absolute freedom are the fundamental expositions in defining that eventual space. The next stage is the time of depression, in memory of absolute freedom in evergreen peace of Eden, after stepping down to earth, and facing its physical constraints of time and space. Here, man was in state of self-denial in nostalgic expression and desperately wanted to return to Eden. The final stage reimagines Eden in modern times, looking for it in a present cityscape of an old city - the walled city of Lahore, which is in pursuit of the lost paradise. The result is a series of three-dimensional images captured in the memory of a traveler revisiting the three stages.

MYTH – A HISTORICAL UNDERSTANDING:

Myth is a generally misunderstood term, because it is usually associated with 'a story, parable or an Allegory. However, it plays a much important role if considered the history of mankind.
Man has been creating Myths since the beginning of time. Many philosophers like Tyler[1], debated why myths were made, and some wondered about its survival in 20th century[2]. But the survival of myth became crucial to man's understanding of certain concepts as insured by a notable early philosopher

Plato (428 - 348 BCE): Plato was the first to utilize 'myths' in his philosophical endeavors. In Archaic Greece. There were two school of thoughts, - 'Mythos', which literally means 'True Story' one that concerns the true origin of the world and human beings. 'Logos', meaning 'reason'. Both corresponded to the two types of discourse that emerged with the beginning of the seventh century BC i.e. history and

philosophy, respectfully. Plato was the first who attempted to overcome the traditional opposition between 'mythos' and 'logos' and integrate myth with philosophy.
Plato utilized myth as a teller as well as a maker by using both traditional myths and his invented myths and giving them some role to play in his philosophical endeavor. He learned from Socrates and understood that people do not understand the truths which may be visible to the philosopher's eye, for they are blind to it. But as a philosopher, he felt compelled to expose the people to the truth.
To overcome this state of his philosopher's paradox, he devised myths and utilized them to teach various philosophical matters that may be too difficult to follow if expounded in a blunt, philosophical discourse. He presented this symbolically in his work 'allegory of the cave', where prisoners are chained facing projections on a wall in the cave.

Myth in Philosophy:

Joseph Campbell (1904-1987): He was an American Professor, Orator and Writer, who did work on comparative mythology and outlined the importance of myth for the contemporary man. Campbell presented myths as a recollection of collective psyche, evident from its imagery and symbols and explained that Myth is not a fantasy or a misstatement, rather it is a veiled explanation of the truth. He also presented the functionality of myths which to him, are as important for the contemporary man as they were for the archaic man. For they Guide the individual, stage by stage. through the inevitable psychological crises of a useful life: from the childhood condition of dependency through the traumas of adolescence and the trials of adulthood to, finally the deathbed.
In his compilation 'A hero's journey which follows along a cyclic mythic journey comprising of multiple stages, Campbell explores his theory of commonalities among myths, which he described as the 'monomyth'[3]. That several myths across culture share the same narrative structure,

The Origin of World Mythologies – E.J. Michael Witzel (2012): In this book, the German comparative mythologist, provides a more recent analysis on the comparative analysis of different myth across the world. He followed an extensive research and came to the conclusion that he defined in his own words as follows,
"Myths are not inherently unscientific, fantastic, and hence untrue "fairy tales" about aspects of human life and nature, nor are they intentionally invented, misleading, and supposedly untrue stories about topics otherwise important to us."
"Myths are part of the larger realm of religious (sacred) thought that is characterized by symbolism."
From this the importance of Myths can be understood as they are not just a fantasy rather Myths are a metaphysical phenomenon that affect our physical realities.

DISCOURSE ON MYTH – ARCHITECTURE

Myths have a play in our physical world, they narrate and animate our space. In its narrative, it builds the backdrop where the scene plays out. Many Artists have lent their skills to this phenomenon in their rendition of these imaginative and fictional Architectural Space. Dating back to Piranesi's series of 'Imaginary Prisons'[4](fig.1-*left*), that represents 'incoherence of space' in its dreamlike caricature, to Alexander's Brodsky's buildable and unbuildable narrative spaces in Paper Architecture[5] (fig.1-*center*). Fictional Architectural spaces have contributed to the three dimensionality of myth. And Myths, in turn have played a greater role as directive narrative in the discourse architectural design.

One such famous narrative in the discourse of myth and architecture is 'The theory of origins of Architecture' presented by Vitruvius [6] (fig.1-*right*). In his theory, he states that the shelter was built and learned from the form and functionality of nature. In this regard, Vitruvian, theory of origins talks about strength, functionality and beauty, all three characters serve as foundation to building.

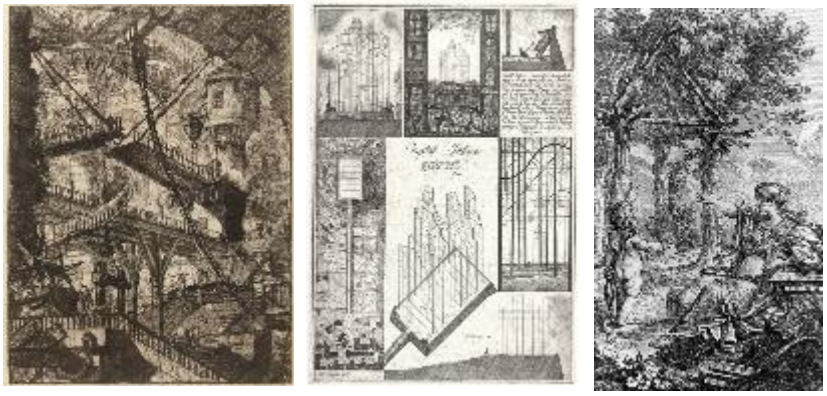

Fig 1. (Left) Piranesi's Fictitious Prison Spaces "The Draw Bridge'. (Center) The Search for Transparency in Brodsky's Crystal Palace. (Right) Vitruvian Theory of Origins of Architecture

When Vitruvius talks about these, he is in essence referring to the theory of building. For Architecture and building are different tools of the same mechanics. Much like the human body, the building serves as the body whereas the soul is manifested in the form of Architecture. It is immaterial in nature, like an idea behind the process. W.R. Lethaby states in his book 'Architecture, Mysticism and Myth'

"The theory of Architecture, with its origins from the primitive hut and further development that varied according to the era and place, is actually the theory of building,"

"…. Architecture itself is the thought behind form, that is realized and embodied for the purpose of manifestation"

Architecture becomes much more than of its material components, stone, wood or steel when its spatial components, light, space, gravity serve to narrate a symbolic ideology. In other words, the presence of Myths in space render them sacred.

Such existence of myths has been expressed in the spaces all around, whether in form of carvings on the wall (Fig.2-left), whether preserved in the spatial background of mythical happening or revived in

the reconstruction of a mythical space (Fig.2-right). The further study aims to explore the masked relationship of myths embedded in spaces and unfold its archetypal role.

SPATIAL ARCHETYPES IN MYTHS:

Up till now, we have established the importance of myth in human history, Philosophy and in fiction. Further we'll study the underlying pattern in which myth influence our architecture of the built.

Carl Jung

Carl Gustav Jung (1875-1961) was a Swiss psychiatrist who studied the phenomenon of myths in detail where he cross-compared different symbols, motifs and inherent images of various myth and tried to deduce for their relationship. He tried to account for the unlikely spread of common myths and theorized that

"There exist "Fantasy-Images (including dreams) of an impersonal character, which cannot be reduced to experiences in the individual's past, and thus cannot be explained as something individually acquired."

These fantasy-images recur in mythologies and these fantasies emanate from a different unconscious, which, rather than the creation of an individual, must be inherited, he called them Archetypes"

These inherited archetypes are stored in a common library of shared emotions, desires and struggles of human existence which play an important role in this inescapable phenomenon of myths, which is called 'the library of collective unconscious' (fig.3)

Fig 2. (above) From caves to the kala Burj Pavillion in Lahore
(right) Reconstruction of myth of Paradise in Chahar Bagh

Carl Jung did a series of experiments for years to visualize the recurred images in his dreams and compared them to the vast library of imagery/Archetypes available in myths. These series of visuals observed were illustrated and compiled in a compiled manuscript called The red book. A close Analysis of these images and elements shows its similarity to multiple myths cross culture, but precisely a common myth called the Myth of Eden with its themes around the world tree, the serpent the man and the physical world. (fig.4-above)

Fig 3. Carl Jung Library of Collective Unconscious can be visualized in Jorge Luis Borges description of the library of Babel where he conceived world as a hexagonal library in the form of a labyrinthine

These illustrated series also visualize the Spatial elements that re-occur in myths. Starting from the labyrinth to the central axis, these elements occupy and form the foundation of our Architectural landscape. In the map of the ideal city by Vitruvius called 'Palmanova', we see a co-relation with the illustrated labyrinth (fig.4-below)

Fig 4. Illustrations from the Red Book depicting the recurring element of the myth of Eden and its transformation to physical space (above) along with the representation of the garden as a labyrinth (below-left) in the form of the Vitruvian Ideal City (Below-right)

The recurring spatial archetypes in myth, that dictate our built spaces hint towards a universal myth throughout history. These archetypes have been Architecturally translated into elements like Mazes inlaid on floors of cathedrals(fig.5-top), Domes suspended high forming the ceiling, geometrically symbolizing the vault of heavens (fig.5-center) and Stairways sculpted in ascension (fig.5-below)

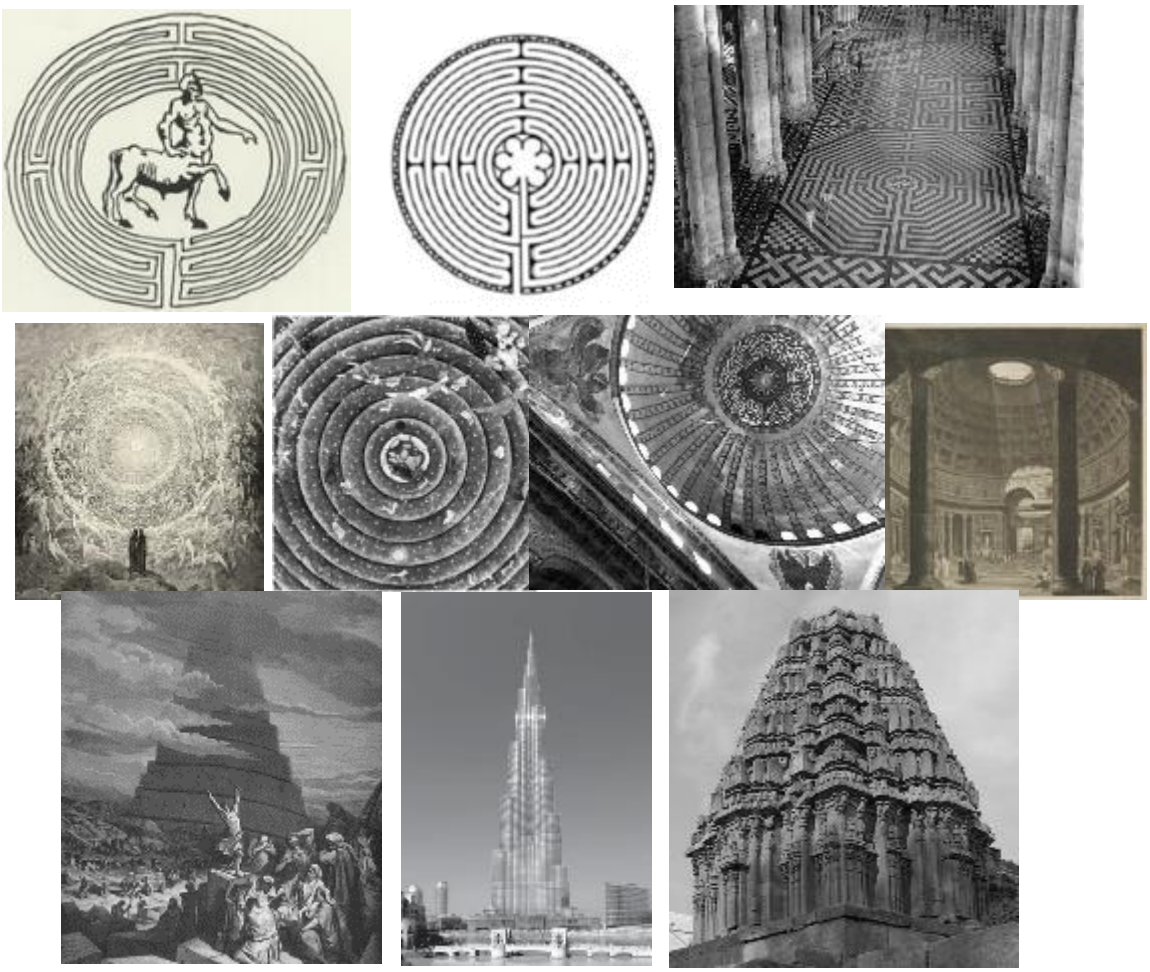

Fig 5. ***Top*** *– (left)The mythical Architect of Labyrinth. (Center) maze on the floor of Chartres Cathedral celebrated as a symbolic pilgrimage to the Holy Land. (Right) Amiens Labyrinth: An octagonal maze as described in 'The Bible of Amiens'.*
Center *– (Extreme left) Dante and Beatrice gaze upon the highest heavens in the Divine Comedy, (left) The heavenly spheres in the event of Mairaj. (Right) Dome of Hagia Sofia – A case of Cosmology in Islamic geometry. (Extreme Right) In the prefect sphere of Pantheon*
Bottom *– (Left) Man's desire to reach the heaven in tower of babel (Center) the Ascending form of a modern tower – Burj Khalifa (Right) The Sculpted Steps in Badami Temple - India*

Conclusion: The Archetypes preserves in the various Architectural Manifestation point towards a fundamental myth, that may serve as an exploration ground for the study and transformation of the coherent relationship between Myth and Architecture.

MYTH OF EDEN:

Myth of Eden, talks of Man's first house and his expulsion thereof from the divine dwelling might lead to the Answer of its pursuit in every manifestation of the sacred in our spaces.

The Philosophy of Eden in Christian Mythology is the interpretation of original sin as man's eternal punishment. Whereas Islamic Philosophy treats Eden as a test ground and a testament of free will, knowledge and its consequence to prepare man of the restriction of the world. As it is mentioned in the Quran

"On Earth, will be a dwelling place for you and an enjoyment, for a time. He said: Therein you shall live and therein you shall die, and from it you shall be brought out" (Quran: 7:24 -7:25)

The Myth of Eden is a common myth that spreads across many cultures and Regions and many work has been done upon its illustration and Philosophy. Among them the most common is Hieronymus Bosch work 'The Garden of Earthly Delights', painted as a triptych narrating the story of Eden in three stages the Past, the Present and the Future (Fig.6-Top left). And Gustave Dore's illustrations of the Genesis (Fig.6-Top Right)

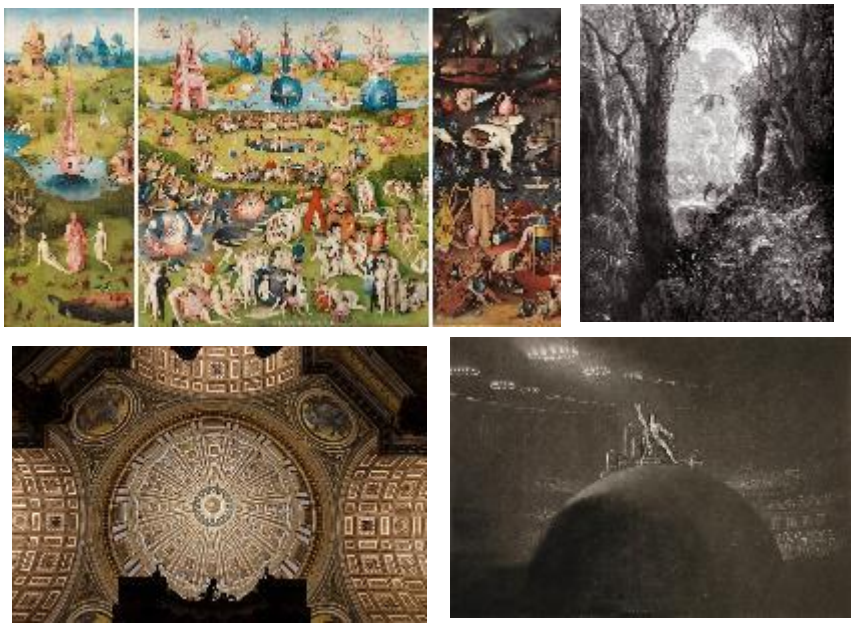

Fig 6. Top – (left) Hieronymus Bosch, The Garden of Earthly Delights (1503-1515). (Right) Gustave Dore - Illustrations on Myth of Eden from Genesis - La Grande Bible de Tours (1866)
Bottom - (Left) The Basilica of Saint Peters. (Right) John Martin's Illustration of Pandemonium in Paradise Lost

Our research on The interrelationship between man, myth and space traces back to man's first home, Eden. As a Process, we develop a comparative visual study of the poetry on Eden from two Perspectives and Cultures one is the Sargazasht-e-Adam / or Story of Adam from the East and Paradise Lost from the west.

Paradise Lost - John Milton (1608-1674)

John Milton was an English Poet, who visited Rome in 1638. There, a particular building of monumental scale called the Basilica of saint Peter's (fig.13) struck a chord on him which later became his inspiration for the pandemonium 'The place of daemons' in his one of the most famous work 'Paradise Lost' [7].The Literary work narrates the event of the fall of man and expulsion of Lucifer. Taking inspiration from the Biblical accounts of the event, He connects multiple myths as a series in reaction to this event. The poems take place after the fall of Satan, and starts from his perspective, where he contemplates over his condition in memory of the heaven. After Escaping to hell, he decides to take revenge along with his companions. Which results in the apparent expulsion of man from paradise and inflicting him with mortality. Thus, therefore introducing the concept of original sin.

The most crucial and significant Spatial instance we find are in book I. First, in the memory of Heaven, then in the description of Hell, and then in the construction of Pandemonium. Which is Satan's response to the kingdom of Heaven. This comes both as a critique from Milton's point of view as well his perception of space, where he references the mind as its own place.

While Milton was very thorough in his temple like architecture of Pandemonium, his understanding of space was literal, as visible in his clear references to the architecture

A Visual Exploration of Pandemonium: As a process, we develop a visual study of the story of Satan and his Architectural response of Pandemonium, compiled in five stages (fig.7).

The excerpt selected from book I takes place after the fall of satan, and starts from his perspective, where he contemplates over his condition in memory of the heaven. After Escaping to the hell, he decides to take revenge along with his companions. Here we find significant spatial instances, first in Satan's memory of Heaven - Eden, In the description of Hell, and then in the construction of Pandemonium. Which is Satan's response to the kingdom of Heaven i.e Eden

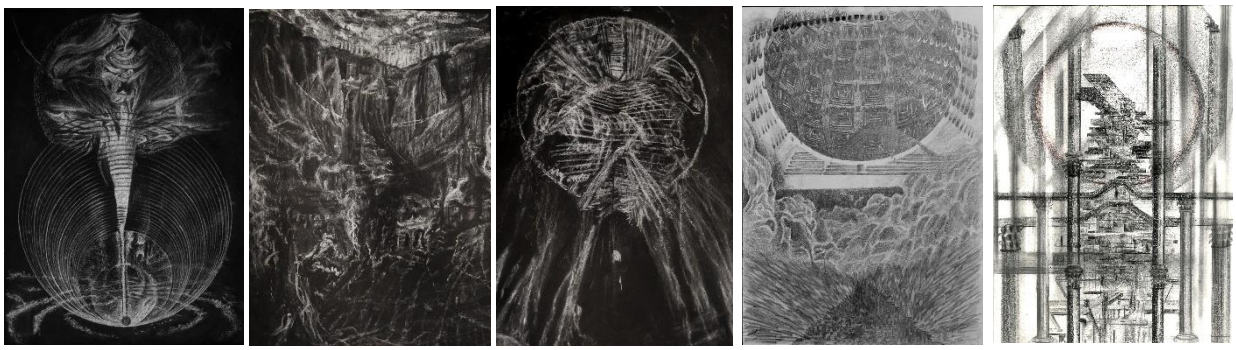

Fig 7. – (Extreme left) The Fall of Satan from Heaven, (left) residence in the Hell's Dungeons of darkness (Center) the memory of Heaven in the Dungeons motivates him to make a heaven of hell, an answer to Eden. (Right) The Construction of his temple starts with ample spaces, levelled pavement and arched roof, (Extreme Right) The finished temple evolves into a symbol of power with 'Doric Pillars' and 'Golden Architrave'

Sargazasht-e-Adam – Allama Iqbal (1877-1938)

Allama Iqbal was a philosopher, and a scholar, widely known as the poet of the East. His Book '*Bang-e Dara*' or '*The call of the Marching Bell*' contains **Sargazasht-e-Adam** or 'The Story of Adam'. In which Iqbal narrates the metaphorical chase of Adam that had started since his expulsion from Eden.

The Poem is Structured in four Phases, Where The First Stanzas Narrate the memory of the Event from Adams Perspective, when his curiosity drove him out of 'Jannah' i.e. Eden. Which lead him to travels to the next phase in his journey, in which he travels vast lengths and experienced different events. All in pursuit of that chase that had started from Eden. When The land couldn't answer his thirst, he heads towards the stars in seek of the truth of the celestial Model. Finally, In the next phase, He is enlightened with the realization that the truth that he had been seeking, the answer to his chase is present within him, thus concluding his quest

A Visual Exploration of Iqbal's Work in Sargazasht-e-Adam: Further, the four stages of Adams chase for Eden in Iqbal's work are explored as process in series of Drawing. (fig.8)

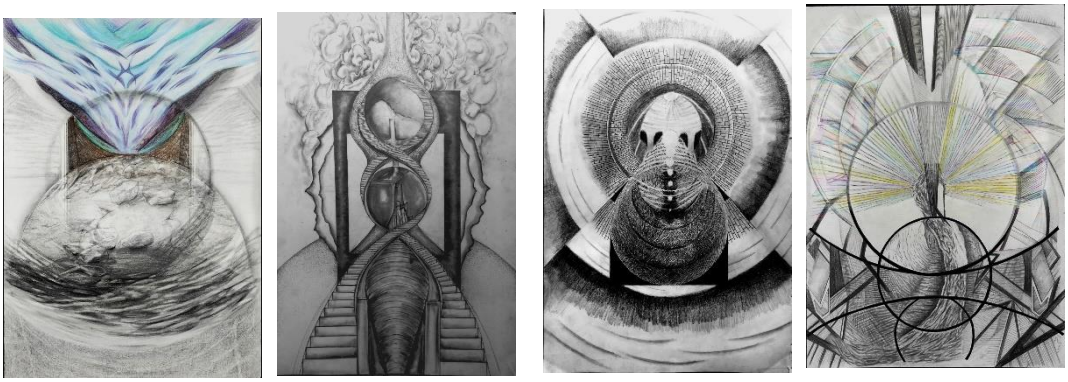

Fig 8. (Extreme Left) Recollection of Man about his expulsion. (Left)The quest for Eden (Right) The Discovery of Knowledge – Age of Enlightenment (Extreme Right) The Finalization of Man's journey for Eden, within himself

Concluding the Comparative Analysis:

While Iqbal gave a metaphorical interpretation of Eden, Milton gave a physical interpretation, but both theorized the origin of architecture and the act of building as a response to the spatial memory of paradise. In Iqbal's work, the act came from man's search for Eden and achieved with the help of his 'reason'. In Milton's work it came Satan's ego, which was a physical and literal manifestation in response to his memory of kingdom of heaven. In this way Milton also presents his critique on the 'grand' architecture which focuses on the spectacle rather than the experience of space.

A VISUAL NARRATIVE OF EDEN – FROM MEMORY TO ARCHITECTURE:

Myth of Eden accounts for the memory of Eden, Of Mans First Home, The fundamental of all space. What part of that memory of space is preserved here in the Architecture around us?

MAN, MYTH AND SPACE: THE ARCHETYPAL DESIRE TO BUILD

Based on our study from comparative Analysis and after concluding the act of architecture as a response to this memory of Eden. The final stage visually explores how the metaphysical space of Eden became precursor to the physical places, through a fictional narrative compiled in three stages.

Book I: The Spatial Drama of Eden

Book II: The Pursuit of a Memory

Book III: The Archetypal Manifestation of Eden in Space

Book I: The Spatial Drama of Eden

This section (Fig.9) starts with our protagonist 'Man' experiencing the metaphysical space of Eden, which slowly ascends him, revealing to him the physical constraints of position and mass, eventually leading him to the physical threshold at its end. The last scene ends with the man crossing it.

Fig 9. The Spatial Drama of Eden

Book II: The Pursuit of a Memory

This Section (Fig.11) continues with our protagonist waking up in the physical world, with the memory of the metaphysical. His pursuit to go back home results in him building projections physical plane that are identical to the one in the metaphorical space. After manifesting the intangible memory of Eden into the tangible form and space, the Man rests at his journeys ends with a sense of realization, and with his eyes closed, the scene goes to black

Fig 10. The Pursuit of a memory

Book III: The Archetypal Manifestation of Eden in Space

This Section (Fig.11) starts as our final protagonist recovers from his slumber, in a modern landscape of a city where he experiences the nostalgic expression of Eden in the city labyrinth, through its streets, gateways and vistas, he reaches his days ends with a certain memory of sacred.

Fig 11. The Archetypal Manifestation of Eden in Space

CONCLUSION

The relationship of Architecture with myths started as a tool devised in preservation of a memory, that was borrowed from a common myth. That memory in myth is the most fundamental of architectural space i.e. Home. Theory of Architecture when studied from this perspective, where it started as a pursuit in response to an ideal, regains its status of the ritual. We as Designers are part of this pursuit, in chase of an ideal in our creative capacity, when we draw, design and sculpt. The City, with its narrow configuration of streets, walls and facades, is like the labyrinth. It is a collection of multiple myths which when viewed through a broader lens, tells of a single tale. With this realization, we realize that the Architect have some control over this labyrinth. In his configuration of space, he is actually designing the chase.

NOTES

[1] H Edward B. Tylor (1832–1917) states out that myth served as an actual explanation of the natural phenomena to the Primitive Man
[2] See, Robert A. Seagal's *'Myth – A Very Short Introduction'*, (2004)
[3] Campbell theorized about 'monomyth' the idea that several myths across culture share the same narrative structure, and presented the common narrative structure of myth in his *'A Hero with Thousand Faces'*
[4] For a complete illustrated series by Giovanni Battista Piranesi, See *'Carceri d'invenzione'* (ca. 1749–50)
[5] Utopian or Dystopian Architecture, that is never meant to be built, and that originated in Russia as a critique on state sanctioned Architecture of the time.
[6] Marcus Vitruvius *'Ten Books on Architecture'* which draws the connection between the architecture of the body and that of the building.
[7] Pandemonium' Latin for Place of Devils

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TENSIONS BETWEEN SPACE AND MEMORY: MOVEMENT AND MOBILITY IN DIGITALLY RECONSTRUCTING THE BAWEAN *PONTHUK*

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INTRODUCTION

The Bawean *ponthuk* in British Malaya served as lodging houses for Baweanese migrants from the mid-19th century up to the 1960s when its residents began moving out and disperse in various houses estates. It predominantly occupied urban forms (such as compound houses and shophouses) rented out to Baweanese migrants in towns where the Bawean diaspora had spread. In recent years, anxiety and nostalgia over the dilution of Baweanese identity amongst the younger generation formed the backdrop of the first publication by the Baweanese Association of Singapore (PBS), supported by the National Heritage Board (NHB) that attempted to canonise Baweanese heritage in Singapore.[1] The Bawean *ponthuk* appeared as a central theme by which the publication discussed Baweanese cultural traditions. In 2018, PBS produced a sequel heritage publication, *Ponthuk Bawean di Singapura.*[2] It highlights and records the memories of former *ponthuk* residents of 42 *ponthuk* across six areas in Singapore.[3] The publication's editor invited the author to make contributions to the book in the form of chapters that narrate the daily life and experiences of former *ponthuk* residents accompanied with a digital reconstruction of various *ponthuk* through axonometric plans.[4]

There are various issues digitally reconstructing not only the exterior physical form of the *ponthuk* but also its private domestic interior spaces and layout. First, today in Singapore, neither the *ponthuk* nor its original social context exists. The majority of *ponthuks* have been demolished. While the Urban Redevelopment Authority (URA) has conserved several buildings that once housed the *ponthuk,*[5] the interiors of these privately-owned buildings are mostly inaccessible or even unrecognisably refurbished. This reality has, by extension, ruled out the use of virtual reconstruction methods such as digital photogrammetry. Second, most former *ponthuk* residents are among the older generation and are not necessarily comfortable with the use of immersive technologies as a method of documentation such as working with digital models, virtual reality and augmented reality.

Hence, the author's contributions to the heritage publication were generated using traditional methods of sedentary interviews with former *ponthuk* residents. Archival building drawings and photographs from National Archives Singapore (NAS) supplemented these interviews. Relying on these methods to

digitally reconstruct the Bawean *ponthuk* has revealed various tensions between space and memory. Memory, an enduring human characteristic, tends to be subjective, dynamic and deemed irrelevant, is continuously viewed by actual physical dimensions of space with suspicion. However, memory provides critical insight into everyday life and the use of spaces.

This paper first examines the relationship between space and memory, exploring the spatiality of memory and the potential contradictions as interviewees attempt to recount their memories in relation to space. It then explores movement and mobility as a method of documentation that may harness the spatiality of memory aiding interviewees to recall their memories, while accounting for the inherent contradictions as interviewees recount and recalibrate their memories in relation to space. The paper further suggests augmenting existing methods of oral history interviews and 3D preservation by incorporating the dimension of space through movement and mobility to aid the digital reconstruction of lost architecture and its social context.

THE SPATIALITY OF MEMORY AND CONTRADICTIONS IN REMEMBERING SPACE

Various scholars have sought to demonstrate the relationship between memory and space. Edward Casey, for instance, argues that memory is never placeless and is "naturally place-oriented or at least place supported. [6] Nuala Johnson expounds upon the relationship between memory and space, remarking that its central to both everyday life and special occasions of remembrance.[7] Along these lines, Yi-Fu Tuan argues that individual remembers a space (as place) by having been in them and walking through them, developing the ability to move through it unthinkingly (kinaesthetic familiarity).[8]

One may also experience the present world casually connected to the past through memories associated with physical space and objects. It is this tapestry of memory and place where our personal and community histories and identities are interwoven. For instance, Casey argues that place serves as a "container of memories".[9] Frances Yates' *aide de memoir* adds a further dimension to the relationship between space and memory, by expounding upon how the physicality of place may aide one to structure his memory.[10] In this way, the spatiality of memory may serve as an aid for one to recall their memories associated with space and place.

Despite the potency of the spatiality of memory, throughout the author's fieldwork, various dialectical issues relating to the ephemeral nature of memory and its tenuous relationship with space arose. First, the digital reconstruction of the physical form of the *ponthuk*, relying exclusively on existing conserved buildings and archival drawings may not capture how former residents related to the spaces around them through everyday life practices. This element is critical, given that the *ponthuk* occupied urban forms that were unlike traditional buildings from their homeland. Migrants had to provisionally appropriate the spaces within to revive practices of daily life to facilitate their social and cultural needs. Moreover, given that migrants had rented such buildings, these appropriations were limited to the interior and had to be provisional. In the case of the *ponthuk*, everyday life practices may instead embed themselves in accounts of the habits of movements, use of daily physical objects as well as the unintended use of spaces from the buildings initial design.

On the other hand, memory tends to be subjective and dynamic and as such, often conflicts physical dimensions of space in existing conserved buildings and archival drawings. Former residents' memories of the *ponthuk*, as evidenced by diagrammatic floor plans initially produced for the heritage publication, may not necessarily emphasise accuracy and precise physical dimensions in the recounting of daily life and special occasions. For instance, spaces, where communal activities took place, may appear

oversized. Inversely, spaces that were private and confined may appear undersized given that the *ponthuk* was often overcrowded as a result of impecuniosity. These spaces were often recounted based on the vague enumeration of people that could occupy these spaces (Figs 2b & 3b).

MOVEMENT AND MOBILITY AS A METHOD OF DOCUMENTATION

Recounting the *Ponthuk* Through an Experiential Approach

In recent years, as Jane Ricketts Hein notes, geographers have turned towards movement and mobility as a method in the investigation the "everyday life practices".[11] She argues that this method reveals the different ways in which people relate to the spaces around them.[12] Steven High notes that the walking interview has emerged as a core practice of geographers interested in place identity and urban change.[13] Along the lines of Casey and Yates, this approach may harness the spatiality of memory. The environment acts as a visual and auditory prompt, aiding interviewees to recall their memories. As noted earlier, while mobile methodologies usually rely upon interviewees physically moving through spaces, the digital reconstruction of the *ponthuk* relied upon traditional methods of sedentary interviews.

Movement and mobility, however, can augment these sedentary interviews by relying upon an experiential approach as interviewees recall their memories of space. Tim Ingold describes that the process of the experiencing a space is based on sensory data – touch, hearing and sight.[14] Tuan similarly notes that this sensory data is associated with a process of symbolisation that constructs a narrative and reaction to this experience of space.[15] The interview thus places the account of the interviewee's experience as the central method by which the researcher may come to know of the interior layout of the *ponthuk* and its relationship with everyday life practices. This approach is achieved by structuring a participant-led interview process around a base plan generated from (where possible) conserved buildings, archival building drawings, archival maps and photographs (Fig 1). Archival building drawings, personal and archival photographs as well as historical maps, serve as an additional stimulus to encourage the interviewee to provide further information throughout the interview. These supplementary materials are especially useful for interviewees that may not be able to read building plans.

Movements and Nodes: Spatialising and Mapping Memories

Interviewees "tour" the author the through the *ponthuk*, continually referring to the base plan to capture their kinaesthetic familiarity with the private domestic interior spaces and layouts. Tuan notes that accounts of movement, from one point to another, one would be able to form a sense of direction and perception within the space.[16] Ingold likewise explains that space is not merely a geographic place but is defined by a series of "nodes in a matrix of movement".[17]

Each account is unique as the interviewees "takes" the interviewer to different perspectives shaped their gender, relations to other residents, age at the time that they had lived in the *ponthuk* as well as the time frame of reference. These habits of movement may be reflected in various ways from the different places from which they started their tour to the experience of varying privacy due to social boundaries that may separate physically adjacent spaces.

Additionally, the author prompts interviewees to stop at important and significant nodes designated by daily physical objects to recount routines of everyday life and special occasions as well as the unintended use of spaces from the buildings initial design to facilitate their social and cultural needs. This way, the experiential approach of interviewing former residents defines space as the interviewee's bodily movements, towards or away from spaces of daily objects, which are in constant dialogue with the base plan.

Fig 4. Participant-led sedentary interviews with former ponthuk residents structured around a base plan to aid interviewees to recall their memories associated with space and place. Top Left (a): Interview with Fatimah Sarkawi on Ponthuk Parkindé Seremban (March 2019). Top Right (b): Interview with Sibly Maros on Ponthuk Sumberlanas in Penang. (September 2019). Above (c): Interview with Ibrahim Asmuni on Ponthuk Sumberlanas in Penang, utilising other visual aids such as personal photographs and maps as (September 2019).

OUTCOMES

This augmented movement and mobility approach in constant dialogue with a base plan as well as an additional stimulus for memory throughout the interview served as what Jason De Leon and Jeffrey Cohen refer to as "material probes".[18] Although the physical form of the *ponthuk* no longer exists, and the interview was physically sedentary, the environment of the *ponthuk* as remembered by former residents managed to act as a visual and auditory prompt without the use of immersive technologies as a method of documentation.

This method also encouraged a participant-led interview process where interviewees were more forthcoming and found it easier to recall better peculiarities associated with physical space that might not have been remembered without. Interviewees also tended to verbalise attitudes and feelings "in place" as they "tour" the author the through the *ponthuk*. This revealed the spatial experiences and mental images of the *ponthuk* as a result of social boundaries and behavioural expectations. These movements, spatialises memories, providing critical insight into everyday life and the use of spaces while at the same time mapping the private domestic interior spaces and layouts.

Recalibrating Memory with Physical Dimensions of Space

This method also allowed interviewees to recalibrate their memories when contradictions in relation to the physical dimensions of space arose. Physical dimensions corroborated spaces that were usually recounted based on vague enumerations of people who could occupy them. For instance, in *Ponthuk Gunung Lancéng* (Fig 2), a *ponthuk* occupying a compound house, the front gallery (*serambi* in Fig 2b) and the core of the house, where communal activities occurred, was initially oversized and elongated. Inversely, the size of the bedrooms that were further subdivided into cubicles for a family (*bilik)*, based the vague enumeration of families that resided in them, were improbably compact. Corroborating these descriptions with a base plan generated from archival maps and photographs as well as an architectural understanding of the typical plan and interior layout of a compound house these spaces were resized accordingly.

Continuities in Spatial Cultures from the Homeland

These interviews also revealed details on the provisional appropriation of private domestic interior spaces that were not captured in archival building drawings and maps, capturing how former residents related to the spaces around them through everyday life.[19] Accounts of the habits of movements, use of daily physical objects as well as the unintended use of spaces from the buildings initial design demonstrated continuities in the spatial and socio-cultural practices between Bawean *ponthuk* and the homeland.

For instance, each *ponthuk* would have a space demarcated as the *langkher* utilised religious activities. Within a *ponthuk* occupying a compound house, this space would be located at the *serambi* (Fig 2c). In comparison, within a *ponthuk* occupying a shophouse, this space would be located just beyond its entrance on a low and wide platform (*amben*) (Fig 3c). Like the tradition of the *langkher* on Pulau Bawean, each Baweanese children came under the tutelage of an elder. Likewise, after the congregational night prayers (*isyak)*, the *langkher* would then be utilised as the sleeping quarters for Baweanese children (including unmarried males).[20]

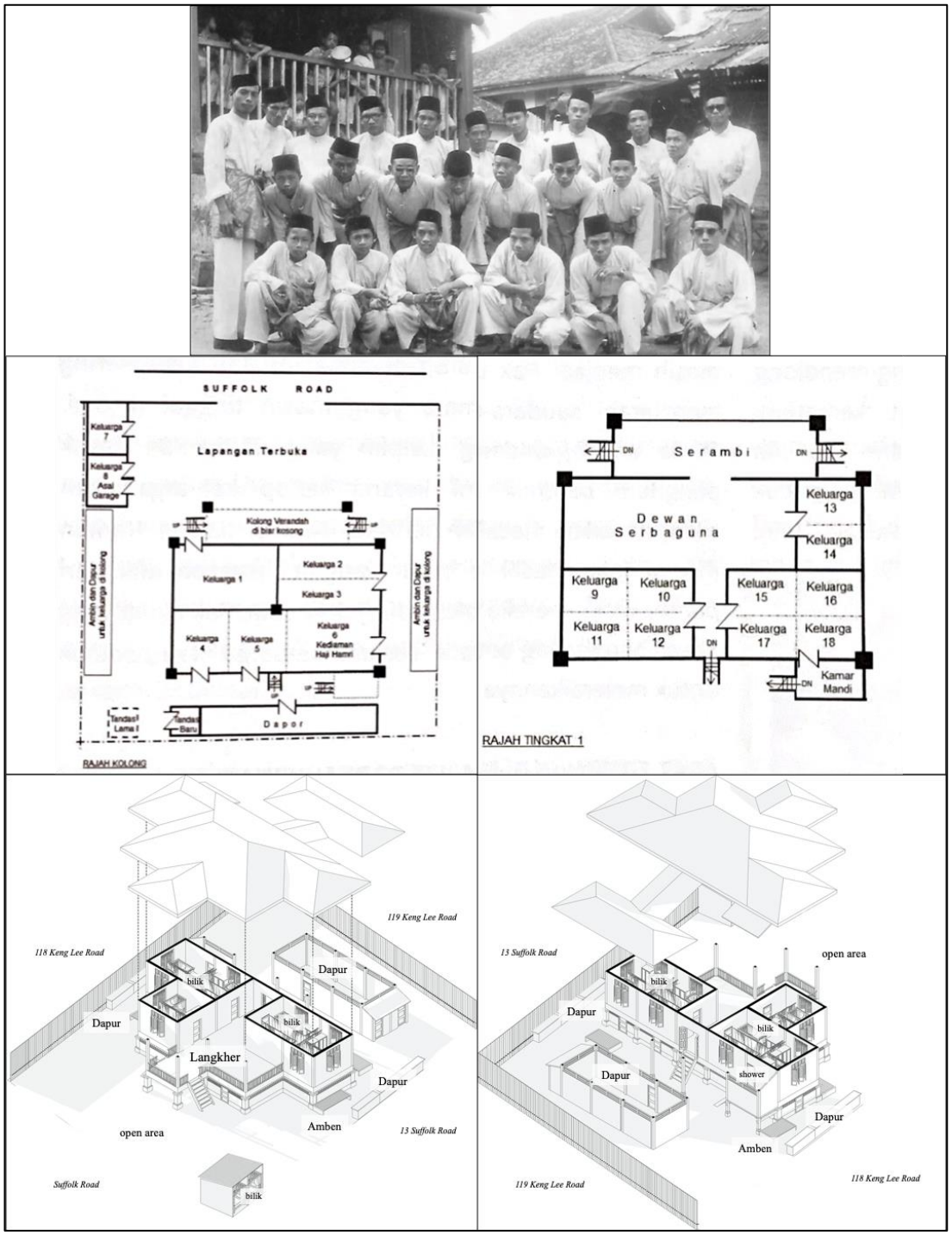

Fig 5. Ponthuk Gunung Lancéng occupying a compound house at 11 Suffolk Road. Top (a): Photograph of the front Ponthuk Gunung Lancéng from the open area (circa the 1970s). Middle (b): Diagrammatic floor plan of Ponthuk Gunung Lancéng by Haji Asmawi Majid based on his interview with Haji Hamri Bin Haji Hunar (August 2017). Above (c): Ponthuk Gunung Lancéng digitally reconstructed with Sketchup by the author (February 2019).

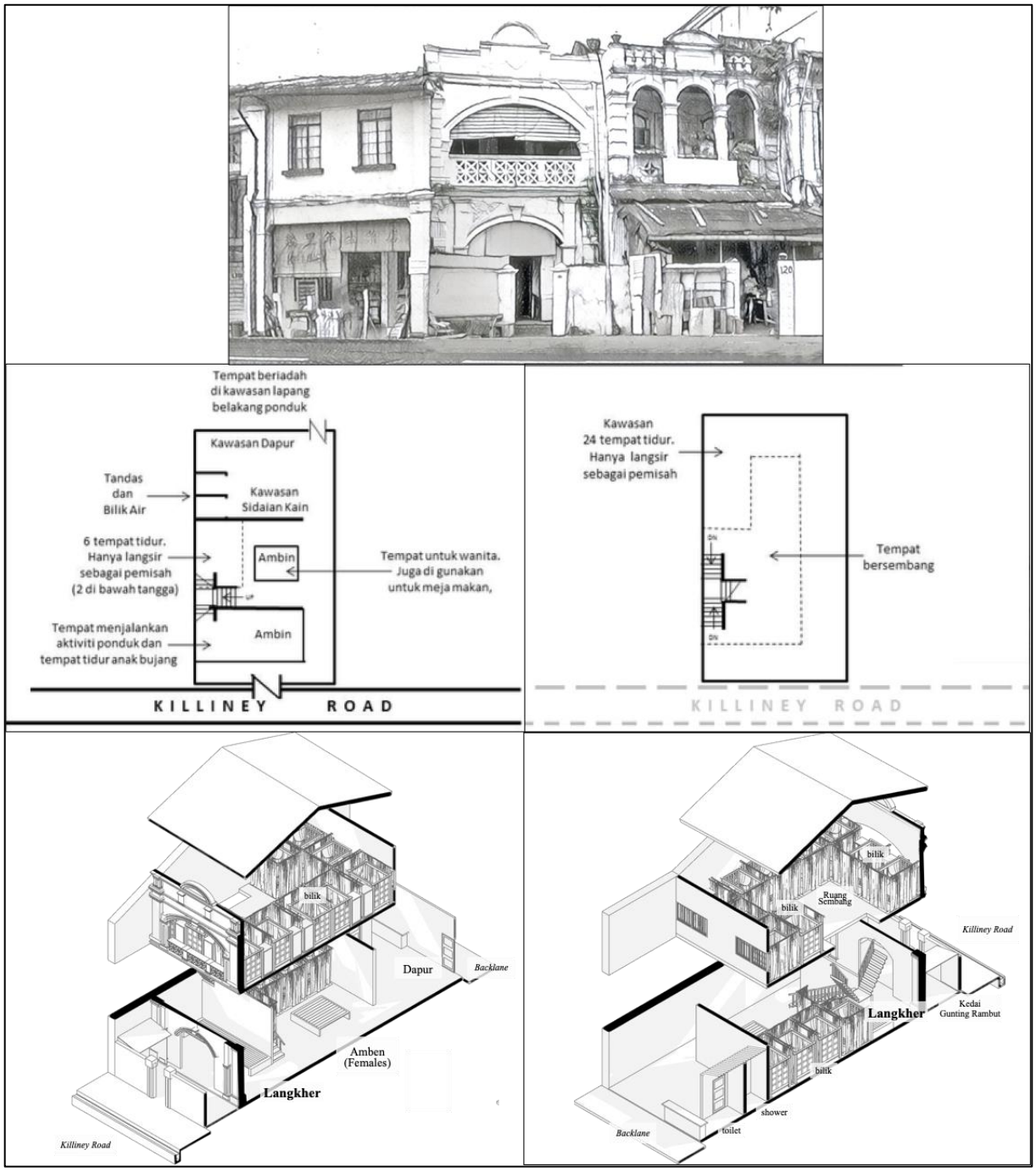

Fig 6. Ponthuk Pékalongan occupying a shophouse at 112 Killiney Road. Top (a): Sketch of Ponthuk Pékalongan from the Killiney Road (circa the 1980s). Middle (b): Hand drawn floor plans of Ponthuk Pékalongan by Haji Asmawi Majid from based on his interview with Encik Mohamed Bin Usi *(January 2017). Above (c): Ponthuk Pékalongan digitally reconstructed with Sketchup by the author (July 2018).*

LIMITATIONS

There are various limitations to this method. First, despite employing movement and mobility as an approach, this interview process was still predominantly indoors. Hence, the other sensory data, as noted by Ingold, associated with the walking interview such as touch and sound through "bimbling"[21] or "soundwalking"[22] were not possible. This method merely substitutes the walking interview for the documentation of the private domestic interior spaces the event that they are not possible. These interviews can be supplemented with walking interviews that document the exterior and surroundings of the *ponthuk*.

Second, there are technical challenges in documenting the augmented sedentary interview beyond the axonometric plans generated from the 3D reconstruction of the *ponthuk*. For instance, while there was no difficulty in placing the microphone to secure audible recordings because there is a constant dialogue with a base plan as well as other supplementary stimuli for memory, extensive video recording from various angles may be required. This may take away from an informal setting that allowed interviewees to be more forthcoming and encouraged more interesting interactions.

Finally, there is also an is an issue of representations of the *ponthuk*. As noted earlier, the interviewees' perspective is shaped by their gender, relations to other residents, age at the time that they had lived in the *ponthuk* as well as the time frame of reference. Hence, an attempt to reconstruct the private domestic interiors through a singular account, considering it as representational of the *ponthuk* across its existence, may result in our consideration of the *ponthuk* is as static and petrified. Additionally, each reconstruction of the *ponthuk* is unique and merely represents a snapshot of a particular point in time. This also raises questions of the authorship. Any study of collective memory must keep in mind several considerations concerning 'which memory' and 'who remembers'. When there are opposing accounts in the reconstruction, whose narratives dominate over the other if there is just one reconstruction to represent a particular *ponthuk*?

DISCUSSION AND CONCLUSION

Augmenting Existing Methods of Oral History and 3D Preservation

Steven High notes that research practices in the field of oral history have generally been sedentary with scholars tending to not engage with the materiality of the built environment.[23] He laments that oral historians have been slow to embrace new media and to harness the power of place.[24] On the other hand, the field of digital cultural heritage has tended to focus on the digital processes of reconstruction towards levels of completeness and detail. Hence, the discussion of 3D preservation and digital reconstruction of lost architecture have tended to be confined within the context of the role of new technologies in the preservation and transmission of intangible heritage.[25]

There is thus a lack of consideration in methods in the processes of oral history and 3D preservation that account for the tensions between space and memory in the investigation of everyday life practices, revealing the different ways in which people may relate and remember the spaces around them. This paper has thus suggested augmenting existing methods of oral history interviews and 3D preservation by incorporating the dimension of space through movement and mobility to aid the digital reconstruction of lost architecture and its social context.

Interviewing Architecture Through Memory in Relation to Space

This paper has also raised an approach toward interviewing architecture. Marie Stender notes that the "material turn" in the field of anthropology has claimed a new focus on how physical spaces leave imprints in a community, not just as a backdrop to social life but as an active part of it. While she traces post-modern linguistic approaches that raise 'controversial' questions on the tools anthropologist have to listen to physical objects, she argues that any ethnographic attempt to analyse what a building *does* or rather, did, would have to be approached through the memory of the social life that takes place in and around it.[26]

As interviewees recall their memories of the *ponthuk* in relation to space, it shifts and morphs in meaning according to their experience. Christopher Tilley notes that while space is intimately connected to memory, it is abstract and as such is only made tangible through its ontological construction of human experience.[27] This way, space shifts and morphs in meaning according to the occupant's experience. Setha Low and Lawrence-Zuniga further noted that that the body's sensory experience and perception of space "contracts and expands" in response to the individual's unique social and cultural sense of self.[28] These explanations give insight as to why former residents' memories of the *ponthuk* do not necessarily emphasise accuracy and precise physical dimensions.

Space is further altered through human activity that is both a medium and outcome of human agency. An individual can leave imprints of themselves in space and in the case of the *ponthuk*, this process is permanently recorded as a collective habit of movement. Michel de Certeau further explains that as these spatial actions are repeated, they are instilled and embodied within the space.[29] Likewise the spatial cultures that were perpetuated and mutually confirmed by the earlier generation of migrants who attempted to provisionally appropriate an unfamiliar urban environment as a means to revive practices of daily life from the homeland and facilitate their social and cultural needs. Hence, the materialisation by which elements of Baweanese cultural traditions were discussed in publications of Bawean heritage in Singapore was often that of the *ponthuk.*

NOTES

[1] Rosdi Sundusia, *Masyarakat Bawean Singapura La-A-Obě: 80 Tahun Persatuan Bawean Singapura* (Singapore: Persatuan Bawean Singapura, 2015); Rosdi Sundusia and Mohd Lani Rohayah, *Ponthuk Bawean Di Singapura* (Singapore: Persatuan Bawean Singapura, 2018).
[2] Sundusia and Rohayah, *Ponthuk Bawean Di Singapura*.
[3] Ibid.
[4] Osni Hadi, "Memories of Béngkor Ghunung Turin and Kélém," in *Ponthuk Bawean Di Singapura*, by Rosdi Sundusia and Mohd Lani Rohayah (Singapore: Persatuan Bawean Singapura, 2018), 144–47; Osni Hadi, "Memories of Ponthuk Parkindé," in *Ponthuk Bawean Di Singapura*, by Rosdi Sundusia and Mohd Lani Rohayah (Singapore: Persatuan Bawean Singapura, 2018), 170–71; Osni Hadi, "Memories of Ponthuk Tamphilung," in *Ponthuk Bawean Di Singapura*, by Rosdi Sundusia and Mohd Lani Rohayah (Singapore: Persatuan Bawean Singapura, 2018), 186–88.
[5] While there were as many as 136 *ponthuk* in Singapore, out of the 42 *ponthuk* documented in *Ponthuk Bawean* di Singapura, only 18 of these buildings remain in 'Conservation Areas' designated by the Urban Redevelopment Authority (URA). See Sundusia and Rohayah, *Ponthuk Bawean Di Singapura*.
[6] Ibid.
[7] Edward S. Casey, *Remembering: A Phenomenological Study*, 2nd ed, Studies in Continental Thought (Bloomington: Indiana University Press, 2000), 186–87.
[8] Nuala Christina Johnson, "Public Memory," in *A Companion to Cultural Geography*, ed. James S. Duncan, Nuala Christina Johnson, and Richard H. Schein, Blackwell Companions to Geography (Malden, MA: Blackwell Pub, 2004), 317.
[9] Yi-fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), 68.
[10] Casey, *Remembering*, 186–87.
[11] Frances A. Yates, *The Art of Memory*, Nachdr (Chicago, Ill.: Univ. of Chicago Press, 2002).
[12] Jane Ricketts Hein, James Evans, and Phil Jones, "Mobile Methodologies: Theory, Technology and Practice," *Geography Compass* 2, no. 5 (September 2008): 1266, https://doi.org/10.1111/j.1749-8198.2008.00139.x.
[13] Ibid., 1267.
[14] Steven High, "Mapping Memories of Displacement Oral History, Memoryscapes and Methodologies," in *The Canadian Oral History Reader Ed. by Kristina R. Llewellyn, Alexander Freund, and Nolan Reilly*, ed. Laurie Mercier, vol. 78, 2016, 556, https://muse.jhu.edu/article/635863.
[15] Tim Ingold, "Culture and the Perception of the Environment," in *Bush Base: Forest Farm: Culture, Environment, and Development*, ed. Elisabeth Croll and David J. Parkin (London; New York: Routledge, 1992), 39–56.
[16] Tuan, *Space and Place*.
[17] Ibid.
[18] Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, 1st ed. (Routledge, 2000), 219, https://doi.org/10.4324/9780203466025.
[19] For more on how the migrant Baweanese attempted model the *ponthuk* after social structures and everyday life in Pulau Bawean see Osni Hadi, "Ponthuk A Desa Away from the Homeland," in *Ponthuk Bawean Di Singapura*, by Rosdi Sundusia and Mohd Lani Rohayah (Singapore: Persatuan Bawean Singapura, 2018), 7–12.
[20] For more on the tradition of the *langkher,* see Mohamed Mariam Ali, "Ethnic Hinterland: Contested Spaces Between Nationals and Ethnicities in The Lives of Baweanese Labor Migrants" (PhD Thesis, Cambridge, Massachusetts, Harvard University, 1996), 267.
[21] Steven High defines "bimbling" as a strategy that helps on to reconnect with the surrounding environment through aimless walking. See Steven High, "Mapping Memories of Displacement Oral History, Memoryscapes and Methodologies," 565.
[22] High defines "soundwalking" as the mobile exploration of ambient sound that serves as an auditory prompt for memories during the walking interview. See Ibid.
[23] Ibid.
[24] Ibid., 556.

[25] For instance, Horst Kremers, ed., *Digital Cultural Heritage* (Cham: Springer International Publishing, 2020), https://doi.org/10.1007/978-3-030-15200-0; Luigina Ciolfi et al., eds., *Cultural Heritage Communities: Technologies and Challenges* (London : New York: Routledge, Taylor & Francis Group, 2018); Marinos Ioannides and Ewald Quak, eds., *3D Research Challenges in Cultural Heritage: A Roadmap in Digital Heritage Preservation*, vol. 8355, Lecture Notes in Computer Science (Berlin, Heidelberg: Springer Berlin Heidelberg, 2014), https://doi.org/10.1007/978-3-662-44630-0; Sander Münster et al., eds., *3D Research Challenges in Cultural Heritage II: How to Manage Data and Knowledge Related to Interpretative Digital 3D Reconstructions of Cultural Heritage*, vol. 10025, Lecture Notes in Computer Science (Cham: Springer International Publishing, 2016), https://doi.org/10.1007/978-3-319-47647-6; Marinos Ioannides, Nadia Magnenat-Thalmann, and George Papagiannakis, *Mixed Reality and Gamification for Cultural Heritage* (New York, NY: Springer Berlin Heidelberg, 2017).

[26] Kremers, *Digital Cultural Heritage*; Ciolfi et al., *Cultural Heritage Communities*; Ioannides and Quak, *3D Research Challenges in Cultural Heritage*; Münster et al., *3D Research Challenges in Cultural Heritage II*; Ioannides, Magnenat-Thalmann, and Papagiannakis, *Mixed Reality and Gamification for Cultural Heritage*.

[27] Marie Stender, "Towards an Architectural Anthropology—What Architects Can Learn from Anthropology and Vice Versa," *Architectural Theory Review* 21, no. 1 (January 2, 2017): 32.

[28] Christopher Y Tilley, *A Phenomenology of Landscape: Places, Paths, and Monuments* (Oxford, U.K.; Providence, R.I.: Berg, 1994).

[29] Michel de Certeau and Steven Rendall, *The Practice of Everyday Life* (Berkeley: University of California Press, 1984).

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ANGLO-SAXON MAPPA MUNDI: NEW PERSPECTIVES

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INTRODUCTION

The Anglo-Saxon Mappa Mundi is practical, accurate and the earliest known map of the Old World from England. It is often remarked that the Scottish Isles are relatively realistically represented, but the rest of the map is usually viewed as a purely virtual representation of the Anglo-Saxon's place in the world. However, the real value of this remarkable document has gone unnoticed. The unfamiliar map projection, the use of Hyberno-Latin rather than standard Latin, and assumptions about knowledge and contacts between people who lived in the past, have all contributed to the true value of the map being overlooked…this map rewrites history.

A map can be both a mental and physical "diagram" of the reader's "place" in the world, actually and figuratively. In the past, just as today, maps were needed to facilitate trade, military expeditions, religious pilgrimages, and for diplomatic reasons. This map has duel orientation that reveals different types of information. When held vertically, the orientation is wrong but the words on the map can be read and the images appear upright. However, when the map is turned horizontally, to the position that is more recognizable, it becomes a practical map for navigation. The cartographer applied a systematic mathematical formula for the map projection. Latitude and longitudinal lines are depicted in a similar way as a Mercator projection, but 500 years before Mercator. Curiously, in this position, the shape of a longboat or a serpent appears to come out of the water, complete with green breath and a trail of molten metal. The map is a window into the world of the Anglo-Saxon court, ideologically and physically, as well as a snapshot of their knowledge of the Old World.

PROVENANCE AND AUTHENTICITY

The map's provenance and authenticity are firm. The map is part of the Cotton collection that was started by Sir Richard Cotton in the 16th century and added to by his descendants. The collection entered the British Museum in the mid-18th century, and the British Library in 1973, where it is cataloged as the Tiberius B.V 56v, commonly referred to as the Anglo-Saxon Mappa Mundi, or Cottonian map[1]. The date of the map's creation is firmly placed prior to the Norman conquest of 1066 CE, but stylistic elements suggest a date closer to the 10th century[2]. The duel origination, the level of accuracy, the detailed information of distant lands, and directions on how to get there, make this a unique and highly important historical document.

During the early Middle ages, manuscripts were copied and created to record information and pass on knowledge. Men and women both were involved with manuscript production[3]. Not only were religious doctrines copied, but also practical knowledge that was needed by kings and their court to retain and grow their power. The royal courts of the Anglo-Saxons were training the future leaders with the knowledge necessary for successful military, trade and diplomacy campaigns, of which maps are an intrinsic part. In England, the courts of Alfred the Great and King Athelstan were known for their scholarship. Furthermore, there are documentary sources that refer to long distance travel, and artifacts that testify to the extent of their contacts.

The time and expense needed to create the map would have been extensive. The map uses the natural beige vellum background to denote the land masses, while text, line drawings, and pigments were used to designate the places, people, buildings, and natural resources. The ink sketches and descriptions are consistent with 10th century places and cultures that have corresponding evidence. Furthermore, this is the earliest depiction of Australia on a European map, 600 years earlier than previously claimed. The choice of pigments chosen to color the mountains and rivers are noteworthy. Why were these colors used to highlight specific rivers and mountain ranges, but not others? Not all known waterways or mountain ranges are represented on the map. Only places that were needed for navigation, as important landmarks or because they were sources of mineral and metal wealth are shown. Waterways are depicted in different ways; the oceans and seas are depicted with a wash of grey, but without analysis it is not possible to determine if the gray is diluted iron gall ink, indigo or if it is ultramarine that has deteriorated to the gray color. If it were ultramarine, the map would have had a striking blue background. Only some rivers and lakes are filled in with an orange-red pigment, which visually resembles bronze, the metallic copper-alloy. Other rivers are depicted as simple wavy lines with the note “flumen” to specify that it is a river, so it was not misconstrued as mountains. Not all the mountain ranges are colored, but only select ones that contain the green copper ore malachite. It is not a coincidence that these “green” mountain ranges contain ores exploited in antiquity, and the “red” rivers locate civilizations where bronze artifacts and coins were commonplace. Thus, the colors were specifically chosen to denote the locations where these valuable materials were available. The knowledge and physical materials needed to create the map required detailed information about people, places and raw materials associated with long distance trade.

READING THE MAP

At first glance the layout appears to be more like a gaming board than a map. A map’s purpose is to convey relevant and useable information from the map maker to the map reader, not all known or available information, but that which is of interest to the reader, to be able to read it, and for it to be usable, the maker and the reader must share knowledge or the “key” to understanding the route and information contained in the map. It is important to provide enough information to allow the traveler to successfully get from one area to another, to know what to expect along the way, and to know when they have reached a destination.

The practical and physical nature of the map has not been noted, and its contents have generally been dismissed as a product of imagination rather than genuine information. By comparing the information contained in the map, to what is now known about the land from modern geological and archaeological exploration, and historical and art historical research, it becomes clear that it was intended to be a practical and accurate representation for navigation by sea, not land, to important ports of call. One of the first detailed studies of the map was by Playfair in 1814[4]. He translated many of the place names and noted the biblical connections. Since then, studies have concentrated on the map as illustrating the

Anglo-Saxon's place in the world, ideologically[5] and virtually[6]. However, when comparing with 10th century art and archaeological remains, it becomes clear that they represent actual artifacts. The drawing of a lion and buildings on the map have traditionally thought to be decorative, but the image of the lion in the region of China is clearly in the style of a Chinese Buddhist lion, complete with tail in the air and raised left paw. The words, "Here is a Golden Mountain" refers to the Chola Temple in southern India. Documentary texts refer to the temple being gilded at this time in antiquity, and thus would have resembled a mountain of gold[7]. In the southern part of Africa are the words "here are 'volcanic' mountains", which refer to the resemblance between volcanos and the shape of the tall stone buildings with tapering walls from Great Zimbabwe[8]. In northwestern Africa, the drawing of a building with a pointed roof and the word "Doga" represents the Dogan people of the kingdom of medieval Mali[9]. The map shows select religious centers, as well as practical geographic, navigational, and cultural knowledge.

The accuracy of the map has been overlooked because it is usually viewed vertically. When held horizontally, north is at the top, China is to the east on the left side, and Africa is south towards the bottom. However, the other parts of the map seem incorrect. This is because it does not resemble the map projection people are most familiar with, the Mercator projection, but there are many ways to depict a spherical earth on a flat plane. The locations on this map are not randomly placed, but the cartographer used a mathematical formula that falls between that used to create stereographic and Mercator projections [10]. When comparing these different projections to the projection used to create the map, the land mass to the far right-side of the map is consistent in relative size and location with Australia, but inconsistent with Sri Lanka, as others have claimed. This would make the map the earliest representation of Australia on a European map, 600 years earlier than previous evidence[11]. Therefore, rather than a loose sketch, the map followed a systematic mathematical formula that used basic trigonometry and calculus that had already been known for over a thousand years.

Before magnetic compasses, there were numerous traditional methods of navigation that could be have been employed including using the sun and stars, but to use these to navigate, the time needs to be known. The Anglo-Saxons established numerous Benedictine monasteries, and one common feature of the Benedictines was precise time keeping for work and prayer. Sun dials and tide dials are common features on these early churches in the British Isles and elsewhere, but dials on churches are not portable. However, an artifact, the Uunartoq sun compass, uncovered during the excavation of a Benedictine Monastery on Greenland, provides the key to using this Mappa-Mundi. This compass is a semicircular piece of wood with a central hole, scratched lines on the surface, and zig-zag triangles radiating outwards along the exterior edge which resemble sun's rays. It is a sun compass that uses gnomon lines. The curve of the gnomon's shadow differs at different latitudes and at different times of the year, so if this information is known, the shadow can be used for navigation. A study by Bernáth *et al*.[12] concluded that this disk is a navigational tool and the scratched lines were consistent with the path of a gnomon line on the equinox or summer solstice at specific latitudes: Byzantium (Constantinople), Vinland (Canada), Hernar (Greenland), South Iceland (Hella) and North Iceland (perhaps Sola). A pre-Norse early Irish settlement on Iceland near Hella (63 50 N) and stylistic studies of early crosses indicate a link between Hella, Iceland and Iona, Scotland[13]. When the scratches and paths on the sun compass are compared to the locations on the map, the places align. Therefore, the lines and gaps on the map were not randomly placed, but carefully assigned to assist with navigation.

KNOWLEDGE IN HISTORICAL CONTEXT

The information contained in the map could have come from a variety of sources. Sea faring has played a major role in the cultures of the British Isles and Scandinavia for thousands of years. The Anglo-Saxons were sea people who arrived in the British Isles around the beginning of the 4th century. Furthermore, the Anglo Saxons had close ties with Rome, and given what is known about the amount of wealth and trade in the royal court, including monumental buildings, rich archaeological finds, and historical documents, it is not surprising that this map and extensive knowledge of other people and cultures would be found there.

Although not labeled, the center of the map is Antioch. During the 7th century, when Antioch and the surrounding areas were taken over by Muslims, a Christian diaspora occurred and scholars such as Theodore of Tarsus, fled to the Anglo-Saxon court. It was in Antioch, where Christians were first referred to as Christians, and where early Christianity first spread by the apostles via water routes, and then only later by land routes. Within a few centuries, it had spread throughout the Old World. The church of the East had established religious centers throughout China and Central Asia[14] and had reached India, and Africa[15]. Knowledge from these places was collected and distributed through the religious institutions. If the knowledge was not already available in Britain, it would have been introduced by Alfred the Great and added to by subsequent royalty and clergy.

Alfred the Great reigned during the latter part of the 9th century and in addition to his many achievements, he was known for focusing on education including the translation of texts. His knowledge of the world outside of Britain is documented in the Anglo-Saxon Chronicles[16] . As a child, he was baptized a Christian and went on his first trip to Rome in 853 to meet with Pope St. Leo IV. Along with copies of Paulus Orosius, St Jerone and St Isidore of Seville, which provided information on the Mediterranean and beyond, Alfred recorded the travels of Wulfstan of Hedeby and Ohthere of Halogaland, both of whom traveled along the northern routes to Eastern lands. In 883 CE, Alfred sent Sigehelm and Æthelstan to the Pope in Rome and then to Christians in need in India. A focus on education continued at the court during the reign of King Athelstan. Kings, and future kings such as Louis IV of France, Olaf Sitricson of York and Dublin, and Haakon "the Good" Haroldson of Norway, were all educated at his court. King Athelstan was buried in Malmesbury Abbey, a Benedictine monastery that had one of the largest libraries in Europe during the 11th century. The Abbey was founded in the 7th century by an Irish monk, and the first abbot was Aldhelm. He is credited for introducing Benedictine practices and for writing a poem about pepper, an Indian import, so it must have been known to him and the court. Greek was the predominant language of the early Irish church before Latin was introduced. The mixing of cultures and the use of Hyberno-Latin account for the variety of information and language peculiarities on the map. At least from the time of Alfred the Great the Anglo-Saxons had access to a wide range of information about the Old World through religious institutions and trade contacts. This included Greek texts from Armagh, Latin from Rome, texts in various languages including Syriac and Hebrew from Constantinople, and from first-hand accounts of sea travelers using northern routes. It is this map that illustrates the extensive knowledge of people, places, buildings, and metal sources throughout the Old World known to those who studied in the Anglo-Saxon court.

The Anglo-Saxon Mappa Mundi is a remarkable piece of documentation from the past. The unquestioned authenticity of the map, the firm provenance, and the ability to corroborate the information contained in it with independent evidence, makes this map an exceptionally important document and artifact that has hitherto been overlooked for its importance. In addition to the names of places, the map indicates religious information, as well as economic and political structures, and

navigational capabilities. This leaves no doubt that information about distant places located on the map were known and distributed to members of the Anglo-Saxon court.

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BUILT ENVIRONMENTS AND INHABITANTS: TRANSFORMED AND RENEWED

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INTRODUCTION

One of us has a background in three-dimensional design, and paints people in action and in locations. The other has research that includes computer graphics, image processing and solving non-linear problems of deformation in stressed structures (Brownrigg and Wood, 1973). We have an interest in the interaction of art and science, including creating novel visualizations to enhance understanding and experience of natural and man-made environments.

The familiarity of such everyday environments can mean inhabitants cease to see what is extraordinary and beautiful in them, or even to notice them at all. More widely, this has lead to a desire to create alternative views of reality as aids to experience outside that everyday, to prompt new expressions in music, poetry and visual arts. This dates back at least to ancient Greece (Hillman, 2014), with use of narcotic and psychotropic substances. Use is reported through the early 19th century with poets such as Coleridge, said to have composed *Kubla Khan* in a laudanum-induced dream, and even scientists such as Humphrey Davy experimenting with the sense-altering effects of nitrous oxide. More recently psychedelic art owed some of its expression to the use of substances such as LSD and psilocybin which occurs naturally in many mushrooms species. Use is not without risk, as evidenced by the untimely deaths of some poets, musicians and artists, even though the problems have long been well known and reported, as by Thomas de Quincey (2003), including in terms of withdrawal symptoms.

We have been considering how to augment perception in less damaging ways. One is to transform images of reality to spaces that cannot be experienced directly, changing that representation before transforming back to some version of the original image that could not be directly foreseen.

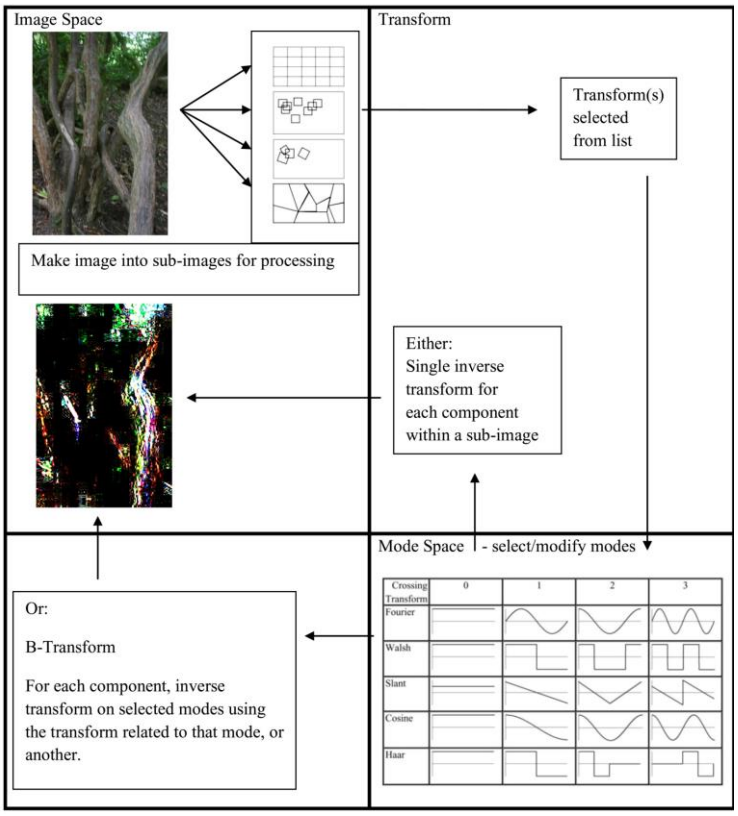
We have worked on this problem for a long time (Brownrigg and Brownrigg, 1986, 1987, 1989), and recently one of us has begun to approach it in a different way (Brownrigg, 2014, 2018). This has been extended (Brownrigg and Brownrigg, 2019) and applied in our current work.

We begin with two-dimensional digitised images, or stacks of such images typically representing a sequence or animation at discrete time intervals, or a set of different views of a scene. These are processed using two- or three-dimensional transforms including Fourier (Cooley and Tukey, 1965), Walsh (Fino and Algazi, 1976), Slant (Pratt et.al., 1974), Sine (Sanchez et.al., 1996), Cosine (Strang,

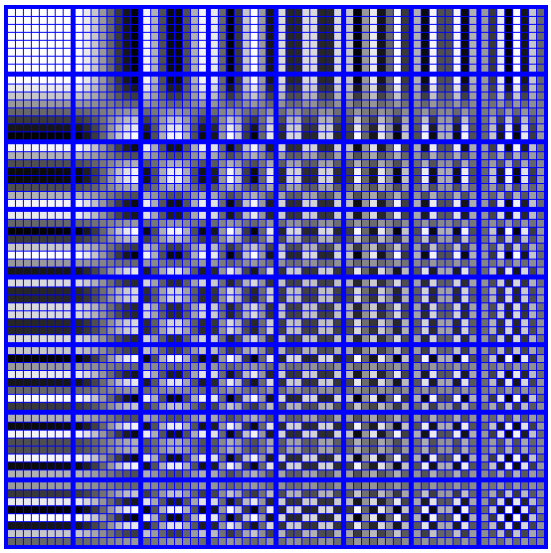
1999) and Haar (1910). These can be applied independently to rows, columns and image components, such as RGB or YCbCr, while forward and inverse transforms can differ for any component.
Transforms such as these work by replacing a sequence of values (brightness of a colour component in an image) with an equal number of amplitudes (weights) of related functions (basis functions that are linearly independent). Adding up the weighted functions, evaluated at any sequence point, gives the original brightness value. Transforms can be taken in two dimensions (for an image of pixels) or three dimensions (e.g. for a stack of image voxels), or more.

APPROACHES TO IMAGE DIVISION AND PROCESSING

The lower-right part of Fig.1a shows graphs of the first four basis functions for each of the transforms used, ordered by crossing number (how many times the graph changes sign) in all cases but Haar which uses up and down steps of different widths and positions.
Our earlier approach was to apply transforms and inverses, whether by row, column or colour component, to elements of a whole image. This is generalised to processing an image by sub-images, for which the whole image is a special case. An image is sub-divided in one of several ways, as indicated at the top-left of Fig. 1a.
The first and simplest way is to subdivide the image into one or more regularly spaced adjoining rectangles. As a familiar example, in JPEG an image is divided into sub-images of 8 by 8 pixels for processing with the cosine transform. There are 8 cosine functions used, in both x and y directions. Fig. 1b pictures the 64 basis functions that result. The set is $\{ \cos(r\theta).\cos(c\theta);\ r,c \in [0,n) ,\ \theta \in (0,\pi)\}$. As before, summing up these functions, with the appropriate weight for each, makes any 8 by 8 image.
A second method is to take randomly oriented and sized quadrilaterals from the image, map them into rectangular spaces where the row-column transforms are applied, and map the result back to the source image region.



a. Transitions between image and mode space using sets of individual transforms, and using B-Transform
Lower-right image graphs the basis functions of five transforms, for the first four crossing numbers



b. The 64 cos.cos basis functions for an 8x8 sub-image

Fig 1. The mapping of images to transform space, and basis function for the two-dimensional cosine transform

In each case an artist has some control of the outcome through selection of division proportions and transforms, but mainly through choice of the original image.

To provide increased interaction and control over the appearance of the result, a freely drawn net of quadrilaterals may be placed over the image. This allows highlighting or separation of distinct features of an image and particularising the treatment to each. As before, each quadrilateral is mapped to a rectangular form that the transforms can process.

A newer technique, denoted a B-transform (Brownrigg 2018; Brownrigg and Brownrigg 2019), is also used, and is well suited to the sub-image processing approach, thus responding to the variation of characteristics across an image. Briefly, several different transforms are taken of the same image, or a set of sub-images. For each set of transform modes a selection is made with our own algorithm. As with the mismatched forward/inverse transforms used previously it can contribute to novel and attractive visual effects.

The image and transform spaces are illustrated in Fig.1a, with example basis functions in sequency order, excepting Haar, shown in mode space.

In the B-transform, for each transform separately by rows and columns, xy-modes are derived. The xy-modes are manipulated and selected. Corresponding inverse transforms are applied, usually according to the transform pair used to generate it.

Thus, for the B-transform acting on a two-dimensional image, there is a 3D array of x-modes, T_x , the modes for each transform for each row of the (sub)image. Also there is a 4D array of xy-modes, T_xT_y , the modes for each combination of row/column transforms, for each row and column of the (sub)image. If five transforms are used, this results in five T_x-mode sets, one for each transform used. There are also 25 T_xT_y mode sets, the permutations with repetition of any two, from {Fourier, Walsh, Slant, Cosine, Haar} here. Correspondingly, for a 3D data set of voxels, such as a stack in time (z direction) of 2D images, there will be a 5D array of $T_xT_yT_z$ modes (125 mode sets in this case) that are manipulated in each and every sub-image.

Holding the modes in the base function sequency order aids mode selection, especially when non-repetition of sequency number is required to maximise the range of sequencies covered for a given number of modes chosen. It also aids comparison of function modes, such as when a mode from one transform is treated as belonging to another, on image synthesis from transform modes. This does not hold for transforms such as Haar, which do not have distinct sequency numbers for all of their basis functions, and so the choice of association with the other transforms is arbitrary excepting the zero and unit crossing cases. For Haar a sequence by decreasing length scale, then ordered left-to-right, is taken.

FROM LANDSCAPE TO CITY AND BACK

From Victorian times Northumberland's Walltown quarry provided a source of dolerite, whose hardness lends itself to a variety of uses. The quarry is near Hadrian's Wall, there founded on dolerite, though its toughness lead the Romans to make more use of softer local materials for construction.

Figure 2a shows a part of the quarry, and two revisualizations of it using the B-transform. In each case the image is subdivided into squares each of 64x64 pixels, giving over 100,000 modes from the transforms used. From each set 64 modes are selected to exaggerate colour and pattern around a particular intensity for each (RGB) colour component. Figures 2b and 2c show the result for two different intensity levels.

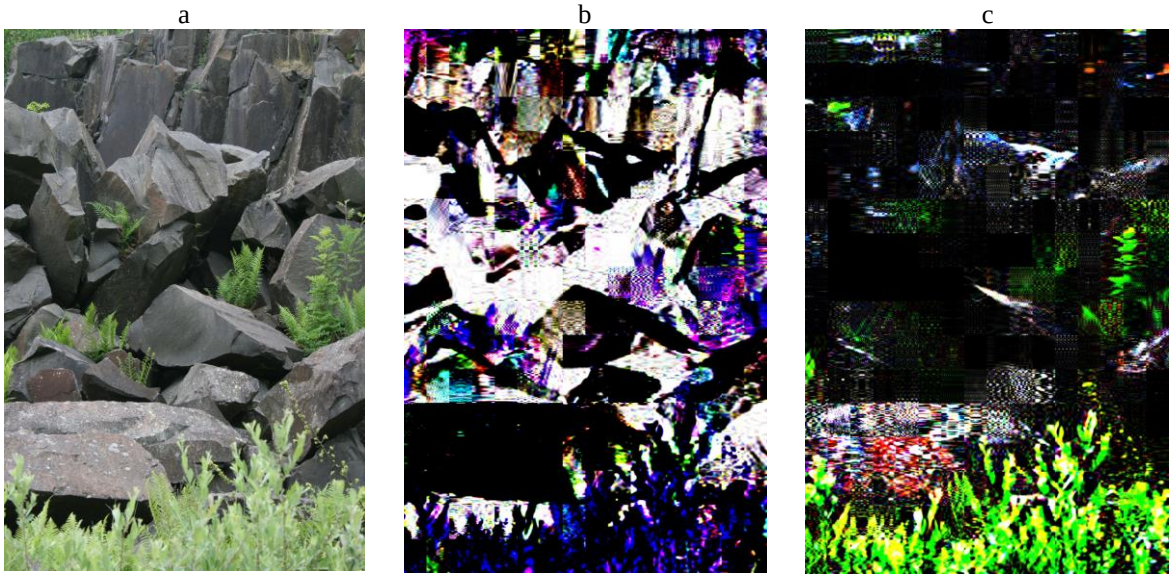


Fig 2. Quarry (a) and Revisualisations (b,c) using the B-transform

Some stone becomes incorporated into buildings and, while one stone may appear unremarkable, refining our perception of its pattern and colour can render its appearance extraordinary. This is exemplified in Figure 3, showing part of the stone wall of All Saints Church in Graveney, Kemt. The B-transform has been used as for the previous figure. The colours are much more intense than in the original, but can be traced to subtle variations that are discernible in the original image. The effect is very different to that in Figure 2, illustrating how the B-transform's behavior reflects the underlying characteristics of a particular image or feature.

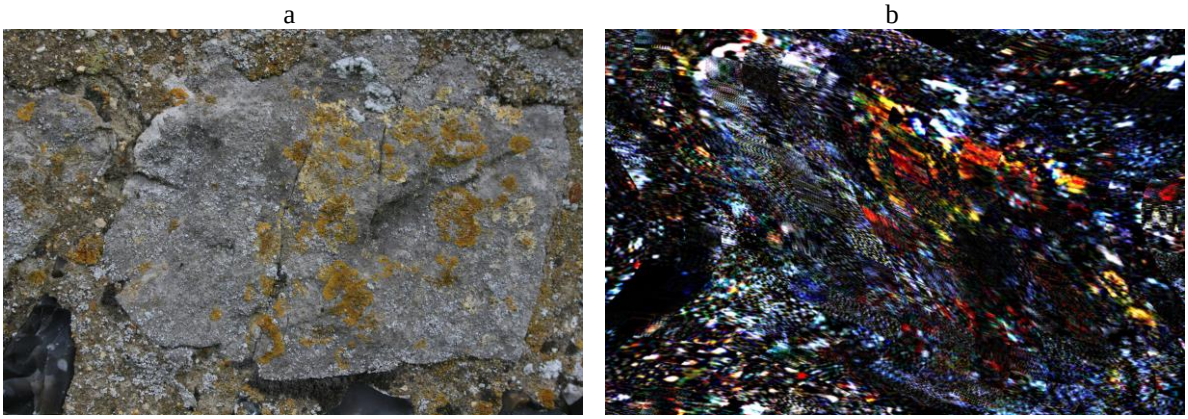


Fig 3. Part of a Stone Church Wall (a) and its Revisualisation (b) with the B-transform

Special events in cities draw crowds of visitors and residents, enriching the environment and extending the context for the show, and lending a new use for locations. An example is the Royal de Luxe performance of 'The Sultan's Elephant' in London during May 2006. Both the elephant and girl puppet were much over life-size, allowing good views from a distance and from within the crowd. While the occasion was memorable in itself, a representation through abstraction can provide a reinterpretation for an alternative and addition to memory and direct images. Figure 4 shows the original scene and some re-imaginings. In this case the starting point was a photograph of the elephant in the street among

spectators and participants moving with the giant puppet (top left). Increasingly involved mixes of transforms were used[1].

Novel evolving views can also be derived in several ways. One is to take several reconstructions of a single view, as in Figure 2, but to extend this by animation of a sequence of related processes. Figure 5 shows an example of this, for which Brunelleschi's dome, Florence cathedral, is transformed to a modal representation by each of the transforms. We took all possible combinations of transforms, interpreting the modes as belonging to another transform, with rows and columns treated the same way in each instance. We then animated a transition from image to image, starting with Fourier modes interpreted as Fourier, and finishing with Cosine modes interpreted as Cosine. Naturally, in such cases the resulting image is the original, which means that the original appears at the start and end of the animation, and at a few points in between. There is a flow between transformed images, from reality to abstraction and back, with a softer effect from interpreting modes as Fourier, Cosine or Sine, and a harsher effect from interpretation of modes as from Walsh or Slant[2].

Another approach is to take a direct video clip and process it as a three-dimensional set of voxels. We started with a video of the dry landscape garden at the Ryoan-ji temple near Kyoto. This was sampled at low spatial and time resolution so that the data set size was manageable for the relatively low computing power we had available. We took a Fourier transform in the time domain, interpreting the modes as belonging to the Walsh transform. Each frame carries elements of later and earlier images - ghosts of both the past and future. Figure 6 shows two sampled frames from the original movie and the corresponding frames in the transform animation[3].

Finally a single view of a scene is taken, repeatedly over a period of time. For Figure 7, a house extension was recorded in terms of the changing view, with an image captured every working day over a period of several months. The photographs were made with a handheld camera, causing some variations in tilt and direction of axis. These were approximately corrected by aligning successive images. The remaining slight misalignments were only a small part of the variation between successive images as, while the images were mostly taken about the same time of day, other variations dominated, from the longer term change in seasonal light intensity to the short-term, with successive days varying from sunny to various levels of cloud, and from dry to wet. We took a Fourier transform on the rows and columns of each day image and a Walsh transform in time, interpreting the daily Fourier modes with the Walsh transform and the Walsh time modes with the Fourier transform. In an animation, to help connect abstraction and reality, we floated some varying polygons across the animation, filling each with the corresponding image for that part on that day[4].

CONCLUSION AND OPPORTUNITIES FOR DEVELOPMENT

We have shown several ways of revisualising a variety of scenes. As outlined in the Introduction, and specified in the Approaches section, for each example the originality of the result is achieved via novel filtering and computational operations on representations of images in a non-visual transform space.

Our results can be developed to make a complete presentation or display. That is, for a given location, structure or event a range of techniques can be used to construct a wide variety of connected revisualizations.

Alternatively one of the revisualization approaches can be applied to a range of structures or events of the same form, such as leading religious or cultural centres in several cities, linking them and their cultural icons in a novel way through the language of our representational abstraction.

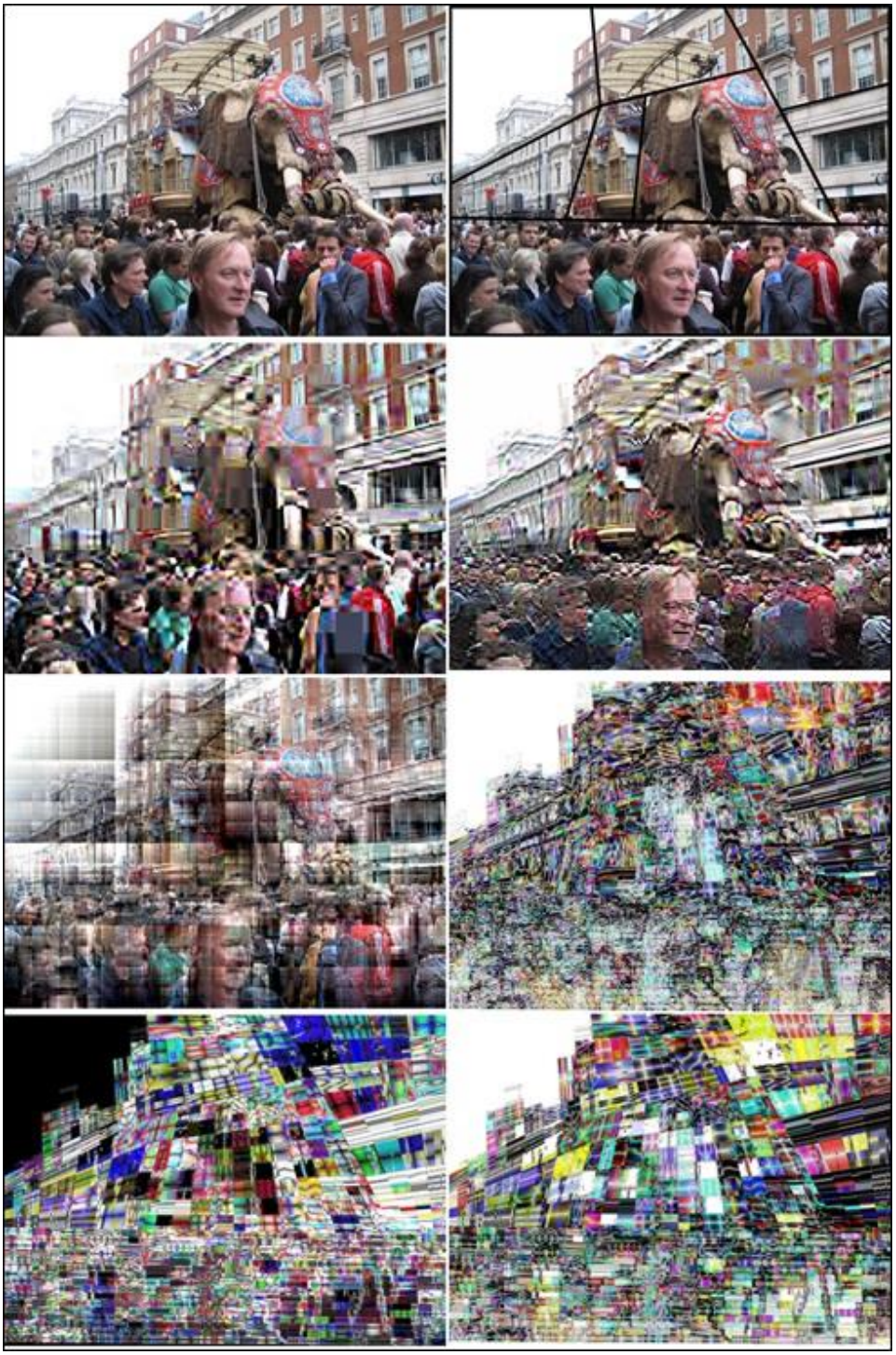


Figure 4. Royal de Luxe performance of 'The Sultan's Elephant' (top-left), artist-selected quadrilateral division (top-right), and re-imaginings with varying levels of abstraction[1]

Fig 5. Set of transform pair views of Brunelleschi's Dome, from which an animation is made[2]

Fig 6. Frames from movie clip of Roan-ji garden (top) and corresponding transform frames[3]

Fig 7. Frames from House Extension Animation and Corresponding Processed Frames in Animation[4]

NOTES

[1] Three ways were used to subdivide and process the image used in Figure 5, top row left. One was to split the image into quadrilaterals that related to parts of the scene, such as the spectators, sections of the elephants, and parts of the background architecture (top-right). Another was to simply process the image as a whole, while a third was to apply the B-transform, by sub-images. The second row left image show the effect of applying the B-transform on 64x64 sub-images of a 1024x1024 remapping of the image, retaining 128 modes per sub-image, from the 25 sets arising from the 5 transforms used. The second row right image shows the same mode selection process applied to each of the set of user defined quadrilaterals. Effects can be built up by mixing the effects of different sets of transformed images. In the third row, the left hand image shows the application of the Walsh transform to the whole image, with the modes interpreted as belonging to the Slant transform, while the right hand image shows the colour-inverted difference of the B-transform (choosing 128 modes per sub-image) and the B-transform (choosing 4 modes per sub-image) applied to the user defined quadrilaterals. Selecting fewer modes can lead to more abstract effects as shown in the fourth row, both images being for the user-defined quadrilaterals. The left-hand image is of the B-transform difference of choosing 16 and 4 modes per sub-image, while the right-hand image is its colour inversion.

[2] "Brunelleschi animation," Time 11:56 to 12:21.
last modified May 29, 2020, https://www.youtube.com/watch?v=MiaToV9GDQo

[3] "Ryoan-ji animation," Time 13:36 to 14:12.
last modified May 29, 2020, https://www.youtube.com/watch?v=MiaToV9GDQo

[4] "House animation," Time 16:42 to 17:17.
last modified May 29, 2020, https://www.youtube.com/watch?v=MiaToV9GDQo

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REINVENTING ROBIN HOOD GARDENS: BRUTALIST CONSERVATION AS AN AGENT OF CHANGE.[1]

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INTRODUCTION

Robin Hood Gardens: Architecture in Transition

Historic buildings are references of the past in contemporary cities. As cities change, historic buildings and sites are either preserved in a museum state, frozen in time, or sometimes they are eliminated as redundant. A debate on the preservation of such sites is launched in some cases, among which notable is the social housing estate Robin Hood Gardens (thereafter RHG) which has become an emblem for endangered post war housing estates. This paper will explore the case of RHG in an effort to identify how the two seemingly antithetical notions of preservation and change can be reconciled in order to perceive transitions in historic environments as something positive. The aspect of time has been an integral part of this research which was conducted in mid-2019 when RHG was undergoing a transitional moment.

Robin Hood Gardens was designed in the late-1960s by the British architects Alison and Peter Smithson. It consisted of two concrete blocks; one was demolished in 2017 and the other one is scheduled for demolition in 2020 (Fig 1.). The estate is yet an other victim of contemporary urban redevelopment practices and its demolition will give way to a large scale housing scheme.[2]

Robin Hood Gardens was the first and only public housing scheme of the Smithsons that was actually realised, and as such embodied decades of ideas and critical thinking. The design went further than just an overall vision for life in its endeavour to embed these values in the whole form and structure of the estate. The architects were highly influential in establishing Modernism as the dominant approach in Britain after the Second World War, and they further developed these values through what became known as the New Brutalism. They managed to create a distinctive identity as architects, theorists, and pedagogues that for a long time was all but unique in Britain.[3]

It is unlikely that there will be any physical evidence of Robin Hood Gardens remaining in the future, even though the estate is only partially demolished thus far. Hence this transitional stage, this unique moment, was taken as a starting point to speculate about an alternative scenario for the area's future in which the remaining block by the Smithsons becomes the focal point for an entirely new scheme. The proposal was elaborated on the basis that RHG and its surroundings could remain as they were (in mid-2019), in line with the idea of preserving the surviving block that from many aspects should be considered as heritage. Using a somewhat Brutalist approach, not in terms of the "aesthetics" but in

terms of the "ethics" of that position, the new design revisits original ideas of the architects, rethinking them within the context of the contemporary city.

The design proposal was therefore elaborated in response to the following research questions:

- If RHG is indeed considered as built heritage not only for its physical spaces but also because it so clearly represents the Smithsons' ideals, then how can its memory be best preserved?
- If we are dealing with a historical environment in transition, can change be perceived and presented as something positive?
- Can a Brutalist building be relevant today, in that it is able to evolve and acquire new meanings in this constantly changing city?

Fig 1. The half demolished Robin Hood Gardens estate in late 2018. [4]

THEORETICAL FRAMEWORK

The Smithsons' Brutalist ethics

Presuming that Robin Hood Gardens could be retained in a half-demolished state, then any attempt at preservation would naturally fall into known patterns of somehow also recreating the lost component. In this case, it is important to consider the twofold character of the Smithsons' blocks, which might offer an opportunity to see past the "concrete" aspects of this uncompromisingly Brutalist building and address the ideological framework on which their design was based. The post-war period in Britain was a time for experimentation and the re-evaluation of established principles, and the Smithsons, were keen on developing innovative ideas that would help towards creating a "utopia of the present". The Smithsons' style, however, New Brutalism was not intended to be a language of specifically recognizable forms, but instead a way of situating oneself and of operating in relation to the themes and materials of the project that one happened to be designing.[5] Brutalism hence has its foundation in both ethical and aesthetic values.

According to Reyner Banham, Brutalism signified in architecture the building as a unified visual image, one that was clear and memorable, and with an explicit exhibition of its structure and a strong emphasis on the use of raw untreated materials.[6] The emphasis on exposed materials supports the concept of honesty, since for Brutalism materials were ideally to be used "as found". The "as found" exerted a

powerful hold on the Smithsons' work, and was likewise applied by them not only to the choice of materials but also to social and contextual relations. This concept was greatly explored in their early studies for Robin Hood Gardens, which demonstrate just how much the local environment informed the design.[7] In the late-1960s, the time when the Smithsons were commissioned to design the estate, Poplar was a post-industrial wasteland struggling with unemployment due to the closing of the docks.
Coming to the site almost fifty years after the RHG scheme was completed, it is interesting to identify the factors that originally gave shape to the design and to examine how they have evolved over the decades in order to think about its future. Considerations about the research questions posed above hence formed the basis for an alternative design proposal. The concept of the "as found" will be reused as a method of analysing and understanding the site in the present day, in an attempt to actively re-engage with the Smithsons' ideology and reassess its relevance.

Urban Analysis

The urban analysis was based on the "as found" principal and strived to identify key elements of the present urban context as well as to record the RHG area at its present state. The financial district of Canary Wharf, with its tall skyscrapers has greatly impacted the area. This higher, denser urban environment is closing in on Poplar, at the southern end of the site where the Blackwall Reach development has started to appear. An element that still holds an eminent position in the area's skyline is All Saints Church, one of Poplar's important historical landmarks.

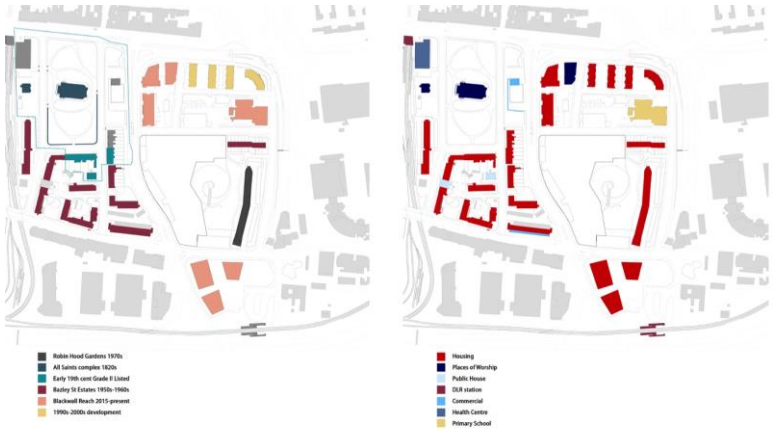

Fig 2. Building groups by date (left) and land uses (right) around the Robin Hood Gardens site in 2019.

The area has for many years been taken over by the infrastructure needed for the city's development. The adjacent Blackwall Tunnel and East India Dock Road contribute to very high levels of air and noise pollution, and create a quite inhospitable environment for pedestrians and cyclists. As for land uses, based on field research and analysis, the local area is mostly residential with some commercial activity on the ground-floor level on Poplar High Street, a primary school, and two religious buildings (Fig 2.).[8] Identifying these characteristics in the present day leads to questions about what are the decisive factors that are contributing to the creation of such a fragmented urban environment.[9] Mapping out these events spatially and historically, it becomes evident that the area has been shaped as a process akin to a palimpsest. The different layers in juxtaposition with each other compose the present urban context, like a collage of incoherent moments (Fig 3.).

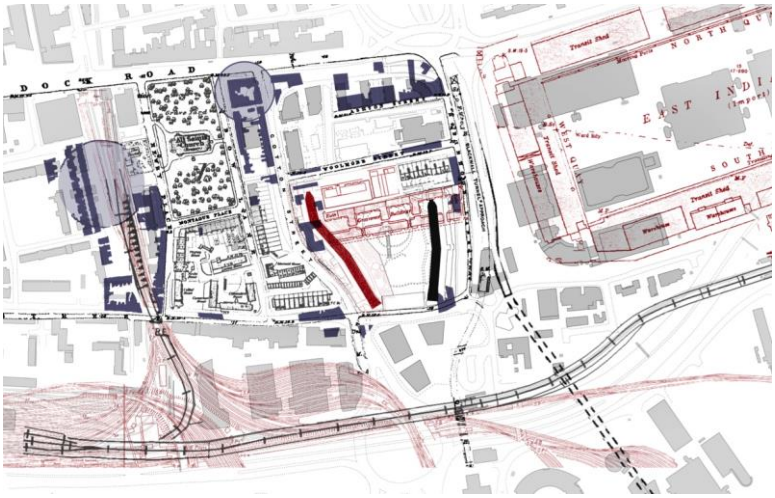

Fig 3. The area as a collage of historic fragments, from the 19th century until today. Bombed and demolished areas shown in purple and red respectively.

Architectural Analysis

As mentioned above, Robin Hood Gardens can be considered as an architecture in transition. Since 2017 the Cotton Street block has been demolished to give way to the Blackwall Reach development, currently under construction. In the other half of the complex, the daily life of residents was going on as usual at that moment, although the signs that the story is coming to an end were not easy to miss. Billboards promoting the new homes were everywhere on the site, and actual blocks at the southern part of the development were visibly in their finishing stages. This was a unique moment when the two eras coincide (Fig 4.).

Fig 4. Robin Hood Gardens remaining block (left) and demolished block (right), 2019.

Robin Hood Gardens was originally designed as an introverted space both socially and physically. Surrounded by the Blackwall Tunnel approach road on the east side and busy Cotton Street on the west side, its two blocks were positioned to delineate and fortify a central green space. The Smithsons' design was thus quite defensive against the rough city environment in order to create a protected space in which domestic life could take place. These features however contributed to it becoming an isolated point, not integrated with the surrounding neighbourhood. Architecturally, RHG was also designed as a social housing experiment. The aim for the estate to foster a sense of community through carefully designed

spaces was the main objective of the Smithsons, who were keen on providing better quality housing for ordinary people. They endeavoured to do this through the layout of the flats, along with the access deck that they called "streets in the sky", and the communal outdoor spaces.

What best summarizes the Smithsons' efforts towards creating a socialist architecture was their idea for "streets in the sky", which proved to be the most innovative part of the RHG scheme. These walkways were however not just access balconies but were intended also to function as a backyard or a pedestrian street where children could move safely and neighbours could socialize. The Smithsons believed that street life as it was before could be recreated vertically, and in this way "the flat block disappears and vertical living becomes a reality".[10] In the end, the sense of sociality that the Smithsons imagined had become a reality for the recent residents of RHG, the majority of whom were Bangladeshi.[11] These intermediate spaces in the walkways and the central garden were quite popular with the residents, as is evident from interviews with residents and other studies.[12] The question therefore is how to build upon this realisation in creating an alternative design for the half-demolished RHG estate.

PROPOSAL

Setting the context and objectives

Accepting the fact of the demolition of one of the two blocks, this project proposes an alternative scenario that preserves tangible and intangible aspects of the Smithsons' original vision. Their work is characterized by a great interest and respect for the existing environment. Consequently their idea of "as found", as a process of "picking up, turning over and putting with",[13] refers to a combination of existing things that are encountered on site with new ones that are introduced to it. The architects believed that each space has a particular "energy", which any new intervention should try to first understand, and then either preserve, enhance or reinterpret into something else.

Within this intellectual framework we can consider the aforementioned research questions. The first question of how to preserve the memory of Robin Hood Gardens could be reformulated to address its spatial energy. Going back to the notion of Brutalism and the ethic-aesthetic dialectic, the new design clearly needs to connect the material aspects of the remaining RHG block with other immaterial factors that represent the "ethical" content of the scheme. At the same time, considering that historic urban environments can be in the process of constant change leads us onto the second research question. The RHG site is not like it used to be fifty years ago, nor is it conceivable to try to recreate past conditions. The radical change that marked the demolition of one of the housing blocks has left an unmistakable void on the site. This condition, as dramatic as it seems, could however have positive connotations especially if transformed to tackle contemporary urban issues. This takes us onto the third and final research question concerning Brutalist architecture and its relevance in the present day. The proposal does not aim to appraise past architectural styles like brutalism, but rather, the presence of the in-between state at RHG does suggest how older buildings of this seemingly heavyweight and static appearance might be able to evolve in a more flexible way, in line with the on-going changes in the city and society.

Responding to the urban environment

The in-between state of Robin Hood Gardens, could be considered as an urban void, or a "hole in the city" as the Smithsons had characterized them.[14] In a part of Poplar so dominated by the infrastructure of the city and by very high housing densities, the paradoxical, transitory situation of the RHG site can become an opportunity to interpret the condition of the void by turning it into an open space.[15] As a result of the partial demolition of the estate, the Smithson's original concept of a central green space

forming a “stress-free zone” could now be extended beyond the boundaries of RHG in order for the neighbourhood to be reconceived as urban park without traffic (Fig 5.).
The wider area around RHG faces problems of connectivity and mobility for pedestrians and cyclists, as car traffic is prioritized. Moreover, there is lack of a coherent urban identity for the area, as a result of the multiple development schemes at different periods of time and within a decayed post-industrial setting. Having this in mind, the proposal attempts to address issues of urban and social division in the context of the RHG neighbourhood by creating a space that can connect and reconcile the fragments built up over time.

Fig 5. The area as an open green space with an elevated platform to replace demolished RHG block.

The building as a platform

In response to the question of preserving the memory of the RHG complex, it is important to identify those factors that determine its spatial energy. The estate originally consisted of two slab blocks that enclosed a central garden, and therefore, in order to maintain this spatial perception, the missing element needs to take again material form. The Smithsons’ “streets in the sky” were arguably the most innovative part of the whole scheme, and for this reason an elevated platform is to be created in the exact spot where the demolished block used to be. In an urban scale, the new elevated walkway will extend beyond the limits of the old block so as to create connections with surrounding landmarks and to facilitate circulation for residents.[16]
The design of the elevated platform tries to recapture the domestic character of RHG that after all was a lived space. As a starting point four noteworthy moments of human occupation/appropriation[17] of RHG by its current, last community of residents were taken:

- The use of the elevated walkways as **access corridors** to the flats;
- The **view** out as being the fourth face that defines the "streets in the sky" three-dimensionally;
- The appropriation of outdoor communal areas as **interior** living spaces;
- The street life of children **playing** being experienced vertically.

These four categories – corridor, viewing spot, interiors, and play space – were given an abstract spatial notation to reinterpret them in the new design. The combination, repetition and variation of these elements configure the spatial experience on the platform (Fig 6.). Yet the way in which these simple elements are placed transversally makes reference to the configuration of the previous housing block.

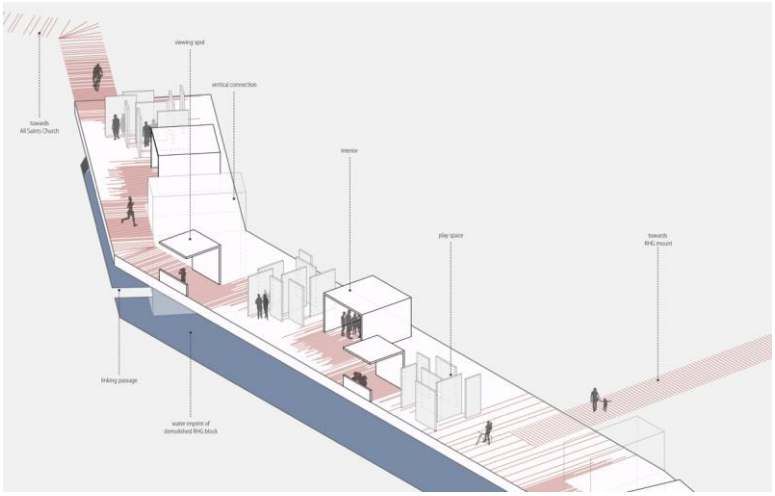

Fig 6. Configuration of the proposed elevated platform.

CONCLUSION

This paper describes a design research proposal that imagines an alternative future scenario for the social housing estate at Robin Hood Gardens, specifically as a creative response to the debate raised about its demolition. Starting with the ideas and values of the estate's architects, Alison and Peter Smithson, the study was informed by three research questions initially posed. The resulting proposal addresses the question of preservation of memory by identifying those particular ideas that gave shape to the original scheme, in order to reinterpret them to respond to the contemporary urban context. In that sense, regarding the question of change of a historic environment in transition, the proposal strives to accept the need for changes in the urban environment by involving them in the process of establishing a new identity for the site. As for the question concerning the relevance of Brutalist buildings today, the "ethical" as opposed to the "aesthetical" essence of Brutalism provides the appropriate theoretical context within which to reinterpret this kind of architecture according to present values. Having this in mind, the design proposal considers the recreation of the demolished block as an elevated walkway platform that coexists with the existing block, and recomposes a contemporary image for Robin Hood Gardens as a whole. The new platform makes reference to the Smithson's "streets in the sky", thereby acting almost like a memorial for the demolished RHG block and as a tribute to the Smithsons' architecture, while also responding to contemporary urban issues.

From a broader viewpoint, this design research aims to address the conflict between notions of preservation and change in relation to important historical sites. Especially in a city like London, change

is inevitable and as such it consequently affects historic urban environments. Concerning architecture as the medium through which to create, recreate or maintain the built environment, any approach towards existing buildings should aim to achieve a balance between change and preservation. As the city evolves, historic sites should be able to follow, taking on new dimensions yet without losing their past values. Architecture that deals with historic urban environments, apart from advocating for their preservation, should also enable a process of renewal. In order to maintain the sense of a place without an overly strict, rigorous attachment to the past, the idea could be to introduce new features that share the same ideological basis and ethical values as the older, existing ones. In this way an explicit dialogue between the traces of time is created, allowing for further reflections in the future, as this proposal shows in reconceiving how the half-demolished estate at Robin Hood Gardens could be developed.

NOTES

[1] Acknowledgement: This paper is based on the author's design research thesis for the MA Architecture and Historic Urban Environments, The Bartlett School of Architecture, UCL, entitled "Robin Hood Gardens: reinterpreting Brutalist ethics for a contemporary city" supervised by Professor Murray Fraser (2019).

[2] Blackwall Reach, an ambitious £300m regeneration scheme that is argued to respond to current housing needs, has been under construction since 2015, as mentioned in Blackwall Reach Community webpage. The new design, even though it will seemingly upgrade the standards of living within the homes, is after all an utterly ordinary example of London developer architecture. In a place that is impregnated with memories and hopes for a utopian social housing future, the proposed homogeneity of this "contemporary" urban development is rather contradictory.

[3] See Mark Crinson, *Alison and Peter Smithson* (London: Twentieth Century Architects, 2018).

[4] Photos and drawings presented in this paper are by the author.

[5] See Marco Vidotto, *Alison + Peter Smithson*, Bilingual. trans. Santiago Castán and Graham Thomson (Barcelona: Gustavo Gili, 1997), 14.

[6] See Reyner Banham, *The New Brutalism: Ethic or Aesthetic?* (London: Architectural Press, 1966), 137.

[7] Talking about their design for RHG in a 1970 BBC documentary, Alison and Peter Smithson mentioned: "Our general objective when we get a new site is to knit together what is good in the surroundings by the insertion of a new building. To inject thereby new life, even to buildings and things that are old and tired ... oddments of a past character or obvious large identifying fixes of the district." See B.S. Johnson, dir. "The Smithsons on Housing," aired on BBC two England on July 10, 1970.

[8] These are the Woolmore Primary School, the All Saints Church and the newly built Poplar Mosque.

[9] Poplar was historically formed as an industrial area that served the docklands, and as such, heavy infrastructure has always been an integral part of its history. London's docks were indeed the most important source of employment for residents from the early-nineteenth century. See Christopher Turner, "Utopian about the Present" Review of *Alison and Peter Smithson* by Mark Crinson and *Municipal Dreams: The Rise and Fall of Council Housing* by John Boughton (*London Review of Books* 41 no. 13, 2019), 34-35. It is surprising to realize just how much space the East India Docks and the London Blackwall Railway actually occupied in such close proximity to the RHG site. Events such as Luftwaffe bombing during the Second World War, post-war slum clearance policies, and the closing of the docks in the 1980s forced a process of urban renewal that came to overlay Poplar's previously industrial character (Fig. 3).

[10] Alison Smithson and Peter Smithson, *The Charged Void: Architecture* (New York: Monacelli Press, 2001), 86.

[11] Apparently, the walkways were appropriate for the needs of Muslim women because they were places where they could meet and talk, but were neither private nor fully public. See Alan Powers, ed., *Robin Hood Gardens: Re-visions* (London: The Twentieth Century Society/Paul Holberton Publishing, 2010), 33.

[12] Information on residents' views about RHG were primarily taken from; the documentary "The Disappearance of Robin Hood" by UTT, 2018; the photographic exhibition "Lived Brutalism: Portraits at Robin Hood Gardens" by Kois Miah, 2019; the book *Regeneration! Conversations, Drawings, Archives & Photographs from Robin Hood Gardens* by Jessie Brennan, (London: Silent Grid, 2015).

[13] Alison and Peter Smithson, "The 'As Found' and the 'Found'," *The Independent Group: Postwar Britain and the Aesthetics of Plenty*, edited by David Robbins (Cambridge, MA: MIT Press, 1990): 201-202.

[14] Alison, Smithson and Peter Smithson, *The Charged Void, Urbanism* (New York: Monacelli Press, 2005), 172.

[15] RHG featured a central green space, but the general introverted character of the complex and the semi-private status of the communal garden, did not allow for this space to be used by people in the surrounding neighbourhood. At the same time there is a great necessity for green open spaces in the wider area of Poplar.

[16] In Poplar today a system of pedestrian routes can be used to incorporate several important landmarks such as the local religious buildings (All Saints Church, Poplar Mosque) and transport points (DLR station).

[17] This analysis draws heavily upon the "Patio and Pavilion" installation created for the 1956 *This is Tomorrow* exhibition by the Smithsons, along with the artist Eduardo Paolozzi and the photographer Nigel Henderson, as a precedent study. The theme of the installation was to demonstrate the fundamental necessities of human habitat through a series of symbols. It saw the first necessity being for a piece of the world (the patio), and the second

necessity for an enclosed space (the pavilion). See Ben Highmore “Rough Poetry: ‘Patio and Pavilion’ Revisited,” *Oxford Art Journal* 29, no. 2 (2006): 287.

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AWAKENING A SENSE OF LOSS – THE CITY AS BOTH PROTAGONIST AND ANTAGONIST

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INTRODUCTION

Lahore, a city over 4000 years old has been a melting pot for multiple cultures, societies, religions and civilizations. It has had its fair share of conquerors and residents, from the Aryans to the Mongols, British to the Sikhs, from the Hindus and the Mughals. A city driving its origin from antiquity, has held the importance of being an extremely important part of the Mughal empire, flourishing through 16th to 18th century as well as becoming the capital of the Sikh empire in the 19th century. After the colonial takeover of the sub-continent, it became a part of the British Empire, further affirming its cultural significance in the British Punjab. Even before the partition of the sub-continent, Lahore had established its identity as the cultural Mecca of the South Asian region.

There are few things that are imbued with cultural significance of the region that Lahore has not been witness to. The city has birthed poets, writers, activists, revolutionaries and has partook in movements and revolutions of historical significance.

Since it was a crucial participant in the region of the sub-continent, naturally, the architecture of the city became rich with heritage, splendor and magnificence. Every tenant that took over Lahore recognized its significance and added on to the blueprint of the city, rendering it a layered palimpsest of generations, residing in itself, something for everyone.

John Milton, in his epic poem, *Paradise Lost*[1] regards Lahore as one of the finest cities in the world and counts it in one of the seven cities that Adam saw from the hill of Paradise.

Thomas Moore's *Lala Rookh; an Oriental Romance*[2], captures Lahore as a place of enchantment in the following lines

"Brilliant displays of life and pageantry among the palaces and gilded minarets of Lahore made the city altogether like a place of enchantment".

LAHORE, ARCHITECTURE AND IDENTITY

Lahore's relationship with architecture is built on the foundation of the empires that ruled the city. From Sikh Shrines and Gurdwaras dating since the 19th century, British Victorian architecture from the Colonial era, the Mughals contributing with the grandiose of forts, citadels, shrines, mosques, tombs, gardens and the contemporary architecture that followed, Lahore once stood among the most historical and chronicled cities in the world.

Today, a significant and an affluent city of Pakistan, Lahore is but a shadow of its former self. The culture, traditions and the harmonic co-existence of architecture styles that once stood tall are a mere reflection what the city used to be. Over the decades, especially focusing on the progression of the city since the partition of the subcontinent in 1947, with architecture as a frame of reference, Lahore has seemed to be at war with itself. There seems to be massive divide between the contemporary metropolitan and the historical citadel that once ruled the Mughal Empire.

Figure 1: (A contemporary, concrete bridge cuts through the historical walled city) Azadi Chowk Lahore, Film Shehr-e-Saraab (Timestamp 10:45)

Among the many other problems, Lahore's architecture finds itself at crossroads with problems of iconography, blind borrowing of different cultures without contextual consideration, reverse cultural appropriation and influences of western cultural elements that don't fit in with Lahore's climate or context whatsoever. It has slowly become many cities in one and struggles to seem like one urban unit. Examples of such are spread out throughout the urban fabric of the city i.e. one can find an exact replica of the Eiffel tower (Fig 12), Trafalgar Square (Fig 13) and the Sphinx (Fig 15) in Bahria Town, Lahore with the sole reason of its presence being the aesthetic value it adds to the upper-class, gated, residential society.

As one strolls through Mall Road today, one can see the odd mixture of the British colonial and Mughal era buildings that are slowly decaying due to negligence, with contemporary, uber-modern architecture of banks, fast-food outlets, shopping malls and many other misplaced ventures.

Lakshmi chowk[3], named after the famous art-deco Lakshmi building, at the juncture of Abbot Road, McLeod Road and Nisbat Road faces a similar issue of mishandling, negligence and destruction due to the construction of the new metro orange-line. The building has been an attested part of the city and has held historical significance even since before the partition of the sub-continent, with the building's architecture paying an ode to the famous Indo-British architecture style. It started as a place of Residence for the first High Court judge of India before the partition of the subcontinent in the 1930s and even became the offices for the Muslim League after 1947. Lakshmi building later went on to house prominent and prolific names like writer Sadat Hasan Manto, Former Pakistani Prime Minister Meeraj Khalid, Najam Sethi and many others and was declared as a protected heritage building. What stands now at Lakshmi chowk is a skeleton of what used to be. The building has since been defaced, painted-over and what stands now is a mere façade with the rest of the building being demolished. Right along

the entrance of the building runs the Orange-Line like an intruder, defacing the history and significance of the building and the chowk even further.[4]

Figure 2: (Left) The Lakshmi Building before 2011 and (Right) The Lakshmi Building after 2011

Figure 3: Orange Metro Line Running through Lakshmi Chowk, 2018, Shehr-e-Saraab (Timeline 15:15)

The 1646, Mughal era building 'Chauburji' suffers the same fate due to the construction of the orange Line. Originally built as a gateway to a Mughal garden during the reign of Mughal King Shah Jahan, the garden no longer exists in modern Lahore, and the gateway stands as the only reminder of it ever being there.[5] Listed as a protected heritage site by the Archaeology Department of Punjab, the protected status was violated by the orange line when UNESCO intervened with banning any construction within 200 feet of the site. The Orange Line still stands, running right before the façade of the building, with Chauburji now seeming alien to the current context of the area.

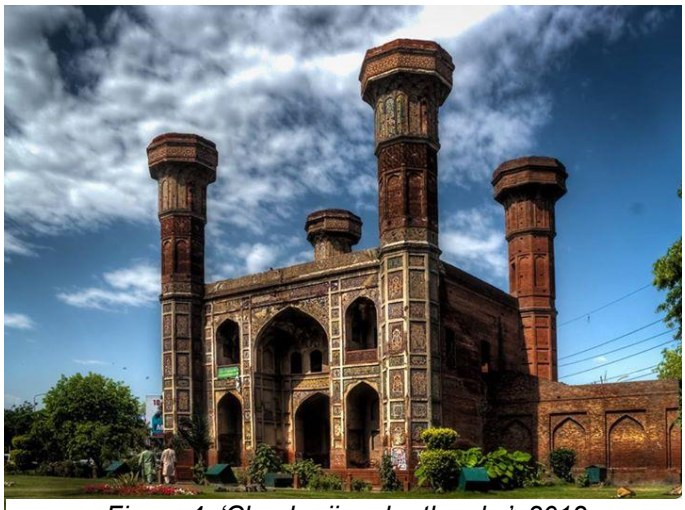
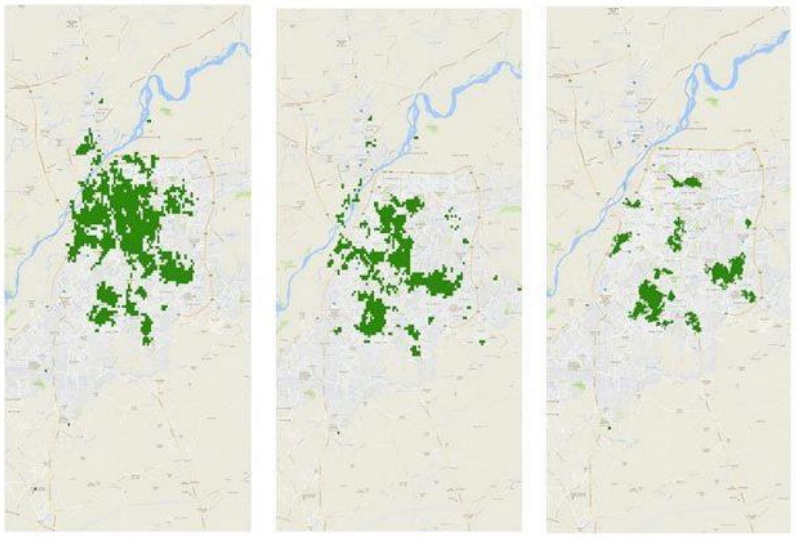


Figure 4: 'Chauburji under the sky', 2012

Figure 5: Chauburji in 2018, during the construction of the orange line (Left) Photo from Developing Pakistan (Right) photo from Pakistan Today

The construction of the orange line played villain to a number of protected sites in Lahore, including being the culprit of destruction of *Jain Mandir*[6], destroying the context of historical *Shalimar Gardens*, endangering the tomb of *Zeb-un-Nisa*[7] and many more. But the Orange Line of the Lahore metro is not the only culprit responsible for the deterioration of the city's skyline, heritage and history. The city that was once famous as the 'The city of Gardens' at the time of the Mughal Empire is now in shambles. Lahore has not only lost majority of its gardens but in the past few decades, its tree cover has dropped 75% and is dangerously close to losing even further tree cover. The Canal Road that was protected by the Supreme Court's *'The Lahore Canal Heritage Park Act'*[8] in 2013 has been violated a number of times and the famous canal that goes through the heart of the city, once lush with tree cover, is also suffering now not just at the hands of the Timber mafia and the development managers, but also the government chopping down trees to widen the road, with Lahore losing its trees by thousands. According to a study under the Land Cover Project led by Geomatics of Université catholique de Louvain (UCL) Belgium[9], Lahore's urban forest cover in 2007 was 12,359 hectares. In 2012, it had decreased to 7965 hectares and in 2015 it reached dangerous numbers of just 3520 hectares which is a shocking percentage from a total area of the city's 177,200 hectares.[10] (Fig 6)



In 2007 (L), urban forest cover was 12359.71 hectares, in 2010 (C), urban forest cover was 7965.28 hectares and in 2015 (R), urban forest cover was 3520.32 hectares. PHOTO: ESA / ESA CCI LAND COVER PROJECT, LED BY UCL-GEOMATICS (BELGIUM)

Figure 6

The mentioned issues are not isolated examples. Every other corner of the city is home to such stories of loss and fading ethos of the true Lahore, once written about in history books. Architects, urban planners, activists and historians may understand the enormity of what their city is going through, but it's a rare occurrence when a common man worries for the slowly deteriorating roots of his city. To change that narrative and to awaken a sense of loss among citizens of Lahore, the understanding and protests from just professionals in the design and urban industries is not enough.

THE PROJECT: SHEHR-E-SARAAB (THE MIRAGE CITY)

Film Link: https://www.youtube.com/watch?v=MXl91IWTtuw&feature=youtu.be

The project 'Shehr-e-Saraab (The Mirage City) was designed in the form of a film for easy access to the general public. Film, being a visual, commonly used and understood medium was used to reach the masses and try to waken a sense of loss of what they had and were slowly losing.

Shehr-e-Saraab is a narrative film that comments on the socio-political, environmental, architectural situation of Lahore and the sharp disparity in the experience of the city within a span of a few decades, particularly since the partition of the sub-continent in 1947 to 2018. The plot unfolds through 4 characters, 3 of them from different generations of the same family and their vastly contrasting experiences of the city, the fourth one being the city of Lahore itself.

Cities tend to be living, breathing characters that evolve with citizens over the years, added on to, layer upon layer. If left unattended, with citizens asleep at the wheel, they can be destroyed in the hands of people who do not truly understand the value and rich history that needs to be preserved.

The film aims to stir a dialogue between versions of the city of Lahore dipped in romanticism and grandeur since its origin versus the tragedy and longing of Lahore rooted in that romanticism, for the viewer to reflect and ponder on.

The film opens with a girl born and bred in Toronto, going through her Pakistani father's belongings after his death, and finds 3 letters from her grandfather to her father, written decades apart. In those letters, she finds her grandfather talking about their life in Lahore, quoting anecdote after anecdote, trying to instill nostalgia in hopes that his son might come back one day. The son never did, but reading those letters, fascinated and curious about her roots, swept in the romanticism of the city drenched in his words, she travels to Lahore to see for herself what her grandfather had been talking about all along. But soon she discovers that the Lahore she finds awaiting her is not the Lahore that once her grandfather resided in.

The text of the letters plays the part of the protagonist whereas the visuals playing alongside the text take on the role of the antagonist, both representing their truths of the city.

The content of the letters was extracted through three major frames that resonate with the true essence of the historical Lahore and play a part in forming the identity the city associates with. The references of these frames can be found in literature, folklore, music and history of the region. The dialogue was developed through extraction of anecdotes and stories that revolved around the three frames; Environmental Ecology and Atmosphere of Lahore, People and Coherent Culture of Lahore, Topography of Lahore.

Environmental Ecology and Atmosphere of Lahore

Lahore is a city associated with colors, festivals and celebration. Documentation from the early decades of its existence as a Pakistani city depicts a lot of focus on the colorful skies of Lahore through festivals and celebrations of interreligious occasions. The stories passed on by the generation who lived through the partition also relay with the same general idea of Hindu-Muslim festivals of Diwali, Holi, Eid etc. being celebrated in the hub of the city without prejudice. In the later decades, there's a particular focus on the kite-flying festival of 'Basant' that was most popularly associated with Lahore. A joyous celebration of the arrival of Spring, the skies of Lahore were filled with colorful kites, families gathering on rooftops, music blaring out of speakers and people dressed in colorful and festive clothing was a common sight to see. In the recent years, Basant has ceased to be celebrated in Lahore due to government directives.

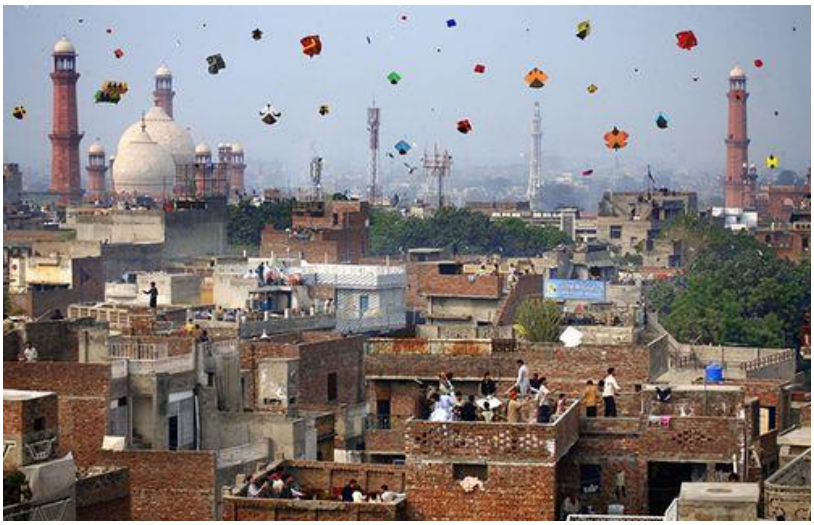


Figure 7: Basant in Lahore, Photo byGulraiz Ghouri (January 1, 2000)

The protagonist frame of Environmental Ecology and Atmosphere in the film is represented by the narration of the letters where the grandfather becomes a storyteller, narrating the romanticism of the colorful skies through these festivals associated with Lahore.
The alarming levels of smog and environmental catastrophe that Lahore suffers through (Fig 10) come every winter, takes on the role of the antagonist, highlighting with sharp disparity, how far the city has strayed from what it's famous for and associated with. The antagonist and protagonist frames relayed simultaneously are a conscious choice to exaggerate the contrast for maximum impact, and to compare the imagined thought and the current reality.

Figure 8: Delhi Gate, Walled City Lahore, Shehr-e-Saraab (Timestamp 07:08)

Figure 9 : Pani Wala Talab, Shehr-e-Saraab (Timestamp 07:12)

Figure 10: Mehmood Booti Factories, Shehr-e-Saraab (Timestamp 07:25)

People and Coherent Culture of Lahore

The second frame of reference draws inspiration from the city's reputation of hospitality and coherence among its people. The reputation arises from how the city was originally built, the walled city of Lahore from which the rest of the city expands comprises of close quarters and houses almost fused together. The architecture of the old city is such that if seen from a bird's eye view, the 6-7 feet wide roads look like thin veins pumping life through the clustered city (Fig 11). The film further tries to explore the narrative of the coherence through both the text and the visuals, with both producing contrasting results. With Lahore's urban sprawl originates the concept of gated, elite societies with a completely different architecture style. Lahore, since its origin has been an important city so it was fenced and walled in almost every era, until the Mughal King Akbar formally constructed the 13 gates surrounding Lahore, forming the walled city of Lahore.

Today, as one drifts father away from the old city, the concept of housing starts to completely change as if mimicking multiple cities in one. The eastern elements of courtyards, inter-connected houses, shared walls and communities start to get replaced with multiple walled cities within the city, creating lines and divisions, housing societies with imposter identities of European cities, western elements of architecture that don't fit in with the climate or context of the region and an inherent focus on aesthetic value over function.

The protagonist character of the city in the film is represented by the letters narrated by the grandfather, who shares anecdotes from his relationships with the walled city, his neighbors, the common hospitality and the interconnectedness of houses, rendering them into homes. The antagonist character makes its presence felt by visually capturing the condition of the residential urban sprawl, as it looks today, with no one identity of the city.

Figure 11: Walled City of Lahore, 2018, Shehr-e-Saraab (Timestamp 03:15)

Fig 12: Eiffel Tower, Lahore

Fig 13: Trafalgar Square, Lahore

Fig 14: Istanbul Chowk, Lahore

Fig 15: The Sphinx, Lahore

Topography of Lahore

Lahore's topography presents itself in the film as perhaps the most important and significant frame of all, considering the architectural element attached to it. It builds on the city's relationship with history, historical architecture, heritage and its association with gardens. Known by names as 'Paris of the East' and 'The City of Gardens', the city once prided itself over the River Ravi that ran through the heart of the city until its water crashed onto the walls of the forts of the citadel. The protagonist city in this frame rejoices on the history of its fertile soil and flowing river, allowing citizens to spend breezy evenings on its banks with their families. Lahore's history is filled with stories of the River Ravi as an active participant in the city's topography.

Much of Lahore's reputation of fertility comes from the water canal passing through it, which is an essential part of the city's terrain. Apart from serving a functional purpose, it has always had a poetic and romantic connotation attached to it. Escaping the hot summers, hundreds of Lahoris flock to the canal to relieve themselves of the heat and the canal turns into a hospitable venue, hosting a festive gathering.

The antagonist character of the city, taken on by instances of experienced reality, depict the other side of the coin; the River Ravi dried up[11], metamorphosed into a waterbody clogged with pollutants and plastics[12] (Fig 17, 20), sewage lines being dumped straight into the Lahore Canal[13], mounds of garbage loitering around at Mehmood Booti, factories dumping their waste (Fig 18, 19) in natural water streams and historical architecture at the mercy of the unfathomable.

Fig 16: River Ravi, 2018, Shehr-e-Saraab (Timestamp 14:20)

Fig 17: Shehr-e-Saraab (Timestamp 08:20)

Fig 18: Shehr-e-Saraab (Timestamp 08:15)

Fig 19: Shehr-e-Saraab (Timestamp 08:10)

Fig 20: Shehr-e-Saraab (Timestamp 08:05)

CONCLUSION

Projecting the harsh realities of the city through visuals don't take away from the imagined thought of the letters as they were once experienced reality as well. If one tries to find similar instances, it's not impossible to come across them, but the difference lies in how frequently one can find them. What was norm at every corner of the city is now found if one really looks for it. The instances of the true Lahore haven't completely worn off, they are slowly but surely depleting and if the citizens aren't careful, Lahore's blueprint could change for the worse. The cavalier and nonchalant attitude towards Lahore's quickly changing demographic is a cause for worry and demands action.

'Shehr-e-Saraab' meaning ' the mirage city ', follows its translation and comments on the distant, distorted image of the city of Lahore and tries to draw a comparison between what's there versus what we see. The project was created to form a connection between the human and the city and to experience Lahore as more than an up and coming metropolis. The city is more than that and demands more attention. Moving forward in its strides to become a metropolitan, Lahore must not forget its roots as a cultural mecca of the sub-continent. The people must understand that development in any city is a sign of economic growth, but development that is achieved at the cost of erasing its rich and celebrated history and heritage can never mean anything substantial and leads to a city's downfall in the long run. It's a common saying in the region that 'One who has not visited Lahore, has not lived'. It's time the people reflect back on Lahore's glory and put in effort to make sure the reality of the city doesn't come up short.

The fourth letter in the film was added on later as a reply from the visitor to her grandfather and also the city, and it expresses her disappointment for being lured to the city under false pretenses. The emotions reflected in the fourth letter of the film also act as an extension of a young architect's experience of the city, who never got to witness and experience the stories of Lahore as the generations before lived them.

Decades later, when the damage has become pertinent and permanent, Lahoris might find themselves at the melancholic and barren banks of where Ravi used to be, sitting on a growing mound of concrete, reflecting on what they had and how good they had it. Before that time comes, it's imperative that the people realize that the city of Lahore, the golden goose of the sub-continent, deserves better.

NOTES

[1] John Milton, Paradise Lost: 1667 (Menston: Scholar Press, 1973)
[2] Thomas Moore, Lalla Rookh: An Oriental romance (London: Longman, Hurst, Rees, Orme, and Brown, 1817)
[3] "Lakshmi Chowk: Ode to a Changing Lahore", Youlin Magazine, Accessed June 2, 2020, https://www.youlinmagazine.com/article/lakshmi-chowk-ode-to-a-changing-lahore/MTY1Ng==
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[6] "Historic Jain Temple Demolished in Lahore", The Times of India, Accessed July 1, 2020, https://timesofindia.indiatimes.com/india/Historic-Jain-temple-demolished-in-Lahore/articleshow/50955160.cms
[7] "Historical Sites along Orange Line route : People want Government to opt for Tunnel Boring", Dawn, Accessed June 15, 2020, https://www.dawn.com/news/1328723
[8] The Canal Bank Heritage Park Act, Punjab Government, Accessed July 15, 2020, http://punjablaws.gov.pk/laws/2539.html
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[13] "Focus on the Slow Death of The River Ravi", The New Humanitarian, Accessed July 16, 2020, https://www.thenewhumanitarian.org/feature/2005/05/02/focus-slow-death-river-ravi

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OVERLOOKED!:
THE PERFORMANCE OF ARCHITECTURAL DRAWING

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INTRODUCTION

In both architecture practise and academia, the choice of types of architectural drawing and how we present them is usually determined by how the method may effectively communicate our ideas to a specific type of audience in a particular spatial setting. The characteristic of one medium is cautiously chosen for the sake of clarity of information required by the circumstance in which we present the drawing. However, looking at architecture more substantially as knowledge about human relationship with space, as a representation, the types of drawing and the way we present them determine our depth of learning.[1]

Drawing mediates our understanding of physical space. The act of representing allows us to separate our physical entity from the space inside the drawing so as to be able to see it more objectively. In this regard, what is often overlooked is that physical relationship, that is very much architectural, between the drawing itself and our own body.

To build a thorough understanding, we need to learn architecture directly from its physical object and through not only its representation but also our embodied relationship with the medium. This research is an attempt to bridge the gap between the direct and the mediated architecture learning, that is by allowing drawing in its wholeness of physicality to not only to be used pragmatically but also performatively.

This study aims to explore a new way to look at and use architectural representation, *"How can architectural drawing generate an embodied-spatial relationship with its audiences and therefore perform the spatial idea being disseminated?"* By borrowing a theory from narratology, we answer the question through a precedent study, as well as through two experiments that we conduct to try out this theory. In the end, we hope to elucidate the overlooked role of architecture drawing, namely its performance aspect.

NARRATOLOGY IN ARCHITECTURAL REPRESENTATION: THE DOUBLE LAYERS[2]

An architectural idea can manifest in many forms: built works, drawings, models, books, exhibitions, reportage on TV, or magazines. Given the different architectural idea/story and the targetted audiences, every medium has its own strengths and weaknesses. Narratology, as a field of study on narration,

provides a general formula to understand idea dissemination process that is applicable in any representation medium.

Narratology claims that whatever the medium is, idea inception happens through two main layers, which are the layer of diegesis (narrative) and the layer of extra-diegesis (outside narrative). The first layer, known as the layer of content, is the layer on which idea/story is disseminated using text (by telling) and pictures (by showing). Here, a series of events are arranged in a certain order to allow audiences to access the information.

Next, the second layer, known as the layer of form, lies on the physicality of the medium, namely the size, colour, texture, rhythm, time, motion, sound, smell, and any other spatial quality. Each of those aspects generates a particular embodied relationship that happens between the audience and the medium. That being said, this interaction in the relationship can be designed in a certain way to enable the drawing to *perform* the architectural ideas that it wishes to disseminate.

In this research, the media to be focused on are books[3] and exhibitions. As a precedent, Richard Mc Guire's *"Here"* is used to render the idea. Next, there are two experiments elaborated in this research, an election class held at Universitas Pelita Harapan, '*Architectural Storytelling',* and an independent studio unit of Critical Context workshop, titled '*Unfamiliar Familiar'*.

'Here', by Richard McGuire[4]

'Here' describes the story of a specific location on Earth. It comes in the form of a 6.7 x 1.1 x 9.5 inches hard-covered book. On the cover, is an open window of a house seen from outside; the curtain is half-open, inviting the reader to peek into the room. Arranged in a non-chronological order, through each spread that depicts a perspectival view to the room, we move through time both backward and forward to see how the exact location evolves in its appearance, providing a unique background for human stories to emerge.

In this book, the two layers of the narrative occur in every spread. The diegesis layer can be seen pictorially through the perspective view that shows the location and the events that are happening there. The textual information also informs the readers about the year and the dialogues that are happening at that time. The layer of extra-diegesis, on the other hand, lies on the backbone of the book. Consistently on every spread, the backbone marks the corner of the living room of the house. This way, the audience does not only engage in what the drawings and the text convey, but also become the spectator as she is witnessing the scene herself. In conclusion, the book does not only show and tell but also enable the audience to perform the story about *'Here'*.

To extend the dissemination of the content, *'Here'* also twice comes in the form of exhibitions. Although aiming to share the same content, the executions of the extradiegetic aspect of these two exhibitions are different.

At Morgan Library, the exhibition, *titled 'From Here to Here: Richard McGuire Makes A Book'*[5], aims to exhibit the evolution of the content from a comic strip to book, as well as from black and white to colour as it gained new depths in style, historical scope, and emotional range. To achieve the aim, series of text and drawings that are arranged in a specific manner to give the audience (the exhibition visitors) an understanding about the evolution. In contrast, the exhibition in The Museum Angewandte Kunst, is titled '*Time Space, After "Here" by Richard McGuire'.*[6] *The exhibition is full of large prints on the walls in the exhibition room. While the first exhibition extra-diegetically turns the audiences to act as a researcher, the latter one allows the audience to physically get into 'the book' and be part of the story shown and told by the drawings and the text on the walls.*

To conclude, both the book and exhibition form of *'Here'* do not only tell and show their audience about the story but also perform it themselves. Referring to architectural learning, the audience gains that experience of witnessing how space can evolve through time.

Architectural Storytelling

The goal of this class is to explore how an architecture idea observed through a site visit can be communicated visually through architectural drawings and experientially through its form of presentation. Consisting of six groups of students of four, the class went on two field trips to observe two built architecture works by Tan Tjiang Ay.[7] The works are selected due to their size, simplicity, and clarity in showing their design ideas.

Project 1: 'In Details'
a find-the-difference storybook
by Benson Felix, Edbert Fernando, Farisya, Jessica Lee

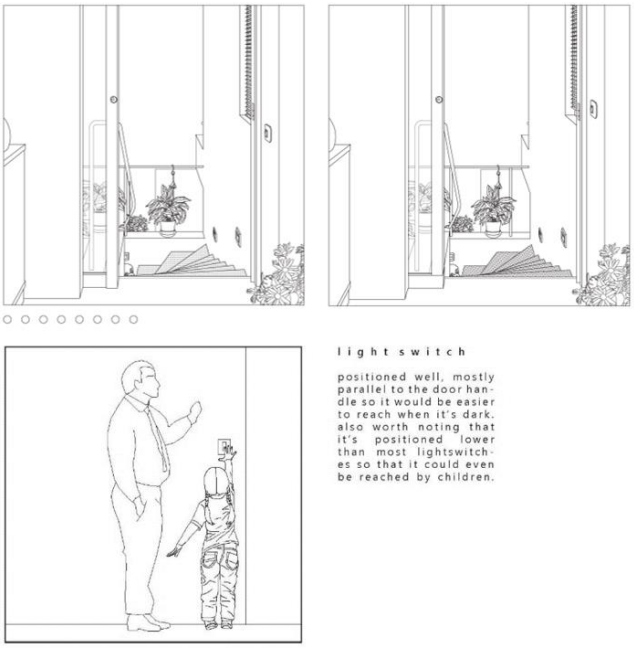

Figure 1. The example spreads and key answer of 'In The Details.'

Acclaimed for his idiosyncratic way of working on architecture, this first selected project aims to highlight the architectural details designed by Tan Tjiang Ay. However, instead of showing them blatantly, the students decide to let the readers find the details by themselves.
This find-the-difference book also contains a story in it. Reading each spread, consisting of two almost alike perspectival views, the readers will be led to experience each of the rooms in the Merbabu House; from the entrance, inside, up to the second floor. Through the journey, the line drawing perspectival views hide as well as allow the audience to reveal the details by themselves.

By inviting the readers to engage in the game, they will be more aware of the designed details. After finding the difference between the two drawings, the readers will be able to spot the way Tan Tjian Ay designs the details uniquely. Through this type of medium, the message about Tan Tjiang Ay's detail is not only transferred through pictures (showing) but through the performance of playing that is done

by involving the readers' participation. The critical answers at the back are divided into two parts, the general answer and the extrication of the details.

Project 2: "Tidying Up"
a documentation book exploring the act of tidying up an architecture
by Michiella Stevanie, Satya, Rio Dylan, Michellin Sonia

"A new spatiality is emerging through your corporeal sensations as you check every nook and cranny of the room." - Atelier Bow-Wow[8]

The quote above depicts the unique way the act of cleaning may enable human to engage with the built environment. Through this project, the students intend to highlight the space and human body relationship through the act of cleaning. The students observe that there are three categories of the act of cleaning depending on the three divisions of architectural elements which are floor, wall, and ceiling. Diegetic-wise through text and drawings, the book tells and shows the gestures and the tools that the human acts out and uses to clean up the house.

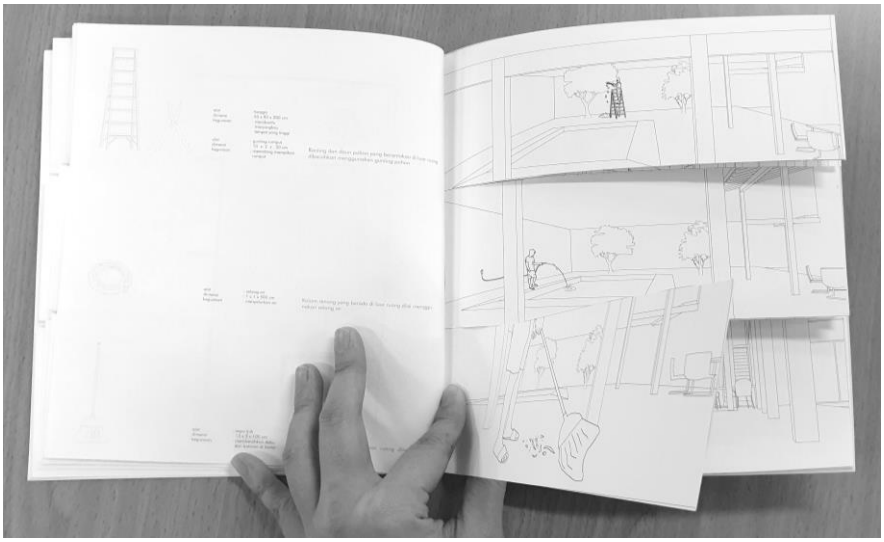

Figure 2. The selected spreads and the printed version of 'Tidying Up.'

Next, to enable the book to perform that idea, the students dissect the pages of the book horizontally into three parts: the upper, the middle and the lower part, each of which depicts the perspectival views on the architectural elements above, next to and beneath the human body.
By presenting the page this way, the readers will not be able to read the three parts of the page all at once. Just like the act of cleaning, the reader may choose either one of the following ways to read the book: 1) to concentrate reading each part of the spread from the beginning until the end one by one, or 2) to go spread by spread, by patiently moving from the upper, middle, and bottom part of the spread, up until the end. This way, the readers are invited to read the book as if they are performing the act of cleaning themselves.

Project 3: 'Merbabu card.'
a category match-up playing card
by Jason Hari, Anggreni, Mauritzio Hizkia, Spazio

Other than his detail explorations, Tan Tjiang Ay's designs are also robust for his clarity of form and space as well as the use of natural light. This design treat of the architect encourages this group of students to highlight the idea through this playing card project.

Four drawings that render the clarity of the seven rooms in the house are two axonometric drawings, one floorplan, and one perspective drawing. The players of the card game must attentively match up the drawings of each of the rooms. The player with the most matching drawings at the end of the game, wins. This way, the medium is not only able to tell and show the players about the clarity of space, but also to invite the players to learn about the space.

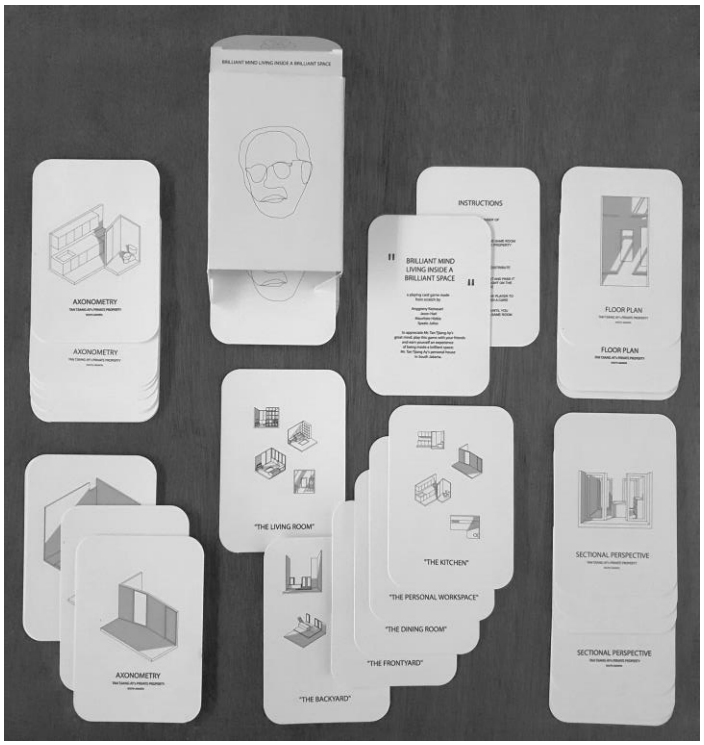

Figure 3. The printed product of 'Merbabu Card.'

Unfamiliar Familiar

The goal of this workshop is to take a closer look at our urban environment and to use drawings to convey any unfamiliar architectural quality that may seem familiar. The workshop consisted of seven participants, each working individually. The subject in this workshop is the Gang Gloria, Petak Sembilan stripe in Glodok, Jakarta. The urban stripe is chosen due to its simplicity and richness of historical importance. It is famous as a narrow alley of people selling many things, such as street food, fruits, traditional medicine, coffee shop, and others. It has its richness of variation of object, materiality, scale, and texture.

Taking inspiration from Hideyuki Nakayama, "The nice thing about sketching is, drawing just a line opens up a whole new area changes the shape of a space we thought we knew," and Eames' '*Power of Ten'* [9], the workshop brief is as follow: "through drawings and representation, we will explore

unfamiliar information from the familiar object. we will explore the object through many of drawings/representation, by scaling, cutting, texturing, hatching."

Project 1: "Serbuuu"
by: Talula Fidelia

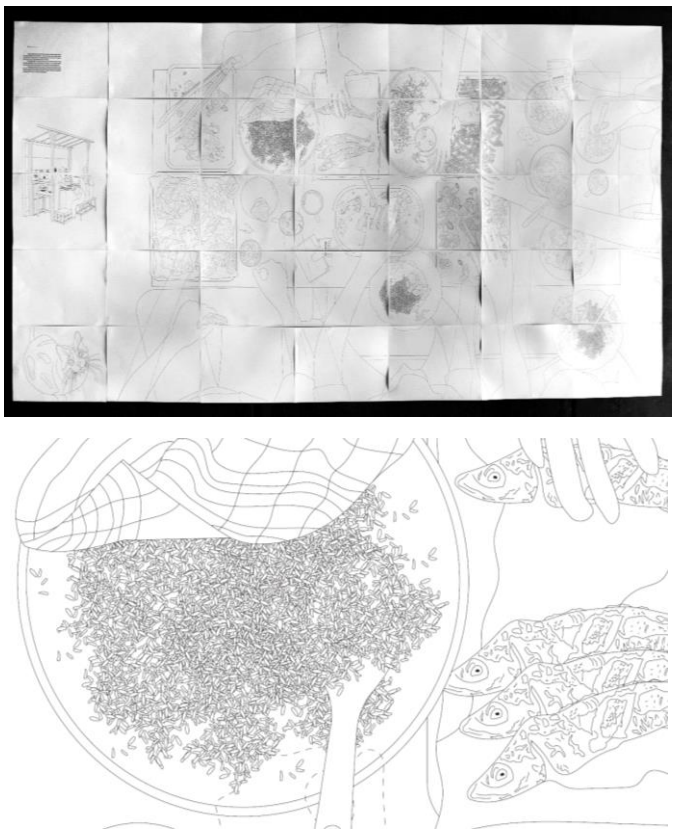

Figure 4. 'Serbuuu'

Whereas modern architecture aims to standardize human body with its rules in designing space, in reality, space is flexible, fluid, and spontaneous. Through '*Serbuuu'*, the participant depicts an eating phenomenon in Glodok. Instead of a strict rule that governs an ideal modern restaurant, a *warung* in Glodok enables the coalescence of personal spaces of people during the act of eating. This place is unique for its dining experience.

The drawing exploration goes on from the process of making the digital file to its printed form. How detail a drawing should be when it is printed in 1:1 scale? What is the information that needs to be left out and highlighted? Line drawing, in this case, enables the audience to scrutinize only some specific aspect of a daily phenomenon, enabling us to see what is unfamiliar in a familiar event, that is the texture or even the taste of the food.

Project 2: "The Path"
by: Kanza Fachriza

This project aims to take a closer look into the most overlooked and taken-for-granted architectural element in a public place, which is the floor. The fact that most people walk in public space wearing shoes or sandals, their feet do not feel the phenomena.

Looking at the pathway surface this way, the audience can concentrate on a specific aspect of the phenomena; figure 18 focuses on the different thickness of the materials that resembles a surface, while figure 19 on the roughness of the surface through our vision. Moreover, when the drawings are printed on a bigger scale and viewed from some certain distance by the audience, the drawings can evoke unique perception that cannot be felt only through telling or showing.

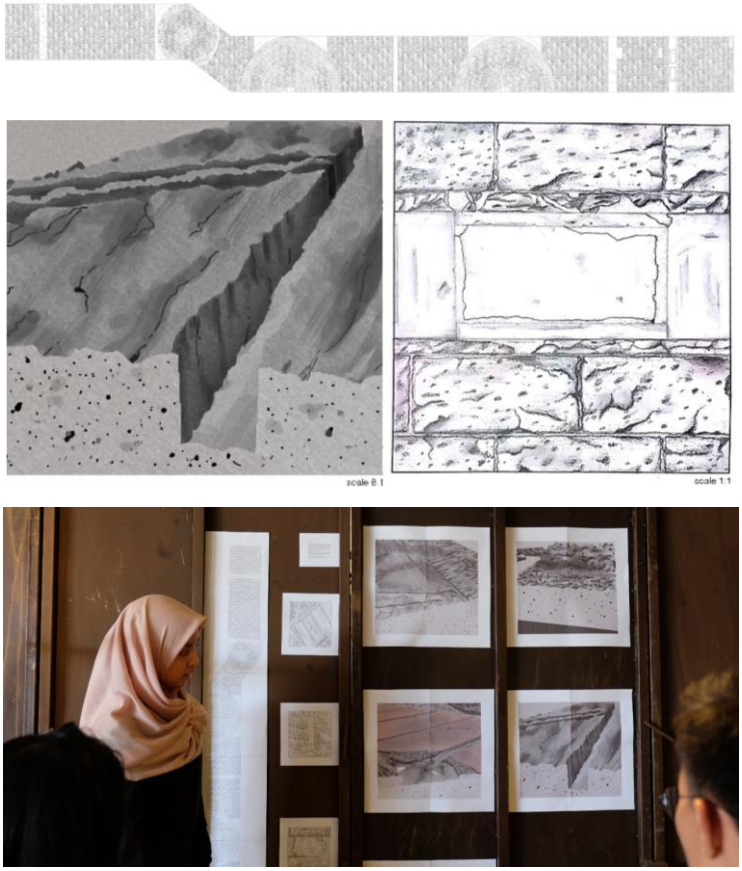

Figure 5. 'The Path'

Project 3: "Knock-knock, Who's there? Time"
by: Nadya Winaga

This project aims to highlight the marks on the door of an old storefront in Glodok. By looking at the marks, especially the ones around the doorknob area, we may find traces of the history of the ways the door was used from time to time. By printing the drawings in 1:1 scale, the audience may feel the relationship between the marks and their own hands through the drawing, be it scratches on the wooden door frame, or even fingerprints on the glass panel and the knob.

Figure 6. 'Knock-Knock, Who's there? Time', and its printed version

EXPERIMENT ANALYSIS

Although both experiment projects appear to be almost the same, they are different in approach, emphasis and end product. While 'Architectural Storytelling' gives total freedom to the students to find a specific topic that grabs their attention during the site visits, 'Unfamiliar Familiar' encourages the participants to use a particular drawing method as a tool to approach the space, namely the scaling up. In terms of emphasis, the first one aims to present drawing in a certain medium to perform the observation result. At the same time, the latter focuses on the actual physicality of the drawing as an observational tool in itself.

Project name	Architectural idea	Representational medium	Extradiegetic aspect – performance of the medium
In The Details	Unique detail design	Find-the-difference book	Finding the difference between the two drawings on the spread allows for the discovery of the details that are designed by the architect.
Tidying Up	Ways of cleaning floor, wall, and ceiling	Sequential drawings that are horizontally divided into three	The divided spreads allow audiences to look at the divisions one by one, just like the act of cleaning.
Merbabu Card	Clarity of space design	Playing card	By matching the different drawings of the rooms, audiences need to digest and relate the spatial information on the drawings on the cards.
Serbuuu!	Proximity and details of eating activity in a *warung*	Top view drawing (1:1)	By looking at the 1:1 depiction of the activity from above, we can clearly see and sense the coalescence of the people's personal space during the eating activity.
The Path	The rich tactile qualities of the path at Glodok	Top view (1:1) & cut axonometry (>1:1)	By looking at the drawings, audiences are invited to "touch" the texture with their eyes, therefore heightening the perception.
Knock-Knock, Who's there? Time	Traces of history	Front elevation and section drawings (1:1)	By looking at the drawings, audiences are invited to "touch" the particular door with their eyes and empathize with the history the door.

Table 1. the performance aspect of the medium in each project

Looking at the end product, while *'Architectural Storytelling'* ends up in the form of a book, '*Unfamiliar Familiar'* ends up in the printed matter exhibited in a review session.

CONCLUSION

To conclude, as much as they are different, the final forms of both experiment projects affect their audience in perceiving the idea. The forms, as the extra-diegetic aspect of the media, perform the spatial idea/story and further generate embodied spatial experience for the audience. In other words, the total learning of architecture occurs when the direct experience in the built space happens alongside the mediated learning, both diegetically through the content and extra-diegetically through the form of the representation tool being used. Through this theory from narratology, we are able to explore the performance of architectural drawing in many different directions.

NOTES

[1] Fernisia Winnerdy, *AllusiveTopos: The Roles of Drawing in Architecture Learning* (Proceedings of ARCHTHEO Conference 2015, Istanbul: October 2015).
[2] Mieke Bal, *Narratology*. 2nd ed. (Toronto: University of Toronto Press, 1997).
[3] See: André Tavares, *The Anatomy of the Architectural Book* (Switzerland: Lars Muller, 2016) "The idea bout architecture does not only manifest in a form of building, but also books. In making architectural books, architect prominently chooses a spatial approach, which usually differentiates architectural books from the others. Books are seen as a complementary medium, if not equivalent, to buildings in disseminating architectural idea.".
[4] Richard McGuire, *Here* (New York: Pantheon, 2014).
[5] "From Here to Here: Richard McGuire Makes A Book", the Morgan Library & Museum and the Dorothy and Lewis B. Cullman Center for Scholars and Writers at the New York Public Library, Accessed July 26 2020, https://www.themorgan.org/exhibitions/From-Here-to-Here.
[6] "The exhibition TimeSpace will bring McGuire's room to life as a walk-in, act-in stage space. Visitors will be invited to move through the life-size setting and thus to become protagonists of the story themselves," David Beikirch, (curator), Accessed July 26 2020, http://www.museumangewandtekunst.de/media/timespace_museumangewandtekunst.pdf.
[7] Tan Tjiang ay is one of the senior Indonesian architects, renown his modernist thought. The first work we visited was Tan Tjiang Ay's own house and studio in Jl. Merbabu 1, Jakarta Pusat, and the second one was an architecture firm's studio he designed in Jl. Kemang Raya no 7, Jakarta Selatan.
[8] Atelier Bow-Wow, *Echo of Space/Space of Echo* (Japan: Inax-Shuppan, 2009).
[9] Accessed July 28 2020, https://www.eamesoffice.com/the-work/powers-of-ten/.

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THE TECHNOLOGICAL POTENTIAL OF THE PANORAMA IMAGE TODAY: MOBILIZING REPRESENTATIONAL AGENDAS OF THE ARCHITECTURAL HERITAGE

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INTRODUCTION

The technological potential of the panorama image today has enabled new roles of panorama, such as applications for the three-dimensional reconstruction and documentation of architectural heritage. Moreover, in the context of rapid developments in multimedia, fascination with various forms and applications of panorama image testifies its continuing influence in the type and use of the representational agendas of architectural heritage. By contextualizing the advancement of panorama technology, this paper analyses the instrumentalization of panorama image for the three-dimensional reconstruction and documentation of architectural objects. I argue that technological innovations in the field have challenged and expanded not only ways of virtual reconstruction, but also enabled the spatio-temporal reconstruction of historical events. This shift provided a broader insight into how technology enabled another role of panorama to show its deeper political manifestations in an artistic format. By providing new links between destructed objects, visualized spaces and their historical narratives, I will demonstrate how the case study *The Image-Complex* from "Rafah: Black Friday" (Forensic Architecture, 2015) brings confusion of the mediated historical narrative that we wish to preserve for further contemplation in another time. I will conclude by pointing that this confusion may also be seen as an opportunity to better understand how society's political processes in each era decisively influence the type and use of representational agendas of the architectural heritage.

The risk of buildings disappearing due to war, conflict or various other developments, generated a series of new preservation, conservation, restoration and reconstruction tasks. In the process of turning buildings into heritage sites, the recording of buildings became systematically guided by heritage institutions. In the context of this discussion, *panorama image* can, first and foremost, stand as an image that was crafted to help us understand the whole sites instead of a single building. As such, panorama image can be used as a basis for future heritage actions in a broader cultural, political and aesthetic context. Diverting from the traditional forms of visualization, these images can offer observation and visual communication of scientific evidence in a way to address the whole heritage sites in a wider perspective.

In this paper, I deal with *panorama image* to investigate the impact of media technologies on the way in which newly created knowledge from heritage sites is communicated visually. Accordingly, in the

process of creating an agenda for the protection of heritage architecture, this all-encompassing vision can be provided by the panorama image. It testifies to the fact that image depicts not only a representation of objects or events, but rather material replicas of objects and situations. This is visible in contemplating Gaza today, in the recontextualization of a war narrative through the prism of panoramic image. The procedure draws from the basic function of a panorama to contemplate inaccessible locations and past events – in a way to transport historical events into the image, and capture them for the re-examination at some other time. In the case of Gaza, the modalities of representation in the panorama are a symptom of, above all, the realistic intention of depicting this scene in which real historical events are being reproduced (Janson, 1969). Mapping past events in this way raises the question of the political connotation of war, hypothesizing that whoever wins the battle of media determines history – i.e. controls the way we perceive the past. Namely, the case of panorama that was originally conceived and developed on a scientific basis, through a game of mathematical and visual geometric parameters, and described by visual means, makes it possible to reveal the space between numerous images it integrates and thus to come closer to the reality, if not truth. Thus, it triggers the re-examination of what is incomprehensible and intangible for the recipient, which exists in as many versions as there are participants, and what is now open to further contemplation, negotiating that coming closer to the reality of the war event is possible exactly by visual means.

THE MEDIATED HISTORICAL NARRATIVE: PANORAMA *VERSUS* PHOTOGRAPHS

London-based research unit Forensic Architecture was recently hired to undertake spatial and media analysis of the "Rafah: Black Friday" event (2014, fig. 1), with an aim to clarify its historical narrative. In a renewed attention to informational modes and models, as David Joselit has pointed out, contemporary visual culture "shifted from object-based aesthetics in both architecture and art to a network aesthetics premised on the emergence of form from populations of images," which constitute "dynamic mechanisms for aggregating content" (Joselit, 2013). In light of this trend, further reflection on the Gaza war case was no different: it took shape based on hundreds of videos and images produced during these events. Namely, the project aimed at locating and reconstructing the story of events that took place in Rafah, Gaza, on the first of August, 2014, by using hundreds of images and video clips existing in disparate locations (Varvia, 2018). In this process, the image became a standard for estimating significance of historical reality, i.e. the way of thinking about the issues of time and experience through visual, material, and spatial registers. Accordingly, photographs made during the war serve for contemplating past events in relation to their historical outcome. Taken in different times and places, in different resolutions and representations, these photographs form a critical pile of a thousand of viewpoints from not only professional journalists but also from ordinary observers. In this way, vast body of images taken during the war events enter the public discourse. Instead of allowing interpreters to see the real war at first hand and thus help them clarify the historical narrative, these photographs lack means to directly illustrate the continuity of war that gave rise to the events whose course and features they depict. Omitting more than they can possibly include, their frames constraint perception to expose the weakness of the critical tools with which these historical images are comprehended. As a result, the image is distanced from the reality it represents and histories it narrates. Unlike photographs that served for contemplating past events in relation to their historical outcome, my claim is that panorama is revealed as a method for contemplating past events and their historical outcome in the present. In other words, the most *immediate response* the viewers experience when reading dialectics in panoramas will lead the past to bring the present into a critical state. In this way, the panorama image depicts not only a representation of objects and events, but rather reveals a

remote sensing the political background of reality. In other words, this method enables panorama to show its deeper political manifestations in an artistic format. In addition, it introduced "a new standard of evidence" as an opportunity to better understand how society's political processes in each era decisively influence the type and use of representational agendas of the architectural heritage. More precisely, the role of panorama is to replace a single photograph by putting all data around the historical narrative into one view. This is in accordance with the way human perception functions: it blends images together through time (Deleuze, 1986). Accordingly, image creators are operating in the panoramic format to narrate the historical events in spatial and temporal terms, and to reconstruct space from the image.

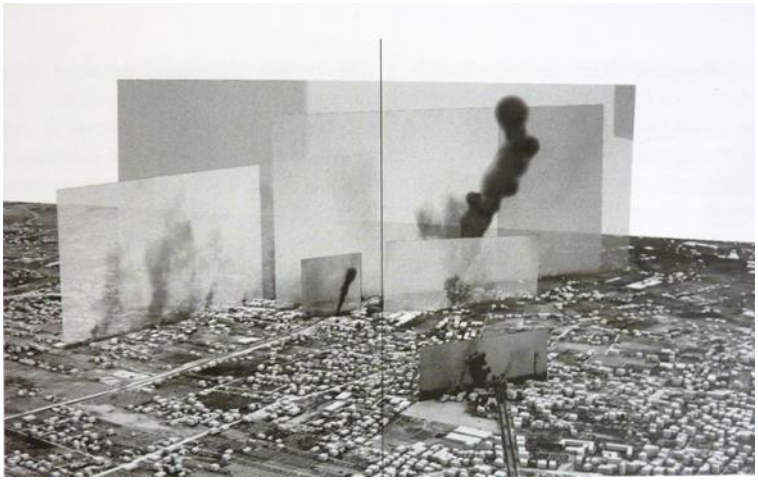

Fig 1. Forensic Architecture, The Image-Complex, from "Rafah: Black Friday" project, 2015. Multiple images and reconstructed bomb clouds are arranged within a 3D model of Rafah, Gaza © Forensic Architecture, 2020.

THE TECHNOLOGICAL PROGRESS BEYOND THE LIMITS OF MODERN TECHNOLOGIES

The analysis of the technological progress of the panorama image to date will demonstrate that panorama is a means of getting closer to the reality that the image represents. Technological development in the process of making panorama images marks the transition from employing drawings towards integrating photographs. I will start by analyzing how the first panorama makers searched for cross-disciplinary solutions to complex scientific and artistic problems: firstly, from panoramic phenomenon imagined primarily as an art form; secondly, to the contemporary panoramic imagery that reaches beyond the limits of modern technologies. From the very beginning, the reality that the panorama image represents gravitates around the scientific and artistic goals of creating first historical panoramas.

Robert Barker was arguably the first person who conceived the idea of the panorama. What he had intended was to depict a landscape in a full circle of 360° as realistically as possible. The patent described an *artistic format* of paintings that practically surrounds the viewer, and the novelty is in presenting visual experience. As such, this story would not be complete without a description of the panorama as it had originally started: as an art form. But what about the scientific part? The relationship between art and the sciences in the context of panorama phenomenon turns out to be ambivalent. As first, we see Pieter Bruegel the Elder traveling in the 16th century and drew mountain landscapes on

behalf of Antwerp publishing houses (Andjelkovic, 2018). Intended for the collector markets, the representation of the landscape he provided was composed in interaction with cartography according to actual studies. However, they often show details that would not be visible in the exact image. On the other hand, artists of the first panoramic paintings stop at the mystery of the landscape and through their own eyes notice details that, when fitted into the whole of the mosaic, can decipher bearing elements, without which the identity of the whole is blurry or completely unrecognizable (ibid, 2018). Given that it is shaped by the ambiguous projections of the identity codes of the landscape (real-imaginary), maybe it is precisely this kind of artistic transmission of reality that can provide the only remaining reality? It is the reality that speculates in imaginative spaces of the visible to finally appear as their own discovery - as invented landscapes, again connected to the spatial and temporal whole by the eye and mind. And even if panorama seems to find in its circular form an ideal way to create that impression of the real, essentially it doesn't satisfy it with only pictorial illusion. In consequence, it seems quite natural at the turn of the 19th century to finally mark the transition from the painted image to the cinematographic image (Michaux, 1999).

Unlike this artistic goal of panorama, its scientific goal shows different approaches: it departs from mathematical model to employ the mixture of optics and geometry that comes with the design of panorama cameras. The making of first historical panoramas begins with the determination of known points. One of the techniques land surveyors used is resection. The first step was drawing the map with known points and comprised mathematical operations. This method allowed the coordinates of an unknown location to be determined. The panorama makers were using any of this equipment: Camera obscura (Latin for "dark room"), Panoramagraph (invented by Chaix in 1803), Camera lucida (Latin for "light room", invented by William Wollaston, an English physicist, in 1806), and Diagraph (invented by Gavard in 1830) that includes the use of a curved ruler to compensate for panoramic curvature distortion. When they came to paint architectural details and shadows, they relied on panoramic photographs. Thus, the making of panorama combines visual methods and mathematical procedures.

An attempt was made by Friedrich von Martens to create a photographic panorama, but because of photographic deficiencies, the results were quite poor. When George Eastman introduced celluloid film in 1888, the flexibility of the improved device opened up new possibilities, thanks to further innovations in the field. Sutton Moessard succeeded in assembling multiple photographs to form a full panorama by using four projectors in a circular room. Subsequent higher field-of-view cameras were constructed, but their fields of view were still limited to 160-170°. In 1894, Charles A. Chase demonstrated his Stereopticon-Cyclorama, which comprised of eight projectors projecting sixteen slides onto a circular screen. This invention was later improved by Raoul Grimoin-Sanson's Cineorama (fig. 2). As time passed, people found progressively more and more ingenious means of capturing panoramic images of real scenes without the painstaking manual process of painting or the use of elaborate structures to house multiple photographs or projectors. One of the more promising developments is the use of higher fields-of-view cameras. The first panoramic camera was invented by P. Puchberger of Austria in 1843. It was a handcrank driven swing lens panoramic camera capable of capturing a 150° image. The rotating camera invention of M. Garella of England in 1857 eventually extended the field of view of capture to a full 360°.

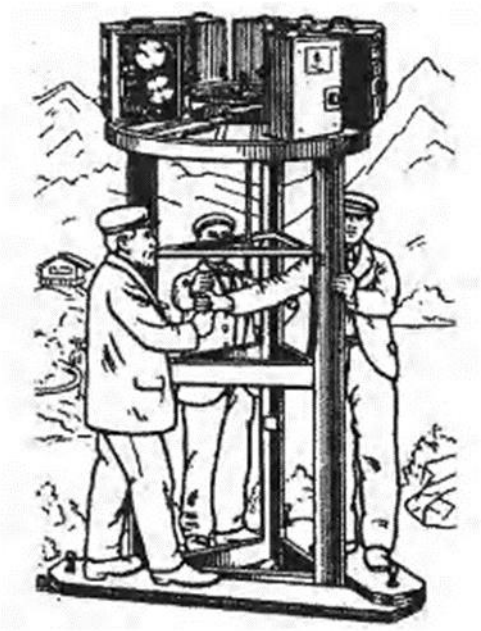

Fig. 2. Camera configuration for Raoul Grimoin-Sanson's Cinécosmorama or 'Cineorama', patented on 27 November 1897 @ Cinémathèque Française.

CONTEMPORARY APPLICATIONS OF PANORAMIC IMAGING

Applications of panoramic imaging are not only computer vision, but robotics and image/video processing as well. More specifically, the applications extend to integrate the 3D environment modeling, identification and recognition of robots, human tracking, and video representation. Already in the early years of photography several attempts were undertaken in order to enhance the optical field of view by appropriate camera solutions. When, around 1840, the technique of daguerreotypes became available for a wider group of people, mainly pictures of urban areas such as large squares, halls and monuments came into the photographer's focus. Analog panorama camera has been developed which have been used for photogrammetry. It is important to note the potential of photogrammetric multi-station panorama processing for the 3D reconstruction and documentation of architectural objects.[1] This possibility is based on the fact that the image is made according to certain geometric and optical principles. Relevant application today is making documentation for the preservation of architectural heritage. Research in photogrammetry use metric site documentation to ensure the preciseness of measuring in the process.[2] It mediates scientific knowledge - firstly, dealing with panorama imaging; and secondly, by using mathematical models and photogrammetric processing. Having said, it is easy to recognize the potential of photogrammetric panorama to draw by "pixels" instead of lines, as we once did, and in this way to process for the 3D reconstruction and documentation of architectural buildings.

Panoramic images from multiple positions can be used for the 3D reconstruction of architectural objects. At least three different cylindrical panoramas need to be generated. Due to the stable geometry of the cylindrical panorama model the bundle adjustment can be performed with few object points (Luhmann, 2010). For example, researchers at the Institute of Photogrammetry and Remote Sensing of the Dresden University of Technology investigate a strict mathematical model for rotating line cameras. This model was successfully implemented in different photogrammetric analysis methods, such as a self-calibrating bundle adjustment of panoramic image data. Another example is the analysis of the interior space: the

hall of the building can serve as a test object for 3D modelling from panorama images. The procedure included the selection of numerous object points measured in order to provide basic geometry data for the 3D reconstruction (fig. 3). A traditional approach to extracting geometric information from a large scene is to compute multiple 3D depth maps from stereo pairs or direct range finders, and then to merge the 3D data (Szeliski and Bing Kang, 1996). Moreover, composed disparate perspectives through a three-dimensional model of the city can serve to reconstruct the spatial relations embedded in the footage.

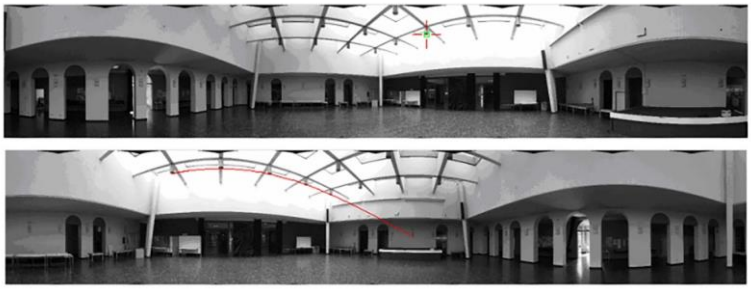

Fig. 3. Measured point in left panorama (top) and corresponding epipolar line in right image (bottom) @ Thomas Luhmann, Institute for Applied Photogrammetry and Geoinformatics, Oldenburg, Germany.

CONCLUSION

Originally conceived and developed on a scientific basis through a game of mathematical and visual geometric parameters, and described by visual means, panorama has revealed the space between numerous images it integrates. The technological progress of the panorama image, parsing through the fusion of art and science, has brought us closer to the reality that it represents. Moreover, by virtue of the advanced technologies, panorama has shown multiple applications today for the 3-dimensional reconstruction and documentation of architectural heritage. Technology has enabled yet another role of panorama: to show its deeper political manifestations in an artistic format. In addition, it offered an unprecedented type of scientific evidence: panorama introduced a new standard of evidence as an opportunity to better understand how society's political processes in each era decisively influence the type and use of representational agendas of the architectural heritage.

NOTES

[1] Read more about the potential of photogrammetric multi-station panorama processing for the 3-D reconstruction of objects in: Thomas Luhmann, "3-D object reconstruction from multiple-station panorama imagery," an online article, 2004. Accesed on January 6, 2020: https://www.researchgate.net/publication/228694382_3-D_object_reconstruction_from_multiple-station_panorama_imagery/link/02e7e530371b1c950c000000/download

[2] A more detailed view on the history of panorama photogrammetry can be extracted from Luhmann (2004).

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Viral Urban Tourism within Viral Society: Sociological Touring Guides using Apps and e-Books

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INTRODUCTION: FOR AN INTELLIGENT SOCIAL TOURING AT VIRAL SOCIETY

Aims

Intelligent urban tourism is a strategy of resistance against the current pandemic situation caused by Covid-19, which has profoundly affected all economic, political and cultural activities worldwide. Intelligent tourism uses not just information on places to visit, but also knowledge about social and cultural processes subjacent to those localities. The present text intends to understand such new problematic social conjuncture, by exercising criticism both on some ways of travelling e.g. within mass tourism, and on some styles of reflecting about tourism e.g. certain sociological and cultural positions on these matters. In fact, cities, tourism, culture, science, and technologies, must aim not only to be 'smart' (e.g. 'smart cities'), but also intelligent: that is, to produce and disseminate (theoretical and practical) knowledge and critical interpretations and explanations, rather than just transmit mere and more smarts descriptions of the urban fabric, and correct ways of behaving in the normalized city.

Fig 1. Cultural tourism decay in most countries
Source: SIC TV channel, https://sicnoticias.pt Photo credits: Pedro Andrade

This article discusses the first theoretical and practical contours of an on-going research project, in order to contribute to find effective and affective answers to this anomalous social urgency.

The pandemic situation and the mask issue in July 2020

Before the Covid-19 pandemic, Portugal was chosen as the world's best tourism destination for three consecutive years (2017-2019), and Lisbon was designated as the Best City Destination and City Break at the *World Travel Awards* event 2020 [1], besides conquering the title of *Lisbon Green Capital 2020* [2]. Furthermore, Braga, a prosperous city in the North of Portugal, won recently (2020) a contest for its designation as a *Unesco Creative City of Media Art* [3]. Within this perspective of the cultural-touristic city, the author participates in a working group originated in the above mentioned nomination of Braga.

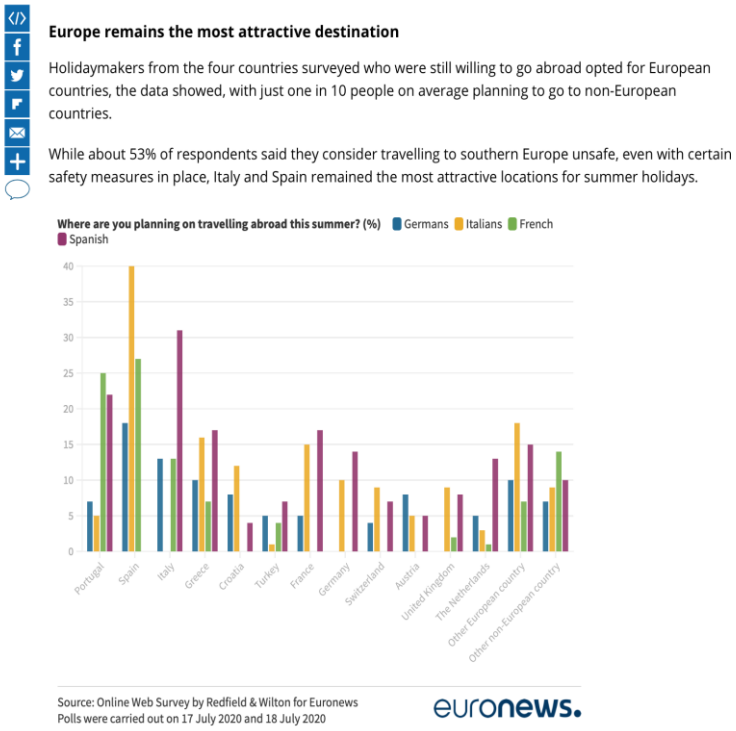

Fig 2. Preferred tourism destinations in the world. Source: Euronews

After the emergence of Corona virus pandemic, things have dramatically changed. The tourism sector entered into a very serious crisis, and the end of it is not yet clear (*Fig. 1*). Global lost revenue is estimated in € 273 billion. Tourist numbers fell by 300 million, which means a 56% drop in comparison with the same period of last year, according to World Tourism Organization-UNWTO [4]. Inside such context, a recent poll (*Fig. 2*) shows some tendencies on preferred tourism destinations in the world, by Germans, Italians, French and Spanish tourists, who were inquired in the beginning of the 2020 summer high tourism season, more precisely in July 17 and 18 [5].

However, the crisis also revealed some partly hidden socioeconomic phenomena: in the central areas of Lisbon, to respond to the exponential demand for tourist accommodation in recent years, many local residents have sold their houses or apartments at low prices and many lodgers have been evicted of its rented floors, by the respective owners. In addition, some homeowners have turned their homes into local Airbnb solutions. Currently, around 55,000 families depend on this lucrative Airbnb business. However, the Covid-19 pandemic has dramatically decreased tourism demand and caused a sudden crisis on Airbnb. Recently, the Mayor of Lisbon criticized the excessive rent growth in the last years and wants to return homes to permanent residents (*Fig. 3*).

Meanwhile, research efforts at Institute of Molecular Medicine in Lisbon (IMM) gave some interesting and practical results, mainly in what regards the development of an innovative mask (*Fig. 4*), that inactivates Corona virus after about 1 hour of utilization, it is washable and usable during a week [6].

Fig 3. The Airbnb crisis, at Lisbon
Source: SIC TV channel, https://sicnoticias.pt Photo credits: Pedro Andrade

RESEARCH: A STRATEGY

And what about the possible contribute of Social Sciences? At Lisbon and in the North of Portugal at University of Minho, within Communication and Society Research Centre, a research team, composed by social scientists, tech people and new media artists, and coordinated by the author of this text, is pursuing a project named *Viral Urban Tourism within Viral Society*. Its purpose is to study the social and cultural impact of Covid-19, on the everyday life of citizens, tourists and migrants, across the urban fabric of Lisbon and Braga. For such aim, the team is deconstructing tourism guides and other social communicative tools, and reconstructing them as *Sociological Touring Guides*, by using apps, e-books, and other social and tech methods and media. The photos presented here are mostly sources made by the author in July 2020 at Fuseta town, in Algarve region, South of Portugal, and belong to his hypermedia collection. Their aim is to exemplify some transformations caused by Covid-19 within everyday life at touristic places. The TV News sources shown in this text, except Figure 4, are photos taken by the author from SIC News TV channel, and some other information was consulted at SIC site (https://sicnoticias.pt)

Fig 4. Masks and brains against the virus
Source: Euronews

DEBATE: THEORIES, QUESTIONS AND HYPOTHESES

John Urry [7] comments that nowadays 'everything is on the move': *social mobilities* include flows of capital, work, people, objects, technologies, etc. One of these mobile phenomena is tourism. Urry also wrote a seminal book on the *tourist gaze* social phenomenon [8]. He argues that tourism mobilizes many other activities, e.g. shopping, sport, culture, hobbies, leisure and education. In this process, tourism and tourists' ways of seeing societies and cultures, may act as central elements of global cultural changes. In this book's 2nd edition (2011), named *Tourism 3.0*, he adds new questions such as risks and alternative futures, more case studies and recent sociological methods, e.g. photography and digitization, embodied performances, etc. In fact, tourism constitutes the central configuration of travel since the advent of modernity, according to sociologist Pedro Andrade [9]. And tourism itself must be understood within a conceptual network that relates to what Henri Lefebvre named the 'production if space' [10], within the global city, a concept problematized by Saskia Sassen [11] (cf. *Fig. 5*).

A recent contribution for such debate is the discussion on public art for tourism communication, undertaken by international researchers from USA, France, Spain, Portugal and Brazil, and available in open access [12].

In this perspective, one central question emerges: how to reflect, and empirically analyze, the practices of *urban tourism*, within the framework of urban social mobilities? As a first working hypothesis, it is possible and probable that the new urban mobilities, and in particular cultural tourism, have been profoundly transformed by *locative technologies*, such as mobile digital devices (mobile phones, etc.).

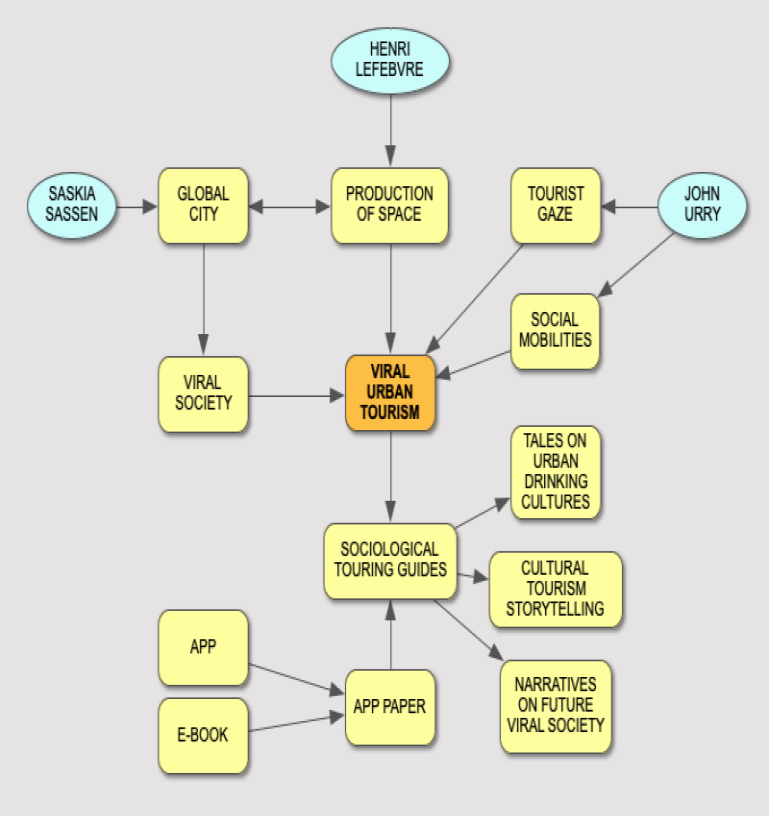

Fig 5. The viral urban tourism debate

Another central question is this one: what impact is Covid-19 having on society and, in particular, on urban tourism? Hypothesis 2 conjectures the following: it is credible that we are entering into a *viral society*, characterized, among other attributes, by an unprecedented economic global crisis, social confinement, social distance and augmentation of uses of the Internet and mobile phones as alternatives for face-to-face interaction. Within such context, the urban tourist, and especially the cultural tourist, are experimenting new ways of relating to the visited societies and cultures, in particular by substituting some practices of face-to-face tourism, by virtual action in cyberspace, e.g. in order to consult content related to his/her travel. In other words, a sort of *viral virtual tourism* is rising today.

Question 3: how this situation will evolve? Hypothesis 3: Progressively, the bewilderment derived from the early stages of the pandemic, may lead to the *remobilization of tourism* activities and of *viral tourists* actions, through hybrid routes between face-to-face journeys and virtual travels.

To corroborate/infirm these conjectures, several methods are previewed: questionnaires, visual interviews considering photo elicitation strategies on a sample of three main social profiles (citizens, cultural tourists and migrants), direct observation through video, and the correspondent content and discourse analysis. Other used methods and media are mentioned below.

TOOLS: GUIDES FOR SOCIAL AND SOCIOLOGICAL TOURS

In such a perspective of *intelligent tourism*, this text essentially presents a *sample of contents* that will be included in *e-books and apps*, to be consulted via locative devices such as the cell phone, by at least three of the most representative profiles of contemporary social audiences: citizens, cultural tourists and migrants. Therefore, these social audiences are partly related with the social profiles above mentioned. Such contents, in addition to historical perspectives and introductory and descriptive comments, focus

mainly on *sociological, cultural and urban themes*, in an essentially interpretative and explanatory stance, with regard to urban social and cultural fabrics (see *Fig. 6*).

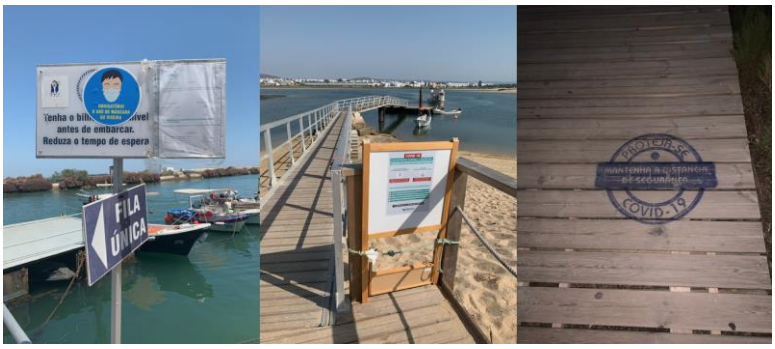

Fig. 6. Knowledge dissemination on Covid-19, at touristic Fuseta town and Ria Formosa beach, Algarve region, South of Portugal
Photos credits: Pedro Andrade

In this way, included materials may be useful, in daily practices, for the above mentioned three segments of the population. In the case of urban tourist activities, and in the current pandemic era generated by Covid-19, such instruments may be consulted by tourists to collect and give their opinion on the necessary information about virtual places to visit and the virtual/virtuous practices to trigger there, and above all to develop a deeper *knowledge* of these places. In other words, not just be informed on the classical *historic content* (heritage, food traditions, etc.), nor only consult descriptive information (how to find tours, hotels, restaurants, bars, etc.). But also read *sociological content/knowledge* explained or interpreted interactively about cities past, present and future. E.g. the social city exposed under the optics of representative drinking urban spaces, as taverns, cafes and bars, within economic, political and cultural optics. Or the city's actual and problematic issues, e.g. its leisure, consumption, culture, arts, transformed by the Covid-19 pandemic. Therefore, insofar as these novel tourist routes, both physical and socio-cultural, provide *not only information, but essentially knowledge* about urban and social aspects, they are called *Sociological Tours*, including Sociological Histories and Historical Sociologies of cities.

These touristic paths are as well interactive, as their contents are activated by *hybrimedia methods*, such as *Sociological Comics, Sociological Games, apps, e-books*, etc.

The profiles of Sociological Tours' readers include not just cultural tourists and other urban travelers, but also professional agents at work or at learning, e.g. students, teachers, researchers, etc.

In sum, content to be included in these e-books and apps is mainly shareable and dialogic, such as urbanization strategies and city plans based on citizens knowledge, a paramount condition for collective participation. Later, such content will be integrated into *sociological games* and *sociological cartoons*, which will include texts, images, videos, questionnaire's questions, interviews, reciprocal photographs among tourists, citizens and migrants, games in virtual and augmented reality, devices in Physical Computing, etc.

A prototype of an *app mixed with an e-book* on these matters, was developed in the form of an App Paper, explained below.

METHOD / MEDIA: WHAT IS AN APP PAPER?

An ***Appaper*** or ***App Paper*** is an alternative mode of production and of dissemination / presentation of papers at conferences, or at other socio-cultural locations.

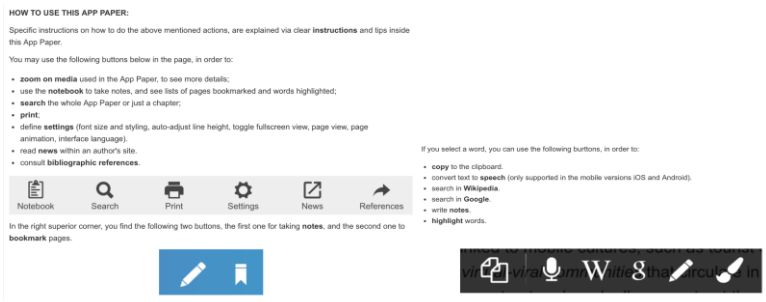

Fig. 7. How to use an App Paper

As for its structure and genre, it consists of an ***interactive app hybridized with an e-book***, where it is possible to read, comment, dialog and even re-write the contents of an author's presentation, e.g. at a congress. In what regards its content, some App Papers are ***sociological e-books***, or ***s-books,*** meaning e-books where its central content is of sociological nature, often articulated with other domains/issues. This is the case of the Appaper named *Viral Cultural Tourism via Mobile Devices: Open Research using Open Methods and Open Media* (*Fig. 7*), which is the first one of its **genre.** Such **App paper** can be freely **downloaded at the site named *Viral Tourism*** [13] . It was made in connection with the Virtual Congress *Connections: Exploring Heritage, Architecture, Cities, Art, Media*, 2020, organized by the University of Kent, at Canterbury, United Kingdom.

The Appaper is available in the following ***interactive formats***: **Mac and Windows desktop apps and e-pub.** This is a 1st version, and each version works as a ***palimpsest***. In other words, new texts of the same book are to be published. In short, at each moment, the reader reads the same book, but different texts of that book. Please note that this App Paper is not necessarily a Sociological Guide, it is mainly a prototype of possible fusions among apps and e-books. However, some media characteristics of App Papers, such as interactivity, may be applied on such touristic Sociological guides.

CONTENTS: SOCIOLOGICAL TOURS FOR CITIZENS, TOURISTS AND MIGRANTS

Within the Portuguese scientific agora, at Lisbon and across the last years, a continuous research was developed in several fronts [14]. Reflections, life stories, interviews, direct observation, content and discourse analysis were produced. This constitutes the base for the content of stories, that are being developed for the modules of Sociological Guides. In what regards the content, it is mainly of socio-economic and cultural nature, but the form or structure may be fictional, historical, sociological, anthropological, etc. Or a mix among them (*Fig. 8)*.

Fig. 8. Contents: drinking cultures, communicative tourism and alternatives
Photo Credits: Pedro Andrade

In other words, the aim of such Sociological Guides is to work as social and Sociological Tours for storytelling about the urban fabric, through narratives on city contexts, events, actors, practices and objects. In sum, these are socio-fictional guides for presenting a Sociological History and a Historical Sociology about touristic cities and other touring sites. In particular, three main themes are already in development: 1. *Urban places and their public cultures*, e.g. social drinking practices. 2. Activities and novel perspectives of *urban tourism*: popular tourism; cultural heritage tourism, mobile tourism, creative tourism, communicative tourism, Tourism 3.0 related with City 3.0, Culture 3.0 and Web 3.0, etc. 3. Impact of *Covid-19 pandemic* on society and on urban tourism and respective alternatives. The photographs in this text testify some empirical work in progress, that sustains the intermedia social stories that will populate Sociological Guides.
Other content illustrations are included in the App Paper above mentioned, including themes discussed in the video presentation shown at the Canterbury Congress 2020.

CONCLUSION: NOW WHAT?

The struggle against Covid-19 needs the cooperation of all stakeholders. At the University of Minho, a sort of *hybrid research* aims to fusion complementary and opposite objects of study, methodologies and researcher's profiles. Moreover, as above mentioned, this paper's reading may be followed by the consultation of an App Paper in electronic format. Among other information and knowledge, in this Appaper are defined, synthetically, some of the concepts that present and represent the emerging Viral Society.

NOTES

[1] World Travel Awards. Accessed January 6, 2020. https://www.worldtravelawards.com/nominees/2019/portugal
[2] Lisbon Green Capital. **Accessed July 20,** 2020.
https://lisboagreencapital2020.com
[3] Braga Creative City of Media Arts. Accessed March 15, 2020: https://en.unesco.org/creative-cities/braga

[4] World Tourism Organization-Unwto. "International Tourism And Covid-19."
Accessed July 29, 2020. https://www.unwto.org/international-tourism-and-covid-19
[5] See Mathieu Pollet, "Majority of French, Germans, Italians & Spanish scrap holiday plans amid coronavirus outbreak – poll". *Euronews*. Accessed July 24, 2020.
https://www.euronews.com/2020/07/29/majority-of-french-germans-italians-spanish-scrap-holiday-plans-amid-coronavirus-outbreak?utm_term=Autofeed&utm_medium=Social&utm_source=Twitter#Echobox=1596001996

[6] Euronews. "Scientists In Portugal Create Reusable Mask That Disables Coronavirus Upon Contact With Fabric*".*
Accessed July 27, 2020.
https://www.euronews.com/2020/07/27/scientists-in-portugal-create-reusable-mask-that-inactivates-coronavirus
[7] For more details, consult John Urry, *Mobilities* (Cambridge: Polity Press, 2007).
[8] John Urry, *The Tourist Gaze* (London: Sage, 1990).
[9] The author discusses a typology of the main configurations of travel within modernity and post-modernity/late modernity in the following essay: Pedro Andrade, "Sociology of travel: everyday journeys and nomadic anti-daily life. *Revista Crítica de Ciências Sociais 37 (1993):* 51. In this text, he also defines the concept of 'critical tourist', who is a traveler originary from a central country, who developed a critical perspective on his own society, e.g. in what regards inequalities between the world's 'centre' and its 'periphery', and sometimes comparing mass tourism travel to a sort of neo-colonialism. Moreover, the 'counter tourist' means a citizen living in a semi-peripherical or in a peripherical country, who practices different or even opposite modes of travel to mass tourism.
[10] Henri Lefebvre, *Du rural à l'urbain* (Paris: Éditions Anthropos, 1970).
[11] Saskia Sassen, *Cities in a World Economy* (Thousand Oaks: Sage, 1994).
[12] Pedro Andrade and Mário Caeiro (eds), *Lusophone Journal of Cultural Studies* 7,1 (2020), https://rlec.pt.
[13] Pedro Andrade, *Viral Cultural Tourism via Mobile Devices: Open Research using Open Methods and Open Media* **(**Lisbon: Social Web Lab Publishers, 2020).
https://sites.google.com/view/viralculturaltourism
[14] Pedro Andrade, "Cultural e-Tourism depicted by Digital Discourse: the Case of Portuguese Networks of e-Heritage and Discursive Innovation." In *Innovative Perspectives on Tourism Discourse,* ed. Magda Bielenia-Grajewska and Maria Ríos, 1-17 (Hershey: I.G., 2017), 1.

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INTANGIBLE FRAGMENTS | AN INTERDISCIPLINARY METHODOLOGICAL EXERCISE FOR THE PRESERVATION OF BRIXTON VILLAGE HERITAGE

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INTRODUCTION

'Listing cannot protect atmosphere nor preserve ephemeral things; […] nor can it determine that communities maintain a connection with a place'.[1]

The above phrase quoted from Historic England refers to the case of Brixton Village[2], one of the three covered shopping arcades in Brixton. It is an excerpt from the initial rejection letter to the application for the building's listing, which was eventually designated a Grade-II list in 2010 after a long community campaign. The justification for its final successful listing is the building's historical significance as a shopping and community *'heart'* for the post-war Afro-Caribbean immigrants that settled in Brixton.[3]

In extrapolation, one could argue that the phrase addresses sites of intangible heritage that are part of the urban and social transformations and not crystallised in specific times through their institutionalisation or monumentalisation. It introduces the argument that a listing designation in cases of buildings with primarily historic, -and less or no architectural- interest cannot preserve the aspects that attribute their significance[4] and therefore the reasons for their listing.

In the context of Brixton Village[5], the paper investigates a methodology for preserving these intangible elements of *atmosphere*, *ephemeral things* and *connection between community and place* as formed today, ten years after the building's listing, when arguably several transformations in character verify Historic England's argument. Understanding the controversial transformations of the city, the study attempts the construction of the building's present memory, by capturing the three aforementioned intangible components.[6]

The research uses the concept of the 'fragments' as a methodological tool in reading and understanding the space. It draws inspiration from Walter Benjamin's work on the *Arcades Project*[7] where he investigates the composition of an epoch and a city within history, by juxtaposing things that were normally found together. He 'draws' the portrait of the city as a collection of fragments.

The research questions defined are as follows:

1. How can Walter Benjamin's use of fragments be applied in a site of contemporary cultural heritage like Brixton Village as a tool for preserving its memory?
2. How can the intangible concepts of atmosphere, ephemeral things and connection between community and place be recorded, translated and transformed as fragments?

3. How can these fragments be composed and operate as a new whole that will form the constructed memory of the present?

'MEMORY IS BUILT'[8] IN FRAGMENTS

A memory construction but not a memorial

Aldo Rossi describes the city as a theatre of events. The theatre is no longer a representation; it is a reality. It absorbs events and feelings and every new event contains within it a memory of the past and a potential memory of the future.[9]

The creation of memory of a site not archaeologically established, but rather constantly transforming, opposes to the creation of a monument, memorial, city-museum, or archive centre. All these forms require an act of totalisation, despite the acknowledgement that this totalisation can only be partial, a fragment of the universal knowledge, described by Christine Boyer as *'the paradox of the museum'*[10].[11]

The regeneration of memory is limited when the lived experience of space is crystallised in a site frozen in time. Detaching the space of habitation from the flow of time reduces it to mere representation. This practice excludes any rewriting of memory.

However, memory is fluid and open to re-writings and so is the value attributed to the monument; shifting and under constant re-definition. Jacques Le Goff and Maurice Halbwachs share the idea that memory is not and cannot be universal. They recognised two types of history, one deriving from the collective memory and the other of the historians.[12] Unlike historiography, the collective memory does not have defined time limits and cannot be one but rather as many as the ever changing groups that form the community.[13]

Hence besides monuments memory is inscribed in space through the dynamics of active habitation. The improvised spaces of lived experience are open to the processing and re-writing of memory through death and regeneration, through memory and oblivion. Essentially, the creation and perpetuation of memory moves along the production of space, which is susceptible to specific, subjective methods, where the body and the subjective look are considered one. If we were to assume that transcribing memory in space comes as a natural progression of the existence and the movement of people, the practices of habitation that arise through human activity give rise to spaces of memory that survive, emerge and change. In light of this idea, the protection of cultural heritage in sites like Brixton Village emerges as a dynamic process, open to editing and re-writings.

Transcribing Benjamin

The research draws inspiration from *The Arcades Project* and specific observations on the use of fragments as a tool for approaching history and memory.[14] The *Arcades Project* introduces the use of collage in literature and is conceived as a unique dialectic medium of theorizing history and the city. The book is presented as a collection of fragments, quotations or notes and describes specific aspects of the city.[15] The relation between the memory construction and the methodology of fragments tested in this research, is already established through Benjamin's work and his definition of the *dialectic image*.[16]

Initially, the fragment composition is approached through a personal reading of the space, in a composition called *'Diary'*[17](

Fig. 7), which includes abstract sketches and models, accompanied by texts and notes.

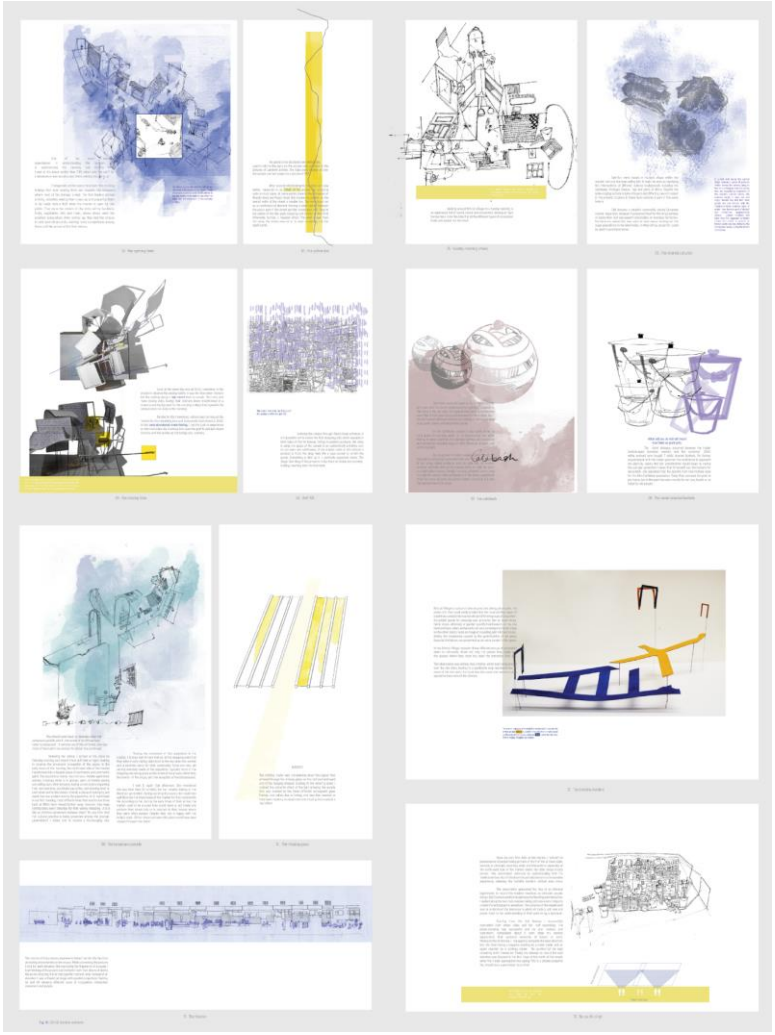

Fig. 7 The Diary collection as a personal reading of the arcade | Approaching Fragments (Source:Author)

Subsequently, a series of abstract drawings (Fig. 8) seeks to express the dynamic character of memory, the parallel operations and interactions within Brixton Village. In these architectural representations the abstract forms are overlaid with recognisable drawings, leading to dialectic forms of images. They enclose the capacity to consider a wide range of ideas simultaneously; a relational thinking of all the parts that compose the arcade.[18]

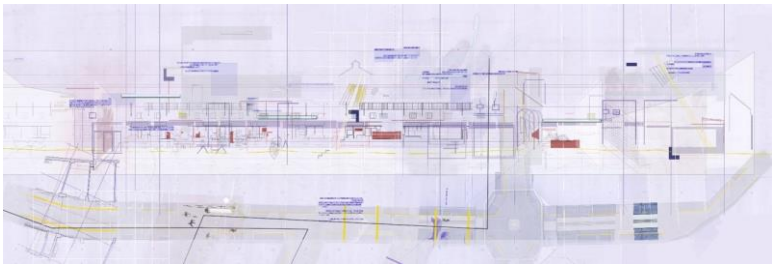

Fig. 8 Abstract Drawing that represents the arcade | Approaching Fragments (Source: Author)

Understanding the multiple potential readings and comprehensions one could adopt engaging with the *Arcades Project*, the present research focuses on specific observations that are in turn translated to set the objectives for the further analysis:

1. The book contains all the basic components of a city, concluding in three major themes: spaces of the city; cultures and events of the city; and specific human figures of the city. Respectively, the three intangible elements explored in this research are translated into spatial elements, cultural practices and personal stories.
2. Benjamin equally presents all the different scales and means in his constructed city, incorporating from the human to the urban, from the personal to the historical, from the treasures to the neglected, the ephemeral and discredited elements. Similarly, a multi-scale and multi-author approach is attempted with the use of different recording methods; the subjectivity of a diary, a picture or a sketch; the impartiality of a 'random' filming; the multiple subjectivities or the collectivity of the oral stories and interviews; they all equally have their place in the analysis.
3. The Arcades Project makes no distinction between what is fixed and permanent and what is transitory. Benjamin believes that rather everything is 'in continual process of discontinuous transformation'[19]. This avoidance of the definitive reflects the ambiguity and the openness of the work while it creates a discontinuity in the collection. Apart from the discontinuity, as Susan Buck-Morss discusses, he places great value on the decontextualization in his method, both to de-naturalize the particular features in view and to prevent their being reinserted into conventional, uncritical pictures of the world.[20] This aspect in Benjamin's thought is attempted with the translation, abstraction and transformation of the selected fragments, allowing them to acquire new meanings and forms.
4. The book explores the method of juxtaposition or montage of multiple and incompatible accounts of particular phenomena drawn from diverse sources. The overall image is well illustrated in George Dillon's words: *'The general look is of a set of notecards for a history about to be written'*.[21] This phrase summarises the aim of the present research's 'final' proposal, which opposes to the idea of 'final' and at the same time is not a proposal; rather a process of fragmenting the intangibles in the search of memory construction.

FRAGMENTING INTANGIBLES

Methodology of fragments

Following Benjamin's use of different types of fragments for the depiction of the city, each one of the three intangible elements is assigned with an appropriate recording methodology and consequently translated into a type of evidence. [22] For each of the three intangibles, the selection and recording of the evidences is followed by a process of fragmentation. Moments of fragments from the whole are detached from their environment, decontextualised, tested and transformed towards a more abstract representation. Consequently, the fragments constitute a new vocabulary, in the composition of which, the memory is constructed.

Atmosphere

The recording of the intangible concept of atmosphere is translated and explored into spatial fragments, attempting to use the material world of architectural language as a reference point. Photography being both a tool for digitalisation and a form of art, has a genuine power on not only recording the atmosphere of a place, but also creating it.[23]

The photographic study for the atmosphere of the arcade, which is found in materiality, decoration,

light, repetition, focused on six elements: dominating features of repetition (arches, roof glasses, windows and big industrial lamps), ordinary elements (cables and pipes for the electricity and water systems, shutters, gutters, boards and fire-extinguishers), hanging decorations and street materials (flags, banners, lamps, umbrellas and heaters, as well as the yellow lines that set the borders, out of which no goods should be displayed), facade frames, products and street equipment. [24]

The elements are initially detached from their context towards the openness to new meanings and consequently translated into 3-dimensional representations. The fragmentation process leads to the creation of a new vocabulary of spatial elements that carry the atmosphere within them. Materiality is homogenized and base coding is introduced as a way to inject meaning. The fragments are combined and tested in multiple compositions (Fig. 9).

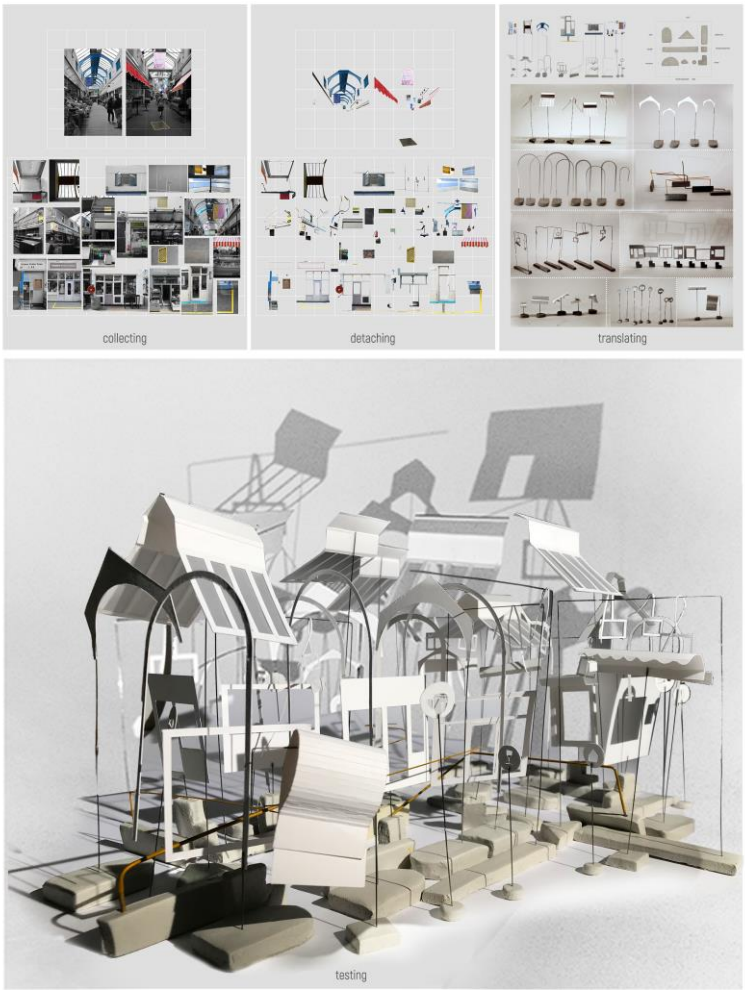

Fig. 9 Atmosphere | Testing – Spatial Fragments (Source: Author)

Ephemeral Things

For the ephemeral things, the reference point is time. Hence, film is used as a kind of recording the process of the temporal experiences and at the same time as a means that *broaden the sensory perception*[25]. The video recordings reflect the temporal relation between the present and the past. They

are proceeded in a way that opposes to cinematography, but approaches the documentary [26] creation, in the sense that the recordings are not pre-organised or pre-directed scenes.[27]

The creation of the film is considered as important as the final film itself. The process is an attempt to shift, as Stavros Stavrides describes, *from the city screen to the city scene*, or else from the habitation of the image to the theatricality of the habitation. [28] As Manoel de Oliveira suggested when directing Wim Wender's 'Lisbon Story' (1994), the director has to recognise in oneself the image of the wanderer, to understand the importance of time, to collect the most valuable elements and lost moments, to long for its memory.[29] Similarly, in the arcade's filming, the 'flaneur' described by Benjamin on the occasion of Baudelaire, is now giving way to the moving observer with the camera.

The filming is based on single shot experience of the wanderer. During his passage the ephemeral things appear and spontaneously emerge in front of the camera. The filming's duration is one full day of the market's life.[30] The shots taken are subsequently edited into 230 short scenes. These are all unique moments in the arcade's life, capturing subtle movements and everyday rituals, trading or other interactions and nods, traffic and absence, spontaneous reactions and organised processes. The moving images, despite the illusion of continuous flow and completeness that they create, are seen as nothing more than the making of a unique and unrepeatable film. The film fragments are initially organised in a linear way of continuity, each of them separated from the other, considering their own time and the place.

Following the process of fragmentation, the scenes are eventually presented using the method of multiple projection (Fig. 10). The overall image is an insight on the arcade's life with moments flashing on and off. This new juxtaposition and mixing, produces new relationships among the moments. The scenes are not placed in a chronological order any more, nor they preserve the spatial relationships among them or with the arcade.

Each scene, appearing in its own chronology and place on the screen creates a shorter or longer view on an incident, an interaction, a movement. It is impossible for someone to watch all the scenes on the final video. And it is almost impossible to watch the same film for a second time. This image of discontinuity, gaps, parallel scenes and incidents and at the same time the inability to have a detailed experience of the whole, resembles the experience of the arcade.

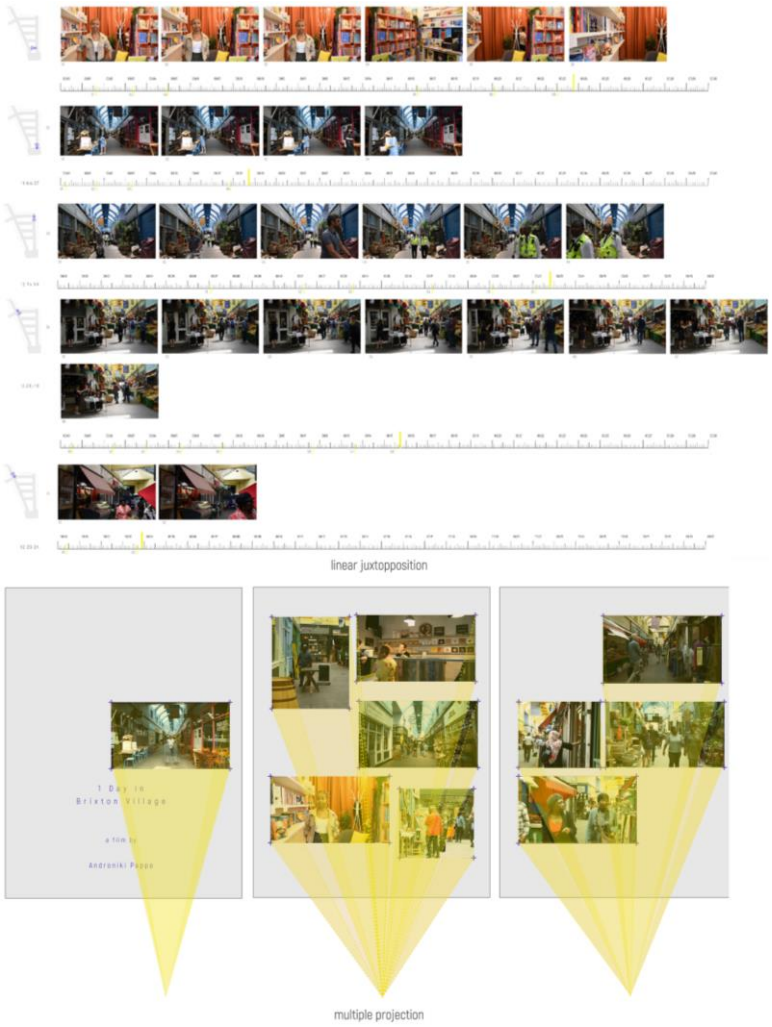

Fig. 10 Ephemeral Things | Detaching – Linear Juxtaposition of scenes (top) Multiple Projection (below) [31]

Connection between Community and Place

Undoubtedly, the Afro-Caribbean community that the initial quote refers to and that formed the community of Brixton Village back in the 1960s, has been a matter of change, following the urban and social transformations of the area. Today, Brixton Village is a community of complexities and still a form of constant change. It is formed of intersecting, yet contradictory elements of locality and globalisation, class and cultural capital, gentrification and homogenization. The identity of this community is tied to the agenda of the management company in operation at the time, to the historic cultural site, to the long and turbulent history of the area, to the flux of 'tourists in their own city', to the market stalls and Starbucks right outside.[32] Debating over the regeneration processes that took place in the area over the last years, which are broadly translated as a gentrification phenomenon, one could argue that there is an evident shift from a community focal point that the arcade once was, to a touristic place of consumption[33]. However, this approach is rather simplistic, eliminating any idea of community and social belonging that possibly reside within the place; both as a remnant from the past and as a new form.

Acknowledging the multiple paces that coexist within the market, oral stories are chosen as the tool to overcome a possibly subjective look on the recording of this multilayer community. The interviews aim

at the spontaneous answers on the question ‘What does Brixton Village mean to you?’. The participants, both traders and customers, are given the choice of a video or voice recording. Complementary, a noteboard with the same question emerged as a ground of anonymity that encourage more people to place their personal stories.

The collection of the oral stories is initially organised in a book of oral evidences. Following a process of fragmentation the transcription of this group of evidence resulted in four categories of phrases-fragments that express the multiple subjectivities of the participants (*Fig. 11*).

detaching

Categories of Phrases declaring	Subject	Characteristics	Examples
a personal relationship with the place	traders, customers	mainly expressed using the pronoun ‘I’	*‘I didn’t come here as a customer, I was just coming to do my job’.* *‘I try and support the local businesses as much as I can, instead of going to the supermarket’.*
a sense of belonging (or not) among the traders	traders	mainly expressed using the pronouns ‘we’ and ‘they’ (when referring to customers)	*‘Everyone wanted to make it work’.* *‘It wasn’t about having a shop. The community is magic’.* *‘There is a separation. There is old and new’.*
a connection of the customers among them, with the traders or the place	customers	mainly expressed using the pronouns ‘I’, ‘we’	*‘I’ve spent all my life shopping here. My family shops here. My friends shop here. I know these guys for a lifetime’.* *‘We built this market’.* *‘Many of the old customers went back or died. Some of their children are still here’.*
a sense of belonging that is attributed to the place; or else a power of the place to generate community	traders, customers	mainly expressed using the phrase ‘this place’	*‘This place is magic and I wanted to be part of this’.* *‘The place is amazing. The atmosphere is great. Everyone is united despite the differences’.*

translating

Fig. 11 Connection Between Community and Place | Detaching & Translating – Oral Stories Analysis (Source: Author)

The Composition of Fragments

With the introduction of memory into the object, the object comes to embody both an idea of itself and a memory of a former self.[34]

The system takes form into a human-scale sized piece that returns on site as a new dialectic image (**Error! Reference source not found.**). The composition attempts to incorporate all the fragment types, together with the transcription of knowledge, produced by the subjective experience of the fragments.

The form and function of the piece emerges as a dynamic, ever editable, engaging experience of instances and discontinuities. The characteristics of the components and hence the constructed memory as approached so far, is a multilayer and multimedia system, encouraging the multi-subjectivities to emerge.

The process of recording, detaching, decontextualization and creation of the three types of fragments lead to the constitution of a new vocabulary that are translated into pieces of a toolbox. These fragments are to become the abstract components in the construction of the present memory of the place. Their composition in a new form finalises this methodological exercise.

The user is encouraged to move them on the base, juxtapose, rotate and override them, creating relationships among same or different types of fragments. In this sense, any possible story can be written and any possible moment can be described.

Hence the piece, approaching the idea of a work of art rather than a design proposal, serves as a ground for different subjectivities to engage and transform its image. Each one of these subjectivities can be the audience, the author or the curator of the scene assigning a threefold role in the object.

CONCLUSION

Memory is an integral toll of identity formation and self-image construction. For both individual and collective entities, past and memory are constructed to serve the needs of the present, but also to build a vision for the future.[35]

The paper embarks on a methodological attempt to construct the present memory of Brixton Village. The building's existence, like other sites of living cultural or ordinary heritage, is not crystallised in specific moments or periods in time. Therefore, its listing cannot assure the preservation of the practices within it that inform their intangible heritage.

The project is driven by a personal commitment to understand the poetics, the cultural connections and the social relations of the space, through firstly recording and then exposing substances that are sometimes hidden in plain sight, that are in one way very ordinary but also quite extraordinary and contain multiple histories. The outcome does not inform a design solution as such, but a methodology that allows us to consider solutions that are more caring to the cultural particularities of listed buildings. It offers a method to include cultural memories as design features which rather than being mere archival elements can furtherly morph design solutions that are inclusive of the true heritage of listed buildings. Hence, despite being a site specific exercise, it points towards the importance of a cross-discipline and critical engagement with different layers when it comes to dealing with historic environments. It claims that the development of new technologies or the creative use of existing methodologies can offer a new sight on significant sites like Brixton Village and expose their intangible heritage towards the direction of an engaged heritage urbanism[36].

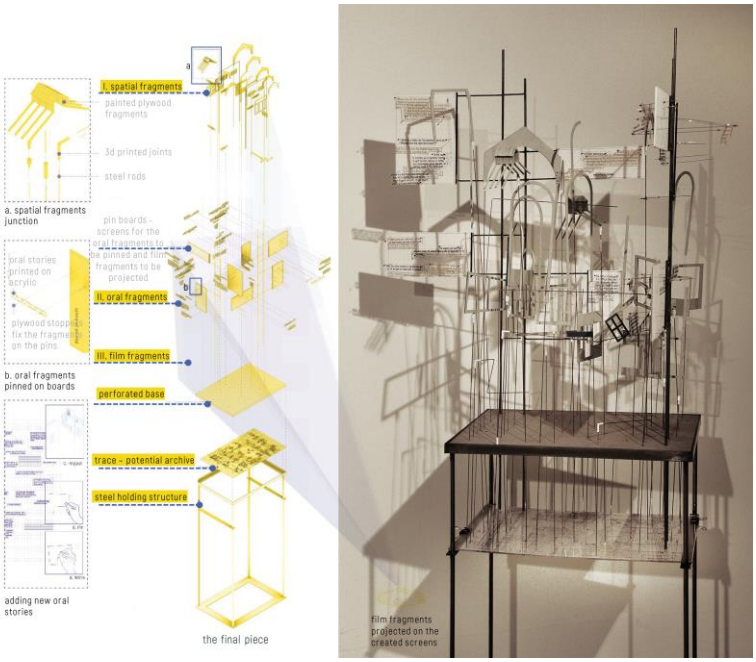

Fig. 12 Composition | The Object (Source: Author)

NOTES

[1] Historic England, Listing, [Listing Application File], Department for Digital, Culture, Media & Sport. Social and Historic Significance Report (London Associated Properties PLC, London, 2008).
[2] The building was designed by Alfred and Vincent Burr and built in 1937. It was initially named Grandville Arcade and has been designated a Grade II list in 2010 (List Entry Number 1393881).
[3] Historic England. Brixton Markets - Reliance Arcade, Market Row and Granville Arcade (Brixton Village), Lambeth - 1393881 [Online]. 2010. Https://Historicengland.Org.Uk/Listing/The-List/Listentry/1393881. [Accessed 09 Jul. 2019].
[4] *'Significance'* is defined in the National Planning Policy Framework (NPPF) as 'the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting'. The English Heritage 'Planning for the Historic Environment Practice Guide' – as 'the sum of its architectural, historic, artistic or archaeological interest'.
[5] For the history of Brixton and Brixton Village see Alan Piper, Bill Linskey. Brixton Market, A Heritage Walk. publ. 2nd ed. London: The Brixton Society, 2014. Also Shuhei Okada, Transformation of spaces and places in inner cities: the case of gentrification in Brixton since the riot in 1981. Thesis. (PhD). Royal Holloway, University of London, 2011. Also Sheila Patterson, *Dark strangers: a sociological study of the absorption of a recent West Indian migrant group in Brixton*, South London. London: Tavistock Publications. 1963.
[6] Yet, it does not inform a preservation design solution, nor expresses a nostalgia for the building's past.
[7] The Arcades Project is a monumental project in the form of an encyclopedia, on which Benjamin worked for 13 years, from 1927 until his death in 1940.
[8] "Leading architect Daniel Libeskind talks on how buildings are associated with commemoration - Oxford Brookes University", *Brookes.ac.uk*, (Oxford University, 2020)
[9] Aldo Rossi, *The Architecture Of The City* (London: MIT Press, 1982).
[10] M. Christine Boyer, *The City Of Collective Memory* (Cambridge, Mass.: MIT Press, 1996).
[11] In the institutionalisation of the work of art or the curation of memory in the museum, resides a fiction that the receiver or spectator will build up the voids and gaps in this imagined totality. *'By asking that a fragment stands in for the whole or that a set of series produce adequate representation of the history of art, it demands that the spectator cover over the voids left out of the imagined totality. Thus the paradox becomes apparent as it is acknowledged that the museum may be at best only a memory device based on fictional images drawn up by museum directors, art historians, archaeologists and antiquarians'*, as Eugenio Donato explains.
Eugenio Donato, 'The museum's furnace: Notes towards a contextual reading of Bouvard and Pecuchet', in *Textual Strategies: Perspectives in Post-Structuralist Criticism*., ed. J.V. Harari (Ithaka: Cornell University Press, 1979). 213-238.
[12] The former relates to the experience of the present and the past and the latter aims to be explanative and follow the truth in an objective way. For Le Goff, no historian can entirely eliminate the subjectivity of his present when writing history.
Jacques Le Goff, 'Memory', in *History and Memory*, trans. Steven Rendall, S., Claman, E. (New York, Columbia University Press, 1992): 55-91
[13] Maurice Halbwachs, Lewis A. Coser. *On collective memory.* (Chicago: University of Chicago Press, n.d.)
[14] Writing in the late 19th and early 20th century, Benjamin believes that 19th century metropolis is characterised by a deep memory loss. His present is awakened from the phantasmagorical spell of 19th century images that still dazzle and control memory. As 'history' seems to be composed of these snapshots, not narratives or stories, he uses them as a tool to awaken the memory. As Boyer states, 'a voyage into the deep structure of these memory images must precede reawakening'.
M. Christine Boyer, The City Of Collective Memory (Cambridge, Mass.: MIT Press, 1996).
[15] Each one of the 36 'convolutes' is catalogued in capital letters A-Z, supplementary files, organised in lower case letters and accompanying essays. The arcades (passages) used in the title of the project is an organising motif. Eleni Axioti, The Arcades Project: The City Collage of Walter Benjamin. PhD. (History and Theory of Architecture, Architectural Association School of Architecture, London, U.K. n.d.).
[16] Benjamin conceives historical time as *'kaleidoscopic distractions and momentary comebacks'* and aims to restore historical memory in opposition to historicism. Concretising his concept of history, he defines what in his

theses he calls the *'wahre Bild den Verganenheit'* (true image of the past), as a dialectical image bringing together the demands of both the present and the past. According to Marc de Wilde the dialectical image is understood as a medium of remembrance, grasping the image of the past where it suddenly appears involuntarily. It eludes subjective intention; it flashes up in an instant; it is fragmented and isolated from its original context; it suggests the presence of the past, yet infinitely shortened and condensed into an image. This dialectical image, however, does not restore the past in its original state, with its limits and illusions, but rather juxtaposes it with the present, seeking to activate its critical potential.
Marc De Wild, 'Benjamin's Politics of Remembrance', in *A Companion to the Works of Walter Benjamin*. ed. R. J. Goebel. (Boydell & Brewer, Camden House, 2009).
See also Burkhardt Lindner and Carol B. Ludtke. The Passagen-Werk, the Berliner Kindheit, and the Archaeology of the "Recent Past". In *New German Critique*, 1986. (39) pp.25-46.

[17] The *Diary* is composed as a collection of 'moments' as experienced in the early visits on site, each one recorded after each visit. Following the idea of the collection of fragments, the Diary consists of multiple scales, subjects and types of representation. It does not intent to create a continuity, but rather become a spontaneous representation of the Brixton Village experience. The collection is therefore a personal reading of the space, human figures and habits. The moments are: The opening time, The yellow line, The Jamaican parade, The invisible borders, Sunday morning chaos, The vinegar smell, Tiling up, The shared cultures, The Calabash, The seven enamel buckets, The screen, No publicity! and The closing time.

[18] The drawings despite their dynamic character, could be read as random moments in the arcade's life that existed, could have existed, exist or will exist like a glimpse. They are formed by gaps and discontinuities, incorporating Benjamin's idea on the image of the city.

[19] Walter Benjamin. *The Arcades Project*. tr. Eiland, H., McLaugilin, K. (New York: Harvard University Press, 2002).

[20] Susan Buck-Morss, *The Dialectics Of Seeing: Walter Benjamin and the Arcades Project.* (Cambridge, Mass.: MIT Press, 1989).

[21] George Dillon, "Montage/Critique:Another Way Of Writing Social History", *Pmc.Iath.Virginia.Edu*, 2004, http://pmc.iath.virginia.edu/issue.104/14.2dillon.html.

[22] *Atmosphere* is recorded through photography and translated into spatial evidences, *ephemeral things* are recorded through documentary filming and translated into time evidences and *connection between community and place* is recorded through interview and translated into oral stories.

[23] Benjamin himself has well explained the power of photography as a recording and reproduction tool. However, within the research, photography is only used as a starting point for the analysis of the spatial pieces. It is intended to record the elements as neutrally as possible, with no intention in creating the atmosphere.

[24] Starting with photography as a recording tool, the work of Sophie Calle and particularly her project '*The Hotel'*, (1981) was an inspiration for the way that she composed her collection. In the project, which was about a hotel's rooms, she constructed a photographic album containing each of the 21 rooms as a composition of the dominating element, the bed, spatial features of significance in her narrative and belongings of the room users.
Sophie Calle, and Christine Macel. *Sophie Calle, M'as-Tu Vue*. (Munich: Prestel, 2003).

[25] K. Chatzifragkios Makridakis, ''CINEMA DOCUMENTATION AND ARCHITECTURE'', In *SUSTAIBABLE DEVELOPMENT, CULTURE, TRADITIONS*, 2017. 1a, Pp.59-75.

[26] The documentary is according to Dai Vaughan, *"A handmade tool for the interpretation of reality",* a project that: is cinema, is inspired and borrows directly from reality, produces its own creative interpretation of reality, actively converses with its viewers.
Dai Vaughan, *For Documentary* (Berkeley: University of California Press, 1999).

[27] See Vincent Charvillat, Anna Tonazzini, Luc Van Gooll, and Nikos Nikolaidis, 'Image and Video Processing for Cultural Heritage' In *EURASIP Journal on Image and Video Processing*, 2009:1-3.

[28] Stavros Stavrides, *From city screen to city scene*. (Athens: Ellinika Grammata, 2002).

[29] *"Therefore, this world, in this case is an illusion. The one and only reality is memory. However memory is an invention. […] in the cinema, the camera can capture the moment. But this moment has already passed. What cinema does is to outline the moment. We are, no longer sure that this moment has ever existed beyond the film or that the film demonstrates that this time ever existed"*
Manoel De Oliveira - Lisbon Story, video, 2011, https://www.youtube.com/watch?v=u4K79D0xAa0.

[30] The full day filming includes early-morning and late-night shots, when the market is not open to the public, resulting in a 5-hour material of uncut recordings.

[31] See the final film '1 Day in Brixton Village', in https://vimeo.com/359479779, produced by the author.

[32] See Sarah Jaffray, Community Capital: A Theoretical Case Study of Brixton's Granville Arcade. Thesis. (MA). (Cultural Studies, University of London, 2013).

https://www.academia.edu/5788707/Community_Capital_A_Theoretical_Case_Study_of_Brixtons_Granville_Arcade

[33] See the most recent recorded footfall that demonstrates the habits of the market's visitors.

[34] Aldo Rossi, *The Architecture Of The City* (London: MIT Press, 1982).

[35] Jacques Le Goff, 'Memory', in *History and Memory*, trans. Steven Rendall, S., Claman, E. (New York, Columbia University Press, 1992: 55-91)

[36] This phrase is inspired by the book *Engaged Urbanism: Cities and Methodologies* by Ben Campkin and Ger Duijzings. Working across an array of academic or professional disciplines and practices, including anthropology, architecture, architectural history, fine art, live art, engineering, film-making, geography, graphic design, photography and urban planning, the book is a compendium of projects and texts that present innovative and experimental methodologies designed by academics, artists, activists and others to produce new knowledge about cities.

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HIGHLIGHTING ARCHITECTURAL HERITAGE THROUGH LIGHTING TECHNOLOGY

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INTRODUCTION

The image of the city at night can add value to its visual urban identity, highlighting the architectural heritage through lighting technology. This paper aims to investigate the different lighting design approaches of historic buildings and the respective results on the urban environment. The methodology is based on the appreciation of the architectural context within the urban environment during the night. It focuses on the sense of imageability[1] that is created to people, and the highlighting of the most important elements of a city which are the historic buildings. The analysis will focus both on the buildings and their surrounding areas as two intertwined elements that need to co-exist. All the above mentioned will be analysed through the lighting design techniques used in various case studies. The study will go even further in order to investigate the relationship between lighting design techniques and the technologies used on the highlighting of historic buildings that provide both social and economic benefits along with cultural development.

Today the lighting technology is developing rapidly and there is a wide variety of lighting design techniques that are used for the highlighting of the historic buildings. These techniques can be divided in two main categories; the *static* and the *dynamic* approach. The *static* approach includes all the techniques that provide a constant image of the illuminated building. The final result is a monochromatic lighting effect that highlights the architecture of the building and its special features. The *dynamic* approach, on the other hand, consists of the techniques that provide a constant change of the illuminated image of the building. This could be achieved either by color changing lighting provided by a fixed installation or with projection mapping technology created by a temporary installation.

The research concludes that a *static* lighting design most commonly results to the enhancement of the architectural heritage promoting the historic character of the city. The *dynamic* lighting design results to the enhancement of the new technologies promoting the contemporary character of the city. Both of the approaches might lead to positive or negative effects and the outcome of the research could be used as a design tool for improving the role of historic buildings in the urban nightscape.

THE IMAGE OF THE CITY IN THE URBAN NIGHTSCAPE

The image of the city derives from multiple factors. Geographical location and ecological environment, the architecture and history along with the local culture, the modern way of life and the new buildings, are the factors that compose the physical heritage of a city and form its modern image.

This image is constantly participating in a dynamic process which combines everyday's regional factors along with globalisation's multi-dimensional conditions. The result is that the final users of the city are not only the inhabitants but also foreign citizens, such as tourists or business visitors. All these users live within the historic and modern parts of the city and perceive the image of the city scape. This procedure of perception can become more intense during the night, where the absence of daylight and the use of artificial lighting can make important buildings and areas to stand out, while others to be kept in the dark.

From all the above mentioned, it becomes obvious that the image of the city at night can have its own atmosphere, reflected on illuminated buildings and urban spaces. More specific, the meaning of the visual urban identity is created by the urban night lighting especially on landmarks such as historic buildings. It could be said that the urban nightscape is a dark canvas where historic buildings are the elements that form the cultural identification of the city.[2]

Imageability and history of the city

According to Lynch "imageability is that quality in a physical object which gives it a high probability of evoking a strong image in any given observer".[3] After this theory, many researches connecting space with history and society have tried to add meaning to this concept. All of them conclude that apart from the physical characteristics, there are some important quality factors that relate to culture, history and society and form the image of the city.[4]

Historic buildings constitute the main visible element of architectural heritage in every city. During the night, a successful façade lighting scheme has the ability to draw the attention of people by creating an interesting visual experience, providing a sense of orientation and security in the urban nightscape and at the same time raising awareness for their preservation.

The era when light was merely a means of conventional visual contact has passed, since a new period of visual experiences has arrived and now the role of lighting is a faithful rendering imitation of new image production and new depiction of things around us. Therefore, lighting emerges as a means of expression, glamour of culture and recognition of human creations, highlighting timeless and unique values. Urban lighting has both social and economic benefit, but it also has high artistic value transforming the illuminated city into a magical urban context during the night.

All the above-mentioned factors have one principal, the perception of the observer.[5] It is obvious that each observer creates his own image for the city depending on his experiences, needs and expectations. The tourists are longing to collect as much information as possible, by observing buildings and living new experiences within the city. On the other hand, the inhabitants that already live in the city have created an impression according to their everyday life and knowledge for their living environment. This environment could adopt new ways of activities and meanings depending on the needs and development of the society that affect the overall atmosphere of the city.

Apart from the benefits to the viewer, the highlighting of a building's façade could bring added value to the historic building itself by transforming it to a treasured landmark, complementing its structure's shape, colouration and form and at the same time enhancing the historicity of the city. The urban nightscape becomes a dynamic visual field through lighting where new social and economic parameters could take place. The lighting of monuments creates interesting and sometimes mysterious images

during the night. This way, the city becomes attractive for the people and may be considered as an open-ended system that comprises a continuous development depicted on its image.

HISTORIC BUILDING'S HIGHLIGHTING TECHNIQUES

A basic principle that must be observed when designing lighting of historic architecture is the notion that each building is unique. This requires a detailed analysis so as the final result to create an interesting image of the building and also retain its unique character. The observer is the final receiver of each lighting application, so the first thing to be configured is the design statement that should be communicated regarding the architecture of the building and the immediate surroundings. In our days, where the lighting technology is developing rapidly, there is a wide variety of lighting design techniques that are used for the highlighting of the historic buildings. These techniques can be divided in two main categories; the *static* and the *dynamic* approach.

Static lighting design approach

The *static* approach includes all the techniques that provide a constant image to the illuminated building. The final result is a monochromatic lighting effect that highlights the architecture of the building and its special features. The *static* approach is more conventional, as it provides a fixed image of the building highlighted. Two main design directions could characterise this approach regarding the techniques used.
Flood lighting is a common technique which has been used in order to illuminate large buildings and monuments. It results to a uniform illumination emphasising the size of the building providing a wide wash of light to all surfaces and features. To create such kind of lighting, large-wattage projectors are positioned in a certain distance from the façade. For this reason, it is ideal for areas with low traffic such as monumental structures or castles away from the urban centers.
The **architectural lighting** design approach focuses on highlighting specific elements of the architectural features of the building's façade in order to increase originality of the structure. In this case more lighting design techniques can be used according to the design of the building, such as accent lighting for the special features, uplighting of columns, silhouetting window openings, grazing for textured surfaces, wallwashing for plain surfaces and many more. In order to create such effects, smaller light fittings are used mainly mounted on the building surfaces, with a wide range of wattage and lenses or colours suitable for the illumination of various elements and shapes. Nowadays, LED technology is used in the majority of such applications as it provides the designers with a variety of white tones and colours that could be used according to the design needs.

Dynamic lighting design approach

The *dynamic* approach, on the other hand, consists of the techniques that provide a continuous change to the illuminated image of the building. These techniques can create colour changing images provided by a fixed installation, projection mapping usually as a temporary installation or video wall. The *dynamic* is the most recent lighting approach that is used in the late decades as it needs a high technology equipment of LED luminaires and control systems in order to manage the constant change of image that is being presented.
C**olour changing images** technique uses all the available lighting design techniques of the *static* approach by using LED technology with high quality control systems in order to provide with the changing image. Different scenarios can be created presenting a variety of white colour tones or RGB colour changing images. If *dynamic* approach is applied, then the image that is perceived by people is

constantly changing over the period of an evening, a week or a longer period of time.[6] Therefore, each time someone visits the building he could see a completely different image.

Projection mapping also makes use of new technology light fixtures in order to produce projected images or moving patterns. Using a control system with flexible settings and high technology projectors a whole video could be projected on the facade. Projection mapping is ideal for special occasions and celebrations as it draws the attention of people and has the ability to transform the historic building's façade into a big screen.[7]

CASE STUDIES USING DIFFERENT LIGHTING DESIGN TECHNIQUES

In order to draw conclusions about the theory presented above, a critical analysis on the lighting effects and the image perception produced on various historic buildings took place. Specifically, using aerial and ground-level photographs or on-site observation of each project, their contribution on the nocturnal image of the city is analysed according to three main axes:

A. Their role in the city, meaning their significance and symbolism depending on their modern use and historical value,

B. Their relation with the surrounding environment,

C. The lighting technique used on each façade, the respective effect on the perception of the observer and the contribution on the imageability of the city.

Castel Sant' Angelo

Castel Sant'Angelo was initially built by the Roman Emperor Hadrian as a mausoleum, and later used by the popes as a fortress and castle.[8] Nowadays is a museum and is considered as one of the most popular touristic landmarks in the Italian capital. It is located in a prominent position in the waterfront of the historic city of Rome, on a short distance from the Vatican City. It used to be the tallest building of the city with no other buildings around it. Its cylindrical shape and magnificence, makes it stand out of its surrounding area. It holds an important role in the visual filed of the visitor while crossing the main historic bridge of the river.

New floodlights are positioned along the side of the Castle creating a warm white effect highlighting its beauty, while the bridge with the statues is lit by cool white colour, creating an interesting contrast that enhances even more the importance of this historic monument. Lighting of both the castle and the bridge creates a mirroring effect on the water, providing added value to its night time image. The final effect is a prevailing illuminated castle in the dark sky at the edge of the historic city enhancing the significance of the historic Roman Empire.

Fig. 1 Castel Sant' Angelo, Rome, Italy

Regent Street

Regent Street is one of the world's most famous shopping destinations. It consists of listed buildings that have the same architectural features, all share Portland stone facades and cornice heights at the same level.[9] Situated in the city center of London, Regent Street's detached buildings create a uniform and compact image in the urban environment, which is unique and characteristic of the London's architecture.

Since Regent Street is a symbolic boulevard of the city, its lighting was designed as a single coherent scheme applied to all façades and all the return façades in the adjoining streets, that would emphasise the quality of the architecture of the whole area. The main colour used is warm white for the highlighting of architectural features, while cool white was used to add depth and definition. The final result is a unified lighting effect enhancing the perspective of the road in people's visual field. This effect provides a symbolic image to the image of the city of London.

Fig. 2 Regent Street, London, UK

San Diego County Administration Building

The County Administration Center has stood on the San Diego bay since 1938, having a welcoming role for residents and visitors of the city. This grand building became the symbol for the highest aspirations and ideals of public service. It is considered as "The Jewel of the Bay"[10] and stands as a statement in the seaside region, surrounded by wide open space. During the night, it becomes the ultimate landmark of the boulevard not only because of its big scale related to the surrounding buildings,

but also because of the successful lighting scheme that highlights this majestic Spanish Beaux-Art Revival-style architecture.[11]

The lighting scheme is characterised by a clean aesthetic style highlighting the vertical elements of the facade. RGBW LED light fittings were used to gain several benefits including energy efficiency, reduced maintenance and easy color changes accomplished through programming. The final effect is a prominent illuminated building that reflects the spirit of America.

Fig. 3 San Diego County Administration Building, USA

Wellcome Trust – London

During the last century, the Wellcome Trust Organisation houses its headquarters in a neo-classical building facing one of the London's busiest traffic arteries, Euston Street. Taking into account that the organisation is considered one of the wealthiest charitable foundation in the world and the UK's largest provider in research,[12] this building reflects the overall English funding mentality. The historic building is located in an area where the majority of the buildings are modern. The contrast with the adjoining glass and steel building enhances the significance of its architectural heritage. The Trust aimed to enhance the public role of the organisation with the latest refurbishment and the illumination of the facade.[13]

White light was used to highlight the vertical architectural features with an overall dramatic effect. During special days and events, the façade is washed by changing colours. This *dynamic* effect creates a strong connection with the passers-by and at the same time it communicates messages of the research-charity organisation related to the human and animal health.

Fig. 4 Wellcome Trust Building, London, UK

The Hellenic Parliament

The Hellenic parliament is housed in the Old Royal Palace overlooking the central square of Athens. Through the years, it became the symbol of democracy becoming one of the most popular landmarks of the city. A lot of official events take place in the exterior space and unfortunately a lot of protests

that occasionally cause negative situations, resulting to a controversial role of the building staggering the image of the city center. The Hellenic parliament is located near the National Garden and above the historic square of Syntagma facing a central highway, surrounded by historic hotels and administrative buildings in the area. However, the Parliament building is the monopoly at the view of the Athenian sky because of its big scale and its perimetric open landscape area.

The everyday lighting scheme aims to highlight the grandiosity of the building with wallwash floodlights, while the vertical architectural elements of the windows are lit with narrow beam spots. Apart from this concept, the facade, has hosted projections with colors and symbols on special days such as international day of breast cancer, fight against the HIV or Proud Parade festival colors. During the Christmas 2020 festive celebrations, a 3D video mapping was projected on the façade bringing the seasonal magic through technology. All these different projection mapping events demonstrate a wide variety of social ideas and become proof of the democratic ideas of this symbolic building.

Fig. 5 The Hellenic Parliament, Athens, Greece

RESULTS AND CONCLUSIONS

	Project	*Design*	*Results of Lighting Effect*	
Static lighting approach	Castel Sant' Angelo	Floodlighting	Historic Symbol	**Enhance historic architecture**
	Regent Street	Architectural Lighting Design	Historic Architecture	
Dynamic lighting approach	San Diego Administrative Building	Dynamic Architectural design	National spirit	**Social messages communicated through Technologies**
	Wellcome Trust Foundation	Dynamic Architectural design	Public health and funding	
	Hellenic Parliament	Projection mapping	Democracy through social messages	

Table 1. Case studies' summary results

Table 1 shows that the projects that are illuminated with a *static* approach lighting techniques enhance the historic architecture. Specifically, the lighting of Castel d' Angelo reflects the historical significance of the building, while Regent Street highlights local architectural heritage. On the other hand, *dynamic* lighting techniques create a more impressive effect and can promote different social messages through colours and shapes. Principles concerning nationality, health and social values could easily perceived

through the illumination of important historic buildings. In this case the historic building becomes a powerful means for conveying social messages to people through technology.

Historic buildings are significant for the visual urban identity which forms the imageability of each city. State authorities or private owners of this type of architectural heritage should ensure that a good lighting design is achieved in order to establish the image of each city at night.[14] At the same time, the highlighting of historic buildings at night is a major factor for enhancing night-time use and orientation in order to benefit tourism and local economy.[15] Also, the cultural values, authenticity and integrity of each city are protected incorporating new lighting technologies in order to augment urban space's quality and inspire people. Specifically, when using *static* lighting the historic building highlights the historicity of the city, while when using *dynamic* lighting, somehow the historic building is integrated to the evolution of the modern city.[16] A holistic approach in all historic buildings in a city could be a good tool for City marketing resulting in a harmonious design of the city's centres or urban quarters.

IMAGE REFERENCES

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Image by Michael Siebert from Pixabay. Accessed November 15, 2020.
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Fig. 5 The Hellenic Parliament, Athens, Greece,
https://www.picfair.com/pics/05414159-parliament-syntagma-square-athens-greece, https://amuse.gr/, Accessed May 20, 2020. Photo credits: amuse

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[4] Rully Damayanti and Florian Kossak, "*Extending Kevin Lynch's concept of imageability in third space reading; case study of Kampungs, Surabaya–Indonesia"* Journal Agent, ITU A|Z, Vol 13 No 1 (March 2016), DOI: 10.5505/itujfa.2016.36349.
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[8] "Caste Sant Angelo," accessed May 12, 2020, https://www.castelsantangelo.com/storia-del-castello.html.
[9] "Regent Street Masterplan", Studio 29 Lighting, accessed May 12, 2020, https://studio29lighting.com/portfolio/regent-street/.
[10] "Bridging the Centuries: The Jewel on the Bay", San Diego County, accessed May 15, 2020, https://www.sandiegocounty.gov/content/sdc/cob/cacs/history.html.
[11] "San Diego Administration Center," accessed May 15, 2020, https://en.wikipedia.org/wiki/San_Diego_County_Administration_Center.
[12] "Wellcome Trust," accessed May 15, 2020, https://en.wikipedia.org/wiki/Wellcome_Trust.
[13] https://www.archdaily.com/642210/wellcome-collection-london-transformation-wilkinson-eyre-architects
[14] Myrsini Kopanari, Hara Sigala, Christina Skandali, "Urban lighting in historic settlements: from quality lighting to cultural reinforcement", Second Balkan Light Junior Conference (2019), https://doi.org/10.1109/BLJ.2019.8883628, https://ieeexplore.ieee.org/xpl/conhome/8879599/proceeding.
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GARGANTA LA OLLA: THE LIVES OF WOMEN AND THEIR FAMILIES IN 18TH CENTURY SPAIN

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In Winter 2021, the Center for Family History and Genealogy at Brigham Young University will add to its websites[1] a new project titled **Weavers, Washerwomen and Wenches: Life and Family in an Eighteenth-Century Rural Spanish Village**. As with all public history, this website's commitment is to make family history relevant and useful to those learning about research in Spain, or about life in a small European villages during the 18th Century.[2] With that goal in mind, since 2005 faculty and students have worked in archives photographing documentation about the Spanish village of Garganta La Olla, extracting data from those documents and from parish records.

The goals of the Spanish Village Project are to:

1. Serve as a public history website, exposing users to 18th century life in a Spanish village;
2. Teach concepts that bring family history alive using geography, social history and material culture;
3. Act as a laboratory for teaching Spanish genealogical methodologies; and
4. Demonstrate how women in Garganta exercised significant legal and economic rights, played unique and key roles in maintaining village life, and found significant means of creative expression.

An interactive map of 18th century Garganta on the website home page features LIFE AS THEY KNEW IT with links to key public buildings and spaces and selected homes. Selections from numbers on the map include photos; descriptions of village locations and conditions taken from non-population schedules; wills, marriage and death inventories relating to families in specific Garganta homes; and descriptions of processions, fiestas, and other devotional activities.

A sidebar will give access to 1) databases of baptisms, marriages, and burials; 2) genealogical reconstitutions of 18th century families; 3) indexes to 18th century notarial records; 4) articles written by faculty members and students examining village life; and 5) articles of general interest treating topics relative to the history of Garganta and the Plasencia Diocese.

LIFE AS THEY KNEW IT

The village of Garganta La Olla is located in the Extremadura valley of La Vera about 41 kilometers northwest of Plasencia, described by a 17th century Spanish historian and genealogist as a "delightful and delicious Valley … not only one of the most fertile sites in Spain, but of all Europe … a prodigious and optimal performance of nature, [with]…calm airs and … a soft climate."[3] La Vera was a land of "free and independent men whose liberties were guaranteed by a *fuero*," granted in 1186 by Alphonso

VIII when Plasencia was founded. At that time lands were divided among the new Christian residents of the town in small lots, resulting in small land ownership which contrasted with large *latifundias* owned by the nobility and military orders in other parts of Extremadura.[4] In 1712, 400 residents lived in Garganta.[5] By 1753 the town had dropped to 314 inhabitants, of whom 121 were farmers.[6] The 1791 population, including women and children, had increased to 360 with two blacksmiths, a shoemaker, an architect and two notaries, as well as one doctor/surgeon and a druggist.[7]

A Walking Tour of the Streets of Garganta la Olla

The website will offer several "walking tours" of Garganta. According to a 1791 non-population schedule, the condition of the village streets was "of solidity and cleanliness, well cobblestoned, of a good width and the majority level. [E]ven though some are steep [they] are still accommodating[,] because the government has been most careful in their composition and cleanliness."[8]

Although the streets have changed, the centuries-old gathering places for men and women, as well as private domestic spaces dominated by women have not. Physical evidence of these places and spaces remains throughout Garganta.

Figure 7. Map of Garganta La Olla

Public Gathering Places

1. Chorrillo fountain

Entering Garganta from the Calle Chorrillo, named for the fountain from which the village women drew their water for drinking and cooking. Such fountains have been a traditional gathering place for women at least back into Biblical times.[9]

Figure 8. Chorrillo fountain

Continuing down the Calle Chorrillo a man might pass by returning from his labors in the fields, as in this photo taken in the 1980s. The only difference from this contemporary scene and the one 200 years earlier

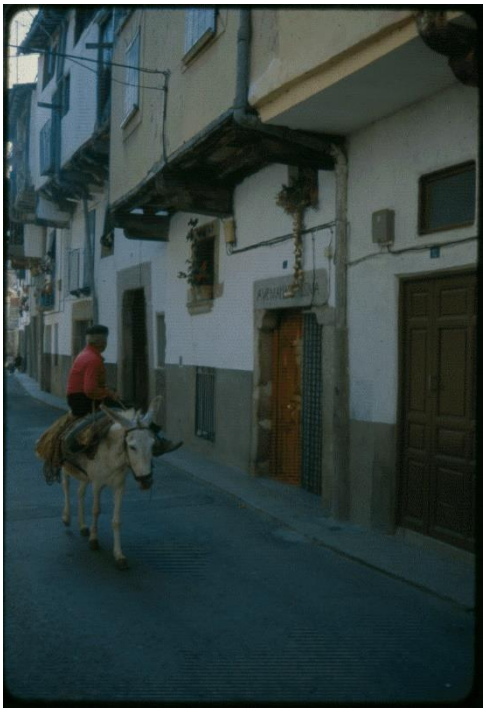

Figure 9. Man returning from the fields

would be that the 18th century agricultural worker would have worn traditional male clothing of baggy corduroy trousers, a white or grey loose shirt, vest without lapels, scarves of made of herbs knotted around his neck or tied at the waist, and a straw hat.[10]

2. Plaza Mayor

Continuing down the Calle Chorrillo, to the right of the entrance to the Plaza Mayor is the *Casa de la Muñeca,* traditional site of the town brothel. Local legend attributes its creation to the time of Charles V. In the 18th century the last madame died and willed the building to the local parish. [11]

Upon entering the Plaza Mayor, nearly any day of the year a group of men will be seated on the side, visiting among themselves in the afternoon sun.

Figure 10. Men sitting in the Plaza Mayor

The men traditionally gathered at the plaza where special events were held such as traditional bull fights and a running of the bulls as a way to demonstrate masculinity. This is also a place where the dance of the *Italianas* was staged. These annual dances were declared to be religious by the Diocese of Plasencia in 1654.[12]

Figure 11. Steps to the church of San Lorenzo

3. Plaza Portal and the church of San Lorenzo

After crossing the plaza, a climb of the twenty stone steps of the Calle de Grados leads to the Plaza Portal and church of San Lorenzo. The church portico and stone bench beneath it served as a gathering place before and after daily masses. Processions involving men and women started and finished from a second door.

Figure 12. Processional to the church

Figure 13. Bell tower of the church of San Lorenzo

Bells rang daily from the church bell tower, calling women and men for mass.[13] That same bell also called villagers for baptism, marriage, and funeral masses. The latter would have the slow cadence of the death knell. Throughout the year pilgrimages and processions regularly moved through the streets of Garganta showing a wide variety of religious devotions. Following a pilgrimage, the festivity would often be enlivened by eating music and dance.[14]

Primary School Literacy

A nearby gathering place for young boys was the primary school. The 1791 stated that only a few girls attended, as there was no female teacher, suggesting it would be "*útil*" to have one. The school was paid for by tuitions from the students' families, and an assessment from village residents[15]. Education in Garganta appears to have been more highly valued than in other parts of Castile, where illiteracy was as high as 85 or 90 percent[16].

5. Barrio de la Huerta Homes: Private Domestic Spaces of Popular Architecture

Figure 14. Calle Oscura

Going down from the church's bell tower and turning right at the Calle Llana, and then left down a narrow dark street called the Calle Oscura, the walking tour arrives at the Barrio de la Huerta, a long T-shaped plaza about 7 meters wide.

Figure 15. Drawing of the Barrio de la Huerta

In contrast to other streets less than two meters wide, the extra width of the Barrio de la Huerta offers greater light and air for their three-story homes, providing a better life for those living around its perimeter.[17] The street in front of the homes in a neighborhood such as this was a gathering place for women who, sitting in low chairs, made time for creativity and community Women can still be seen today sitting outside sewing, knitting, and embroidering, sharing gossip, support, and a general sense of belonging. While reminiscent of the men in the plaza, here the women's hands are busy creating textile works.[18]

Figure 16. Women embroidering outside their homes

To this point, the following families have been identified as living in the Barrio de la Huerta during the mid-1700s.

- Martin Curiel Barrado and Maria Sanchez
- Martin Ximenez de Thome
- Pedro Diaz and Theresa Sanchez
- Simon Martin Herrero and Ana Galinda

A continuing project goal is to identify as many family residences as possible.

Popular Architecture

The walking tour continues along streets lined by numerous homes, all of a similar historical building style which two Spanish architects, who studied the towns of La Vera (including Garganta) described using the term "popular architecture".

Popular architecture is architecture that man has made himself, in his home, for himself and on his own, not acting with the help of specialists but only with the collaboration of the community in which he lived, using the experience which tradition conveyed to them as an inheritance for that specific place. Life is defined by the characteristics of the houses here and the characteristics of the houses are defined by daily life.[19]

All homes are composed of the following elements:[20]

Planta Baja – Ground floor

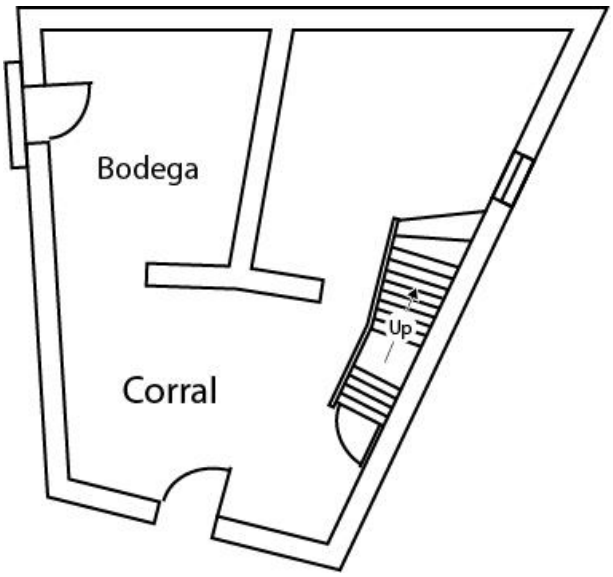

Figure 17. Planta Baja - Ground floor

Corral or Artisan's workshop

The ground floor was not devoted to residential usage. Until the mid-20th century, each night the farmer entered through the tall wide doors into the ground floor corral of his house, bringing his donkey and the tools he used to cultivate his small garden plot, vineyard and/or orchards outside the village. As the sun set the village goatherd, dressed in chaps and a brown lamb or goatskin jacket, released his goats at the edge of town and they found their way to those same corrals.[21]

If the home belonged to an artisan such as a cobbler or blacksmith, the ground floor was devoted to their shop. That shop was one where the traditional simple means of family production predominated, without a division of labor. A single *artesano* with the help of his family produced the final product from beginning to end. If the householder was a notary, doctor or the parish priest, the area labeled above as a corral or bodega would have been used for an office. A weaving loom would have been set up in this area as well. Unlike other towns in Extremadura, in Garganta the women—not men—were the weavers.[22]

The primary source of energy was human labor supplemented by domestic animals.[23] Water was the only other energy source but, unlike in most of Spain, was not controlled by privileged classes.[24] The *Catastro* of 1753 showed ten mill owners, all identified as villagers.[25]

Bodega (Storage room)

The farm produce of the householder was stored in *bodegas* located on all three floors. Wine, oil, water, and other liquids, as well as grains, were stores in *tinajas*, earthenware jugs ranging from 5 to 100 *arrobas* (1 *arroba* = 12 to 16 liters).

Steps and Lamps

Floors were connected by rustic but sturdy steps.

The homes were lit by "lamps" filled with locally pressed olive oil.

Figure 18. Steps leading to upper floors

Figure 19. Oil lamps

Planta Primera – First floor

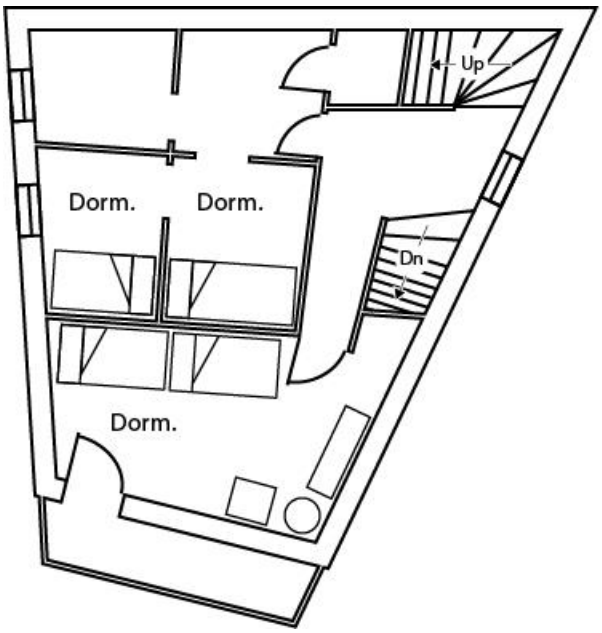

Figure 20. Planta Primera - First floor

The *dormitorios* (bedrooms) were furnished with locally crafted trunks and beds covered with hand-woven fabrics adorned by lacework and embroidery. Heat was generated by covered *braceros*.

Figure 21. Bed with locally crafted linens

Planta Segunda – Second floor

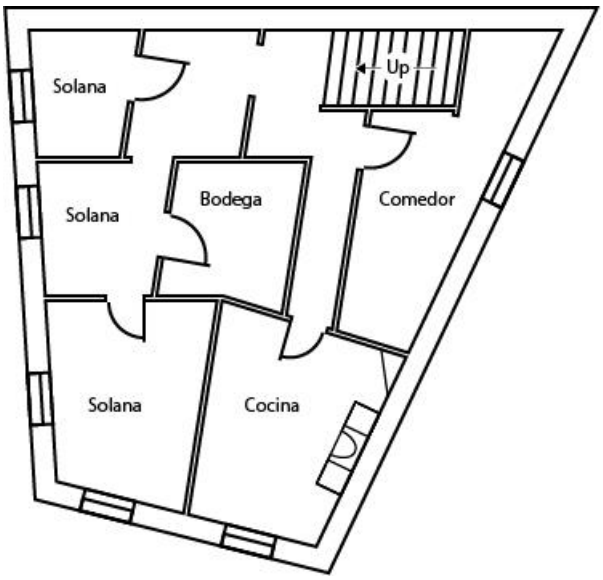

Figure 22. Planta Segunda - Second floor

Cocina (Kitchen)

Food preparation, using olive oil, wine and water stored in five or ten gallon *tinajas* took place on the second floor kitchen. In many homes there was no chimney. Smoke from the fire on a stone hearth vented through the loft and out between roof tiles.

Figure 23. Tinajas (for wine, water and olive oil) and other items used in the cocina

Bodega (Storage room)

Functioning much like a modern pantry, food and utensils for meal preparation and preservation were kept here.

Solana (Skylight)

The upper level "communicates visually with the first floor through the *solana* opening onto the kitchen through a screen made of a wooden latticework. Here the fruit and tobacco are dried; water is collected; and very good ventilation is provided, clearing the smoke from the kitchen hearth which also rises up through the wooden latticework of the kitchen ceiling allowing for the smoking and drying of hams (*jamon serrano*) in the loft above".[26]

Comedor (Dining room)

One room on this floor was dedicated to gathering the family and eating, with chairs or benches for family members and guests set around the edge. The table was usually a large, easily-disassembled plank placed on sawhorses.

DIVISION OF LABOR

Women carried water to their homes, prepared meals in second-floor kitchens, made soap, sewed clothes and linens, and more. Carrying wooden kneeling boards and locally-produced wicker baskets filled with clothes and bedding, they gathered on the shores of the stream to do their wash, stretching it out on bushes to dry and bleach in the sun when they were done.

Men worked in the fields and mills, and young men tended the goats. Most likely the farmer returning home in Figure 1 would have used an *azada* (long handled hoe) to cultivate his grapes for wine, olive trees, chestnuts, or silk threads from mulberry leaves, but not wheat or rye. The plots were too small and steep for these last crops and he could not use a plow.[27]

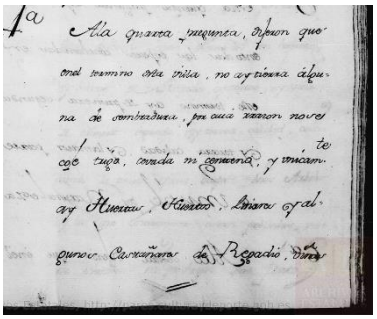

Figure 24. page from 1753 "Catastro" about crops of Garganta[28]

Beyond the donkey the only other source of power was water. Unlike in most of Castile, water power was not controlled by privileged classes.[29] The *Catastro* of 1753 showed ten mill owners, all identified as villagers.[30]

GENEALOGICAL RECONSTITUTION OF FAMILIES

Genealogical reconstitutions strengthen the view of family life, evidenced in the simplified compiled lineage of the family of Simon Martin Herrero and his wife, Ana Galinda. **Simon Martin Herrero** was the son of Alfonso Martin Herrero and Maria Diaz. He was born and baptized in 1684 in Garganta la Olla.[31] On 6 June 1709 He married Ana Galinda, born in October 1683, the daughter of village residents Matheo Martin and Maria Galinda.[32] She preceded her husband in death.

Simon worked as a notary for the village for 43 years. He died at the age of 85 on 2 February 1769.[33] About six months before his death, he visited another notary from the village and created his last will and testament.[34]

Simon and Ana had the following children, all baptized in Garganta:

i. **Juan Martin Herrero** baptized in 1710.[35]
ii. **Fernando Norberto Martin Herrero** baptized in 1712. Following the profession of his father, he worked as a notary until his death and burial in 1772 at age 59.[36]
iii. **Paula Marcela Galinda** baptized in 1715.[37]
iv. **Josepha Galinda** baptized in 1717.[38]
v. **Ana Teressa Galinda** baptized on 15 Oct 1718.[39]
vi. **Paula Dorotea Galinda** baptized in 1722.[40]
vii. **Francisca Phelipa Galinda** baptized in 1724.[41] She never married. In 1780 at age 56, she signed a will, but did not die until twenty years later in 1800.[42]

viii. **Margarita Galinda** baptized in June 1727.[43] She married Matheo Marquez. She died at the age of 44, leaving one child.[44]

Four of the couple's children, included in the bequests of Simon's will, survived to adulthood; the unnamed children likely died as small infants, evidence of the high infant mortality rate.

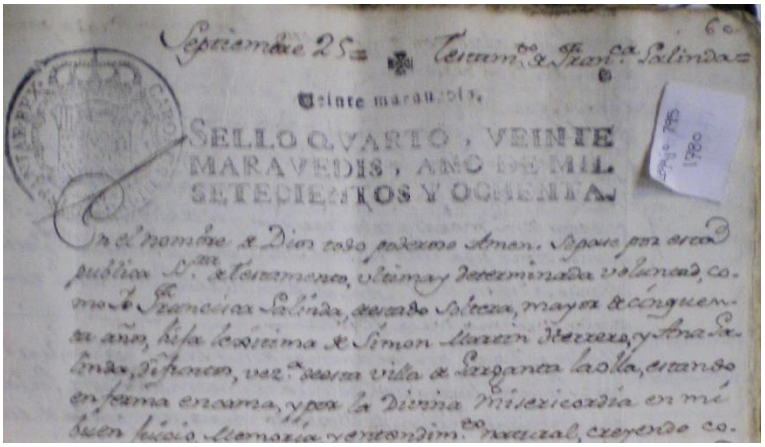

Figure 25. Page one of Francisca Phelipa Galinda's will

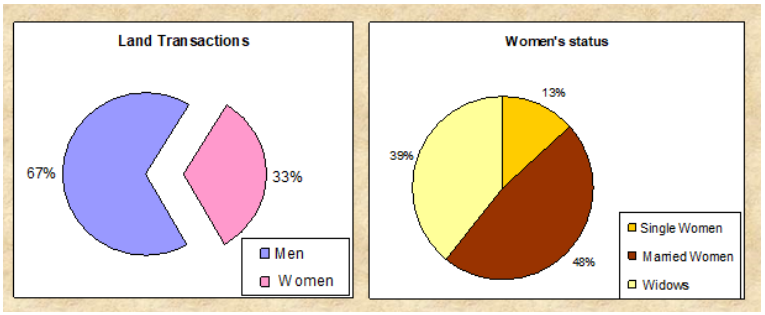

Figure 26. Data from 462 Land Sale Transactions 1773-1791

The will of Francisca Phelipa Galinda, a spinster daughter of this family, is not an isolated example of the concept that women in Garganta had substantial property and inheritance rights. Of the 349 extant wills written between 1768 and 1795, 183 testators were women.[45] One-third of all land sales during 1773-1792 the sellers were women, as shown in Figure 20.[46] Of these, 20 were single; 72 married; and 59 were widows. This contrasts dramatically with the rights of women in the United States during the same period.[47]

Note that Francisca Phelipa and all her sisters took her mother's surname (as did most Garganta women during this time period).[48]

DOCUMENTS AND DATABASES

Extractions and indexes of selected notarial records such as wills, marriage contracts, and marriage and death inventories will be published online; as will detailed extractions of baptisms, marriages, and burials from parish registers; and transcriptions/translations of non-population censuses taken in 1753, 1791, and 1797. Articles and papers written by BYU faculty and students, historians, architects, and others will be included on the website. PowerPoint presentations, videos, and other visual presentations, along with a bibliography, will provide further context and insight into the lives of women and their

families in rural Spanish villages during the 18th century. For example, data extracted from these documents will allow an analysis of religious devotion.

OBJECTS AND EVENTS MENTIONED IN WILLS AND INVENTORIES

During visits to Garganta and the Archivo Historico Provincial in Caceres by faculty and students, images were taken of notarial records (wills and inventories) which name objects of material culture. Those objects can be linked to photos that were taken of items in Garganta and at local ethnographic museums.[49]

CONCLUSION

The goals of the Spanish Village Project website will be fulfilled by:

1. Walking the streets of 18th century Garganta la Olla, combining contemporary photographs and drawings with descriptions from 18th century documents.
2. Exploring the intricacies of women´s daily lives by reconstituting specific families and challenging the stereotypical picture of repressed women to show their creative expression and flexibility in economic life.
3. Providing access to original documents from Cáceres, and written materials and media presentations about Garganta created by students, historians, architects, etc.[50]
4. Utilizing a uniform and interrelated collection of parish, notarial, census and other records to develop research skills in Spanish.

NOTES

[1] The CFHG website currently offers an online public/family history presence with the following: Nauvoo Community Project; Script Tutorials; Immigrant Ancestors Project; and several British Projects including Kinship and Poverty in Early Modern Britain, and the Early (pre-1841) British Census Project.

[2] National Council On Public History, "About the Field," accessed June 2020, https://ncph.org/what-is-public-history/about-the-field/.

"[P]ublic history describes the many and diverse ways in which history is put to work in the world. In this sense, it is history that is applied to real-world issues. [Although p]ublic historians come in all shapes and sizes[, t]hey … share an interest and commitment to making history relevant and useful in the public sphere."

[3] Rodrigo Méndez Silva, *Población general de España* (Madrid: Roque Rico de Miranda, 1675), 56.

[4] At the end of the 15th century there were only 22 hidalgos and 66 clerics out of a population of 6,320 inhabitants in all of La Vera.

[5] Archivo General de Simancas. Secretaría de Estado, Censo de Campoflorido: Vecindario General de España (1712), 445; https://www.ine.es/prodyser/pubweb/censo_campoflorido/Censo_Campoflorido_T1.pdf.

[6] Archivo Histórico Provincial de Caceres, Castastro de Ensenada, Respuestas Generales(1753), Garganta la Olla, 246-264v.

[7] Archivo Histórico Provincial de Caceres, 1791 Expediente de la Visita de la Villa de Garganta la Olla; interrogatorios III y XXXIII. Translated by the author.

[8] Ibid, interrogatorio VIII.

[9] Genesis 24:11-21 and 29:7-10.

[10] María de la Vega Hurtado Vinagre, Andrés Fernández Moreno, and Jerónimo Garcia Ballesteros, *La Indumentaria Tradicional De Extremadura (Cuadernos Populares)* (Mérida, Badajoz: Editora Regional de Extremadura, Consejería de Cultura y Patrimonio, 1998), 3. Translation by authors.

[11] Florencio López Ortigo, Estudio *Historico y Cultural de la Villa de Garganta La Olla* (Cáceres), 2005, 37.

[12] Ibid., 56.

Jose Sendín Blázquez, Tradiciones extremeñas (León: Editorial Everest, S.A,1996) 145. https://folkloreestremeno.wordpress.com/2009/04/22/las-italianas-de-garganta-la-olla-I-parte/

[13] Likely, following a centuries-old custom, the men and women sat in separate sections of the Church. See https://johnbelovedhabib.wordpress.com/2014/12/03/the-early-church-tradition-of-separate-seating-ancient-practice-not-a-cultural-anomaly/.

[14] Parroquia de Garganta la Olla, Libro de la Hermita de San Martín, cover page. Florencio López Ortigo, Estudio *Historico y Cultural de la Villa de Garganta La Olla* (Cáceres), 2005, p. 56.

[15] Archivo Histórico Provincial de Caceres, 1791 Expediente de la Visita de la Villa de Garganta la Olla; interrogatorio XXVII.

[16] Mary Jo Maynes, *Schooling in Western Europe: a Social History* (Albany, NY: State University of New York, 1985), 15, endnote 22.

[17] Rafael Chanes and Ximena Vicente, *Arquitectura Popular De La Vera De Cáceres* (Madrid: Ministerio de la Vivienda, 1973), 187-189.

[18] Kelly Summers, AG and Adjunct Faculty, Brigham Young University, Provo Utah, *Creativity and Individuality of the Women of Garganta La Olla, Spain in 18th Century as Expressed in their Textiles*.

[19] Rafael Chanes and Ximena Vicente, *Arquitectura Popular De La Vera De Cáceres* (Madrid: Ministerio de la Vivienda, 1973), 17.

[20] Floor plans and descriptions come from *Arquitectura Popular De La Vera De Cáceres*, as redrawn by Susan Yungfleisch. Many of the details and photos are based on observations made by the author, George Ryskamp.

[21] Martiria Sanchez Lopez, *Jaraíz De La Vera: Villa De Realengo* (Mérida, Badajoz: Ed. Regional de Extremadura, 1991).

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MACHINE VISION AND ALGORITHMIC CREATIVITY: APPLICATION OF IMAGE RECOGNITION ALGORITHMS TO ARCHITECTURAL STYLE ANALYSIS

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INTRODUCTION

In 2015 Google's AI division DeepMind developed a method to visualise the learning process of an image recognition algorithm. The program, referred to as DeepDream[1], reversed the machine learning system which allowed it to generate rather than classify images. The project aimed to answer what the algorithm was "seeing" in an examined image. This process resulted in uncanny images; odd, yet strangely familiar impressions of the original examples. Characterised by fractal-like patterns the images surprise with their geometrical compositions; an amalgam of interpreted fragments of the real images. The most striking quality of those images was their clear resemblance to the training set images, yet expressed through overly geometric arrangements. DeepDream allowed us to get a glimpse of what the synthetic perception of a human world might look like. This work has been widely publicised drawing interest outside of the scientific community.

The premise of DeepDream was to reverse-engineer the system's architecture. The assumption was that if we can see an image generated by a neural network, we can better understand how the network sees images. The key to that assumption was the process in which the system acquires its knowledge. Deep learning algorithms learn from so-called training sets. Each set represents a different class, a category containing hundreds of examples of each from which they learn to identify key patterns. Training sets are abstracted into their pure, statistical form through different mathematical operations. This forms the foundation of a system's ability to recognise. The abstractions are expressed in the form of positive and negative activations of what, at this point, is no longer an image, but an operation of two functions. This is a mathematical equivalent of an act of looking.

To test the relationship between algorithmic perception and creation this paper applies DeepDream to architectural style recognition. In doing so it asks what would a different reading of architectural styles be if interpreted by a non-conscious agent? The project employs machine learning to identify pattern differences between images of four architectural styles: gothic, renaissance, baroque, and modernism. DeepDream is applied to then interrogate the key features identified by the system. In this process, the role of an image, as a medium that encompasses the properties of a building, is questioned. Rather than trying to mitigate this, the project draws on those limitations and embraces an image as an already abstracted version of reality.[2] Interrogating the structure of a learning algorithm has shown that

mathematised vision perceives images in a different way to a human eye, however, there are surprising similarities between the rhythm of image patterns and the composition of the buildings.
Considered in the context of contemporary data society, the question of what the algorithm sees in an image has been addressed in many current debates. This paper considers this topic in context of contemporary visual culture. It is argued that to understand the role of algorithms, specifically machine vision, it should be positioned in the context of other visual regimes that preceded it. In doing so, it becomes apparent that the algorithm, as a medium, emerged precisely to capture what previous visual mediums were unable to accommodate.

From perspective to non-optical vision

The mathematical perspective was first proposed in the early Renaissance. Introduced by Brunelleschi and later theorised by Alberti this visual paradigm became the dominant form of representation in the eurocentric culture. Perspective showed the subject as if watched by a single, motionless eye, an eye stripped of its body. It allows us to build a "truthful" model of the external world through a systematic conceptualisation of visual experience into its geometric representation[3]. Modernity has privileged the sense of sight and perspective became a ruling form of representation unchallenged until the nineteenth century. It showed the world in a very specific manner as if frozen in time and watched by a single, motionless eye, an eye stripped of its body. In the times of the industrial revolution, the experience of the outside world has changed dramatically. The spectator himself transitioned from an active viewer to a passive observer. The world was characterized by vistas that Cartesian perspective could no longer express. Shortly emerged cubism to help capture this mobilised world through their multiplanar aesthetic[4]. The abrupt change in how the world was being observed has led to a change of thought that conceptualised it. The experience of space and spatiality transcended all disciplines. In his book "Projective Cast" Robin Evans reminds us that Sigfried Giedion believed in an underlying force characterising each epoch. It was a force that transcends the work of all disciplines, a paradigm shift that transpired in the arts, architecture as well as science. Giedion points out that the work of the early twentieth century was characterised by planarity, transparency, and simultaneity[5]. This was observed in Picasso's paintings, Gropius' design for the Bauhaus building and Einstein's theory of special relativity. Drawing on Giedion's point, the project presented in this paper examines the relationship between perception and a creative act in today's changing landscape of what is referred to as "metadata society"[6].

"The establishment of these large datasets as the primary source of cognitive capital and political power marks the birth of the metadata society, being precisely the meta-analysis of data – mapping and interpreting their patterns and trends, and forecasting their tendencies – and not their brute accumulation that makes datasets meaningful and valuable."[7]

The change of the spectator's experience of the world resulted in the transition from perspective to cubism. The recent progression into metadata society has changed the spectator himself; from a human agent to an algorithm. Big Data emerged in areas of life where digitised information has been produced both uncontrollably. Both the scale and pace of Big Data prevents it from being penetrated. Matteo Pasquinelly identifies cyberspace as a non-physical and exponential in nature space that allows us to navigate this otherwise overly complex ocean of data. Quoting Parisi, Paquinelly points out that the algorithm, as a medium, allowed us to operate in this space of data abstractions. Although the non-spatial dimensionality of cyberspace is not possible to be directly experienced, the algorithms are vehicles that help to better understand that space.[8]

Pasquinelly notes that in the same way that perspective was developed not to replicate experience of space, but to abstract it, the algorithmic experience of the non-optical vision also does not reflect the objective reality but rather interprets it. The rise of the non-conscious cognition[9] challenged the concept of visual representation as purely optical and perception as purely anthropocentric.

Convolutional neural networks

One of the most popular image recognition algorithms is a convolutional neural network (CNN), a type of multilayer deep neural network. In their DeepDream project, DeepMind team trained and later reversed this type of network. To better understand the perceptual process which led to generating DeepDram images it is worth briefly outlining the network's architecture. In principle all CNNs are constructed of a series of hidden layers, each containing filters referred to as convolutional kernels. Each kernel represents a value that is then multiplied by an input pixel and mapped out as an output channel creating a so-called feature map. Mathematically speaking a convolution is an integral of two functions, the input value of the image pixels and the filter[10]. This operation results in the gradual construction of a conceptual representation of the training set. Each layer performs a different operation such as edge detection or identifies colour, therefore each layer will produce a different feature map. This process of pattern recognition is also referred to as feature extraction. In the deep learning process, every system learns about those features in their own, unprecedented way.

All CNNs operate in two states. First the network learns about the key features of the subject from thousands of examples. In the operating state, it performs image recognition based on its understanding of analysed features[11]. The network learns exclusively from the training data, therefore the choice and size of the dataset are key to the network's future performance. In this process, the algorithmic abstraction of visual data translates the experience of reality as we know it into an unrecognisable noise. While contemporary networks can perform image recognition surpassing human accuracy, the exact details of what is being “seen” is hard to visualise. To address this problem DeepDream proposed to reverse the image recognition workflow. In a standard deep learning process weights of the filters are being adjusted to achieve more accurate image recognition results. Google DeepMind team proposed to keep the weights unchanged while adjusting the images. In the first experiments, existing images were modified to correspond more closely to high probability scores. Trained on the ImageNet dataset[12] which contains a lot of images of animals, the network enhanced random features of the image to make them more closely related to what it knew, for instance, birds or dogs. Finally, the network was tasked to generate images out of white noise. Based on the used category, the images exhibited colourful patterns that resembled corresponding datasets. They were however very distorted, clearly an assembly of key fragments that characterised the subject (Img.1). Their compositions appeared chaotic and without a clear relationship between the elements when considered in the context of the whole image. It can be argued that those final outputs were odd as they were a product of a double translation. The image was interpreted into a mathematical model and then the mathematical model was stylised into a pictorial form. Yet, partially through their unquestionably generated look, those pictures were very informative in what they were achieving. The patterns of elements have demonstrated that what constitutes the key characteristics of images of objects, spaces or animals are elements with only localised relations. This is most likely caused by the multiangular nature of all training set images. A photo of an animal can be taken from many angles, however, all of those images would be assigned to a single category. We have the preexisting knowledge of objects as existing in three-dimensional space and understand that the relationship between the elements will change depending on the viewpoint. The neural network cannot comprehend this correlation, hence all elements of an object seem to be shown

as if they are scrambled together. Without the idea of spatiality, the two-dimensional images become multiplanar versions of the same object.

Figure 1. Castles In The Sky With Diamonds by Google Inc. CC BY 4.0

Architectural styles analysis

There are several notable projects that apply machine vision to architectural style recognition. This work can be divided into several types of projects. A significant number of papers presents methods for applying image recognition algorithms such as CNNs either classifying image of a building [13] or detecting individual details via methods referred to as semantic segmentation or clustering[14] [15]. The projects determined architectural styles by analysing facade details or by measure visual similarities between architectural designs by different architects. In terms of projects that apply DeepDream to architectural images, the examples are limited. The 2016 project [16] applies DeepDream to enhance building images with a network trained on different datasets including Places205 or ImageNet, popular image datastores available in the public domain. In this paper, based on a training set containing only buildings, DeepDream has also been applied to generate images out of white noise. The authors point out that the lack of depth presented by those images should be considered and addressed in the future projects that apply DeepDream to generate images of buildings. What can be learnt from this work is that the image recognition algorithms fail to comprehend the difference between the geometry of a building and geometry and scale of a space skewed by perspective. This happens for the same reason why the original DeepDream experiments showed objects and animals as their components existing in multiple planes and scales simultaneously. This does not necessarily mean that the algorithm is confusing space and shapes, but rather that its comprehension of what the image is representing is different from that of a human. Image recognition systems are achieving scores that surpass human expertise [17] meaning that there is a clear understanding of the interrogated dataset. The difference,

however, lies in the cognitive process that allows the system to make its judgment and this should be appreciated rather than challenged. This paper proposes that the difference in interpretation could contribute to widening our reading of architectural styles. The purpose of the proposed project is to understand what those properties might be. Rather than investigate a single style and then compare the generated image with a real image of a building, four styles have been used to compare their differences with each other and to better understand the differences noted as identified by the system. The premise of the proposed project was to train a neural network to differentiate between gothic, renaissance, baroque, and modernism and then to examine the different patterns identified by the network in each of the four classes.

The first phase of the project was to construct a training dataset. Images have been acquired from Pinterest by a process referred to as web scraping, an automated method for batch extraction of information from online sources. 750 images that corresponded with the keywords for each style were obtained (Img.2). Categories were managed through assigning folder names as category labels. Those have formed the four image sets which were used to retrain an existing network ImageNet[18]. After loading the network layer 23 was edited. The fully connected layer contained 1000 neurons which corresponded to the number of classes that the network was trained on. The layer has been changed to include 4 neurons. The last, 25th layer stored information about the learned features of the 1000 categories. This layer has been replaced with an empty layer that learned the new four classes.

Figure 2. Renaissance architecture training set images

Once the network was trained, DeepDream method was used to reveal an image that illustrates stronger activation for each of the four categories. The first notable characteristic of all returned images was their lack of depth. All four styles are represented as abstract compositions of distinct patterns, none of which are showing actual buildings. DeepDream gothic image (Img.3) is dominated by two repeated pattern clusters. They are elongated vertical expressions crowned by what resembles rose window patterns. Renaissance image (Img.4) is characterised by finely gridded triangular areas and a series of lagers and smaller dark concentration spots scattered across the whole image. While gothic references can be recognised in the first images, the second one is much harder to decipher. There might be a relationship between the diagonal shapes and the composition of most renaissance buildings pictures. The photos tend to be taken flat-on where the building is shown in a symmetrical composition of either exterior or interior. The regular grids that accompany those lines might refer to colonnades often seen

in renaissance architecture. The much darker, concentrated points appear to reference the windows. The image that represents baroque (Img.5) is much more fluid than the three other images. Flowing patterns that dominate the whole composition are a clear reference to the baroque ornaments. The final DeepDream image of modernist architecture (Img.6) is the most geometrical of all. There are multiple horizontal and diagonal shapes that most likely pick up on the styles reserved approach to the ornament. Expressing the mass of the building the geometries seem to pick up on the perspective lines disappearing into multiple vanishingpoints.

Figure 3 Gothic architecture

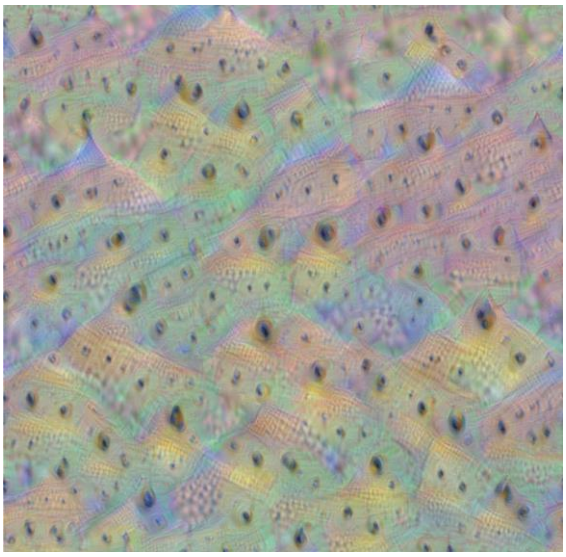
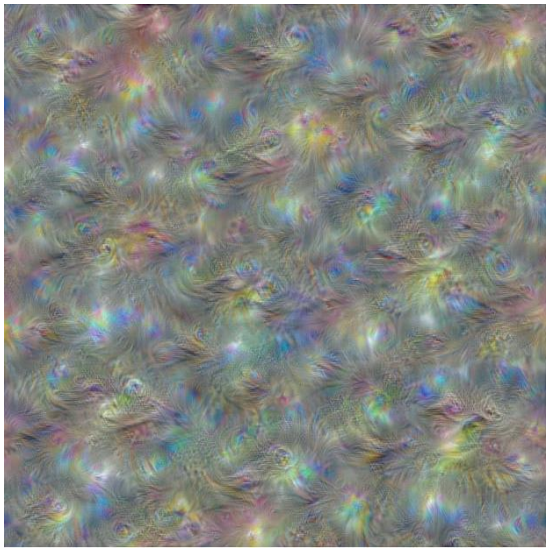


Figure 4. Renaissance architectureFigure



5. Baroque architecture

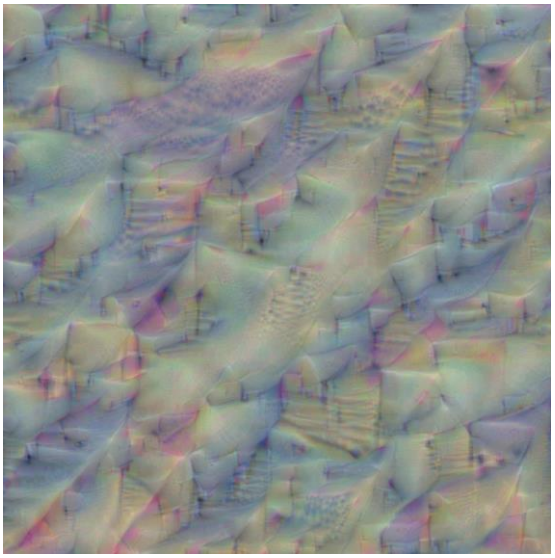


Figure 6. Modernist architecture

CONCLUSION

Machine vision became a significant part of our culture in a relatively short period. In the described project machine learning was applied as a process of unlearning in architectural history to gain an alternative understanding of what constitutes a visual representation of space as experienced by a learning algorithm. There is a profound relationship between the process of algorithmic learning and making. It is therefore important to differentiate between the role of the algorithm and the role of the training set. The control over DeepDream code such as number of epochs or dream iterations established the network's learning methods, however, what is being learnt is determined by the training set. In the presented project DeepDream was used as a framework that facilitates a process of translation, a method for visualising a statistical, non-optical experience of architectural style by the artificial gaze.

It has been demonstrated that images of buildings, when abstracted, are remote from the visual contents of the training set as they are no longer understood in a spatial domain. However, each set has produced

a distinct aesthetic that encompasses their geometric regularities. It is worth noting that those patterns are of the images rather than buildings. In all of those examples the network has treated the geometry of a building and the perspectival representation of space as two-dimensional shapes. The striking depthlessness of DeepDream images reminds us of what many have pointed before; an image is only an abstraction, not a reflection of reality.

NOTES

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UNFORGETTABLE EXPERIENCES: THE ART OF DIGITAL STORYTELLING FOR MUSEUM AUDIENCES

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INTRODUCTION

Museums should be places where visitors enjoy a pleasurable experience to break an invisible wall between the art seeker and the artistic object. The view of the museum as a place for attention and learning is being replaced by a new complex and transformative approach in several dimensions with emphasis on experience, on the internal-external interaction, on the construction of significances, and value-added through narratives. Digital communication acts as intermediary and contributor to the digital creation of human significant pleasurable experiences. A core focus on the digital journey through the permanent collection supported on visual storytelling viewed on a smartphone should drive design and serve as the critical element for connecting the object with visitors. This rationale will be put test at a forthcoming experiment at Museu de Marinha (Marine Museum) in Lisbon.[1]

SIGNIFICANT CONNECTIONS

Experimentation as inner double life is at the core of John Dewey's theory on nature, communication and meaning. Meanings become objects of thought that are the happy outcome of a complex history: experimentation. The meanings of events, when subjected to ideal experimentation, may be infinitely combined and re-arranged in imagination, and the outcome of this inner experimentation which is thought may set forth interaction with crude or raw events.[2]

This process is embedded in communication: when things acquire meaning, they acquire representatives, surrogates, signs and implicates, which are infinitely more amenable to management, more permanent and more accommodating, than events in their first estate.

Dewey remarks, in Aristotelian tradition, that significance resides in the consequences that flow from the distinctive patterns of human association. Minds are not passively observing the world but are actively adapting, experimenting, and innovating. Knowing is ultimately informed by the body and emotions of the animal using it to cope.

Dewey defended that museums needed to break an invisible wall between the art seeker and the artistic object in its remote pedestal and the human effort that went into its achievement. This signifying connection should be experienced by the viewer. Museums should be places where visitors enjoy a pleasurable experience.

Context favours the acquisition of new ways of operation and new properties through the process of association, but Dewey portends that transcends it: significance resides not in the bare fact of association, (…) but in the consequences that flow from the distinctive patterns of human association.[3]

Meaning making

The view of museums as places for learning but also for pleasure is core to John Falk's research on the identity motivations of museum visitors. Digital technologies, under the right circumstances, are positive enablers of what he calls the meaning making role of museums. Digital storytelling applied to the design of museum visitor journeys contribute to learning and pleasurable experiences.[4]

When designed well digital technologies can have the potential to positively impact visitor meaning making by enabling visitors to customize their experiences to meet their personal needs and interests; extending the experience beyond the temporal and physical boundaries of the museum visit; layering multisensory elements within the experience, thereby enriching the quality of the physical context.

Since visitors do not make meaning from museums solely within the four walls of the institution, effective digital media experiences require situating the experience within the broader context of the lives, the community, and the society in which visitors live and interact.

The secret to attracting and building audiences is helping potential visitors understand that the museum can meet and satisfy their individual identity-related needs. The most productive way to influence future museum visits is to ensure that current visitors have a great experience.

Physicality and materiality, the quintessence of museums

The significance of digital technologies for the core museum tasks of collecting, investigating and mediating museum object data from the perspective of museology is based on the assumption that presentations of museum objects in a virtual space cannot compete with real museum exhibitions, as they cannot replace an encounter with the original object. However, according to Biedermann, they serve as a medium in their own right.[5]

The multiplexing power of computational processes and the process of human association conjoin in the development of digitally significant material objects. The museum experience may become a digital happening of the multisensory and multifactorial new. Pleasure may be attained if the art object is explained to the viewer through digitally suggested signifying connections, a new form of art and artistic expression that propels to a new dimension the process of human association.

Multidisciplinary skills

Pita remarks that digitalisation of life experiences goes in hand with the view of the museum as a place for attention and learning being replaced by a new complex and transformative approach in several dimensions -- social, aesthetic, restorative, transcendental, reverential -- with emphasis on experience, on the internal-external interaction, on the construction of significances, and value-added through narratives.

Technological mediation is used in diverse contexts Vermeeren points out: linking to external sites for experiences of intangible heritage; adoption of new technologies for sociality and interactivity; novel ways of employing mobile technologies. AR and off the shelf wearable devices with existing exhibits are appealing.

This new kind of experience is brought about by a myriad of highly specialized professionals: museologists, curators, archaeologists, anthropologists, historians, sociologists, videographers,

photographers, developers, designers, engineers, producers, scriptwriters, directors, project and brand managers [6]

A new terminology highlights the scope and breadth of this technological endeavour and its application to a new type of museological experience: process design, narrative, visualization, experience, dynamics, engagement, resonation, democratisation, journey.

Participatory potentials

muSEAum included a survey of sea museums' audiences. An exit questionnaire in six of the project's partner museums asked visitors about their museum experience, satisfaction with multimedia contents, and about the museum's website and social media activities.[7]

Grácio reports that the convenience sample of 431 respondents revealed that museum visitors do enjoy having multimedia and interactive content and devices. Visitors expressed very high levels (over 80%) of satisfaction with the museums that showed videos related to the exhibits.

Data from this survey contrasts with the results of the multi-sited experience in the UK (Imperial War Museum), albeit more complex and visitor demanding. A sociology of translation was used to construct a network of visitor experiences using data from a digital media engagement.[8]

This experience conducted by Light and others revealed that the content and physical presence of comment kiosks acted as engagers in the museum. However, due to visitor interpretations of the role of the kiosks, the resulting dialogue was not necessarily what the museum staff expected. The borrowing of social media elements, such as liking, came with some negative connotations leading the kiosks to be seen as superficial.

The importance of the environment and its non-human actors is further elaborated upon analysis of the QR code and App, unclear signage, disruptions to Wi-Fi, and a lack of users with the right kinds of devices to engage. The role of a dedicated app was seen as a form of barrier and clashed with existing social media practice.

Museum staff may want to consider how any digital media might be perceived within the museum space and the potential influences of digital culture in society more generally. These experiences relate to (dis)connections with the museum, museum objects, and other visitors.

Designing the journey

Design is an enabling discipline to develop participatory experiences that engage the visitor with the artistic object. Styles proposes design to create distinctive patterns of human association; to establish touchpoints and the visitor journeys in the museum. Process design is today crucial to develop a new dynamic between museums and their audiences, to create engagement and resonance.[9]

The experience begins and ends the moment the visitor transposes the museum's hallway. The visit to the museum is but the major touchpoint of a multitouch and multichannel journey that may have started by personal recommendations of friends, a Google search or a TV documentary. The after-journey may never end if the experience of visiting the museum was pleasant and worth remembering with the enlarged family and photos on Instagram.

The iPhone and Android put small computers into everyone's hands. The role of technology in life radically changed. The smartphone embodies McLuhan's aphorism – media the extension man. Indispensable, always available, every moment, anywhere.[10]

The concept of User Experience (UX) refers to a collection of activities — research, interaction design, and visual design — all of which work together to build the right thing for people. Hardware and software systems must fit into the fabric of everyday life. The big picture drives ideation, new concepts

are invented from user data. Concepts are designed with concrete user interfaces and behaviour, which are validated and iterated with users: how to design for life to deliver joy — or coolness — to users as asserted by Holtzblatt and Beyer.[11]

Familiar technologies

The Rogers theory on the diffusion of innovations reveals the extraordinary accomplishments of the smartphone: relative advantage, compatibility, easy complexity, triability, and observability, and in pandemic times, we can add, it is respectful of social distancing.

Once technology is integrated into daily life and each information structure, platform, device and media are used to interact, the groundwork for a seamless user experience is then set, argues Vargas. As new technology opportunities enter the communication and media mix, museums are challenged to incorporate the activity into an already rich and complicated interconnected information structure.[12]

Carvalho writes that adapting daily life digital technologies has a participatory advantage: to attract younger audiences and to keep up in a competitive environment.[13]

PROJECTS UNDER DEVELOPMENT

Two PhD projects by the authors of this paper emerged from the research team of the FCT financed project muSEAum – Branding the Sea Museums of Portugal (Lusófona University, CICANT, 2018-2021[14] and are currently under development with the tiles "Ethereal Experiences: Digital Curatorship in Contemporary Museums" by Muchacho, and "Magellan Digital Tour at Museu de Marinha: Prototype Testing of Digital Media for Signifying Connections" by Torres. The latter will test a prototype tour entitled "Magellan Digital Tour: The Discovery of the Hidden Side of the Earth"[15] to be included in a remembrance ceremony at Museu de Marinha by the Portuguese Navy on the 500th anniversary of Magellan's death.

Magellan Digital Tour: challenges

The main question is how to evince experiential meaning from image and text-based storytelling suggested by the objects and their internal and external environments through the visitors' smartphones in partnership with other media -- QR code, WiFi, website, text, graphic design, images.

The high concept of the Magellan Digital Tour is anchored on the Treaty of Tordesillas signed between the kingdoms of Portugal and Spain in 1494 and that came to frame Magellan's destiny.

The production of the prototype tour consisting of 13 objects from the permanent collection and respective short videos presents numerous challenges. The project will focus on designing and producing a device-specific non-interactive visual grammar and how the non-human actors -- technological and material -- may prompt engagement arising from a simple gesture: pointing the smartphone to a QR code next to a colour sign identifying the objects in the journey, automatically triggering a video about the object and its inner and external contexts.

The videos will include still and moving images, digital animation, and short texts ensuring that the narrative flows from one object to the next. Meaning creation and material connection with the objects will be sought mostly through close ups and extreme close-ups viewable on the visitors' smartphones.

Other challenges are contextualising a story based on a collection of museological objects that only have an indirect relationship with Magellan himself, as probably nothing exists that directly relates to him, and the reliability of the technological infrastructure at the museum.

A leaflet will suggest the journey and how to explore the signaling, covering most of the first section of the museum which is dedicated to the Discoveries Era.

Data collection, observational research and qualitative research based on the Day-in-the-Life and Identity Experience Models will be used. The process will include exit questionnaires and a focus group following a real-life experience of the prototype.[16]

Fig 1. Museu de Marinha (Marine Museum) occupies a large area of the Western aisle of the Jerónimos Monastery in Lisbon, Portugal

The Magellan story

Possibly born in Porto, Ferdinand Magellan is a fascinating and controversial figure in Portugal and Spain. He was a seasoned warrior, having fought in Diu, Malacca, Azamor. He became a navigator and was a onetime castaway in the Indian Ocean. Unjustly accused of having stolen some enemy horses on the aftermath of a battle in Morocco, he was forgotten by the court of King Manuel I. Spiteful, he flees from Lisbon to Seville, stalked by the king's policemen, taking with him the most secret Portuguese charts, as well as a friend, the foremost court geographer.

Magellan was condemned to death by a tribunal in Sintra headed by the discoverer of the maritime route from Europe to India, Vasco da Gama. The Portuguese king sends fleets across the known world to capture him, to all the outposts of the Portuguese maritime empire, from Brazil to Malacca. One ship and some sailors were arrested in the Moluccas and in Timor by a Portuguese search team. In Spain, Magellan never had the trust of Emperor Charles V, who nevertheless entrusted him with guiding a fleet under the command of a Spanish admiral to find a Western maritime route to Asia and to take possession of the Spice Islands, the Moluccas, then the single world source of enormously valuable nutmeg and cloves.

Portugal and Spain had divided the sovereignty of parts of the known and of the unknown worlds at the Treaty of Tordesillas, half for each, a decade earlier. Magellan set sail from Seville in September 1519. While wintering at anchor in the southern lands of America, Magellan brutally got rid of the Spanish chieftains and became a fugitive also from the Spanish court. Several of the Spanish commandeered ships fled and returned to Spain once it became clear that the 350-mile passage to the newly found Ocean had been discovered.

While the Western meridian was known to cut across Brazil, the position of the antemeridian was not – until Magellan set foot in today's Guam island and for the first time after 100 days crossing the Pacific,

and could determine the longitude with astounding exactitude given the crude instruments at his disposal: no clock and no sextant, only the astrolabe. What he found dismayed him.

To his disgrace, the antemeridian of Tordesillas was further to the East than had been assumed because the Earth's perimeter was larger than thought. This meant that the Moluccas and the Philippines fell within the Portuguese side of the world. This discovery compounded his fugitive status. Magellan could not fulfil his Spice Islands promise to the Emperor.

Against all advice he dared fight an unwinnable battle against the superior forces of the local potentate. His death occurred in the knee-deep low tide on the beach of the isle of Mactan, Philippines in April 1521.

But science was enriched. Joyner[17], Garcia[18] and others pois out that Magellan found that the hidden side of the Earth, mostly occupied by the Pacific, was much larger than assumed. With Tordesillas the Portuguese had gotten the lion's share of the world -- Brazil, Africa, India and the Spice Islands. Spain understood that it had only grabbed the western bit of America, gold rich as it was, but the world's largest body water was a desert dotted with islands without nutmegs and cloves. Nevertheless, Spain did claim possession of the Moluccas. After ten years of war between the two kingdoms in the islands, the dispute over the ownership of the archipelagos was resolved in Spain's favour at the Treaty of Zaragoza in 1529.

Magellan's and Delcano's voyages are known in much detail thanks to Antonio Pigafetta[19], the Italian chronicler who survived the daunting voyage in the only returning ship, the admiral vessel Victoria, and to several other testimonies, like those from the court hearings of prisoners taken by the Portuguese. Pigafetta inspired Stefan Zweig[20] to write in 1937 the first modern account of the voyage turning Magellan into a hugely popular figure in the US and other countries where he is viewed as the epitome of the fearless explorer. His name has been given to astronomical features, like the Large Magellanic Cloud or the Magellan lunar crater, to a spacecraft and to countless products and even to financial services.

NOTES

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MAPPING THE LITERATURE THROUGH DIGITAL HUMANITIES PROTOCOL: DECODING THE MORPHOLOGY OF A HISTORIC SETTLEMENT

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INTRODUCTION

Every moment becomes history when the next moment arrives- be it in architecture, city, culture or even landscape. But no particular moment is lost forever; rather the imprints of moments remain in layers deposited one onto another, perhaps waiting to be decoded. The imprints are cast both in tangible and intangible forms such as landscape, architecture, toponym, history, story, memory, folklore and other literatures- in one word "narratives".

A historic site, landscape or city, merged in layers underneath a currently live urban settlement is a very interesting subject to explore, especially when the only available input is literature and the practical site itself. As a case study, Khalifatabad (Bangladesh), a UNESCO World Heritage site offer a fascinating opportunity to proceed with a literary cartographic approach to identify the artefacts, some very precisely and some within the scope of imprecise geography. The artefacts are widely distributed and embedded in current urban and rural settlement but there is lack of existing map, concrete visual or spatial evidence about it except the literature, memory and few historic buildings.

Khalifatabad is often glorified to be the mint city[1] of 15th century enriched with 360 said mosques and other structures but as of present, only few architectural structures, ruins, mounds and few lakes are identified in the official govt. documentation (figure 1a) which results in the map, prepared about 30 years ago. The map in figure 1b is a schematic. The actual extent of the city of Khalifatabad should be much larger because there are more items (both tangible and intangible)[2], especially those that have geo-reference, to be included from other locations. During mapping, a robust theoretical framework and methodology through digital humanities protocol, have been followed (discussed in the following sections) to address the historical question "What is the morphological footprint of the historic settlement of Khalifatabad?"

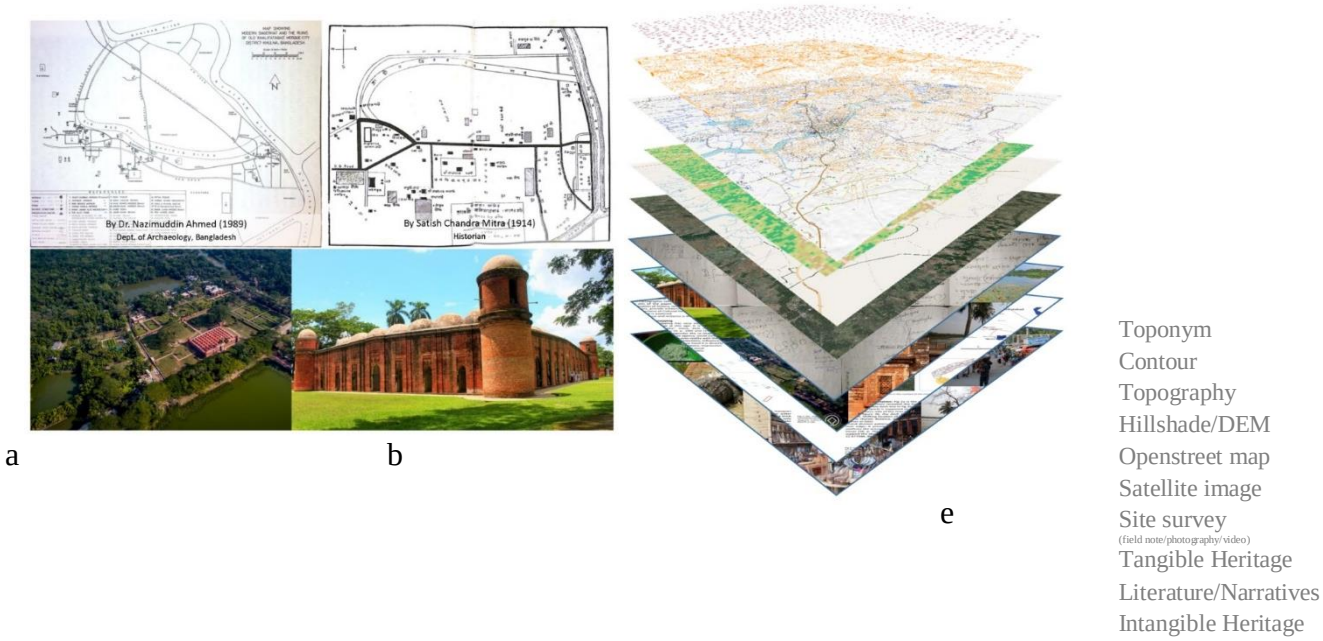

Figure 1: (a) and (b)Map of Khalifatabad by different authors [present City of Bagerhat, Bangladesh; UNESCO world heritage site]; (c) and (d) photograph of Sixty Dome mosque_most delicate symbol of the township[photograph by Afzal Nazim and Mohammad Zakir Hossain]; (e) Key Concept Diagram

THEORITICAL FRAMEWORK

The author has come across the keywords through the entire mapping process: Text Corpus, Narratives, Distant reading, Mapping Spaces, Spatial, Fiction, GIS, Geography, Cultural Heritage, Deep Mapping, Object, Site, Evidence, Digital, Hypothetical, Restoration, Close reading, Single text etc. which are picked up from a vast array of literature and have several definitions, development, theories, separate disciplinary application and adoption. In this article, relevant keywords are applied in a series of functions and applications in advantage to answer the historical question asked in the introduction.

The power of Narrative: The expression of identity of human as well as human settlements resides in narratives regardless of time, which is a fantastic storage of memories and experiences. As long as narrative theories draw on ideas from fields of rhetoric, linguistics, cognitive science, folklore etc. along with literary studies, the narrative itself may adopt various means of communication and media such as words, pictures, photographs, maps, visual illustrations, films and so on[3]. Regardless of media, the content of memory and experience remains the same like in the well-known parable of the Blind Men and an Elephant, if we connect the content to the elephant and media to the blind men. Therefore, in general sense, the more media is consulted and combined, the more comprehensive picture is brought out from the content. Narratives are very functional[4] to organize data into recognizable and cognitive pattern to represent a space or place. In recent years, a vast majority of projects[5](LITESCAPE.PT, literary Atlas of Europe, Atlas of the European Novel 1800-1900 etc.) regarding "Mapping literature" or "literary cartography" have been approached from various perspectives including linguistic approach that usually starts with a corpus of selected theme of interest and end up into finding analytical results with visual illustrations and geographic reference.

Map and mapping: Having said that literary cartography has powerful ability to bring text into geographic and spatial perception through mapping but the process is inseparable from the corresponding cultural context; The "Cultural turn" in mapping paved the way[6] of cross-disciplinary interest in geographical scholarship and traditional cultural mapping is being reviewed and renovated with new methodologies and perceptions. Place-based approaches and spatial mapping of tangible and intangible elements of a culture are very crucial to have a deep insight of the identity and sustainable development of a society. Thus mapping practices across disciplines take a "spatial turn"[7]. Nowadays the spatial turn in humanities and cultural texts is immensely facilitated by digital technologies like GIS and application on GIS platforms and subsequently elevated the opportunities to examine and experience them in spatio-temporal and spatio-cultural context.

Text to map: The transformation of text to map, from linear to spatial mode[8] while extracting meaning from narratives, mapping in GIS platform is proposed to be done by geo-referencing *features, phenomena and ideas over space*. May Yuan [9] demonstrated in-depth conceptual and technical challenges as well as potential to text-map transformation by three approaches namely (1) Spatialization (2) Geo-Reference: Place Name Matching through Digital Gazetteers (3)Geo-Inference. The last two approaches[10] are useful for the current research because the geo-Reference method allows extracting information of placenames and geo-features adding attributes of event, culture, environmental factors and human factors in layers and Geo-Inference allows various data layers to be combined based on spatial logic and topological relationships.

Imprecise geography:

Determining the location of a small geographical space (e.g. a building) within a large geographical area (e.g. a country) is only possible imprecisely due to its fragmentary spatial nature, pointed out as the limitation of geo-referencing texts/phenomena by Reuschel and Hurni[11]. Piatti et al. [12] defined the reference of real space found in fiction (aka geography of fiction) as "imprecise geography". Since geographical imaginations have become commonplace topics in a variety of analytical fields, as indicated in a Stanford repository [13], it has by now achieved a strong scholarship to define spaces in reality from literature without pinpointing the exact coordinates as long as spaces are active participants in social and cultural trends and this notion is adopted in this paper.

Digital humanities:

"Digital Humanities"[14] is a new mode of scholarship beyond literary disciplines, argues Kirschenbaum [15], which allows "*computationally engaged research*" to be a lower-case project as it involves analysis, critique, interpretation, annotation, historical research and contextualization, especially when linking literature to GIS platform. In addition, underlying technologies and methodologies such as text encoding, physical computing, humanities visualization were used rigorously with a visionary and forward looking sentiment towards finding morphology of historic settlement as per Svensson's [16] vision about digital humanities.

Urban morphology_ school of thoughts and theories: Studying and understanding the spatial structure and character of a historic township, in contrast to existing cities containing building forms, patterns, plots and street system, zoning and development etc., is not easy if the morphological elements are absent due to age or war or any other reasons. As for Khalifatabad, only a dozen of buildings and artefacts are remaining; neither any ground nor linkage of places are yet existing to understand the

township's morphology by the theories of Trancik[17] except one scholarly work by Imran[18] that possess some elements of linkage (statistical). To examine the township in view of several school of thoughts, as indicated by Moudon[19], it only complies with Chicago school pattern where it can be studied from ecological and environmental approach and concentric-zonal theory along with city edge. Therefore, in terms of morphological study, the research should find way around identifying places along with footprints from the interplay of spatial data of various sources.

METHODOLOGY

In the light of the above theoretical framework, the article intends to explore the interconnections between geography, cartography and literary studies using a GIS platform. The sequence might be articulated by the following expression: Sources [qualitative analysis by close reading / topographic analysis by QGIS / other sources] → Spatial Data(converted) → Geo-referenced Layers(QGIS) → Output by GEO-INFERENCE.

Organization in geo-referenced layers:

The interdisciplinary research method, under the hood of digital humanities, combines very different sources such as satellite imagery analysis, visiting the places and documenting, interviewing resource persons, consulting literary heritage and turning them into spatial data and finally data mapping with GIS application- in short superimposing and Geo-Inferencing all the layers in spatial format. The expected output is visual illustrations in the form of interpretative[20] maps with an aim to understand the historic township's spatial morphology. Figure 1(e) is a key diagram and graphical abstract of this project that represent key concept.

Qualitative analysis with Close reading:

As an usual approach for literary cartography, "Distant reading"[21] of narrative , which is a form of mapping[22], while dealing with large data is favored by Franco Moretti; while having different qualitative purpose, this paper concentrates on close reading as favored by Alves and Queiroz [23] for reducing biasness and technical limitations. Nearly 60 pieces of literary works (combination of journal articles and books, database and map collections) have been consulted with the purpose of finding information about a particular township and geo-reference for specific artifacts. For the sake of through analysis of small set of literary works (away from linguistic approach and therefore not time-worthy to utilize printed and scanned material, in different languages by automated computational reading), the close and traditional reading method is adopted in this project.

Text to spatial data conversion:

There are several categories of information in the process of text to spatial data conversion.

(a) For existing tangible elements (architecture, lake, river bends, ruins etc.) a list was prepared from literary works and GPS-location was recorded and confirmed by field and photographic survey.

(b) For tangible and intangible elements again from the list out of literary works that existed before[24] like historic highway, spot of annual festival etc. were spotted with coordinates by field survey along with interview of local resource persons and witness.

(c) The third category includes changes in landscape (e.g. identification of dried historic river) by geographic marker (e.g. still existing train station, bridge mentioned in the text) and traced out of satellite imagery and online maps.

(d) In the fourth and final category, the placenames (of interest) with location information were extracted by relevance from database[25] file and laid[26] in coordination with other geospatial layers (figure 2a).

Spatial data from various sources:

Figure 2: (a) Placename database file shown as dots over satellite image in QGIS; (b),(c)and(d)Geo-reference of phenomena, memory, story and history (Photograph: b_author; c_Haron Rashid and Sazzadur Rasheed; d_author)

From field survey, some other form of narratives, namely folklore, were found which contribute to the mapping and hypothesis of extent of Khalifatabad. Figure 2(b)(c)(d) shows photographs of three such incidents and it was possible to have them georeferenced. The first one denotes the location of a historic highway[27], the second one a battle ground[28] and the third one an archaeological artefact[29] that denotes the border of a territory. The historic brick-built highway is a strong element of the morphological footprint of the township (it is mentioned as highway by historians as it connected to the then other cities, although the width is the road is merely 4 meters); it is partly visible and conserved by govt. agency and open to tourists. The invisible part is much larger as attempted to be traced out by author with the help of photographic evidence and local witnesses. The next, the battle ground is an important geographic marker to determine the north-western boundary of the township and pinpointed by GPS while the source of data is twofold: popular folklore and placename gazetteer (method followed as described in section 2.2.1). The last, the archaeological artefact and its host temple is another geographic marker to determine the south-eastern boundary of the township while the background data is from history and photographic evidence.

Topographic analysis by QGIS: As mentioned in section 3.3c, the characteristics and changes is landscape and subsequent local culture that results from this landscape pattern (e.g. local agriculture) is an important source of data to discover the territory of khalifatabad and an attempt to understand which part could belong to urban khalifatabad and which not (e.g. look at the white-colored high areas that are never inundated, in figure 4e). For that purpose, the following activities of overlaying 2D maps (both printed and online), 3D maps (hillshade, contour and elevation) were accomplished.

For topographic analysis and geo-Inference, QGIS 3.4 madeira LTR was used in this project because it is open source and has industry standard computational capabilities[30]. Several online maps and satellite images were placed as background maps in the working file (e.g. OpenStreetMap, Opentopomap, Google satellite imagery etc.) using the plug-in "XYZ Tiles"[31]. All other spatial data were placed in reference with these layers.

Adding CAD drawing to QGIS: Existing tangible elements like buildings, lakes and rivers were previously drawn in AutoCAD and afterwards were imported in QGIS as dxf file[32] (line and polygon) and placed with CRS: WGS84.

Adding and geo-referencing scanned paper maps in QGIS: Scanned paper maps collected from SOB(Survey of Bangladesh) for the district of Bagerhat were placed in a raster layer and the location was adjusted through Raster/Georeferencer [33] with 6 coordinate points and CRS "everest:1830 definition_EPSG:4042" which produced accurate result (Figure 3).

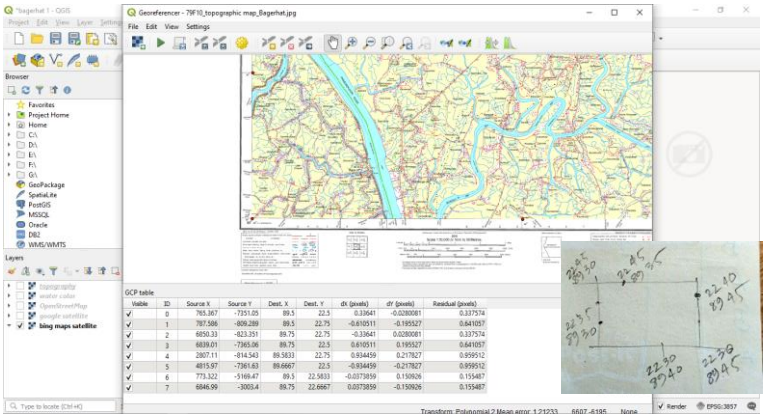

Figure 3: Georeferencing topographic scanned maps in QGIS by fixing 6 points of any scanned map with coordinates for georeferencing

Contour Data extraction: Satellite imagery of Google Earth has embedded contour information but it is a bit tricky to extract[34] it and turn the data into a usable contour map in QGIS. It involves multiple software tools (Google Earth, GPS visualizer etc.). Figure 4c shows the extracted contour layer on top of a base map.

Hillshade from Google Earth Engine: Hillshade and DEM(digital elevation model) data[35] were extracted from Google earth engine and 3d view was produced in QGIS with 3D map view (Figure 4d, 4e).

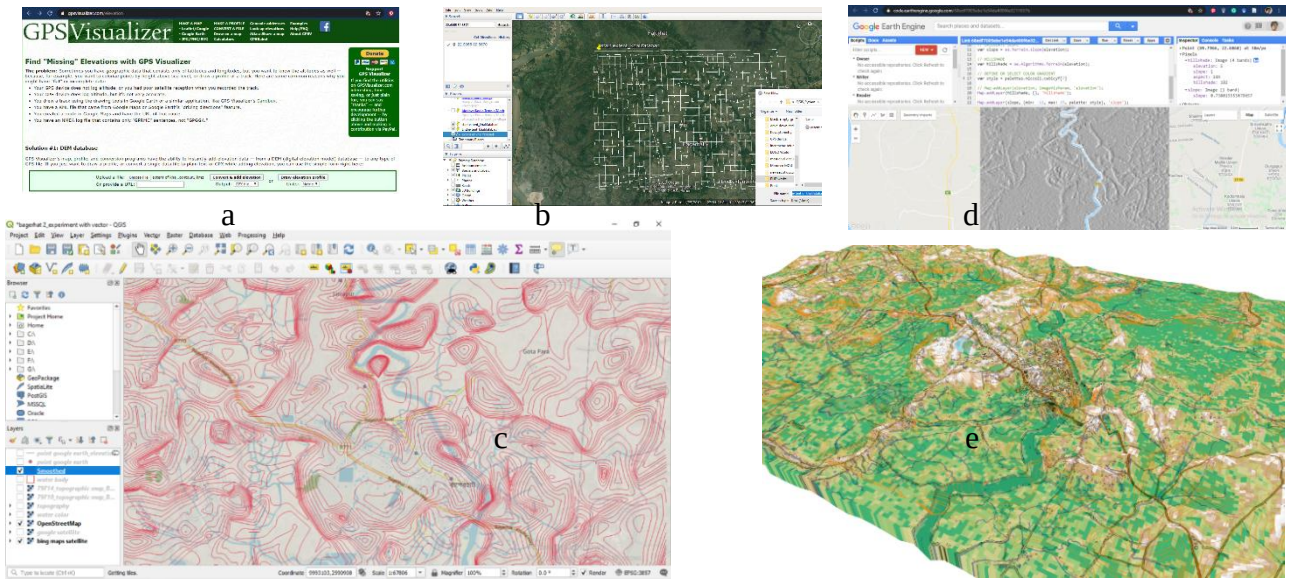

Figure 4: (a)Mesh like path to cover the area which needs the contour map for, export the data in kmz format. (b) Elevation Data is added to kmz file and converted to GPX file using "GPS Visualizer". (c) Contour map covering the extent of the then Khalifatabad. (d)and(e) QGIS with 3D map view using the hillshade elevation data

Geo-Inference of Satellite image and LGED rural maps: Satellite imagery of Khalifatabad for last 35 years [36] were extracted from Google earth engine with coding and topography analysis is accomplished in QGIS with useful result[37].

For the first Geo-Inference the canal network was superimposed with satellite image maintaining same coordinate reference system (CRS) and it was found that the low land (agricultural land) perfectly coincides with canal network (figure 5).

For the second Geo-Inference the satellite image is superimposed with the contour map of figure 4c, it was found that the low agricultural land has a height difference of 10 meters maximum with high land and the concentrating contour lines interprets a well-defined edge condition.

Now, the above two geo-inferences as well as the location of existing artefacts and vestiges (including existing architecture of that period) all together gives an indication of possible places and spots that were included in the urban areas of Khalifatabad.

a

Figure 5: (a) Upazila map of Bagerhat Sadar [source: GIS unit, LGED] three instances shown by omitting elements where the last one is canal network; (b) Agricultural land co-insides with canal network

RESULTS AND DISCUSSION

Spaces described in history and stories of thousands of years might be of spatial and cognitive perception to the reader, some spaces among them are real too. Historians, architects, archaeologists, detectives, lawyers, geologists (and who not) deal with space and spatial affairs. Despite many other protocols and scientific methods, literary geography is an amazing tool for mapping the narratives[38] . This digital humanities project performs beyond textual and with a deviation from the standard linguistic approach, as described in the sections of Theoretical framework and Methodology. To the advantage of analytical acuity and clarity, the making of effective arguments, the rigorous use of evidence, and communicative expressivity and efficacy, following definitions and knowledge-engagements[39] are achieved about the historic township of Khalifatabad.

First step_tracing the institutionalized heritage: In the first step the artifacts, mostly tangible elements (architectural heritage and cultural landscape) that are institutionalized only in government documentation, are mapped (refer to section 3.3a). It mostly resembles Dr. Ahmed's map (1989) as seen in figure 1a but now with correct scale, proportion and properly geo-referenced in digital format (figure 6a).

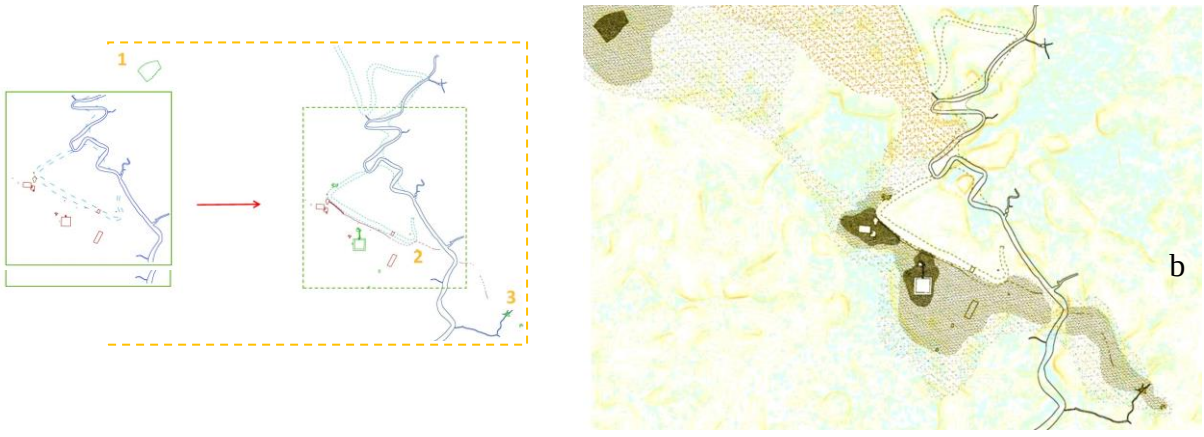

Figure 6: (a)First step and Second step (b) comprehensive understanding of morphological footprint of Khalifatabad

Second step_plotting the uninstitutionalized heritage: As long as the uninstitutionalized artifacts are counted found from various sources (refer to section 3.1, 3.3b and 3.4) and mapped with proper georeference, actual extent of the city of Khalifatabad immediately becomes much larger (figure 6a). Now it is stretched to north-west and south-east more than double than previous (covering 22.59803626 to 22.75072779 latitude and 89.63367729 to 89.85615044 longitude). This understanding may be called the "anticipated extent of Khalifatabad".

Third step_imprecise geography: Perhaps it is possible to extract more information from landscape that help to build-up a comprehensive picture of the morphological footprint of historic city of Khalifatabad even if that remains in the domain of imprecise geography. Since the geography is predominantly a part of delta and close to the sea, therefore the land is subject to tidal transformation. It is customary that low lands that are inundated periodically are not suitable for urban activities; rather local people use to do occasional/seasonal agriculture here. Therefore, excluding the same as well as filtering with relevant placenames from the anticipated "extent of Khalifatabad", can be one viable procedure towards defining the morphological footprint of the township.
So the geo-references of tangible and intangible heritages, Geological features and landscape, century old cultural and agricultural practice, evidence from artifact, non-fiction, photography, local witness and historians, satellite imagery and topographic analysis and finally location of relevant placenames (refer to sections of 3.2, 3.3 and 3.5), all placed in different layers, superimposing each one on top of another, here (figure 6b) is a comprehensive understanding of morphological footprint of the historic settlement of Khalifatabad.

CONCLUSION:

There are various approaches and motives to "mapping literature" as discussed in the introduction. Undoubtedly this is a multidisciplinary and interdisciplinary work. Therefore, depending on the proportion of disciplinary share the digital humanities project can be claimed to belong to certain domain. In this era of digital humanities, especially post-covid19 world, the use of digital tools is likely to be used many more times, wherever and whenever possible. It is inevitable that the digital tools appear as an intermediate research assistant so that researchers can cover larger extent, work with bigger data in shorter time. Therefore, now, topics, facts, phenomena and evidences seemingly less related or unrelated, appears to have more potential to be compared, contrasted and synthesized to bring an output that was never seen before or was not possible to define precisely. This is exactly what was attempted in this article.
The end product in this article is exhibited as a cartographic representation of historic settlement, has some deviations from a regular and traditional cartographic map though. This is just one possibility of graphic representation where there are elements that are tangible with precise locations, there are others with imprecise geography. Archaeological excavation and random discovery by general people is still going on, for which, in near future there is more scope to enhance and enrich this map. Apart from the map itself, the methodology is far more important than the end product. Because many different sources have been consulted through digital humanities protocol and selected data were converted to spatial and mappable data, potted in layers and then superimposing all the layers brought out the end product, which is highly in contrast to "survey and mapping" practices. In this article the methodology is demonstrated to ultimately find out the morphological footprint of a historic settlement, but the methodology is universal. Mapping from literature with creative choice can contribute to bring out interesting output in

the interdisciplinary socio-political, socio-economic, geo-political and many other fields. This approach, having a very good potential for future, is still an exploratory conception which takes help of GIS platform for georeferencing and organization; and to be developed further into interdisciplinary research and knowledge creation for greater good of humanity.

NOTES

[1] Nazimuddin Ahmad, *The Buildings of Khan Jahan in and Around Bagerhat.* (Dhaka: University Press, 2000).
[2] While conducting the research, during fieldwork, at least 10 working mosques and fewer numbers of tombs, residence, meditation chamber, Ghat and legendary lakes or cultural landscapes are found among the tangible architectural heritage. There are quite a few unidentified mounds and sites. Among the intangibles, there are performing arts, worships, rituals and beliefs, weekly bazzars as well as biological and communal heritage. Some are institutionalized, protected and preserved while others are not.
[3] Rick Altman, *A Theory of Narrative* (New York: Columbia University Press, 2008); OSU, 'What Is Narrative Theory?', Project Narrative, 10 August 2011, https://projectnarrative.osu.edu/about/what-is-narrative-theory.
[4] Robert T. Tally, 'Literary Cartography: Space, Representation, and Narrative', in *International Society for the Study of Narrative Conference, 2008, Austin, Texas, United States.*, 2008, https://digital.library.txstate.edu/handle/10877/3932.
[5] Daniel Alves and Ana Isabel Queiroz, 'Exploring Literary Landscapes: From Texts to Spatiotemporal Analysis through Collaborative Work and GIS', *International Journal of Humanities and Arts Computing* 9, no. 1 (March 2015): 57–73, https://doi.org/10.3366/ijhac.2015.0138; Barbara Piatti et al., 'Mapping Literature: Towards a Geography of Fiction', in *Cartography and Art* (Berlin, Heidelberg: Springer Berlin Heidelberg, 2009), 1–16, https://doi.org/10.1007/978-3-540-68569-2_15; Franco Moretti, *Atlas of the European Novel, 1800-1900* (London ; New York: Verso, 1999).
[6] Denis Cosgrove, 'Cultural Cartography : Maps and Mapping in Cultural Geography', *Annales de Géographie* 660–661, no. 2 (2008): 159, https://doi.org/10.3917/ag.660.0159.
[7] Alys Longley and Nancy Duxbury, 'Introduction: Mapping Cultural Intangibles', *City, Culture and Society* 7, no. 1 (March 2016): 1–7, https://doi.org/10.1016/j.ccs.2015.12.006; L.G. Horlings, 'Cultural Mapping: A Value Centered and Place-Based Perspective', in *Proceedings of Mapping Culture: Communities, Sites and Stories* (Mapping Culture: Communities, Sites and Stories, Coimbra, Portugal, 2014), https://www.researchgate.net/publication/261793400_Horlings_LG_2014_Cultural_mapping_A_value_centered_and_place-based_perspective_Paper_for_the_conference_on_Cultural_Mapping_Coimbra_Portugal_28-30_May_2014.
[8] Text, perhaps the most prosperous source of information, hold many dimensions of history and cultures in a linear mode and maps, on the other hand, have capability to hold and exhibit knowledge of geography, history, culture with a unique spatial perception which is very difficult for any other media to achieve.
[9] May Yuan, 'Mapping Text', in *The Spatial Humanities: GIS and the Future of Humanities Scholarship*, ed. David J. Bodenhamer, John Corrigan, and Trevor M. Harris, Spatial Humanities (Bloomington: Indiana University Press, 2010).
[10] The first approach (spatialization) deals with large data and very useful for digital humanities projects with linguistic approach.
[11] Anne-Kathrin Reuschel and Lorenz Hurni, 'Mapping Literature: Visualisation of Spatial Uncertainty in Fiction', *The Cartographic Journal* 48, no. 4 (November 2011): 293–308, https://doi.org/10.1179/1743277411Y.0000000023.
[12] Piatti et al., 'Mapping Literature'.
[13] Andrew Robichaud and Cameron Blevins, 'The Spatial Turn', Repository of essays, Tooling Up for Digital Humanities, 2011, http://toolingup.stanford.edu/?page_id=1139.
[14] Anne Burdick et al., eds., *Digital Humanities* (Cambridge, MA: MIT Press, 2012).
[15] Matthew G. Kirschenbaum, 'What Is Digital Humanities and What's It Doing in English Departments?', *ADE Bulletin*, 2010, 55–61, https://doi.org/10.1632/ade.150.55.
[16] Patrik Svensson, 'Envisioning the Digital Humanities', *Digital Humanities Quarterly* 006, no. 1 (24 May 2012).
[17] Roger Trancik, *Finding Lost Space: Theories of Urban Design* (New York: John Wiley & Sons, 1986).
[18] Masood Imran, *Patterns in the Medieval Urban Space of Khalifatabad, Bangladesh Spatial Analyses of Archaeological Records with a Proposed Surveying Model* (Saarbrücken: LAP LAMBERT Academic Publishing, 2012), http://nbn-resolving.de/urn:nbn:de:101:1-201209261819.
[19] Anne Vernez Moudon, 'Urban Morphology as an Emerging Interdisciplinary Field', *Urban Morphology* 1 (1997): 8.

[20] Shajjad Hossain and Filipe Themudo Barata, 'Interpretative Mapping in Cultural Heritage Context: Looking at the Historic Settlement of Khan Jahan in Bangladesh', *Journal of Cultural Heritage* 39 (September 2019): 297–304, https://doi.org/10.1016/j.culher.2018.09.011.

[21] Kathryn Schulz, 'What Is Distant Reading?', *The New York Times*, 24 June 2011, sec. Books, https://www.nytimes.com/2011/06/26/books/review/the-mechanic-muse-what-is-distant-reading.html.

[22] Tally, 'Literary Cartography'.

[23] See in Alves and Queiroz, 'Exploring Literary Landscapes'. Alves and Queiroz argues that distant reading and dealing with large volume of textual data has its own limitation of biasness as well as technical and epistemological concerns. They combined close reading along with distant reading for their project LITESCAPE.PT for combining both qualitative and quantitative methods while came across 350 Portuguese literary works

[24] At present missing for some reason (e.g. new urban development).

[25] The database file "BGD_Gazettier/BGD.dbf" is available at DIVA-GIS portal (http://www.diva-gis.org/Data)

[26] The database file "BGD_Gazettier/BGD.dbf" offers 33739 entries along with latitude, longitude and associated administrative levels. It is edited to convert into csv(comma separated value) in excel. Since the intension is to use the dbf file into QGIS in order to obtain point vector layer of specific administrative district, all other data except the placenames and coordinates are sorted and removed. This reduced the number of entries to 198 which belongs to Bagerhat district(case study area with larger administrative boundary). The csv file is imported in QGIS by "Delimited Text" import option while indicating the correct attributes (X,Y coordinates, CRS:EPSG4326-WGS84, CSV).

[27] There is evidence of historic highway made of brick with very unusual
size, identical to the bricks used in preserved architecture of that period. But it is evident in the photograph (source: author) that it is now hidden under a newly constructed road(figure 4b). So the coordinates were recorded and the entire length was drawn in GIS application.

[28] There is a very interesting story of battle on elephants between the troops of Khan Jahan and troops of Mog King Kornwali, a very well-known non-fiction(figure 4c) among local people for hundreds of years as well as described in this book Mohamad. The winning in this battle marked the start of the reign of khan Jahan and the northern extent of his territory. From then the name of the place was Piljanga (where Pil means elephant and janga means battle). At present there are dispersed settlements, some historic temples, fields and schools.

[29] According to eminent historian mitra, the Buddhist statue(figure 4d) was found by Khan Jahan while excavating the crocodile's water tank Satish. He thought it belonged to the Hindu community and returned to them. While allocating separate land for them at this location of the temple in photograph, just outside of Khalifatabad. Therefore, it perhaps marks the southernmost extent of the historic settlement of Khalifatabad. The statue, interestingly possess elements of both Buddhists and Hindus such as trident and snake are motifs from Hindu religion, but the person in the statue is Buddha. Therefore, it actually complies with the well-established history of successive practice of Buddhism and Hinduism in this locality.

[30] QGIS is an open source cross platform desktop GIS application that allows creating, editing, analyzing and viewing geo-spatial data. Besides the excellent spatial analysis capacity, the software has features to store attributes and database for which it is a very useful choice for digital humanities project.

[31] In QGIS to add a background map, the plug-in "XYZ Tiles" was installed. Adding any map through this plug-in [right click/new connection/connection name/URL] brings a background map in working project of QGIS (version 3.4.13-Madeira). There are certain online raster tile servers based on OpenStreetMap data (available at https://wiki.openstreetmap.org/wiki /Tile_servers). Some of them require commercial license and some of them are free and open source. The list provides a brief description, tile URL, tile example and source code. The tiles/background maps used in this project are free and open source. The URL provided here needs to be used in "New connection" command of the "XYZ Tiles" plug in where the "$" sign must be removed before using. For example: use https://a.tile.openstreetmap.org/{z}/{x}/{y}.png instead of https://a.tile.openstreetmap.org/${z}/${x}/${y}.png for open street map layer.

[32] To add previously done vector drawings (e.g. cad drawings) to QGIS project it is first necessary to convert dwg files into dxf file because dxf is only supported by QGIS. It can be done from AutoCAD by "save as dxf". In QGIS dxf can be added by "layer/addlayer/add vector layer", the command gives option to import 3 different items: points, lines and polygons. Everything from dxf files are shown/adapted in QGIS in those basic 3 items. Therefore, it is necessary to perform simplification in cad/dwg file before saving it into dxf and later improve/develop in QGIS according to need.

[33] Scanned paper maps can be added in QGIS by "layer/addlayer/add raster layer" command. Raster scans of paper maps and some satellite images are in pixel coordinates, they lack location information (no Longitude and Latitude values). In this case, QGIS will assume a single pixel is 1 metre square and it will place the Scanned map

at 0º North, 0º West in the Atlantic Ocean south of Ghana (give reference: https://ieqgis.wordpress.com/2014/05/22/how-to-georeference-a-map-in-qgis/). Detail procedure of geo-referencing scanned maps(having coordinates information available on the map image itself i.e. grids with labels) can be found here (https://www.qgistutorials.com/en/ docs/3/georeferencing_basics.html by Ujaval Gandhi) for QGIS 3.4.13 . Maps that has coordinates information can be added through Raster/Georeferencer. In the Georeferencer window "open raster" command opens a raster file(wide variety of formats) in upper window and by selecting points(by "add point" command) which has coordinates information creates attributes table in the bottom window. 5 or 6 points for a particular map should be enough to make it georeferenced. Finally, "start georeferencing" button finish the process. In the end, the relevant layer appears in Layers panel and from there it is necessary to assign a CRS(coordinate reference system).

[34] For that procedure it is important first to draw/add dense path in Google Earth that looks like a mesh (Figure 4a), covering the desired area and it will be usable in GPS Visualizer when saved in kmz format. GPS visualizer(Figure 4b) can help adding DEM elevation data from NED1, NED2, ODP1, SRTM1, ASTER, SRTM3 database (best one depending on the location on earth) through "look up elevation" function. Having the input of kmz files it gives away gpx file as output. This gpx file is further to be processed in QGIS with multiple plug-ins. The plug-in "GPS Tools" create a "waypoints from a track" conversion of the gpx file into a vector layer of georeferenced points visible in QGIS over other layers. These points have elevation data embedded in them. Another plug-in named "Contour Plugin" turn this point layer (data value: 1.2 elevation; contouring method: N quantiles; number: 14) into contour lines as a separate layer in QGIS. It is also possible to have filled contours instead of lines only. The lines can be edited (symbology) for clearer or more legible visual presentation. Sometimes the contour lines have sharp/abrupt bends due to manual placement of the points while making the track initially in making the kmz file in google earth. It can be corrected or smoothed by another tool in QGIS (processing toolbox/vector geometry/smooth; iteration:4).

[35] For Hillshade and DEM data it is necessary to write a bit of code and send to Google Earth server so that it returns the spatial data. The code used to have elevation data for Khalifatabad and create a 3D map view in QGIS, can be obtained here:
[https://code.earthengine.google.com/?scriptPath=users%2Fsshajjad%2Fkhalifatabad_mapping%3Ahillshade%20of%20khalifatabad%20ex]

[36] Satellite images for this area for that duration has been made publicly available, thanks to google.

[37] The extraction (video file format_can be viewed here https://youtu.be/Ct1gaUXHyaE) shows evidence and strong difference between high and low areas. The high area with big trees and permanent structures remain green all the year round. The low area, fed by canal network (figure 5a) connected to the main Bhairab river, becomes full of vegetation and appear green in the rainy season and becomes brown in the dry season.

[38] Fictions, history books, travelogues, govt. Reports, poster, advertisements, paintings, folklore, songs and musics, anthropological evidences etc.

[39] Burdick et al., *Digital Humanities*.

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ESTABLISHING A CITY SCAN PROCEDURE FOR SUSTAINABLE VIRTUAL TOURISM, IN ORDER TO SAVE BUILT CULTURAL HERITAGE
Based On Case Studies In Dubrovnik, Pärnu And Helsingborg

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INTRODUCTION

Parallel to the alarming rise in the number of heat waves in Europe during the 21st century, with temperature record highs being registered annually,[1] an increasing number of anti-tourism demonstrations have taken place at exposed heritage destinations.[2] Not least Lucifer lit the spark during the summer of 2017,[3] which coincided with UNWTO's "International year of sustainable tourism for development" which encouraged international partnership as a solution.[4] Local mass demonstrations against overtourism, express the opinion that concerns about modern day quality of living and environmental protection, rank higher than any income gained from tourism over the centuries[5] - and for obvious reasons. Scientific findings show that tourism cause 4, 4 % of global CO_2 emissions, which will grow by an average of 3, 2% per year until the year 2035.[6] The real challenge is to find new forms of tourism travel, that are consistent with a CO_2 emission reduction plan of up to 70%, required by 2050.[7] There is a need for new strategies and solutions for the future of the tourism industry, to limit the extreme overtourism of this century. A drastic decrease in travelling would reduce the emissions of greenhouse gases. Yet, tourism has given historical city centers a second life and today ironically, the upkeep of historical sites depends on its profits.

Since Unesco's World Heritage List 1972 and the onset of cheap air travel, tourism has increased, encouraging state funding of new destinations. This in turn rescued city centers and sites. For example, since 1990, former Eastern Europe has invested in building conservation. What once were low-valued, dilapidated historic city centers, being renovated, gained a new value and status as historic buildings, in their own right. The threat of modernisation creating architectural anonymity or leading to irreversible demolition, a phase which hit Sweden after World War II, ceased.[8] Furthermore tourism has, until recently, been the fastest growing economic sector globally; out of which every tenth European company makes their living. As a result, changes to tourism will be challenging since they affect the livelihoods of many. [9] In spite of the fact that tourism and its profits have grown considerably during the last decade, less income seems to benefit local businesses, according to the Vicious Circle

theory. Uncontrollable growth and the geographical spread of tourist services seem to be what propels this adverse trend.[10] Local stakeholders and authorities need to gain control over their own heritage destinations. To prevent dispersion and increase their share of profits, an effective work procedure is called for, to facilitate and support a new approach.

Significant heritage destinations have always generated tourism but consumer patterns, have changed considerably. What was in centuries past, only a small number of committed travelers has nowadays been replaced by tourists groups. A passion for simply admiring monuments per se, is unevenly shared, thus demands have increased for such destinations to provide alternative amusement.[11]This fact similar to the impact of charter tourism since the 1960s and of the Internet today, has continuously reduced travel costs, by introducing a competing market. While UNWTO calculates a 56-fold increase of tourists over the next 68 years to a total of 1, 4 billion tourists[12] this figure barely represents 18% of the world's population. In other words, a vast majority of humans will never be able to visit cultural heritage sites, despite historical treasures are our common legacy. Limited financial means, social status or physical disabilities, all become insurmountable hindrances for people. The goal to strive for is to give access for all groups to cultural heritage sites. The Internet could be the answer - by creating Virtual Tourism.

Since the spring of 2020, the onset of Covid-19 has completely changed the global travel situation and our way of life so far. Closed borders have temporarily stopped worldwide travelling and for the moment, alleviated the threat of overtourism at exposed, heritage destinations. Involuntarily the staycation trend, stay home+ vacation, has grown. In place of cross-border travel, Internet has become the only means of vicariously fulfilling the international travelling dreams of millions, regardless of these people's limited financial means, social status or physical disabilities. The unforeseeable drawback to this is the financial losses due to the shutdown of tourism in 2020, which affected the entire industry. Indeed, the growing alternative staycation trend must be encouraged, so that domestic tourism can balance some of the tourist industry financial losses. However, a direct measurable result of the Covid-19 forced confinement was registered during one week in April -global CO_2 emissions on the planet had diminished by 17%. If global surface transports could remain this low, the emission rate might stay around 7%, equal to the Paris Agreement of 2015.[13] A Covid-19 vaccine is around the corner, but the lesson to be learned from this spring's reduced travelling, is that many physical meetings are actually adaptable for Internet communication instead – a fact which drastically will cut CO_2 emissions.

In conclusion - to introduce distance visiting is the only sustainable solution for future tourism, until adequate surface transports based on emission-free vehicles running on electricity, from aviation to trucks, become the norm. The temporary substitute could be Virtual Tourism over the Internet, which instead initiates a relocation of cultural heritage sites. Augmented reality (AR) with all its value-enhancing capacities[14] might here be the answer. Meanwhile, domestic tourism or the emerging staycation trend, should be further encouraged to meet financial losses in the tourism industry.

Relocation of cultural artefacts, to convey impressions of faraway places, has a long tradition. As early on as the 8th century, Vikings brought home artefacts from foreign cultures, transmitting awareness of distant places. The historical museums drive in the 19th century initiated an extensive relocation of cultural artefacts. Consequently, time travel is now conceivable for visitors to the Babylonian Ishtar gate or Zeus' altar of Pergamum, thanks to the exceptional relocation of these artefacts, put on display in Berlin. The British Museum offers a trip to Ancient Athens and the Parthenon's former splendor, via the relocation of the Elgin Marbles. Also, the onset of the Industrialization era, inspired some pioneering private individuals to undertake spectacular rescue missions, relocating abandoned and deteriorating vernacular architecture from rural areas to open air museums. Today these pieces on display all are perfect museum objects, which unfortunately have become two-dimensional shells, since disconnected

from their roots and drained of depth. All pioneering work behind their relocation or the IndianaJones-Effect (IJE) died with their initiators. The visitor is left to admire but a fraction of all the storytelling latent in the objects. Virtual solutions such as augmented reality AR could correspondingly transfer or relocate today's museum visitors in a way that takes visitors back through the historical layers that the unique artefacts actually possess, thus encourage the staycation trend.
The goal of the research project, of which this paper is a first pilot study, is to investigate if augmented reality (AR) could be the right practical application, to create Virtual Tourism in relation to its time consuming process and high costs.[15] Previous studies[16] convincingly emphasize AR's many advantages for tourist destinations, by awaking positive feelings and not least epistemic values. Will augmented reality, this cutting edge of digital 3D technology, induce adequate value-enhancing experiences, although digital and over the Internet? Could AR compete with the real experience, so as to relocate cultural heritage sites and encourage staycations, until travelling becomes emission-free of greenhouse gases?

METHODOLOGY

Virtual tourism; CSP, Relocation and the IndianaJones-Effect (IJE)

Virtual tourism is a computerized animation of a cultural heritage site, which is digitally transferred through an augmented reality (AR) technique, thus relocated to be a global open source on the Internet. A virtual tourism project is intended to be set up according to the City Scan Procedure (CSP) to become effective and long-lasting for the tourist destination. Since AR technology is rather time consuming and expensive to launch, a VT digitalization should be compatible for multiple use to reduce cost (educational, research, digital archives worldwide). A CSP can be described as a concept of a working pipeline, intended as support for local stakeholders (authorities, local businesses) to improve their ability to control unrestrained tourism development. The relocated site as an augmented reality experience, is the output of this work process.

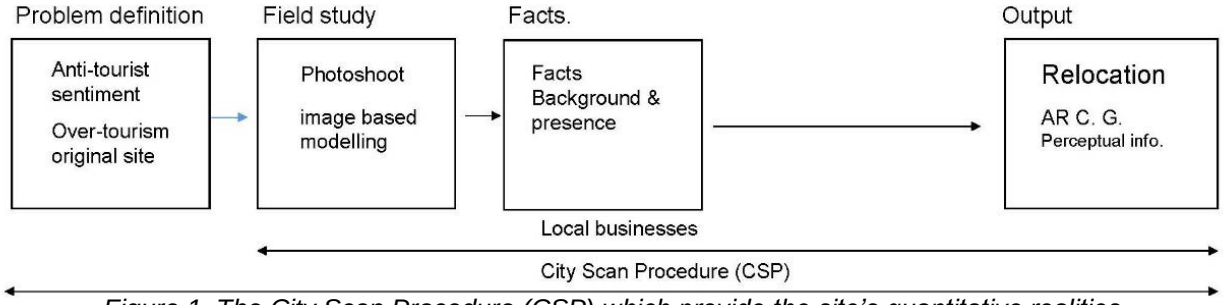

Figure 1. The City Scan Procedure (CSP) which provide the site's quantitative realities

Every CSP work pipeline is adapted to the local conditions, stakeholders' desires and existing requirements, but the output - such as a relocated street in AR format, needs to fulfill stated criteria. CSP's basic structure consists of Problem definition, Field study, Facts and Output which provide the site's quantitative realities, Figure 1. Yet to boost the storytelling, here referred to as the IndianaJones-Effect (IJE) via AR, the stakeholders' knowledge and desires will be included by quantitative interviews, which is when this media comes into its own right. The respondents will participate during the initial phase to convey their visions of an AR transformation and the outcome will guide how to proceed, Figure 2. A second round of interviews occur for the final qualitative feedback on the AR output, before publication as Virtual Tourism on the Internet. Local business are commissioned for the CSP assignment to ensure that a tourist destination's main revenues accrue for the host country, thus

assuring maintenance of the cultural heritage. Two kind of site relocations set-ups will be investigated according to the CSP format in the research project involving, site relocation to (i) reduce overtourism and (ii) encourage staycation tourism, of which this paper focuses on the latter.
Relocation referrers to the interactive experience of a real-world environment, as a built structure, which is imaginatively moved from its original spot and repositioned virtually by means of an augmented reality (AR) digitalization. Yet, if this virtual transfer ends up as a perfectly rendered 3D model, the result will not be better than a photograph, that is to say, it soon becomes uninteresting. AR is designed to enhance an interactive experience by computer generated perceptual information such as visual, auditory or haptic sensations. These will make the 3D output come to life as storytelling, here referred to as the IndianaJones-Effect (IJE). Ambience of this kind requires that the object has gone through changes of place or time. Historical buildings for instance, contain time layers which an AR interactive experience could highlight and amplify.

Overtourism and Staycation Tourism

I Site relocation to Reduce Overtourism

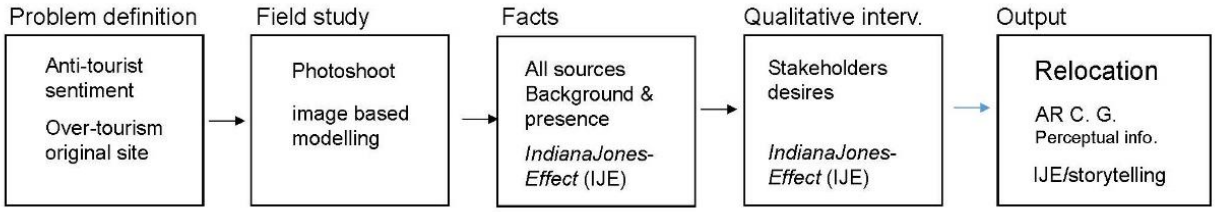

Figure 2. CSP Site relocation to reduce overtourism including quantitative interviews providing the IJE

Site relocation of a cultural heritage could be at three different locations: (1) a new spot within the same city, (2) within a Region or (3) Globally. The City and Regional relocations are intended for domestic tourism with physical presence of visitors, but in another place. However, thanks to the AR digitalization they offer total access for all groups every time, as visitor centers. New regional spots, less rich on traditional tourist sites could in this way activate local businesses, i.e. restaurants or hotels. The new, decentralized, virtual tourism experience, will automatically also extend or prolong the visiting season. Global relocation refers on the other hand to the Internet and here unique storytelling can reach a much larger audience of either tourists, students or researchers. Virtual Tourism also offers the opportunity for local companies to develop related computer games and other software.

II Site relocation to Encourage Staycation Tourism

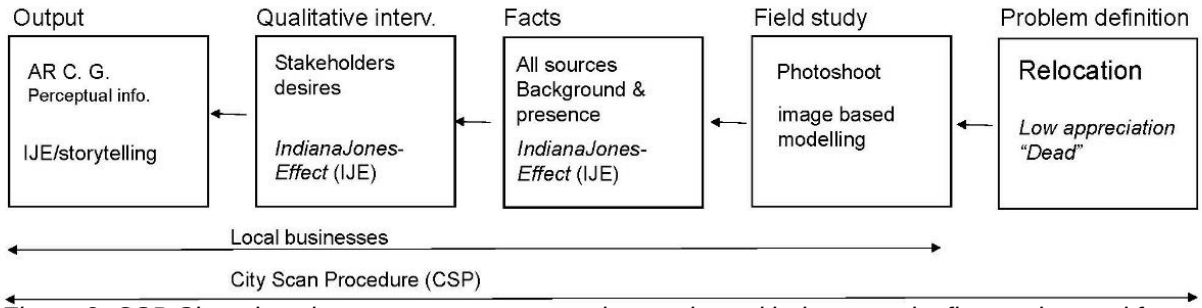

Figure 3. CSP Site relocation to encourage staycation tourism with the opposite flow, to be read from right to left

Staycation tourism refers to domestic visitors of museums. The City Scan Procedure (CSP) for staycation tourism, has the opposite flow to the one described for overtourism, Figure 3. This is because CSP for museums starts from the opposite end, because the relocated objects (house or artefact) already is housed in their collection. Even an immaculately displayed object can become uninteresting for a less prepared audience, if not all its value-enhancing stories are told. The circumstances behind which it came in the museum's possession must always be mandatory to tell, for the IndianaJones- Effect (IJE), hence perfectly suitable for AR to reveal.

Pilot study: Open Air Museum Fredriksdal

The Open Air Museum, Photoshoot and Image based modelling

Fredriksdal Open Air Museum with buildings and its gardens, is a 36-hectare, large park area in Helsingborg, Sweden. Its main late 18th century buildings, used to be the summerhouse of the Cöster family. In 1918 the entire estate was donated to the city of Helsingborg. A decade later was inaugurated as Fredriksdal Open Air Museum. Over the years, buildings at risk of demolition or deterioration, have been moved into Fredriksdal - both rural vernacular architecture and historical city buildings from the old historical district of Helsingborg. This pilot study focuses on the seven buildings along the artificially laid out main street and together they create the so called Stadskvarteret (the City). These buildings were built between the 1780s and 1910s but were relocated to the museum in the mid-20th century, Figure 4. A majority of the buildings were first dismantled and then rebuilt as per their original design, while others, such as the Graphic Museum in 1995, is a pastiche since the original house was actually demolished in 1913. The most recent arrival in 1998, is the beloved Olympiagrillen (Olympia hotdog kiosk). Only a few of the buildings are regularly open to the public and then only in the summer season. During the specially arranged theme weeks, a couple of times a year, the whole street comes to life. Due to fire restrictions, public activities are unfortunately only allowed in the ground floors. One exception is Prästgården, which is now rented out as premises for a school and as a florist's.

Figure 4. The Stadskvarteret (The City) buildings

In April 2020 the first CSP pilot study was conducted at the open air museum Fredriksdal as a "Site Relocation to Encourage Staycation Tourism". The intention was to include the complete street with all its buildings. The first photoshoot was conducted with a digital camera (14-42 mm, 1:35-5.6) from a three-meter distance, as a sequence of 32 pcs of overlapping photos. Due to inadequate results after the data processing or image based-modelling and rendering (IBMR), a second photoshoot with 132 pictures was carried out.

Qualitative interviews

During the initial CSP phase, four members of the museum's staff at Fredriksdal, were interviewed in real time via the Internet based platform Zoom. The respondents; two male and two women, did not have any pre-knowledge of the content of the semi-structured and open ended questions, which were showed on the "shared screen" one after the other. The intention was to map the stakeholders' knowledge, desires and visions about what an AR transformation of buildings could contribute with for the open air museum. A second round of interviews will take place for their final qualitative feedback on the AR output animation after completion in early 2021.

RESULTS

Photoshoot and IBMR

The field study at Fredriksdal should have been conducted in collaboration with the Department of Archaeology and Ancient History, Humanities Lab at Lund University (Sweden). Ass. Prof. Giacomo Landeschi and his colleagues have expertise in this area, gained from field studies with AR, 3D GIS vector based analysis at archeological sites.[17] However, due to the Covid-19 situation all archeologists were prevented from participating, therefore all photos were taken by the author with a digital camera, Figure 5. The Humanities Lab processed them all through image based-modelling and rendering (IBMR) using Agisoft Megashape professional software. Only the processing of the second photoshoot gave a result, but in spite of the 400% increase of pictures, this still only resulted in one facade model, Figure 6. The reason for the 3D modeled façade's curved appearance might indicate a gap in the running photographic series of shots taken, thus more shots will be added during the next field study.

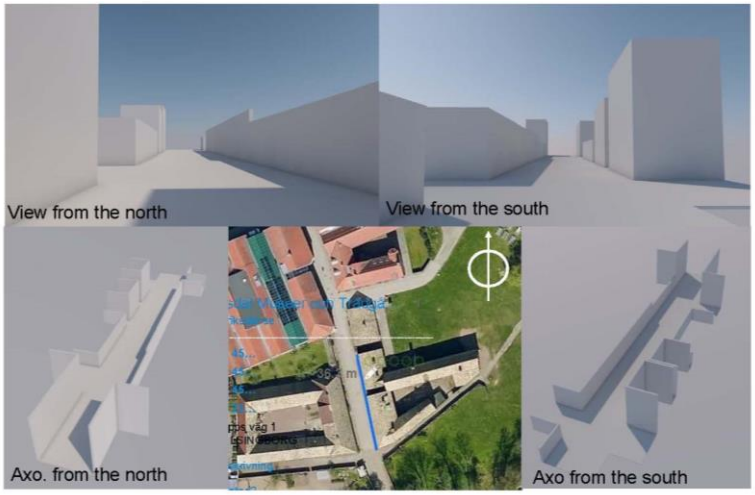

Figure 5. Archi Cad renderings of the Stadskvarteret façade walls

Figure 6. The 3D modeled façade's curved appearance

CSP Fredriksdal Open Air museum

The pilot study at Fredriksdal is at present incomplete, due to the delay caused by Covid-19 restrictions on the archeology department. However, to indicate results so far, see the illustration (from right to left) of the City Scan Procedure. It presents "Site Relocation to Encourage Staycation Tourism" at Fredriksdal Open-Air Museum**,** Figure 7.

Problem definition; Low appreciation or the relocated buildings at the museum
Field study; the rudiment 3D model of the curved façade (Prästgården)
Facts; the historical layers with the original sites in Helsingborg to highlight+ IJE
Qualitative interviews; Phase 1 stakeholders' expectations and desires+ IJE
Output; AR model with interactive historical layers and engaging storytelling

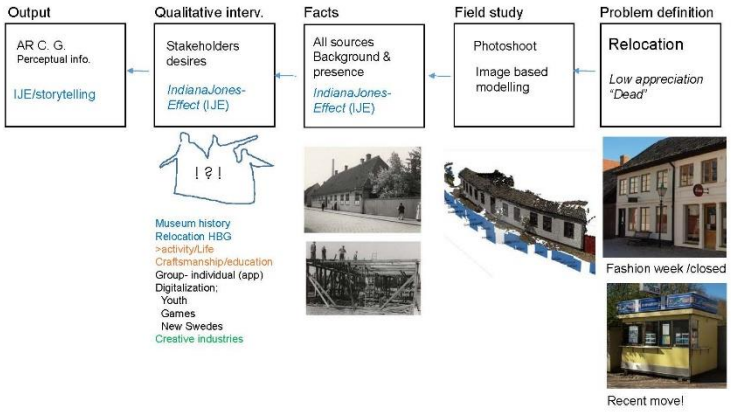

Figure 7. City Scan Procedure; Site relocation to encourage Staycation tourism at Fredriksdal Open Air Museum in Helsingborg, Sweden

DISCUSSION

With the ambition of photographing all building facades perpendicularly, the software Megashape interpreted perspective lines in the photographic material, which could explain the curved façade appearance. This might be resolved by adding even more photographic images. However, since buildings are far more precise than pre-historical ruins, all inaccuracies are revealed much more in 3D images due to architecture's many reference points. Such uncertainties make the seemingly easy data processing using a camera, by image based-modelling and rendering (IBMR) – both unpredictable and time consuming. This is why a modus operandi for the field work needs to be developed to make virtual tourism economically feasible in practice. Archeological research on applying 3D GIS vector-based analysis for documentation at archeological sites is already advanced and thriving, but less so within architecture and building conservation science. Advancement of architecture's digital field of knowledge is called for, which makes this research project on CSP's Virtual Tourism unique and highly relevant.

CONCLUSION AND NEXT STEPS

The purpose of this research is to make practical contributions and based on field studies in three different countries, to explore the potentials of introducing Virtual Tourism (VT) by means of AR to mitigate overtourism and today's CO_2 emissions. VT could signify the necessary paradigm shift for the tourism industry since its work pipeline, the City Scan Procedure (CSP), is constructed with the intention of giving local stakeholders better control of their tourist destination, by regulating today's unrestricted development.

The next step is to complete the CSP model of Site Relocation to Encourage Staycation Tourism, at Fredriksdal Open Air Museum in early 2021. During 2021-2022 the next field studies will take place in cooperation with local participants in Dubrovnik, Croatia and Pärnu, Estonia, in order to establish their CSP prototypes of Site Relocation to Reduce Overtourism.

NOTES

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IMAGE-MAKING AND THE THICK PHOTOGRAPHIC NARRATIVE

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We live in an age of visual culture, surrounded by a volume and intensity of images like never before. Taking snapshots has become an everyday occurrence, a momentary reaction stored on ever-growing camera rolls, likely never to be consulted again. Lost within this visual turn is the practice of visual thinking.[1] Such is a practice of using the camera to establish valuable engagements with our living environments, allowing for situated knowledge, attentive looking and transformative understandings. In response, this paper addresses photography as a creative process and practice of image-making, specifically through its sequencing or what I refer to as the creation of 'thick photographic narratives', to create new conceptions of, and insights into the everyday world around us.

This paper employs modes of image-making to investigate the landscapes of two post-war Danish social housing estates – Bellahøj (1951-1956) and Farum Midtpunkt (1971-1974). Both projects were part of the post-war vision that placed well-being as a key dimension of the emerging welfare state. With construction being one of the most influential ways of intervening in societal development, housing became a key pillar in the establishment of the Danish welfare state and thus a cornerstone in the achievement of the good life for every citizen.[2] Bellahøj and Farum Midtpunkt were two of the many social housing projects that successfully solved the housing shortage in Denmark, making use of new technologies and industries to materialise better living standards.[3] However, today these constructions are not always seen in such a pleasant light. A decrease of industrial workplaces, more migrant workers, and on-site technical, architectural and financial problems already started to create challenges within the projects by the mid-1970s.[4] Today, many of the Danish housing estates that were constructed between 1950 and 1980 are perceived as socially challenged, conflict-ridden and in need of renewal.[5] Regenerative efforts have begun on some of these projects, yet the focus has largely been confined to the architecture and physical building processes, or ecological and climatic adaptations to the open spaces with little acknowledgement of the existing landscapes, their embedded spatial qualities and their centrality in materialising the growing societal ideological mindset of the good life.[6]

The lack of attention or consideration of these landscaped areas can be due to the fact that, particularly in the Danish context, research on post-war social housing estates has yet to make significant connections to the landscaped spaces.[7] Furthermore, the landscapes of Danish social housing estates are often generalised and commonly referred to as 'green open spaces', 'free' or 'open' areas (*friarealer*),[8] or undeveloped grounds,[9] which do not acknowledge what I argue are nuanced and diverse, green and

grey, open and enclosed, designed and desired spaces alike that were shaped by local and contextual ideologies of welfare and central in the materialisation of the post-war good life vision. The aim of this paper is thus to better articulate what I from here forward refer to as 'welfare landscapes' – the multifarious grounds, diverse spatial outcomes and outside living areas conceived on the basis ever-negotiated ideas about welfare that had never been constructed before.

Premised on the hypothesis that there is more to the green than meets the eye, I use photographic modes of analysis, paired with archival material, to investigate the specificity and centrality of the Bellahøj and Farum Midtpunkt landscapes in the establishing of humane living environments designed to provide diverse and rich spatial opportunities for gathering, play, community, privacy, resident development and the like. By gaining a more comprehensive understanding of the welfare landscapes and their inherent spatial qualities and embedded good life vision, this research can speak to the differentiated grounds and changing living ideals that characterise and differentiate Danish social housing sites, allowing new possible futures for the projects to be based on more local, detailed and nuanced understandings of the landscapes – or what I refer to as, the *thickness* of the green.

THICK DESCRIPTION FOR A LANDSCAPE ANALYSIS

The anthropological method of thick description, initially introduced by Gilbert Ryle, was developed by Clifford Geertz in his book The Interpretation of Cultures (1972) which encouraged moving beyond scientific facts, surface appearances and symbolic gestures by inserting details, context and history into explanations and experiences.[10] Thick description for Geertz was an attempt at revealing the intricate and layered qualities of the subject – or in this case sites – of analysis. Geertz describes thick description as a methodological process that first *grasps* and then *renders* 'the multiplicity of complex conceptual structures, many of them superimposed upon or knotted into one another, which are at once strange, irregular and inexplicit'.[11] However, it is not the exhaustiveness of coverage or the 'arranging of abstracted entities into unified patterns that makes a description *thick*' – it is not a search for a singular and all-encompassing truth or grand narrative.[12] Instead, Geertz intends thick description to be a creative act of interpretation that brings together (grasps) and shares (renders) the multiplicity of aspects, elements, and perspectives that construct our experiences. Thick descriptions as such become re-presentations, providing nuanced, detailed and new ways of seeing, acknowledging the subjective work and interpretive role of the ethnographer who gathers fragments into new narratives.

Adopting thick description into a landscape analysis of Bellahøj and Farum Midtpunkt had its advantages. Its open approach and ill-defined methodology, which has been subject to critique,[13] provided an opportunity to adapt thick description to other, specifically visual, methods of gathering and rendering. Not only is this advantageous in the field of landscape architecture but, as James Corner points out, essential to understanding many qualities and characteristics of the natural environment which often fall to the wayside of textual descriptions, yet remain essential to landscape understandings – the spatial, material and temporal qualities of landscapes – their dynamic and seasonal growth, their diverse forms, characteristics and relational scales.[14] Thus, for an analysis of Bellahøj and Farum Midtpunkt's landscapes I adopted thick description's process of 'gathering' to my own on the ground, in-situ photographic explorations; using the frame to see, think and investigate the housing landscapes, moving beyond recording and documenting and instead using the camera as a means of empirical and critical analysis. With the camera I was able to bring the overlooked, everyday landscapes to the foreground, depicting within the visible the lesser acknowledged green, the vegetative, undulating and lush common ground, framing details to emphasize the specificity of place that depicted a landscape where humans were central.

GATHERING AND RENDERING

This photographic gathering became an immersive experience with the rawness of the landscape experience collected alongside the stories that the archives told. The camera became a way to frame and understand the histories and intentions of the sites that I read about and sourced in the archival material dating back from the time of the sites' conception and construction. The processes of gathering was thus a moving back and forth between these different spheres of knowledge – the spatial and the historical – which are often addressed and considered separately especially in welfare research interact.[15] Through the viewfinder the historical, societal and designerly idealizations of nature as part of a post-war housing setting became physical in form, revealing the desires of a welfare society embodied in the landscape elements; the green ever thickening with meaning.

Furthermore, this was followed by an adaptation of Geertz's 'rendering' to an in-depth engagement with my gathered material off-site and creation of thick-photographic sequences. It involved printing, cutting, selecting, pairing and sequencing the photographs, identifying relations, contestations and patterns across the images and historical insights, linking intentions to spaces, vegetative elements to living ideals, and overall fabricating a narrative that could call attention to the nuanced spatial and historical values of the welfare landscapes that have until this day largely lived on silently. The coming together of images and text, allowed each frame and each quote to extend beyond itself, creating combinations and juxtapositions between elements, ideas, perspectives and times, which instead of mirroring the landscapes, opened them up to be seen for their multiplicities that could never be captured by a singular frame or snapshot in time. Like W.J.T Mitchell's imagetext, the thick-photographic-narrative combines images and words in complimentary and reinforcing relations, yet allows them to remain heterogeneous and provide different information.[16] However together, the visual-textual narrative generates meaning, bringing together the gathered elements and interpretations, arranging and rendering them anew across a durational experience; a generative sequence of creative making.[17] The sequence invites you to think with it, not about it, as it unfolds latent insights and spatial qualities of the Bellahøj and Farum Midtpunkt landscapes.

However, the *thickness* the photo narratives depict is thus but part of the result – it is the knowledge they provide on the inherent spatial qualities of the landscapes and the link they create between the materialisation of the green and the good life that allows them to serve as a resource for re-telling and re-thinking Bellahøj and Farum Midtpunkt landscapes in the future. The photographs captured and quotes gathered tell what the landscapes have said, and their rendering into sequences tell the narrative and result of that dialogue.

THROUGH THE LENS – WELFARE LANDSCAPE TELLINGS

Choosing to engage in a photographic inquiry meant early on recognizing that I was stepping into a dynamic process, one that presented a new landscape upon each successive visit. It rendered planning a disposable ideal that was early on replaced by long periods of time spent on site where I found myself just walking. Machine in hand, or around my neck, just walking. Long before I placed the camera in front of my eye, before I set up the frame and closed the shutter, I had to first decide on what it was that I intended to capture. The camera became a way of seeing. It necessitated continuous returns over the months, seasons and years.

Though I often welcome the opportunity to step away from the desk and into 'nature', the Danish weather was frequently far less than ideal. Rainy, windy, grey days formed the context of many of my visits. Instead of rescheduling my excursions, I began to embrace them. Every region has its own

qualities; along with latitude, geology, plants and culture, the changing weather, seasonal climates, sporadic growth and slow decay create the palettes of place. The camera, almost an extension of my body, a tool mediating the landscape surrounds.

When held up to the eye, becoming an instrument of discovery, bringing elements into focus, spaces into relation, and stories to my awareness. Through the lens, one becomes closer to the actual lived experience, replacing the aesthetic and distanced gaze often characterising landscape analysis with an engagement with the rawness of the site and its immersive material reality.

At Bellahøj the encountered pastoral park-like green is also a landscape developed to house thousands in better, greener living environments. The towering blocks direct views to the sky and to the city just beyond but also to the provision of space in between, establishing a green common ground designed for sunlight and fresh air to fulfil the vision of a healthy good life. The picturesque green scene at Bellahøj, a negotiated ground of poetics and function: winding paths and circulatory systems, lush green courtyards and places for neighbourly encounters and gatherings, an open landscape experience as well as a place of hidden parking, ancient burial grounds as well as an opportunity for child development and imaginary play. A vision for the future balanced on the shoulders of the past, adopting traditional Danish landscape elements of groves, meadows and beaches to residential living – linden-lined pathways, undulating lawns, and sandboxes adopted to childcare needs. The pastoral landscape, having been a vision for elitist escapes became a well-being ideal and space for all, providing modern opportunities and future promises in a beautiful green setting now close to home.

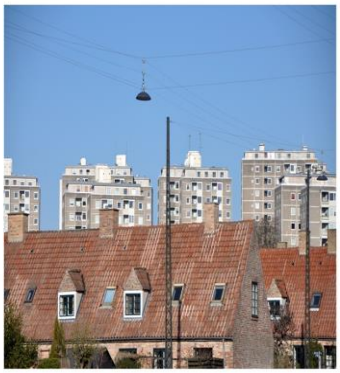
Bellahøj

[1] Svend Aakjær, Mogens Lebech, and Otto Norn, 1950.

'Where there had been a green field one summer, a residential area had been built by the next, but in a way that meant that the green ambience had not disappeared completely. No, a very frequently used form of housing development is medium-height blocks, freely spread out with green lawns in between trees and bushes. A modern housing development.'[1]

[2] Paul Moes, 1949.
[3] Eske Kristensen, 1945.

'The intention was not to touch Bellahøj Park or "Bellahøj" itself, nor the trees and vegetation in the park. The "point houses" as the project is usually called, were to be built on the most beautiful location that it was possible to find in the City of Copenhagen.'[2] 'The question of whether to build high or low buildings can be resolved relatively quickly – if you want to retain the free and park-like character of the area, low-rise buildings are out of the question.'[3]



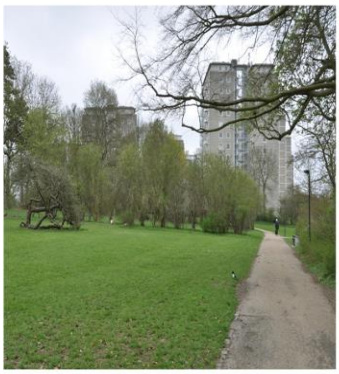
[4] Paul Moes, 1949.
[5] Edvard Heiberg, 1954.
[6] Politiken, newspaper, 1953.

'...the flats in these small skyscrapers will have the most beautiful views of Copenhagen.'[4] 'The value to the residents is not a matter of much doubt. A wide horizon and views of the sky let them keep up with the weather and the changing seasons, and a lot of people find it liberating to look out over a vast expanse.'[5] 'And then, of course, there is the pleasure of standing on top of a skyscraper and surveying the city below. This chance Copenhageners will hardly let go of.'[6]

Bellahøj

[7] Eske Kristensen, 1945.
[8] Eske Kristensen, 1945.
[9] Morgens Irming, architect, 1944.

'This type of development leaves green areas more or less intact.'[7] 'The vegetation and type of terrain on the site are so distinctive and valuable that the design of the development has to go to quite some length to make sure that it fits into the site without a huge amount of earthmoving, which might blur the current interesting character.'[8] '...I will emphasise that the blocks are in two parts, with one part a storey higher than the other so that they fit into the terrain in a natural way.'[9]



[10] Eske Kristensen, 1945.
[11] Edvard Heiberg, 1954.
[12] Ole Bahl, 1941.

It is a consummately deft touch that makes beautiful use of the scenic quality of the site. The individual blocks are of a reasonable size and height, and the way they are placed on the sites – including in relation to the nature of the terrain – is good.'[10] 'Concentrating on fewer and higher buildings leaves more open space between.'[11] '…the height allows for large distances between the 'towers' and makes it possible to preserve the natural landscape.'[12]

[13] Morgens Irming and Tage Nielsen, 1948.
[14] C. Th. Sørensen, 1931.

'The idea is that the park area between the tower blocks will be one continuous area linked to Bellahøj Park.'[13] 'When planning neighbourhoods, it would, however, be wrong to use all of the space for roads, buildings and private gardens. Land also has to be devoted to communal spaces, where people can congregate, as well as sporting and play facilities for young people.'[14]

Bellahøj

[15] Asger Olsen, 1981.
[16] Edvard Heiberg, 1954.
[17] Asger Olsen, 1981.

'The existing landscape here, with the farm house at Bellahøj and its park, provided the structure for the development plan.'[15] 'Parts of the wide-open spaces will be less well protected from the wind by the tall buildings. This can, of course, be counteracted by trees and bushes once they are established.'[16] 'Between the tower blocks, ash groves have been planted which today, in a good way protects and fills the space between the tall houses.'[17]

[18] Eske Kristensen, 1945.

'It is not only a question of providing better and larger flats. It is just as much a question of making sure that the areas surrounding our homes are designed in such a way that we are able, once again, to enjoy some of the contact with greenery, with nature, that we have lacked for too many years.'[18]

[19] Eywin Langkilde, 1954.
[20] Eywin Langkilde, 1954.
[21] C. Th. Sørensen, 1946.

'…¼ of the land is developed. The remainder is mainly covered by grass, trees, bushes and playgrounds, planned to a great extent by our landscape architects…'[19] '…big housing projects... are linked, more and more, to recreational areas – green areas, havens for children and adults, a counterweight to the fast pace of modern life.'[20] 'Dare I mildly, and in a hushed voice, remind you that gardens are not just recreational areas... – they can also be works of art ...'[21]

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[15] Asger Olsen, 1981.
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At Farum Midtpunkt the functional response to radical, utopian ideals of establishing close living in a green surrounding is realised as a landscape of houses where the feeling of being in a city and in the countryside is simultaneous. Architectural monotonous forms blurred by vegetative elements that bring green in and around and onto the floors, establishing a highly utilised but lush and human living environment. The megastructure established a new vision for the good life, one of alternative living and diverse opportunity where green was 'fractured' in to parks, gardens, squares, streets and fields yet connected on a shared horizontal plane. The terrace gardens, almost Babylonian in character, bring a lushness to the interior streets but also visual protection to the outdoor living space that feel like the single-family house with a garden. The view out and between the housing blocks is one of dense forests left to grow, with no allocated function yet emphasising the importance for the new good life vision to balance opportunities for privacy in addition to community. The close-low settlement, a social mindset established in physical form, founded on a diverse landscape framework for residents and plants to develop over time.

Farum Midtpunkt

[6]Viggo Møller-Jensen, 1972.
[7]Poul Andersen, 1972.

'Light and airiness achieved by creating green areas between the housing blocks. 'The connection of the apartments with a very large outdoor space that is appropriate for furnishing and sitting sheltered from the elements.'[8] 'It is such a strange "idealistic" setting.'[9]

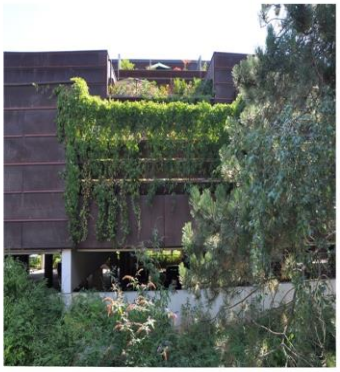
[8]Tyge Arnfred, et al., 1972.
[9]Tyge Arnfred, et al., 1972.
[10]N. Salleth, 1972.

'Many have wondered about, and worked with, the ways that one can make our ways of living better – more in line with the contemporary demands for community and potentials for developing.'[8] 'With Farum Midtpunkt, a new idea about living is realised.'[9] 'The open, close settlement.'[10]

[11]Tyge Arnfred, et al., 1972.
[12]Tyge Arnfred, et al., 1972.
[13]Søren Harboe, 1972.
[14]Søren Harboe, 1972.

'The pedestrian street can be seen merely as an access area, but is in reality a common area for children and adults, who flow between indoor and outdoor play areas and the available housing communal areas.'[11] 'The pedestrian street is like a city street that indicates a clear and delimited entity.'[12] 'The extensive grasslands to the east lay as a clearing in the forest…'[13] 'Between the housing blocks and pine forests, paths, squares, and playgrounds are accentuated…'[14]

Farum Midtpunkt



[15] Viggo Møller-Jensen, 1972.
[16] Tyge Arnfred, 1972.
[17] Søren Harboe, 1972.
[18] Tyge Arnfred, 1972.

'…all the architectural competitions worked towards developing the large, open outdoor space – the terrace. Terrace houses have been the era's response to the requirements of the new multilevel housing form.'[15] 'Not only a balcony, but a terrace garden under the open sky…'[16] '…where everything can be grown, from vegetables to rhododendrons.'[17] '…where it rains and snows, where children can build snowmen, where one can sunbathe or enjoy a temperate summer evening.'[18]

[19] Søren Harboe, 1972.
[20] Søren Harboe, 1972.
[21] Søren Harboe, 1972.

'One cannot change the fundamental fact that trees and shrubs are living organisms with a natural lifecycle and a limited lifespan.'[19] 'What is planted is not just a stage decoration.'[20] '…which is being planted now is allowed to grow and develop…'[20] 'Like lushly overgrown outcroppings in a forest of tall pine trees and birches…'[21]

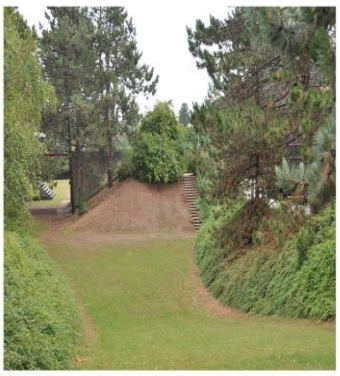
[22] N.Salleth, 1972.
[23] Søren Harboe, 1972.

'One lives in the vicinity of many people. Nevertheless, it is bright and open. One has elbowroom. Once can be her/himself. One can be many. And one needs both. Fulfilling opposing needs also contributes to well-being.'[22] '…in Farum Midtpunkt a good opportunity has been created for the green areas in the city to grant a vital contribution to forming a lush and people-friendly environment.'[23]

Farum Midtpunkt

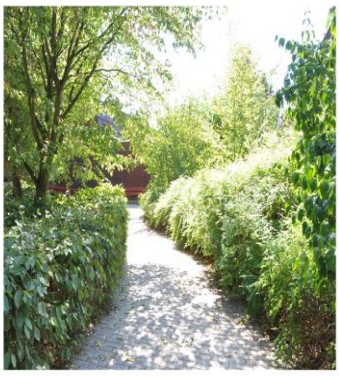
[1] N. Salleath, 1972.
[2] Soren Harboe, 1972.

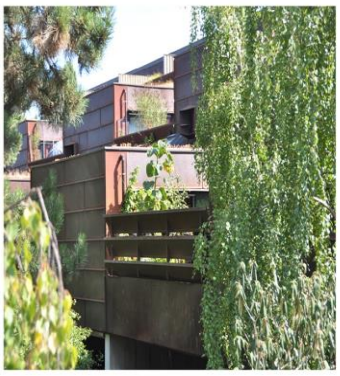
'The housing blocks are sited more closely to one another. On the other hand, the housing development is open with the terraces, and the houses are low-rise, and there are green areas surrounding.'[1] '…new forms of housing adapted to changing modes of living and technical developments.'[2]



[30] Tyge Arnfred, et al., 1972.
[31] Tyge Arnfred, et al., 1972.
[32] MidtPunktet 7, 1973.

'It is rightly called Farum Midtpunkt. One could also call the housing development "City by the open landscape", because here, and to an extent that only occurs rarely, there is direct contact in-between – not only some privileged houses, but a city and also fields and forests.'[30] '[It] belongs to the virtues of single-family housing that they lay on the ground.'[31] '…A significant proportion of the locality has been planned as hilly natural areas with thickets, small trees, and grass.'[32]





[3] Soren Harboe, 1972.
[4] Lundoltz, 1972.
[5] Tyge Arnfred, et al., 1972.

'There are sheltering hedges that provide warmth, trimmed linden trees and flowering bushes.'[3] Here, the vegetation is taken up to the housing levels.'[4] Where there are no houses, there is green.'[5]

Farum Midtpunkt

[6] Viggo Møller-Jensen, 1972.
[7] Poul Andersen, 1972.

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SENSE MAKING AND IMAGINING

The thick photographic narrative, has enabled new knowledge, insights and spatial perspectives to articulate Bellahøj and Farum Midtpunkt's landscapes. Using the camera as a mode of visual thinking instead of image taking, landscape analyses can become more attentive and alert, sensitive and site-specific, addressing the whole of the landscape scale inclusive of horizontally binding and undulating lawns as well as diversely planted hanging gardens. Furthermore, paired and narrated by historical quotes voicing the intentions and ideals embedded and envisioned for the sites, the landscapes can be acknowledged for their local and cultural meaning; as grounds layered with time and diverse spatial and material realities. The thick photographic narrative brings the past and the present into view, rendering more graspable insights without reducing the particulars of situated and site-specific qualities to ultimate truths or categorisations. The multiple layers, elements and time are held together in a non-reductive manner and become a source for new readings, engagements and future imaginaries inclusive of and aware of the value of the green.

In conclusion, this paper proposes the creative act of making these thick visual-textual descriptions as a process of making sense of the world; of our familiar living landscapes; providing a durational perspective that could never be captured in a single frame. A process of taking in new material and becoming more in relation to it. As such, these photographic sequences can be seen as both object and practice: as being both something here and now and as something always unfolding into something else. Situated in the present, these renderings are given back to readers through new enduring perspectives that attend to how welfare ideals have unfolded in these landscape settings, providing more specific understandings, and encouraging more connected future design strategies – an informed ground upon which a future for the welfare landscapes can be imagined.

This research was a contribution to the larger research project Reconfiguring Welfare Landscapes conducted at the University of Copenhagen, 2017-2019.

NOTES

[1] Anne Whiston Spirn, *The Eye Is a Door: Photography and the Art of Visual Thinking* (Nahant: Wolf Tree Press, 2014).

[2] Ellen Braae, 'Welfare Landscapes and Communities', in *Forming Welfare*, ed. Katrine Lotz et al. (København: Arkitektens Forlag, 2017), 47.

[3] Already by the late 1970s fewer social housing estates were being constructed, shifting the building industries focus to refurbishing the existing housing stock. This was largely in response to demographic projections which predicted a decrease in population and thus no longer needed additional housing – a projection that came to be quickly outdated. See, Hans Kristensen, 'Social Housing Policy and the Welfare State. A Danish Perspective', *Urban Studies* 39, no. 2 (2002): 259, https://doi.org/10.1080/0042098012010295.

[4] In Denmark, as in elsewhere in the western world, the housing developments collided with globalization, export of industrial work-places and import of immigrant workers making them threatened by ghettoization, and technically they were threatened by crumbling concrete and economically by high interest on loans. See, Poul Sverrild, 'Housing, Modernism and Cultural Heritage', in *EAHN Inventorisation of Modern Heritage: Urbanism and Landscape Conference Proceedings* (Edinburgh, 2014), 2.

[5] Niels Bjørn, *Arkitektur der forandrer: Fra ghetto til velfungerende byområde* (København: Arkitektens Forlag, 2008); Kim Dirckinck-Holmfeld, Svend Erik Rolandsen, and Astrid Bruus Thomsen, eds., *Fremtidens* (København: Bogværket, 2013).

[6] Poul Bæk Pedersen, *Arkitektur og plan i den danske velfærdsby 1950-1990 container og urbant raster*, 1st ed. (Århus: Arkitektskolens Forlag, 2005); Poul Sverrild, *Velfærdssamfundets bygninger. Bygningskulturens Dag* (København: Kulturarvsstyrelsen, 2008).
[7] Mark Swenarton, Tom Avermaete, and Dirk van den Heuvel, eds., *Architecture and the Welfare State* (New York: Routledge, 2014); Sabine Wolf and Albert Kirchengast, 'Grossiedlungsgrün/Le Paysage Des Grands Ensembles', *Anthos: Zeitschrift Für Landschaftsarchitektur. Une Revue Pour Le Paysage* 53, no. 1 (2014); Elain Harwood, 'Post-War Landscape and Public Housing', *Garden History* 28, no. 1 (2000): 102–16.
[8] For examples using this terminology see: Svenn Eske Kristensen, 'Konkurrencen om Bebyggelse paa Bellahøj', *Arkitekten*, 1945, 16; Lars Cramer-Petersen, Svend Limkilde, and Ole Thomassen, *Grøndalskvarteret: Fra Grøndalsvænge til Bellahøj. Byplanlægning og bebyggelse af et københavnsk forstadsområde 1915-50* (København: Brønshøj Museum, 1992), 20; E.V Jensen and H Lundgren, 'Byggegrundsundersøgelserne for punkthusene på Bellahøj', in *Bellahøjhusbyggeri: Statens Byggeforskiningsinstitut Studie Nr. 15* (København: Teknisk Forlag, 1954), 9; Skov- og Naturstyrelsen Miljø- og Energiministeriet, *Bydelsatlas Brønshøj-Husum* (København: Københavns Kommune, 1995); Gro Lemberg, 'Dialektik i det fysiske miljø - belyst ved Farum Midtpunkt / Af Kai Lemberg og Gro Lemberg', *Nordisk Psykologi* 28 (1976): 130–39; Tyge Arnfred, 'Farum Midtpunkt', *Fællestegnestuen et Arkitektværksted* (København: Arkitektens Forlag, 1998): 32; Erik Mortensen, *Farum Midtpunkt* (København: Farums Arkiver & Museer, 1995).
[9] Jannie Rosenberg Bendsen et al., *Bellahøj: Fortællinger om en bebyggelse* (København: Strandberg Publishing, 2015).
[10] Jeffrey Alexander and Philip Smith, 'Introduction: The Rise and Fall and Rise of Clifford Geertz', in *Interpreting Clifford Geertz: Cultural Investigation in the Social Sciences*, ed. Jeffrey Alexander, Philip Smith, and Matthew Norton (New York: Palgrave Macmillan, 2011), 2–5.
[11] Clifford Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (New York: Basic Books Inc., 1973), 10.
[12] Geertz, 17.
[13] Joseph G Ponterotto, 'Brief Note on the Origins, Evolution and Meaning of the Qualitative Research Concept Thick Description', *The Qualitative Report* 11, no. 3 (2006): 541.
[14] Qualities such as the density of spaces, the relation of forms, the dynamic and seasonal growth, the diverse scales. James Corner, 'Drawing and Making in the Landscape Medium', in *The Landscape Imagination*, ed. Alison Hirsch (New York: Princeton Architectural Press, 2014), 165.
[15] Katherine Lotz et al., *Forming Welfare.*
[16] W.J.T. Mitchell, *Picture Theory*. Chicago: University of Chicago Press, 1994.
[17] This is the same way James Corner describes his eidetic operations. See, James Corner, Recovering Landscape, 1999, 160.

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CONNECTING PEOPLE, HERITAGE, NARRATIVES AND DIGITAL TECHNOLOGIES: THE CONTEXTUALISED DIGITAL HERITAGE WORKSHOP

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INTRODUCTION

This paper presents a series of international workshops on architectural and digital heritage, identifying and critically describing some of the workshops' key components and their connections.

The cultural, social and economic value of architectural heritage in an increasingly globalised world is evident. Many modern buildings look the same everywhere and this creates urban environments that show little connection with the local culture. Yet elements pertaining to heritage have strong links with the tangible and intangible characteristics of specific places, and for this reason they contribute to the preservation and support of local identities. At the same time, architectural heritage can also communicate values and trigger ideas in other locations. Furthermore, the study of architectural heritage can inform and inspire the design of new buildings and places, and allow people to rediscover and adopt traditional values for modern society and lifestyle. Hence, architectural heritage constitutes a precious source of knowledge and inspiration for present and future generations.

In recent decades, scholars all over the world have started using a wide range of digital technologies to study artefacts relating to cultural heritage[1]. This practice has created a new field of study defined as digital heritage. In architecture and related disciplines, information pertaining to cultural heritage is increasingly being recorded, analysed and disseminated through technologies as diverse as 3D modelling and rendering)[2], serious games[3] and social media[4]. These tools, supported by related theories and methodologies, have opened up opportunities not previously available in the study of architectural heritage.

The relevance of digital heritage has been recognised worldwide by scholars and international organisations, including UNESCO[5], which has also written a charter for the preservation of digital heritage[6]. Digital technologies, by providing new ways of documenting, analysing and disseminating architectural heritage, can also encourage more people to engage with such cultural artefacts.

This new field of study benefits collaborative, transdisciplinary and multidisciplinary approaches. The Contextualised Digital Heritage Workshops (CDHW) discussed here stand at the intersection between architectural heritage, digital technologies, research, design and collaboration, and encourage all of

those approaches. Indeed, one of the ideas that this workshop series aims to communicate is that physical and digital environments can coexist and complement each other.
This paper describes the connections between people, architectural heritage, narratives and digital technologies developed through the first four workshops organised so far. It also explores some of the present and future potential of these events.

CONTEXTUALISED DIGITAL HERITAGE WORKSHOPS

As far as the author is aware, the Contextualised Digital Heritage Workshops (CDHW) represent the first attempt to connect, on multiple levels and within a research workshop environment, people and digital technologies to the architectural heritage of a specific local context in a multidisciplinary and transdisciplinary way[7].
Usually, during workshops organised as part of international events in the fields of both architecture and digital heritage, participants are engaged in activities that are detached from the location where the specific event takes place. This seems a lost opportunity because these events gather experts from many different countries. Each scholar carries, besides his or her personal cultural background, precious knowledge developed through various research projects and life experiences. Hence, each of those events can represent a unique opportunity for the workshop attendees and the local community to share and investigate ideas, narratives, methodologies and tools around selected local examples of architectural heritage. The idea of this initiative was to establish constructive conversations and collaborations that could have both local and international impacts. These workshops could not only benefit the people directly involved in the activities, but also those who would indirectly benefit from their outcomes. So far, four Contextualised Digital Heritage Workshops have been organised over four consecutive years during three of the major international conferences in the field of Architecture and CAAD, namely, eCAADe (Conference on Education and research in Computer Aided Architectural Design in Europe), CAADRIA (Conference of the Association for Computer-Aided Architectural Design Research in Asia) and CAADFutures (Computer Aided Architectural Design Futures). The first workshop was held in Oulu (Finland) during eCAADe in 2016. The second was organised in Suzhou (China) during CAADRIA 2017, while the third event was held in 2018 in Lodz (Poland) during eCAADe. The last one was organised in Daejeon/Buyeo (South Korea) in 2019 during CAADFutures.
Each workshop allowed participants to explore different topics and produce new knowledge and connections. All the four workshops organised so far have shared the same basic structure, but at the same time featured some differences that have made each event unique. Each workshop has been tailored to a selected architectural heritage and the exploration of specific methodologies and technologies triggered by the case studies.
To date, three pieces of writing have been published about this series of workshops. These comprise two short papers published before the respective workshops in Oulu[8] and Lodz[9], and a paper presented and published at the eCAADe2018 conference in Lodz[10].
The conference paper published in 2018 describes and critically evaluates the first two CDHWs, and concludes with reflections and possible future directions. The paper also highlights the main components of a CDHW, namely, introduction, participants, aims, case studies, presentations, description/workflow and outcomes.

CONNECTIONS

The CDHW creates multiple connections between different elements. In particular, each workshop connects its participants to a selected architectural heritage. However, several other links can be highlighted. The four elements identified and discussed here are people, heritage, narratives and digital technologies.

People

CDHWs connect people from different countries, cultural backgrounds and expertise. The first workshop in Oulu was mainly intended for academics, while the second event in Suzhou gathered mainly local students studying second-year architecture, as well as some academics. The 2018 workshop in Lodz was attended by academics and PhD students, while the last event in Buyeo/Daejeon attracted mainly college and graduate students from a local university institution whose primary focus was on digital heritage. All the events have connected local scholars with people from other geographical areas within the same country, and with those from different countries located far from the workshop's location. During each event, participants were able to learn from each other while sharing their points of view on the subject. Each participant also had his/her own interest in architectural heritage and digital technologies.

Different threads connect people; those highlighted here are heritage, narratives and digital technologies. Some of the most important moments of connection between participants emerged from brainstorming sessions, where participants exchanged ideas triggered by a set of pre-planned questions. In Oulu, Lodz and Buyeo, participants were asked to reply to three questions during the brainstorming sessions, focusing on what, why and how. More specifically, these related to what should be studied (identifying the most relevant features of the case studies), why it was important to study them, and how they could be analysed to produce and disseminate new knowledge.

Heritage

Each workshop allows participants to connect themselves with one (or more) instance of architectural heritage which constitutes the contextualised case study. The term "architectural heritage" is considered here in a broad way. It can be a lost or an existing building. The latter category can include buildings that are partially lost, transformed or in their original form. The case study can pertain to the local vernacular architecture or a more modern construction. Within the category of architectural heritage, public spaces such as streets and squares are also included. The focus on "architectural" heritage also highlights the desire to explore the topic from an architectural perspective, and hence to recognise the importance of spaces and their experiential qualities, often neglected in many heritage studies focused purely on the documentation aspect.

The connection between participants and case study is established by direct experience of the place and the collection of data in the form of photos, videos, notes and sketches. This phase is essential to develop a personal understanding of the site and develop new knowledge. The architectural heritage explored so far has included a historical cathedral and a castle/observatory (Figure 1) in Oulu (Finland); a historical street, Daru alley, located in Suzhou's old town (China); a site rich in history first recorded during the mediaeval period in Lodz (Poland); and several historical sites including the Baekje History Reproduction Complex (Figure 2), the Gungnamji Pond, the Royal Tombs in Neungsan-ri and the archaeological site in Gwanbuk-ri, all located in or around the historical city of Buyeo (South Korea). All the sites visited in Korea are on UNESCO's world heritage list.

Figure 1. The observatory in Oulu standing on the castle's ancient walls (image source: author's personal archive)

Figure 2. A few buildings in the Baekje History Reproduction Complex (images source: author's personal archive)

The group site visit is a critical occasion for developing cultural connections, both with the other scholars and with the selected site and its history. Connections with other scholars can be formed during three central moments that characterise the site visit: the journey from the workshop venue to the site, the exploratory tour around the site and the trip back. These moments of cultural connection are informed by a combination of information and reflection. Thanks to these connections, the site visit is always a moment of discovery, even for the local participants who, thanks to the preliminary presentations by the organisers, discussions and brainstorming sessions, can see familiar architectures and places with new eyes.

Narratives

In every discipline, the concept of narrative can be interpreted in multifaceted and multi-layered ways, and it is also open to a wide range of interpretations within this research. During each workshop, narratives are shared, collected, discovered and developed. Moreover, during the brainstorming sessions, participants are able to explore ways of analysing, representing and disseminating narratives. At the beginning of each event, participants are encouraged to share their interests linked to architectural and digital heritage. These details are expressed in the form of visual narratives, such as presentations which also summarise other narratives regarding previous research projects and related personal experiences. Moreover, architectures and places can be interpreted as narrative items [11] [12]. They communicate meanings through tangible and intangible features which may also be connected to specific narratives, such as historical facts (social, cultural, political, economic, religious) or fictional stories (for example, myths, legends and fairy tales). Another layer of narrative is represented by stories, events and activities that have taken place in the same building or area, or in its proximity. Because of their history, some locations and buildings embed and communicate more narratives than others, yet each of them can be considered a crossroad of narratives. Each piece of architectural heritage integrates multiple narratives including the story of its conception, its design, its construction, its uses and, where relevant, its transformation, demolition and substitution. The cathedral in Oulu, for example, has undergone a series of changes over several centuries before reaching its current configuration. Moreover, individual objects within a building can embed other narratives, such as the votive ships hanging from the ceiling of the cathedral. In Buyeo, it was possible to see lanterns hung for a lotus festival that takes place in the vicinity of one of the architectural heritage structures, the image on the lanterns representing two characters from a local legend/fairy tale. The door knockers of other buildings in Buyeo are connected to other mythological figures (Figure 3).

Figure 3. Examples of objects that embed and communicate narratives: a votive ship, a festival lantern and a door knocker (images source: author's personal archive)

All these examples illustrate embedded narratives, a concept that can be applied equally to architecture, urban environments and their spaces (ibid). For instance, Daru Alley in Suzhou can be defined as a narrative urban environment, but each building aligned along the street is a narrative item that could also be analysed separately. Hence, in this case, it is possible to talk about embedded narratives but the expression here refers to architectures and spaces rather than small objects. The social and cultural context in which each case study is located adds a further narrative layer, while the atmosphere of each site visit also triggers specific narratives. Additional narrative accounts may be provided by information on display boards.

Each building, place and related narratives can trigger unexpected interpretations. Scholars from other countries may suggest ways of looking at a specific heritage that has never been considered by the local

participants. It is evident that the CDHWs connect people with a range of narratives, tangible and intangible, including those in written form such as folk tales and pieces of literature.
Narratives also characterised some of the practical exercises in Suzhou and Buyeo. In fact, participants were asked to develop a portal of narratives, including personal experiences connected to the selected historical site. The concept of the Architectural Portal of People's Narratives, described in Di Mascio and Dalton[13], inspired the design aspect of these two workshops.

Digital Technologies

Digital technologies have been a constant element of every CDHW. However, not every workshop has involved practical applications of digital tools. In Oulu and Lodz, during their introductory presentations, participants showed examples of their previous and/or on-going research projects and the digital technologies and methods they had used. Then, in the course of the brainstorming sessions, participants speculated about ways of documenting, analysing and disseminating information about specific aspects of the selected case studies by using digital technologies and related methods. These moments were informed by the participants' knowledge and expertise, and by exchanging ideas during discussions. For example, in order to enhance understanding of the dimension and shape of the lost castle in Oulu, scholars thought that a 3D digital reconstruction of the building could be made and then disseminated through an AR or VR application.
The first step always involves information gathering. For example, for the castle/observatory in Oulu, participants gathered the type of data that would be useful for proceeding to the analysis, design and dissemination phases. These data included drawings, narratives, paintings, folk stories, existing 3D models and names of other castles in the region for a comparative study. Technologies such as laser scanning and drones were some of the possible options discussed in this data-gathering process.
The workshops in Suzhou and Buyeo, however, were more practical and design-oriented, their scenario including practical experimentation with different software packages. During both site visits, the participants took sequences of photos, then used photogrammetric software in the classroom to develop 3D models (Figure 4) for the subsequent steps of the workshop.

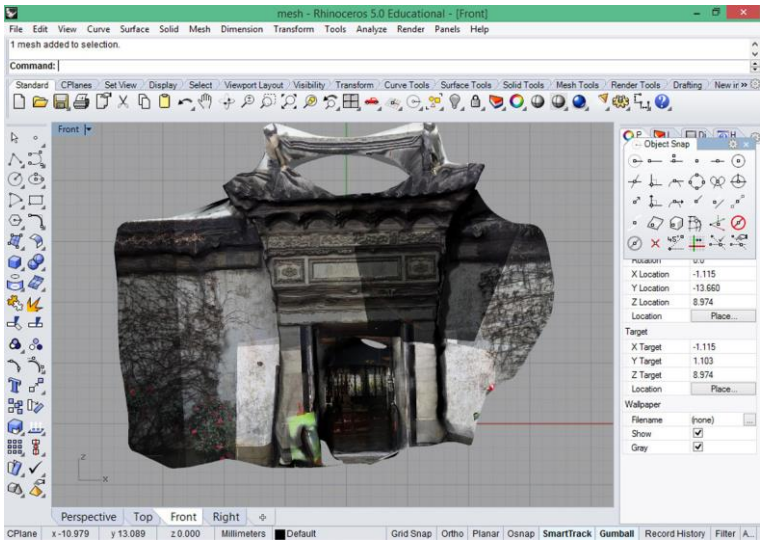

Figure 4. 3D photogrammetric model imported into Rhinoceros 3D (image source: author's personal archive)

An important concept introduced from the first workshop, and highlighted during the practical exercises, was that of digital workflow overlapping with standard workflow in terms of the sequence of steps required to achieve a specific result and create selected outcomes. More specifically, the digital workflow is the sequence of software packages used, which should also take into account how data can be exchanged between them and hence the file format that should be exported and imported.
At the beginning of each practical exercise, each software package was briefly presented. For example, before the site visits, students were introduced to basic principles of photogrammetry and photogrammetric software, and how to take correct sequences of photos to create 3D digital models. Another essential phase was that of digital reconstruction, followed by the creation of virtual environments within games engines. For the 3D modelling, a few software packages were explored, including 3ds Max and Rhinoceros 3D. During the site visit in Korea, which lasted one entire day, the workshop participants also visited some museums where they experienced and analysed some digital and interactive installations, which in turn informed the brainstorming sessions and practical exercises. For example, the site visit included the museum and VR Gallery at the Royal Tombs in Neungsan-ri. The archaeological site in Gwanbuk-ri also featured a museum which allowed the participants to experience some interactive digital installations.
It is important to note that historical narratives can also be disseminated through digital storytelling, including in video games for both serious purposes and entertainment[14], which can create further connections between people (including tourists) and historic sites.

FURTHER CONNECTIONS

The final discussions undertaken at the end of each workshop triggered several ideas that will inform future events and further parallel activities. Connections between the workshops' participants also represent potential research collaborations. A website and a discussion group on a professional platform such as LinkedIn could create new connection points and attract further people interested in the events and the topic.
The idea of a website had already been explored after the conference in Oulu, but this could be supported and expanded through a collaborative research grant. Some of the documentation gathered and produced during the different workshops could then be shared on the online website, which could be used as an online open archive.
The workshops will also continue to represent a means by which local scholars and communities can (re)connect with their architectural heritage. The events can thus have a positive and constructive impact on both local and global communities. For this reason, they could represent potential impact case studies for subsequent REFs, especially under the section "Impacts on Creativity, Culture and Society."
This workshop series has already inspired a new series, still contextualised to specific locations, but at the same time more design-oriented. The first workshop, entitled "Visualising an alternative narrative of Huddersfield" was organised this year at the University of Huddersfield. As with the CDHW, the name Huddersfield can be substituted by the name of another place (city, town, village, even individual places or buildings). This new workshop and its underlying ideas will be presented in a future piece of writing.

CONCLUSIONS AND FUTURE DEVELOPMENT

This paper has presented the Contextualised Digital Heritage Workshop series. It has identified four key aspects of the workshops, critically described their connections and introduced possible future connections. The four key aspects are people, heritage, narratives and digital technologies.

Several research projects in the field of digital heritage appear to focus primarily on data collection. In contrast, while the CDHW workshops always include a data collection phase, the final aim is always related to analysis, interpretation, collaboration, design and dissemination. In particular, a key objective is to further explore the design and co-design of narrative experiences which surround architectural heritage. In this regard, these workshops seek to promote a definition of digital heritage in architecture that can be more design-led.

The challenging situation created by the COVID19 has prevented the organisation of a new workshop planned for between spring and autumn this year (2020). However, rather than considering this situation an obstacle, it has been interpreted as a new opportunity. In fact, the limited national and international mobility has triggered other reflections that could lead to an online edition of the CDHW, which could be focused on lost or unbuilt architectures. Some ideas regarding this are already under evaluation.

Another workshop may be organised in 2021, as part of the EAEA15 International Conference. Entitled "Envisioning Architectural Narratives," this will be hosted at the University of Huddersfield (Huddersfield, UK). This conference would also be the ideal venue to strengthen the CDHW's key connections between design and narrative.

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NOTES

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[8] Ibid.

[9] Danilo Di Mascio and Bartosz M. Walczak, "Contextualized Digital Heritage Workshop – Lodz," in *Computing for a better tomorrow,* eds. Anetta Kepczynska-Walczak and Sebastian Bialkowski (Lodz, Poland: Lodz University of Technology, 2018), 49-52.

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RADICAL PLACEMAKING: AN IMMERSIVE, EXPERIENTIAL AND ACTIVIST APPROACH FOR MARGINALISED COMMUNITIES

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INTRODUCTION

"Many words are walked in the world. Many worlds are made. Many worlds make us. …In the world we want, everybody fits. The world we want is a world in which many worlds fit."
– Ejército Zapatista de Liberación Nacional (EZLN)[1]

In light of the many global social movements in 2020, such as Black Lives Matter (BLM), this paper presents one way of advocating for social justice through digital placemaking[2]. The lifecycle[3] of movements such as BLM and the lack of representation of EZLN's "many worlds" serve as the starting point of 'Radical Placemaking.' We introduce Radical Placemaking as an activist practice that engages marginalised communities in utilizing digital tools towards social justice and place-based activism. The paper uses concepts of placemaking, marginalisation, and hybridity of place to build the theoretical framework underpinning Radical Placemaking. Following that, the paper documents the making of the Radical Placemaking prototype. The prototype uses a combination of digital methods and technologies such as digital storytelling and interactive fiction. The paper then uses the lens of Lefebvre's spatial dialectics[4] to set the historical context of Kelvin Grove Urban Village (KGUV) a recent master-planned community development in Brisbane, Australia. The disjunction between the original vision of KGUV, the eventually built environment and residents' current lived experience of social isolation sets KGUV to be the pilot site of Radical Placemaking. The paper ends with the current state of the study and how it has morphed in response to the COVID-19 pandemic.

LITERATURE REVIEW

This paper positions itself within the field of urban informatics[5] as *Radical Placemaking* sits at the confluence of people, place and technology to explore how marginalised communities can create hybrid digital-physical urban experiences. The main research question proposed in this paper is "How can immersive experiences redefine the way marginalised groups engage in (radical) placemaking?" In response to this, we first review the context of marginalisation, types of placemaking, and the use of hybrid placemaking tactics. It finally draws the term "radical" from radical pedagogy and social justice movements to contextualise the *radical* in placemaking.

Marginalisation

Humans tend to order themselves into groups based on social identities, worldviews and relationships. They create an in-group (us) and an outgroup (them).[6] The identity values of these groups can range from religion, class, caste, creed, race, abilities, and gender. Examples include coloniser vs colonised, Brahmin vs Dalit caste groups in India and White vs Indigenous Australians. The dominant group performs acts of othering/marginalising in order to control access to knowledge, technologies, opportunities and resources.[7] This subordination can also reflect in spatial practices. For example, Boundary Street in Brisbane, Australia was used in the 19th century as a boundary to demarcate areas where Aboriginal people were excluded from after 4pm.[8] Further, these exclusions permeates into everyday digital technologies. The popular pervasive and smartphone game Pokémon Go elucidates this well. While it is hailed for serendipitously bringing people together,[9] it had more coverage of urban and affluent areas with concentration of cultural institutions.[10] These areas tend to be better documented on virtual maps and thus, Pokémon Go did not always lead players into less-affluent and diverse neighbourhoods.[11] Thus, people, places and technologies are not created equal signifying the need for alternative ways for marginalised communities to subvert and co-opt technologies and spaces.

Placemaking

Placemaking is the process where institutions and communities upgrade neighbourhoods and public spaces through physical and creative interventions.[12] The top-down approach of placemaking is driven by city officials and developers to sterilise the image of the city to attract economic and cultural investment.[13] This approach often treats the land as a resource and excludes marginalised communities who have their history, memory, and symbolism embedded in the land.[14] In contrast, the bottom-up placemaking approach involves communities modifying place as per their experience of living.[15] This results in DIY urbanism [16] echoing Harvey's 'right to the city.' [17] Further, information and communication technologies (ICTs) are changing the way citizens stake claim to the city.[18] A body with a mobile phone is in hybrid space[19] and hybrid place;[20] between physical and virtual space, constantly in motion in the physical space and virtually connected to others.[21] An example of this is the use of location-aware media on smartphones to augment experiences of public space.[22] Further, when people played Pokémon Go, they were engaging in social exchanges, events and memory-making in the universe of the game.[23] Based on these qualities of Pokémon Go, this paper elaborates on a framework for developing place-based experiences through the use of low-tech AR digital artefacts, by marginalised communities as a dual act of activism and placemaking.

Radical

The term "radical" comes from Freire's radical / critical pedagogy,[24] Ledwith's views on community development[25], and a radical departure from conventional placemaking processes[26]. Freire's radical pedagogy diverges from conventional educational pedagogies where students are treated as empty banks to be filled with information. Instead in radical pedagogy, the teacher and student are co-creators of knowledge. Secondly, Ledwith[27] points out that through such a process, personal issues become personal projects, personal projects become causes, and causes become movements for change. This is further in line with Ledwith's "radical agenda" for community development which emphasises social and environmental justice. [28] Lastly, as a placemaking tactic, it refrains from making tangible interventions to place but instead takes the intangible, such as memories, stories and sensemaking, and embeds them into place through digital tools. Thus, the term 'radical' represents the use of critical,

creative and hybrid placemaking methods by local and marginalised communities to voice place-based issues and advocate for social justice.

THE CASE FOR RADICAL PLACEMAKING

What is Radical Placemaking?

We define 'Radical Placemaking' in terms of 'who,' 'how,' and 'what', as elaborated in Figure 27. The 'who' identifies stakeholders within radical placemaking: the radical accomplice who works with the radical community to develop the artefact. The 'how' refers to the participatory design process that the community engages in to develop the artefact. The 'what' refers to digital placemaking strategies that are employed by marginalised communities to engage in social justice activism. In this study, the radical community creates low-tech AR digital artefacts to engage the mainstream audience in the situated experiences of marginalised communities.

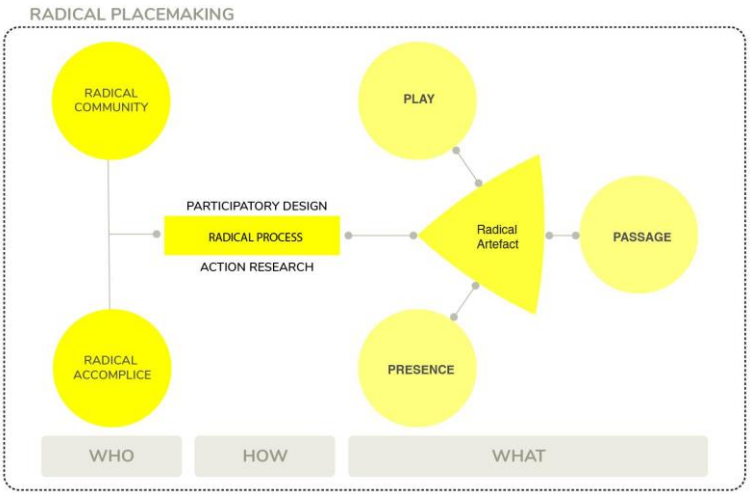

Figure 27: The overview of Radical Placemaking[29]

Radical Accomplice

The research methodology is participatory action research (PAR) for this form of 'radical' placemaking, and the researcher is a facilitator of the process i.e. the radical accomplice. Based in radical pedagogy, PAR places the researcher participants as equal to the researcher and is engaged in a participatory and democratic process that combines a planned action, reflection, theory and practice.[30] The radical accomplice is committed to the process of placemaking through technical know-how and facilitating the dialogue with the community. The term 'accomplice' comes from social justice work and is distinctive from an 'ally' in that they are embedded within the community and face the same risks as them.[31] They are focussed on enabling others to take control of their environment,[32] learning from difference, engaging in radical listening[33] and ultimately, becoming a socio-cultural animator[34] enabling others to occupy 'hybrid places.'

Radical Community

Oppressed voices typically have their narratives embedded in epics, mythology, storytelling, and poetry.[35] Without place to hold these narratives and being socially excluded from them, these communities begin to experience cultural loss.[36] This study explores the community's context of exclusion and provides an approach to create hybrid places to document their voices and histories in placemaking. The experience designers[37] and community stakeholders who are part of this study represent the radical community.

Radical Process

In the continuing spirit of radical pedagogy, the research process utilises participatory design methods.[38] With roots in Europe, Participatory Design[39] involves the collective creativity of all stakeholders of the issue to be involved in the design process of artefacts or interventions.[40] In this project, the members of the community are involved in designing and creating the low-tech AR digital artefact. The making of the artefact involves participatory narrative inquiry where community members engage in digital storytelling through exchange, interpretation, exploration and sensemaking of lived experiences.[41]

Radical Artefact Prototype

During July-September 2019, a low-tech AR digital prototype called "In the Mood for Love" (ITML) (Figure 28) was developed by the lead author using Twine – a simple, low-tech, free and open-source tool for making interactive fiction in the form of web pages. The artefact uses the author's experience of a romantic crush as a decoy to discuss personal experiences of anxiety and gender-based violence (GBV). Locations selected were around the local university campus and the adjacent botanical gardens; the theme of anxiety was centred around the university campus whereas the gardens carried themes of GBV. The development of the artefact involved mapping locations and their coordinates, going to the locations to connect personal experiences, and creating content. The artefact users were presented with different choices in the narrative which led them to different locations.

Figure 28: ITML on majickat.itch.io[42]

Digital content such as images, GIFs, videos, audio and hyperlinks to related webpages and audio were embedded into Twine. In order to encourage the artefact users to engage with their own memories of the locations, a physical diary with specific activities at specific locations was provided. Artefact users were involved in co-creating experiences and recording them in the diary. For the participants learnings from deploying the prototype included utilising JavaScript window in Twine for enabling geolocation, CSS styling, coding within Twine, and negotiating iPhone and Android interfaces. Further, the artefact provided impetus for the possible qualities a radical placemaking artefact would possess.

Qualities of Radical Artefact

The Radical Artefact combines the qualities of Presence, Play and Passage. Presence here refers to those qualities that give reason for the artefact user to be in place. Play refers to the quality of the artefact that offers interactivity and the basis of chance encounters. Passage refers to the narrative in place that the experience designer creates, and the artefact user moves through. These are further explored in

PRESENCE	PLAY	PASSAGE
Situatedness	Choice	Story
Affect	Serendipity	Somewhere
Wilful	(Feminist) Killjoy	Subversion

Table 1.

PRESENCE	PLAY	PASSAGE
Situatedness[43]	Choice[44]	Story[45]
Affect[46]	Serendipity[47]	Somewhere[48]
Wilful[49]	(Feminist) Killjoy[50]	Subversion[51]

Table 1: Qualities of the Radical Artefact

With the prototype created, the next step for this research is to engage with a local community in radical placemaking in order to problematise the social issues faced by them. The project explores Kelvin Grove Urban Village (KGUV) in Brisbane, Australia as the pilot study of Radical Placemaking.

CASE STUDY: KELVIN GROVE URBAN VILLAGE, BRISBANE, AUSTRALIA

The study uses Lefebvre's spatial dialectics of "(social) space"[52] when exploring the case study of KGUV in terms of social cohesion and social sustainability. Seeing the physical, mental and social space as one, Lefebvre provides a conceptual triad of social space: perceived (spatial practice), conceived (representations of space), and lived (spaces of representation).[53] *Perceived* refers to the physicality of space such as building and urban spaces, structures that ultimately divides places. *Conceived* refers to the imaginations that feature on maps and construction drawings that represent the vision of architects, urban planners, and engineers. *Lived* refers to the actual acts of living and producing space over time. KGUV, Brisbane, Australia is a mixed-use development that includes residential, commercial, educational, and recreational uses as seen in Figure 29. The following subsections elaborate on the social history of KGUV from its conception to its current state using Lefebvre's conceptual triad.

Figure 29: Kelvin Grove Urban Village Masterplan[54]

KGUV Placemaking 2004: Conceived

The masterplan for KGUV, as seen Figure 29, was developed in August 2004 by The Hornery Institute and Hassell for the main project participants Queensland Department of Housing (62% land ownership) and Queensland University of Technology (38% land ownership).[55] The term "urban village" of KGUV conjures up images of contemporary living in an idyllic village. With that vision, KGUV came up on the principles of "new urbanism:" having been built on an infill, brownfield site, with close connectivity to Brisbane CBD, a high density development with walkability, provision of commercial, residential and educational facilities, sustainable infrastructure and a degree of independence.[56] The vision of the masterplan project states "A diverse city fringe community, linking learning with enterprise, creative industry with community [...] creating a new part of Brisbane that offers unique living solutions." KGUV was meant to be seen as a choice for people to live and engage together, a place of learning and knowledge sharing, and an environment with different activities and places, see Figure 30.

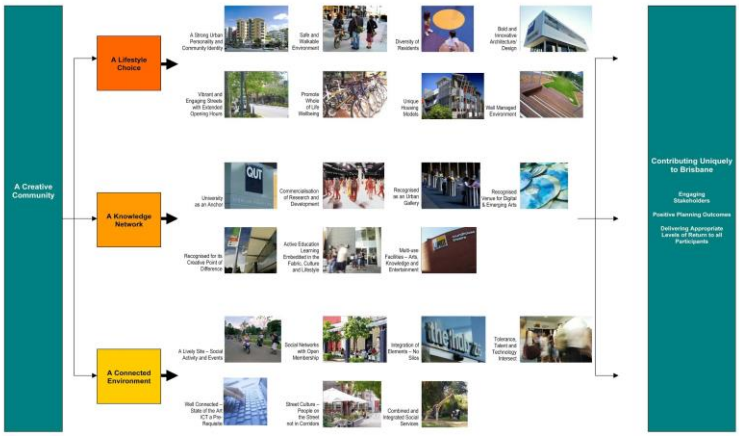

Figure 30: Kelvin Grove Urban Village Masterplan Positioning Statements[57]

KGUV Placemaking 2004-2016: Perceived

As KGUV developed, The Hornery Institute, the placemaking practitioner involved in the 2004 KGUV Masterplan, led the efforts to encourage community engagement and participation. A number of

placemaking activities took place which included the work of artist Natalie Billings embedding historical texts in the footpaths around KGUV[58], Sharing Stories Digital Storytelling project in 2006,[59] interactive projects such as Virtual Fish[60] in 2007, History Lines[61] in 2009, and Discussion in Space[62] in 2012. In 2009, the community hub 'The Exchange' was formed and run by Communify – a not-for-profit organisation providing KGUV with community activities, engagement and addressing the needs of its diverse participants.[63] In 2016, the KGUV Principal Body Corporate commissioned a 'Stakeholder Engagement in Kelvin Grove Urban Village' in order to understand the needs of the community and develop communication strategies to engage with KGUV community.[64]

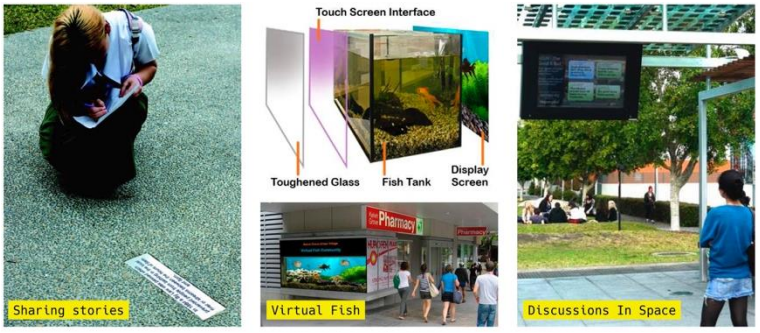

Figure 31: Various Placemaking Initiatives in KGUV[65]

The report revealed that the transient and diverse population pointed to a community that is still in its nascent stage and more had to be done to bring the members of the community together. To address this, the report proposed strategies including community development between the main stakeholders in KGUV, a social media strategy, community engagement, community activities, and improved wayfinding and signage.

KGUV Placemaking 2016-up to now: Lived Experience

KGUV is relatively diverse compared to other neighbourhoods in Brisbane[66]. The median age of Kelvin Grove is 26 years, which is an indication of the student population that resides here.[67] Further, Brisbane Housing Company (BHC) offers affordable housing in KGUV for specific groups such as people with disabilities, those experiencing or at risk of homelessness, single parents, and those with mental health issues.[68] This makes for a transient and dynamic population experiencing education, social, and financial challenges.

Communify, the organisation that works with minority and special groups in KGUV, identified loneliness and social isolation as a key challenge in KGUV. Social isolation can be split into physical and emotional isolation: physical isolation is the reduced physical interactions with others, and emotional isolation refers to the feelings of loneliness or lack of emotional connection or intimacy to others.[69] Given the diversity that exists in KGUV across cultures, languages and abilities, residents may experience varying degrees of social isolation due to having just arrived at KGUV with limited social networks, inability to speak English fluently and communicate with others, or having challenges engaging effectively. This can affect their access to social capital (friendships)[70] in KGUV. Low social capital further limits their access to opportunities (such as recommendations for jobs, emotional support, being able to ask for help etc.) and consequent services (healthcare, education) in KGUV.[71]

Figure 32: "Happy to Chat" sign on the bench outside of Communify Premises to encourage people to talk to each other in KGUV[72].

To compound matters, KGUV was in the news for a perceived spike in crime in early 2019.[73] The media insinuated that the perpetrators could be the residents of affordable housing.[74] BHC residents, thus, face social stigma, which is detrimental to their psychological well-being and affects their ability to build relationships with the rest of the KGUV community. Thus, residents of KGUV experience complex levels of social exclusions, which further contributes to their social isolation.[75] Social isolation not only affects individuals in a personal way, but also in the way they can access opportunities, services and privileges in society. Social isolation is, therefore, an issue of social justice. As one step to combat the issue of loneliness, Communify put a 'Happy to Chat' sign on a bench outside of their premises to encourage those accessing Communify's Wi-Fi to speak to one another, see **Error! Reference source not found.**. This action is used as inspiration to design the intervention of Radical Placemaking in KGUV.

CONCLUSION

With COVID-19 and the many social movements taking place around the world,[76] Radical Placemaking presents marginalised communities a creative and digital approach to staking their right to the city. A prototype to illustrate Radical Placemaking was created during July-September 2019 which further informed the Radical Placemaking framework. With the framework and prototype in hand, the next step is to work with a community i.e. KGUV. Understanding KGUV's vision, development and its current challenge of social isolation, via Lefebvre's lens, provides contextual basis and justification for KGUV to be the testing ground for Radical Placemaking. Our next step is to engage the KGUV community in this Radical Placemaking practice where the community will build place-based digital stories using digital methods such as interactive fiction, digital storytelling and low-tech augmented reality as afforded by computers and smart phones.

Prior to COVID-19, the engagement with the KGUV community was envisaged as face-to-face engagement over three weeks on university campus. However, as of July 2020 with COVID-19 restrictions in place, all engagement was converted to an online format through a number of online e-learning and collaboration tools such as Google Classroom, Zoom and Slack. The pilot of the online workshops is currently in progress. Once the pilot is complete, the development of the Radical Placemaking toolkit will begin. To conclude, the study paves the way for the use of creative digital methods such as VR, AR and XR technologies in illustrating marginalised communities' worldviews to the mainstream public. It looks at the potential of storytelling to affect perceptions and belief systems

of residents, both the participants and the mainstream public, of KGUV. And finally, it seeks to explore how community storytelling can encourage people to build communities of resilience.

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[49] Wilful Refers To Place-Based Experience Being A Display Of The Experience Creator's Wilfulness Through Audacity, Creativity And Providing A Counter-Narrative To The Hegemony Sara Ahmed, 'Feminist Killjoys (And Other Willful Subjects)', The Scholar And Feminist Online, 2010, Http://Sfonline.Barnard.Edu/Polyphonic/Ahmed_01.Htm#Text1.. It Gives Reason For The Artefact User To Move From One Location To Another.

[50] The Artefact Uses The Experience Of Place To Enable Artefact Users To Be Empathetically Embedded In The Experience Designer's Otherness. The Experience Designer Would Express Difficult Issues Which Would Serve As A Learning For The Artefact User. The Artefact User May Experience Personal Discomfort, Discomfort Of The Experience User And Gain A Difficult Perspective On Issues Described In The Artefact Ahmed..

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THE CITY ON DISPLAY

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INTRODUCTION

Technology is constantly evolving and architecture breeds from evolution. Modern technology aids the creativity of architects, giving them a chance to go beyond the traditions of design and construction.[1] In a small period of time, technology has excelled very quickly and in return has given the world of architecture a multitude of possibilities that are no longer limited to fancy high rise buildings.

This paper aims to use modern technology to highlight historic architecture, without the traditional means of conservation that include physical encroachments, in cities where their history is also one of their identifying features. History is a provision of cultures and their origins. Cultures which the present may or may not be very familiar with. And so losing the history means losing the city itself.

Nigel Wakefield, in his blog post on "Node", rightly questions the progress and growth of a city if it means losing the essence of how the city got there in the first place. Here he highlights the importance of the history of cities as storytellers.[2] Great stories aren't only written in books but also in cities and their architecture. The stories that this architecture tells and technologies of the modern age can be helpful in building better cities without having to erase the urban history of a city.

TIME

"Architecture is about time." – Renzo Piano

Time plays an important role in the history of architecture. As a new structure, architecture attracts attention. As an accentuated historic structure, architecture again attracts attention. These historic structures have seen good time and thus flourished ages after coming into existence. But time is not as nourishing to everyone. Many structures standing in a city have had a strained relationship with time, where their importance is no longer more than that of an old wall fading into the folds of time.

With time as the city moves onto its future, much architecture starts becoming obsolete. It loses meaning in the context. This could be because citizens seem more interested in the new than in the history of the urban context which, along with the new, makes an accumulated identity of the city.

SAVING HISTORY

The residents of any city are constantly struggling to make their city better, for themselves and their future generations. For this it is important to look into a city and its past in depth and not just through what is seen in the present urban environment.[3] Studying the history, not just to identify and understand the risks involved in future planning but to help in making sense of the current world as well.

As mentioned before, this paper deals with cities where history is an important element in their identity. For such cities, it is even more important for architects to consider all historic elements before thinking about the reinvention of the city.

Lahore

Lahore is a historically important, multicultural city. Its beginnings are somewhat hazy ranging between 1st and 7th AD.[4] It has seen the extravagant rule and demise of the Mughal Empire, the invasions and reign of the Sikhs, the British Raj, the Partition of the Sub continent and a new found country Pakistan. It is known as the heart of Pakistan, for its historic importance; and also as the City of Gardens, because of the presence of its numerous gardens.[5] It is also home to two of UNESCO's world heritage sites; the Shalimar Gardens and the Lahore Fort. These two are among many historic structures that have been preserved through time for the future generations to see. Sadly this isn't the case with all historic structures, while some are selected to be saved others wait to be overwritten or erased completely from the urban landscape of the city.

Lahore was chosen as the case study for this project because of its rich historic and cultural presence. It has structures that are of great importance to a bunch of people but not seen as important enough to be conserved or preserved. Much of its history and stories are unknown to the newer generations because their social circle has moved onto the newer parts of the city becoming oblivious to their city roots.

SAVING ARCHITECTURE

The process of conservation has saved much architecture from becoming a mere story from the past. To conserve is to design architecture such that it connects the history and culture of a place to its people.[6] Cities are designed for the people who occupy them, it is important that these people are rooted in the city through preserved historic experiences and spaces.

Conservation is never an easy process and may require long periods of time to successfully acquire the true essence of history. Before the process of designing starts, it is important to keep in mind the cultural context, traditions of communities and their needs and traditional activities around the space surrounding the site.[7]

Global

Conservation is a global phenomenon which varies from site to site and architect to architect. Around the world much heritage has been saved with the help of conservation and preservation.

Brick Elevator, Spain

A project by the Spanish architect Carles Enrich in the Gironella municipality of Spain. This brick elevator was designed to bridge the social gap between an old town and a new urban development that was caused by the Llobregat River and a twenty feet vertical distance. The brick elevator has provided a new access to the historic centre and saved it from social seclusion.[8]

Valletta City Gate, Malta

"Everything starts with wandering around, getting the sense of history or the way the sun touches the surface of stone. Every place has a story, and in Malta the story was stone."[9]

Renzo Piano connected the past and the present through his use of materiality. The stones used reminded the city of its origins and the steel blades that sliced through the old and the new, form a dialogue of nature, strength and history with the stone. The simplicity and honesty of the materials made it a timeless experience for the visitors.[10]

Monument Conservation, Gdansk, Poland

Gdansk is known for its historic monuments. For many years these monuments have been the property of the state. But now many have been privatised and commercialised, which could have been threatening to their existence, but the city with so much history that requires to be preserved becomes hard to handle by the state alone. Here this proved to be a good decision in helping save the city's history by guaranteeing a safe and long term use as commercial monuments[11].

Local

Pakistan is blessed with a lot of history, spanning over centuries. As citizens of the country it falls upon Pakistanis to take care and save this history for the centuries to come.[12]

Shahi Hammam, Lahore

The Shahi Hammam is Mughal period bathhouse just inside the Delhi Gate of interior Lahore. Its original functionality was displayed for the public to view and educate themselves on the workings of the bathhouse. A retaining wall was constructed to save it from further encroachments outside. In the interior space the original frescoes were conserved. The bath house is now used as a museum, where the space and the spirit of the ancient bathhouse have been saved by conservation.[13]

Taxila, Rawalpindi

Taxila has been added to UNESCO's World Heritage List, now secured by strict laws for a safe future. The city holds many ancient archaeological ruins of many old settlements. Here can be found ruins of four early cities which reveal the urban evolution over a period of about 5 centuries.[14]

Mohenjo Daro, North Sindh

Mohenjo Daro is an important archaeological site on the right bank of river Indus because it contains one of the two remains of the Indus valley civilization and was once the largest city of the civilization. It is therefore also listed as one of the world heritage sites by UNESCO. Much evidence in the site suggests that the settlement was flooded more than once, leaving it in a state of depredation. But under the laws of UNESCO, whatever is left of it will be protected for generations to come.[15]

New Technology

In today's time and age, modern technology has made the processes of conservation much easier than they were before. Today you can use technologies that can measure distances electronically and construct complete drawings without having to put in any efforts.

EDM (Electromagnetic Distance Measurement) Technologies like total stations help in making meshes of drawings from which 2D drawings like plans and sections can be extracted. The drawings created on it can be processed further in computers manually.[16] In conservation this device is used for site documentation, which saves time and energy put in long hours of surveying a site.

3D technology has helped conservation come a far way in recent times. 3D scanners have a non-contact approach to help document cultural heritage for conservation and preservation. It uses digital data to re-materialise the physical objects for exploration of new ideas and information.[17] 3D printers use drawing softwares to produce physical 3D models. These models can be used to replace lost or broken artefacts, embellishments or relief work during the process or preservation. As seen in the restoration project of the Castello di San Martino dall'Argine church in Italy.[18]

MEDIA ARCHITECTURE

Media architecture is a means of communication. It involves architecture that is intertwined with media mostly related to play of light. This is a new hybrid form of architecture where the approach towards

lighting a space is very different from the tradition and gives endless new possibilities of designing the built environment.[19]

Atelier des Lumière, Paris

This is Paris's first digital museum for fine arts. The name means "workshop of lights" and it is exactly that. The entire museum uses works of famous and new artist as digital displays on their ten meter high walls. The museum provides its visitors with a multi-sensory experience full with the visuals and audios.[20]

Greenpix Media Wall, Beijing

This is a zero energy media wall covering the Xicui entertainment complex. It is the world's largest LED display powered by a photovoltaic system integrated with glass.[21]

Energy Tower, Denmark

The energy tower in Roskilde incinerates rubbish from local and international locations to produce thermal and electric energy. Its double layer façade lets the light from the inside glow outward without getting directly out into the climate. The tower glows throughout the night when it isn't being used.[22]

PROJECTION MAPPING

Projection mapping is a form of media architecture which uses video projection technology where a surface such as walls of buildings or roads are used to map a video onto it for purposes like advertisement, attraction or communication. With this the idea of a canvas alters from its origin, to provide still or interactive displays that play with the shape and textures of the surface to create captivating illusions. Its basic requirements are a video projector, a mapping software, projections and a built surface.[23]

Empire State Building Pays Tribute to Cecil the Lion

After the death of Cecil the Lion caused much uproar worldwide, the empire state building was mapped with projections of the lion along with many other endangered animal species.[24] This example of projection mapping was done to send across a message of awareness towards the safety and security of animals.

Kent Brewery, Chippendale Australia

As a part of the Vivid Sydney festival, the Kent Brewery was given new life at night when its heritage façade was projected upon by the commissioned works of artists Beastman and Reko Rennie. For the eighteen nights that it was displayed, over 230,000 people visited.[25] Showing projection mapping as a successful way of getting something highlighted in the urban context of the city.

URBAN REINVENTION

The urban environment of any city is constantly evolving to cater the needs of the people who use the city. Urban plans need to be created with a fusion of technology and culture. The involvement of the people and their traditions and cultures and routines should be taken into account during urban reinvention projects.[26]

This project can be called an urban reinvention project where the old city of Lahore becomes the canvas for projection mapping. Older parts of Lahore have not completely been forgotten, much of its history has been saved, but much has lost its purpose. Structures that were once the heart of the city and its everyday activities, sit idle and wait to be overwritten. These structures may play an important role in the history of the city but in the present urban context they have lost all meaning as their stories become less and less heard.

To help save the much needed history of lost architectural wonders in Lahore, a couple of sites were selected as case studies. The project however is not limited to these sites but could be used for any such site that might need saving. And because the resources were limited onsite projection mapping would have been challenging. Therefore large, scaled models of the actual buildings were constructed and projected on. Although, later on real time projections were also experimented.
The basic purpose of this project was communicating the historic importance of the particular sites to the newer generations who are not quite aware of what they are missing in their own city. In a way this too could become another pre conservation process, not just for the sake of conservation but for the sake of awareness for the need for conservation. Where the public is given the option to choose and take a stance on how the city will reinvent its urban context.

Site Selection

At the start of the project two sites were selected; the Pak Tea House and the Lakshmi Building. Both these were contrasting sites, the most significant similarity they possibly have was that these were both built by Sikhs.
The Pak Tea House is a much smaller scaled building than the Lakshmi Building, hence it was easier to project on during the experiment of real time projection mapping.

The Pak Tea House

Pak Tea house was established in 1940 by two Sikh brothers, initially titled as the India Tea House. The new name was adorned post the partition of the sub-continent. It soon became a place for open conversation for literary and artistic personalities who became big names in both Pakistan and India. The tea house was shut down causing much uproar. After thirteen years the Pak Tea House was redecorated and reopened with much enthusiasm from some dominant literary personalities.[27]
The reason this tea house was selected as a site was because it has lasted over many years as a place where freedom of speech and expression were actually welcomed. Even after so much neglect and so many interventions, it still stands. This place possibly started a literary revolution, making it worthy of being saved.

Lakshmi Building

The Lakshmi Building is an iconic building in the famous Lakshmi Chowk (intersection). It was built as a mansion. It got its name from the statue of the Lakshmi goddess on the façade and the name of its owner company, Lakshmi Insurance Company. It has been used as both residential and commercial purposes.[28]
Today there is no building behind the art deco style façade, it stands in front of an enclosed plot. Over the years it has seen much abuse, from becoming an advertisement board to being painted hideous colours to having the orange line train tracks run right in front of its façade. The rich culture and history that it once enclosed has completely been lost, as it is overlooked in today's cityscape.

Projections

There are a total of five projections; three on the façade of the Pak Tea House and two on the façade of the Lakhsmi Building.

Pak Tea House: A History

This projection (figure 1) is an attempt to deliver the history of the building's emotional journey from where it started to where it now sits, almost abandoned. The projection uses elements such as light to depict the emotions of the building as it was celebrated, shut down, restored and now fading away.

Figure 1. Pak Tea House: a history

A Tribute to Sadequain

Sadequain was among the regular customers of the Pak Tea House.[29] He illustrated a poem Awara by Majaz with the same name. The poem is about a man, assumed to be Majaz himself, who is roaming in an unknown city, lost and heartbroken.[30]

This projection on Pak Tea House (figure 2) is an adaption of the same illustration. Where Majaz's character is represented as that of Pak Tea House. The character is seen as a part of the city, walking in its centre. But the city that once grew around him has now left him behind, isolating him and leaving him helpless. Much like the Pak Tea House building, which stands in its context fading away as the city moves on.

Figure 2. A tribute to Sadequain

A tribute to Manto's Toba Tek Singh

Manto was another regular at the Pak Tea House.[31] He is a famous Pakistani Urdu writer. He was known to write about the hard truths of society that no one dared to talk about. He is best known for his stories about the partition of India immediately following independence in 1947.

Toba Tek Singh is a famous short story by Manto. It is also one of the stories that he recited in the Pak Tea House.[32] This projection is an adaptation of that story. How the people of the Lahore Pagal Khana (mental asylum) react to the news of the partition and being separated from their friends.

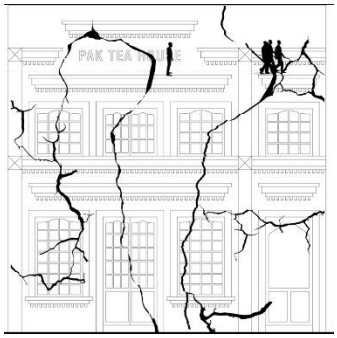

Figure 3. A tribute to Manto's Toba Tek Singh

A Day in the Sikh City

This projection celebrates the Sikh community through a narrative that revolves around the king and his grand welcome. Also celebrates the name of the building through the projection of the Lakshmi goddess.

Figure 4. A day in the Sikh city

The Present Reality

This projection highlights how such drastic changes in the Chowk (intersection) have so easily been accepted by the society. It is devastating to the city and its history that the activities around Lakshmi continue as normal as a building brutally loses its identity.

Figure 5. The present reality

CONCLUSION

"Technology is crucial in the urban design process. If used in the right way, urban planners can address and solve the current urban challenges… Lastly, technology is deployed properly when it focuses on people and local residents."- Justin Krakenbuerger[33]

Conservation is an urban challenge that requires saving history and culture. As mentioned above it uses modern technology in many processes to do so. This project can also help save the city's history and cultures only in a way these buildings will call out for help themselves. It will give young artists a space to display their work and help the structure at the same time. And unlike conservation, this wouldn't require much funding and resources, or long waiting periods or any physical work or encroachments. Making projections, and mapping them on a surface, is a much quicker process than conserving the entire building.

The real time projection mapping experiment was done at night when much of the city slept. Even during this anyone who passed by, did notice the projections. Some even stopped to ask questions. This proved that even without any advertising it was gaining attention. This is an alien concept, if applied to cities can help in saving much more than what is important for just the governments or the conservators. The citizens of a city have a right to choose what they want saved in their history and this project, once employed in real time will give them the opportunity to do so. Architecture will not be just a mere display in this project but it will be a successful way to reach out to the techno crazy generation, who actually has the power to save these pearls of history, they are otherwise mostly unaware of.

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SONGS OF THE SEA: EXPLORING AUDIENCE ENGAGEMENT IN LOCAL HERITAGE THROUGH LOCATIVE AUDIO INTERPETATIONS OF ROGER QUILTER'S 'THE SEA-BIRD'

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INTRODUCTION

The establishment of mobile immersive audio experiences at outdoor heritage sites, offers the potential to augment visitor experience; through geolocated, woven historical narratives, with minimal on-site infrastructure[1]. These narratives can be explored through different types of audio content, creating a rich and unique soundscape[2] to be engaged with by site visitors.

This experience was designed to explore audience perception of heritage-specific audio content, exhibited through the mobile application Echoes[3], at the site of Brunswick Square[4], Brighton & Hove, UK. The captured audio was created in response to local composer Roger Quilter's[5] piece *The Sea-Bird*[6], and took the form of three contrasting types of sound content - music, dialogue, and field recording.

Research questions were developed to shape the test and inform data collection methods, which took the form of questionnaires[7], handed to each volunteer from The Regency Town House[8] to complete during listening. Preliminary questions formed were "what methods will be used to create the audio content for the mobile experience?", "what are participants' opinions on the selected audio content? Is it engaging?", "are the app and audio experience accessible to those taking part?", "is the location accurate and does it trigger when expected?", "which track do participants prefer?", and "what from this test can be taken forward to a larger prototype?"[9]. A brief insight into results will be made later in this paper, highlighting responses from a small selection of questions[10].

When attempting to create a tangible connection between a heritage site and a soundscape, considerations are made regarding local historical narratives, and capturing the audio content to portray them. As this was preliminary content research to inform further mobile audio experiences at the site of Brunswick Square, a local known composer from the square was selected, and materials collected on a fitting sea-side composition he made.

ROGER QUILTER AND THE SEA-BIRD

Roger Quilter was born on the 1st November 1877, at No. 4 Brunswick Square, Hove. His music was generally composed in strophic form and pleasant in tone, with complex part-writing and

straightforward harmonies with no unanticipated chords or progressions[11]. The majority of his works took the form of piano and voice ballads, suited to a drawing room setting, like that of the Regency homes in Brunswick Square.

Sifting through Quilter's extensive repertoire was an insightful process, and the collection of works that immediately stood out was *Songs of the Sea*, with particular interest in the piece *The Sea-Bird*. Originally taking the name of *Four Songs of the Sea*, this was a lesser known collection in comparison to his more publicly memorable works[12]. The first performance of *Four Songs of the Sea* which gained Quilter a wave of publicity, took place on 11th March 1901 at the Crystal Palace in London, and was sung by known vocalist Denham Price[13].

This collection was later refined to *Three Songs of the Sea* in 1911, with the lyrics of *The Sea-Bird* changed for this particular revision. It is not clear why Quilter went back and revised his lyrics, other than perhaps some of the original imagery described was quite bold. For example, the 1901 version "the day was dying in floods of crimson gore" was replaced in 1911 with "the light was dying o'er sunset's golden floor", painting a completely different hue to the dramatic sunset previously described[14]. The words and music for *The Sea-Bird* were written solely by Quilter for his mother, which given his place of birth, suggests connotations of the Brighton seaside, and the large gulls who live there.

The Sea-Bird and its vivid imagery inspired several options for audio interpretation, which were brought forward into the following three tracks.

RECORDING TECHNIQUES FOR CONTENT CREATION

Track 1 – Music

The first recording captured was the live piano and voice performance from the manuscript of *The Sea-Bird*. It was sung in the Grade II listed Unitarian Church in Brighton, as there was access to a Steinway grand piano, and beautiful, resonant acoustics for vocal recording[15].

This was an opportunity to try a different piece of surround-sound recording equipment, the Holophone H3[16], considered fitting for field or studio recording. This microphone was mounted and placed in the centre of the audience seating, which can be seen in *figure 1*. Upon testing the Holophone, there were a few irregularities which were not characteristic of such a high standard of microphone[17]. A strange high pitched frequency could be heard like that of an interference, similar to microphone feedback, but also had the quality of a mains. Changes in power sources were made, but the interferences couldn't be rectified.

Figure 33. The setup of the Holophone microphone at the Unitarian Church, and Robin Talbot on the piano.

In response to this, a portable recording set up was tested of Soundman OKM binaural microphones[18] connected to the Zoom H4n handheld recorder[19] as an audio interface. These binaural microphones are very precise and sensitive, and are normally used for more tactile immersive recordings, due to their direct transposition to spatial headphone listening. In this circumstance, the recordist was the singer, so a makeshift stand at audience height was created using a coat hanger[20] shown in *figure 2*. This recording was successful, and was taken forward to the mobile audio experience[21].

Figure 34. Soundman binaural microphones attached to a coat hanger as a solution to Holophone issues.

Track 2 - Dialogue

The second recorded track contained dialogue[22], which is most heard in traditional audio guides. It was formed from an extract of text which described the vibrant lyrical changes between the 1901 and 1911 versions of *The Sea-Bird*[23]. The passage read similar to an audio guide when spoken, and offered a contrasting narrative to the piano and voice piece, highlighting otherwise absent details surrounding lyrical changes.

Due to previous issues with the Holophone H3, recording for this track was first tested with the handheld Zoom H4n microphone. Despite amendments to the positioning of the microphone, and the inclusion of a wind shield, sibilance of the 'P' consonant during speech was very prominent[24]. As this issue was from breath hitting the microphone when the letter 'P' was enunciated, the binaural microphones seemed a fitting alternative to test. They were placed in the ears, and therefore away from breath during speech.

Track 3 – Field Recording

The third track took the form of a field recording, and was captured on a walk from outside No. 4 Brunswick Square to the sea[25], taking approximately 2 minutes 30 seconds, with 40 seconds spent listening to the waves on the shoreline. Track 3 was intended to be recorded using the Soundman binaural microphones, due to their mobility, inconspicuousness, and clear translation of spatial audio to headphone listening; making them fitting for a moving field recording. This trip was only done twice, as the sole amendments made were in response to wind interference.

Field recording is a method for capturing and understanding the natural field of sound[26]. It spans across many areas, such as natural history, soundscape creation, found sounds for art and compositions and more; residing under the collective term of sound studies research[27]. Recordists were originally funded

by patrons to travel and collect sounds of wildlife and cultural heritage for museum archives[28], but as the boundaries between environmental sound collections and artistic field works blurred, field recording became an art form it itself[29].

In this particular track, field recording took the form of soundwalking[30], as a process to capture the audio experience of a journey like that of Quilter's sea-bird. Soundwalking in the context of this test, offers an opportunity for the recordist and the listener to better understand the natural soundscape of Brunswick Square, as well as move through the audio tracks in the Echoes application.

QUESTIONNAIRE DESIGN

The initial research questions highlighted in the introduction of this paper, aided the design of data collection methods for this test. The anonymous questionnaire was formulated into two parts, one that was to be filled in before listening, and one while listening to each track. The first part was a short survey of general heritage, mobile usage, hearing assessment[31], and audio content preference questions, which were included to obtain a general assessment of each participant's background experience in the context of the audio test.

The questions created for the second part of the questionnaire were broken down into three main sections, content, location and accessibility. Questions for both sections were formulated into a combination of Likert scale questions[32] and open ended descriptive questions, with the scaled questions spread across five different "level of agreement". This allowed for a broader spectrum of preferences as compared to "yes" or "no" questions, which could then be given a point system for quantitative interpretation. The open ended questions gave an opportunity for more descriptive responses[33], which were cross-referenced against the participant pre-test survey, and second part scaled listening questions, to gain a better understanding of track preference.

PARTICIPANTS IN A HERITAGE SETTING

Volunteers from The Regency Town House were approached to participate in this preliminary content test, due to their interests in the museum and surrounding square, accessibility to the square, and also as the majority of volunteers were adults over the age of 56[34], which fit within the current age demographic of the majority of heritage site visitors[35]. The volunteers who took part in this test were a starting point for audience engagement research, but the intention for further doctoral research is to explore responses from new audiences which don't fit into this current bracket. Due to the technology involved in locative immersive audio experiences, a mobile device may offer the ideal platform for attracting new and diverse visitors to heritage sites[36].

ON-SITE FIELD TESTING OF AUDIO CONTENT

The test was undertaken by two participants at a time, with a total of eight participants completing the test and filling out their questionnaires. The test took approximately half an hour per pair, with the same equipment given to each participant of a mobile device and a pair of over-ear headphones. Attached to the beginning of the questionnaire was a hand out, which gave a short introduction to Quilter and *The Sea-Bird*, and a sentence outlining each track that would be heard, to use as a point of reference.

Upon opening the Echoes application, users would see a list of the tracks referenced as "walks". When selecting the audio experience, which was displayed in the application as a soundwalk, an introductory screen appeared outlining the track, its location, and a few details. From here, each participant pressed the start icon on their mobile phones, and began movement towards the centre of the trigger zone shown in *figure 3*. This circular zone also allows the "spatialisation" feature to take effect, which is intended

to make the track quieter at the edges of the circle and louder at the centre, thus creating dynamic interest and encouraging movement[37].

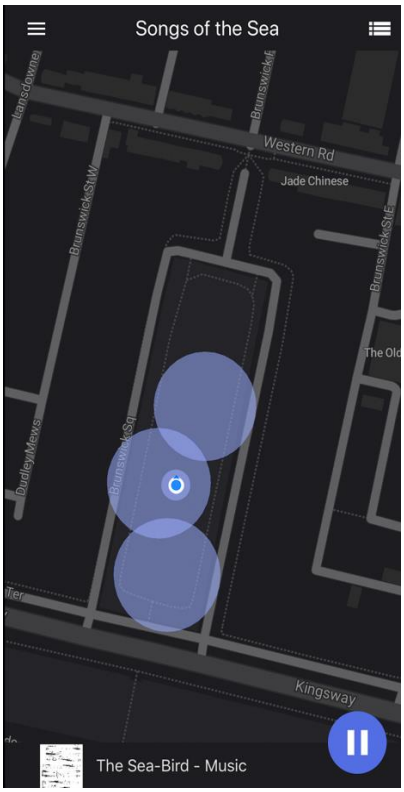

Figure 35. Screenshot of 'Songs of the Sea' on the Echoes application.

Participants went through each track in sequence, following the sound map in front of them to navigate the square and the audio tracks, answering each corresponding section of the questionnaire as they went. Although the sounds in this test each had a specified GPS location, it was beneficial that participants naturally wished to wander as far as possible and test the boundaries of the tracks, shown in *figure 4*. Assistance was given during the test if asked for, but participants were encouraged to try the experience on their own.

Figure 36. A participant exploring the audio tracks within Brunswick Square.

RESULTS AND DISCUSSION

Survey Feedback

Survey information collected from participants was formulated into *table 1*, where each anonymous participant has been given a number, in order to manage continuity between results from each individual questionnaire.

	Age	Hearing	Smartphone	Apps	Data	Heritage sites	Audio guide	Audio content
1	56-65	good	yes	yes	yes	over 30	no	music, podcasts
2	56-65	satisfactory	no	no	no	under 30	no	music
3	18-25	good	yes	yes	yes	over 30	yes	music, podcasts, audiobooks
4	56-65	very good	yes	yes	yes	under 30	yes	music
5	18-25	very good	yes	yes	yes	under 15	yes	music, podcasts
6	36-45	very good	yes	yes	yes	under 15	yes	music
7	56-65	very good/good	yes	yes	yes	over 30	yes	music, podcasts, audiobooks, nature sounds
8	over 65	satisfactory	yes	no	no	under 30	yes	music, podcasts, nature sounds

Table 2: General data collected from the participants, headings have been abbreviated for the table, and read in order of appearance on the questionnaire.

As mentioned previously, 62.5% of participants were over the age of 56, and none stated they had visited any less than 15 heritage sites a year, excluding The Regency Town House where they were volunteering. No participants rated their hearing as any less that satisfactory, with 50% considering themselves at the highest rating of "very good". As smart phone usage is integral to mobile audio experiences, it was reassuring to find out that 75% of participants should have been comfortable with using a mobile phone and navigating a mobile application. The audio content question asking "what

types of audio content do you normally listen to?" allowed multiple answers. All participants stated they listened to music, with 62.5% selecting podcasts also. Participant 7 was the only one to state they enjoyed all recorded audio content answers offered in the questionnaire.

Scaled Level of Agreement Responses

'Question 2' displayed in *figure 5*, was a scaled question which addressed the presence of outside noise in the listening experience[38]. Noise cancelling headphones were deliberately not used in this test, to allow some audio bleed from the outside. This was to keep participants aware of any audible hazards, but also because it was interesting as a designer to find out if the external soundscape of the square added to or took away from the listening experience.

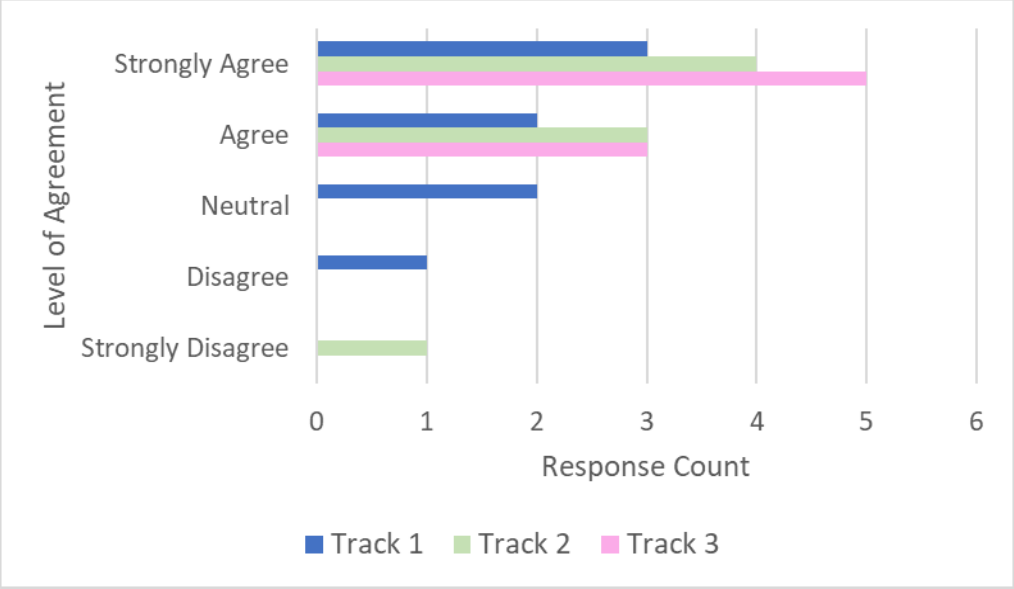

Figure 37. Graph showing answers for Question 2 "outside noise didn't interfere with the track".

In the results, *Track 1 – Music*, received the most mixed responses, followed by *Track 2 – Dialogue*. *Track 3 - Field Recording*, scored the highest on this question[39]. It is possible that this was either due to the outside sounds not being noticed, or they were naturally blending in smoothly with the journey that was being heard.

Upon reflection, an accompanying scaled question could have been added stating "no outside noise was heard". These results could then be compared to see if participants were putting forward an opinion on what is deemed interference, or if in fact no outside noise was heard at all and that reflected the overall high scoring of the tracks.

Open Ended Descriptive Responses

When discussing the results from the descriptive open ended questions, looking at opinions on the spatialisation feature was useful for future research on 3D audio[40]. Participant 1 stated "effective but no directional feedback", which suggests a more VR like experience was anticipated, which was positive feedback for this research. Participant 6 expressed that the "volume did vary as I walked around", Participant 7 noted a "strong drop off of volume over 4 paces", and Participant 8 stated it was "fading off" and was "most appropriate". There were very few instances where this feature was unsuccessful.

Returning to the preliminary research questions, feedback on how engaging the audio content was, was helpful in gaining a sense of preference of types of content within a heritage setting. Positive responses were given for all three tracks. Sonic bleed from the landscape was discussed for *Track 1*, stating "the gulls started calling at the end which was brilliant! During the song I could hear the sparrows which was also lovely". Participant 2 expressed that *Track 1* was "engaging, yes, with the sea calm it resonated with the solo piano and voice". *Track 3* had the most intriguing responses of "disconcerting in its realism", and "felt like VR".

Assessments of Track Preference

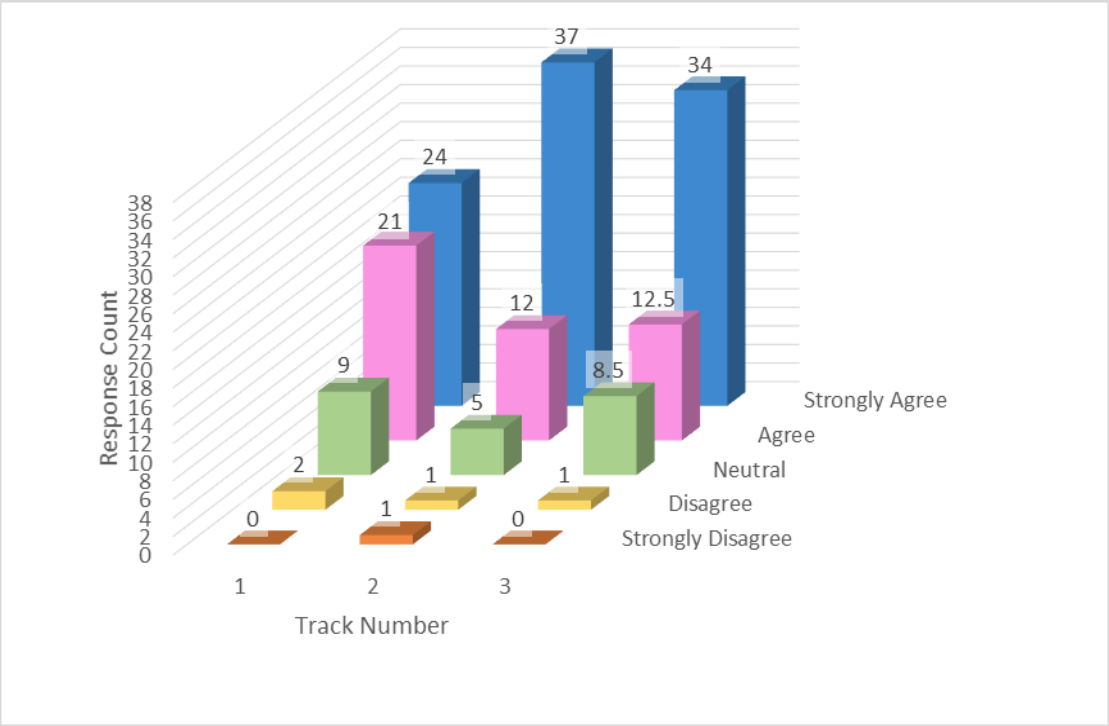

Figure 38. An accumulation of all "level of agreement" results for each track, as a way of deciphering overall track preference.

The overarching question of "which track do participants prefer", was answered through the comparison of each participant's 'level of agreement' responses to the seven scaled questions asked for each track. From the chart it can be assessed that Track 2 - Dialogue, is the overall preferred track, with Track 3 - Field Recording, a close second, and Track 1 - Music, at the lowest. When accumulating all the positive results, agree and strongly agree, Track 1 has 80% agreement, Track 2 has 87% agreement, and Track 3 at 83% agreement, which are relatively close numbers. As this question is surrounding a preference, neutrality of opinion in this case was deemed unhelpful in concluding a result. What is useful to note from this feedback, is that 80% and higher of responses were positive for each track, with descriptive responses available for cross-referencing opinions.

CONCLUSIONS AND FURTHER WORK

A few conclusions can be drawn from this mobile audio content test. The above data suggests *Track 2* is the most preferred, but this could potentially be due to its similarity to that of a traditional audio guide. Participants may have been most exposed to this kind of heritage-specific audio content previously; which in turn could mean it was the easiest to listen to and engage with in this context. If the test is reconducted, the track order may be adjusted or removed, to see if a change of narrative effects results[41].

Participants provided valuable opinions surrounding audio content, location preferences, and mobile application accessibility, which can aid in the development of future immersive audio experiences. Due to very positive evaluations of all track types, the intention is to explore all audio content further, taking into consideration the versatility of binaural recording techniques.

Mobile audio experiences could be a fitting engagement tool for the heritage sector in a Covid-19 and onwards future; where outdoor activities, single and small group experiences, and personal mobile device and headphone interactions are likely a part of the everyday. The interaction between recording, historical narrative, and landscape, could be considered a key element in public engagement for the heritage sector, as well as contributing to knowledge surrounding these heritage sites.

NOTES

[1] Due to minimal on-site infrastructure, mobile immersive audio experiences are particularly suitable for outdoor, at risk, or ruined heritage sites.
[2] Soundscapes can refer to the internal sound field of a created audio experience, or the external sound field contributed to by us "as noisemakers, as listeners, as participants" see Brandon LaBelle, *Background noise: Perspectives on Sound Art*. 2012. p201. Soundscape engagement is considered a circular process of antiphony, with inflection and amplitude reflexively adjusted for and against the prevailing aural architecture, soundscape, and social normalities. See John L. Drever. *Sounding Dartmoor: A case study on the soundscapes of rural England at the opening of the 21st Century*. 2002.
[3] Echoes is a geolocative audio creator and mobile application, and the platform used for this test and further doctoral research on 3D immersive audio experiences. See Kopecek, Josh. *Echoes.* 2014 https://echoes.xyz/.
[4] 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 residency of the museum 'The Regency Town House'. Brunswick Square is the site for further doctoral research in 3D immersive audio experiences beyond this test.
[5] Roger Quilter is an English composer, known for his contributions to English art song. He was born in 1877 at No. 4 Brunswick Square in Brighton & Hove, where a commemorative blue plaque can be found.
[6] 'The Sea-Bird' is part of a collection of compositions by Roger Quilter titled 'Songs of the Sea', and describes a seagull's journey across the wintery shores at sunset. It was first composed in 1901, but is then later rewritten in 1911.
[7]Data collection methods are discussed later in this paper, under 'Questionnaire Design'.
[8] The Regency Town House is the heritage partner to this project, and further doctoral research. It is a local museum which resides in Brunswick Square, and is where the volunteers were gathered from for this preliminary audio content test. See The Regency Town House. Heritage Organisation and Museum. Available: http://www.rth.org.uk/.
[9] These research questions are relevant for reference when reading the 'Questionnaire Design' section of this paper. The recording techniques for audio content creation and the content itself, participants' opinions on the content, accessibility of the app, and relationship of sounds to site, and applications of this research to further prototypes, were all weighed as equally important to this test.
[10] Data was gathered and formed into graphs for all questions answered, but only a select few will be addressed in detail in the 'Results and Discussion' section of this paper.
[11] See Valerie Langfield's biography 'Roger Quilter: His Life and Music'. 2002.
[12] Quilter's more recognised works predominantly used verses from Shakespeare, Herrick, and other famous English poets. See Valerie Langfield. *Roger Quilter 1877-1953*. Available: http://valerielangfield.co.uk/Quilter/index.htm
[13] Informed by the thesis written by Valerie Langfield titled *Roger Quilter 1877-1953 His Life, Times and Music*. University of Birmingham. 2004.
[14] Other lyrical revisions were made, and are dictated from an extract of 'Roger Quilter: His Life and Music' which can be heard in 'Track 2 – Dialogue', discussed later in this paper. See Valerie Langfield's biography *Roger Quilter: His Life and Music*. p113-116. 2002.
[15] The venue for this recording was selected after attending a lunchtime concert of piano and voice pieces, presenting the same composition of pianist and vocalist as the recording for this test. An assessment was made of the space and it was concluded that it held the properties required, however the choice of recording technique was yet to be decided.
[16] The Holophone H3 consists of six directional microphones positioned within one capsule (inspired by the dummy head often used for binaural recordings), which would capture the room in surround sound. This equipment requires minimal mixing and is simple to use for a continuous spatial recording in a church setting.
[17] The clarity of sound, though all inputs were working and showing volume, was fairly poor and rather muddy. These interferences can be listened to on: https://annacedmonds.com/compositions/songs-of-the-sea/the-sea-bird-track-1-music. See Anna Edmonds *The Sea-Bird – Track 1 – Music. Extract of Holophone interference. Songs of the Sea.* 2019.

[18] The Soundman OKM binaural microphones are high quality, compact, and portable microphones which are designed to sit in a recordist's ears.

[19] The Zoom H4n is a commonly used portable hand held microphone, which can act as a standalone microphone, or serve as an audio interface for recording other connected microphones in an out-of-studio setting. The mobility of audio recording devices has allowed any moment heard to become a captured moment, with devices being carried and set up anywhere, simply turned on, and left to run for hours. Anna Schultz and Mark Nye. *Music Ethnography and Recording Technology in the Unbound Digital Era*. 2014. p302.

[20]This technique of spacing out binaural microphones on a coat hanger was inspired by known field recordist Chris Watson, and is a solution for collecting binaural recordings where the recordist is unable to use a dummy head or place the microphones in their own ears. See Ben Gale. *Spacewalk Audio: Lavalier Microphone Techniques For Field Recording*. 2018. http://www.spacewalkaudio.co.uk/lavalier-microphone-techniques-for-field-recording/ & Michael Gallagher. *Microphones.* http://www.michaelgallagher.co.uk/equipment/microphones

[21] 'Track 1 – Music' can be listened to for reference at https://annacedmonds.com/compositions/songs-of-the-sea/the-sea-bird-track-1-music. See Anna Edmonds. *The Sea-Bird - Track 1 - Music. Final recorded version of 'The Sea-Bird – Track 1'*. Songs of the Sea. 2019.

[22] 'Track 2 – Dialogue' can be listened to for reference at https://annacedmonds.com/compositions/songs-of-the-sea/the-sea-bird-track-2-dialogue. See Anna Edmonds. *Final version of 'The Sea-Bird – Track 2'.* Songs of the Sea. 2019

[23] Roger Quilter: His Life and Music (2002) by Valerie Langfield, has been an essential reference point for 'Songs of the Sea' and in turn 'The Sea-Bird'. It highlights the descriptive lyrical changes in the two versions of the piece. P.113-116.

[24] The popping of the 'P' sound can be listened to in the first track on the link: https://annacedmonds.com/compositions/songs-of-the-sea/the-sea-bird-track-2-dialogue. See Anna Edmonds. *The Sea-Bird - Track 2 – Dialogue. Popping 'P' sounds extract*. Songs of the Sea. 2019.

[25] 'Track 3 – Field Recording' can be listened to for reference at https://annacedmonds.com/compositions/songs-of-the-sea/the-sea-bird-track-3-field-recording See Anna Edmonds. *The Sea-Bird -Track 3 – Field Recording. The final recording of 'The Sea-Bird – Track 3'.* Songs of the Sea. 2019.

[26] Field recording can help listeners understand and engage with their surrounding landscapes, see Rui Chaves. *Performing sound in place: Field recording, walking and mobile transmission*. 2013. Brunswick Square has a diverse soundscape of urban noise and natural sea-side sounds which were accepted in track 3, as they were considered part of the immersive journey through the local environmental soundscape.

[27] See Tom Western, *National Phonography: Field Recording and Sound Archiving in Post war Britain.* 2015.

[28] See Robin Parmar, *A Brief History of Field Recording.* 2018.

[29] See Mark Peter Wright, *Contact Zones and Elsewhere Fields: The Poetics and Politics of Environmental Sound Arts*. 2015, & Will Montgomery. *The Changing Uses of Field Recordings*. 2013. Accessible: https://www.thewire.co.uk/in-writing/essays/the-wire-300_will-montgomery-on-the-changing-uses-of-field-recordings

[30] Soundwalking is the process of walking, listening, and recording, and is not just a method for sound collection, but also a means to engage others in the practice of listening to and describing the surrounding urban landscape. Adams; et al. *Soundwalking as methodology for understanding soundscapes*. 2008. Artistic and qualitative aspects highlight the diversity of creative and academic practices surrounding soundwalking over many disciplines. See Frauke Behrendt. Soundwalking. 2018.

[31] The question asking "how would you rate your hearing?" was added after a trial of the equipment and audio content at the site prior to this experiment. As tracks were mixed in a semi-quiet indoor set up, volume issues were highlighted when exposed to background noise of the external soundscape. The volume was raised of the tracks for the formal test, but this question was also added in order for the researcher and the participants to consider levels of hearing.

[32] Likert questions offered scaled responses as 'levels of agreement', and descriptive open-ended questions offered an opportunity for listeners to elaborate further where a strong opinion was present. In this test they were labelled "strongly disagree", "disagree", "neutral", "agree" and "strongly agree". In the second part of the questionnaire, a total of seven scaled questions were made, with the remaining presented as opinion questions. See Rensis Likert. *A Technique for the Measurement of Attitudes*. Archives of Psychology, 1932. & Nigel Bradley. *Marketing Research: Tools and Techniques.* 2010.

[33] Descriptive open ended questions were cross-referenced against the scaled questions. See Jon A. Krosnick & Stanley Presser. *Question and Questionnaire Design*. 2010. p266. & Laugwitz, et al. *Construction and evaluation of a user experience questionnaire. 2008.*

[34] The age demographic of test participants as well as other heritage site and audio content information is showed in the results section of this paper under 'table 1'.
[35]The highest number of heritage site visitors are currently within the age demographic of 45-74. This information has been collected continuously between April 2009 and March 2017. Reference: Department for Digital, Culture, Media and Sport. *Taking Part focus on : Heritage*, p4. 2017.
[36] Future scope for mobile audio experiences for heritage site engagement is touched upon further in the 'Conclusions and Further Work' section of this paper.
[37] The spatialisation feature is an added sound feature which makes the audio louder in the centre of the circle, and gradually quieter as the user moves towards the outside of the zone.
[38] Outside noise was discussed previously in the section 'Track 3 – Field Recording'. Noise can be associated with industrial and urban settings (see Karen Bijsterveld. *The Art of Noises.* p139. 2008), interfering sounds that cannot be controlled by the listener (see David Hendy. *Noise*: *A Human History of Sound & Listening*. p311. 2014), and also as self-noise (see Mark Peter Wright, *The Noisy-Nonself: Towards A Monstrous Practice of More-Than-Human Listening*. p28. 2017).
[39] This immersive track is a combination of footsteps, conversation, nature, and the sea, and apparently worked well with the surroundings according to the results.
[40] As previously mentioned, the spatialisation feature encourages movement to the static GPS audio track, as well as giving more depth to the experience through dynamic changes.
[41] After this test, the audio work was open to the public during a Heritage Open Days event on the 21st September 2019, with visitors listening to each track in the order they preferred. It can still be heard in the square at any time via Echoes at https://explore.echoes.xyz/collections/SywyAh2KLuTduBH4. The AMPS Canterbury Conference presentation to accompany this paper can be viewed at https://www.youtube.com/watch?v=oCNJ0TKtwUA.

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TOWARD A BORDERLESS CONNECTION: TEAMLAB AND A QUASI-IMMERSIVE THEATRE

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ABSTRACT

TeamLab, a contemporary Japanese group of interdisciplinary artists and engineers, creates digital artworks that explore the relationship among nature, people and digital creations. As a lot of their projects intend to transform traditional Japanese ways of viewing and experiencing the world into digital art, the conception of nature as something that includes, enfolds, and embraces people and the things they make can be perceived. In experiencing their exhibitions, the visitor may immerse in and interact with their works for their intention of breaking down the boundary between their artworks and audiences, and between nature and the digital world. Through interacting and immersing with dynamic digital images, the audience may converse with the scenarios of spatial scenes. In other words, the interaction between audiences and the artwork created by teamLab demonstrates a performative relationship, as well as providing possibilities for visitors to immerse in both simulative and borderless digital environment. In so doing, the audience may actively play and perform following the visual scenarios and spatial situations they sense.

From the aspect of 'viewer centricity' and the notion of augmented reality, a conception of immersive performance can be suggested. This paper thus argues that these immersive phenomena and participatory behaviours of the audience can be regarded as a creation of quasi-immersive theatre. To explore the potential of such immersive sensory theatre, the paper will discuss the participant's spatial experience stimulated by teamLab's digital artworks on the one hand, and examine the spatial scenarios and narrations through the setting of their works on the other. At the end, the paper will discuss the feasibility of applying teamLab's artworks to the composition of site-specific environmental theatre, so as to explore the possibility of recalling collective memories through the connection among places, audiences and digital artworks.

INTRODUCTION

The creation of artistic works could apply the medium and technology of social communication to reflect the spirit of the time. By applying digital technology into the process of creating art works, a digital trend that opens up more possibilities for images manipulation and composition has significantly occurred in art practice. In terms of the technological advancement of manipulating digital images, Christiane Paul states that '[d]igital technologies add an extra dimension to the composite and collage, for disparate elements can be blended more seamlessly, with the focus being on a "new', simulated

form of reality rather than on the juxtaposition of components with a distinct spatial or temporal history'.[1] Because of the utilization of digital technology as a medium for art creation, digital art has generated a new aesthetics and a new way of presenting artistic ideas. Issues of immateriality, originality/unoriginality and interactivity have thus been discussed greatly and profoundly. The first issue is the challenge of presenting works of non-objectification or the notion of virtual representation of physical reality, that is, virtual reality. Based on the means of simulation, there are flexible ways or fluid viewpoints of manipulating and viewing the simulated objects, spaces or situations.

The second one is the possibility of freely generating identical works or parts of components through digital repetition. Because of its use of digital technology, digital art is capable of creating multiple, dynamic, flexible and seamless image compositions. This way of art creation questions the idea of originality of art works due to its repeatability and non-objectification. This can be found in many cases in digital imaging[2] as well as in the simulation of physical reality. The third issue can be the potential for breaking the spatial frame of generating or exhibiting art works, as well as blurring the boundary between digital arts and beholders. Digital works can be freely installed in exhibition spaces or projected on manipulated walls or objects to meet the artist's concepts or aesthetics. Furthermore, the interaction between digital arts and the beholder can forge a participatory role of the visitor and an immersive phenomenon of artistic presentation.

The above-mentioned issues inferred from the advent of digital arts are imbedded in the works of many contemporary teams. One of the most distinguished teams in Asia is the Japanese artistic group - teamLab, which was formed by interdisciplinary artists, engineers, computer animators and architects …etc. in 2001,[3] creating digital artworks through exploring the relationship among nature, beholders and digital creations. Many of teamLab's projects intend to transform spatial concepts and ways of experiencing the world suggested in Japanese traditional paintings into digital arts. Although the utilization of digital technology for art creation demonstrates a universal trend, it is possible to perceive a unique cultural aspect in teamLab's art philosophy. To explore the uniqueness and aesthetics of teamLab's works, traditional Japanese paintings will be discussed together with the visual and spatial relationship generated among their digital works, beholders and exhibition spaces. In addition, from teamLab's intention of creating a fluid and dynamic experience for the viewer to immerse in simulative and interactive environment, the paper will discuss the connection and similarity between teamLab's digital artworks and the spatial situation of so-called immersive theatre.

OTHER WAYS OF VIEWING AND ULTRASUBJECTIVE SPACE

The artistic ideas of teamLab are inspired by traditional Japanese paintings in the Edo period, which represent ancient Japanese sense of spatial recognition. The spatial logic of these paintings is not dominated by perspectival rule, but is set by multiple viewpoints or dynamic ways of viewing. In comparison with western perspectival paintings, natural landscape (objects), architecture and figures (animals) are not depicted objectively, but subjectively. Because of historical factors, as well as religious and cultural influences, it can be discovered that the tradition of Japanese painting was derived from traditional Chinese paintings. As Christine Guth states that:

> In the Edo period Japan's relationship with China, traditionally its chief cultural mentor, was multi-faceted and highly complex. Many developments in the arts of this era reflected the image of Chinese culture held by Japanese artists and their audiences … Chinese culture was revered, emulated, and used as part of a strategy to legitimize and classify Japan's own culture.[4]

In traditional Japanese paintings, perceptual notions of natural landscape along with some artificial elements are portrayed by subjective viewpoints. Because of the application of parallel perspective and

aerial view to the pictorial composition, the association of nature with people can be perceived. That is, the philosophy of traditional Japanese paintings regards people and natural elements are existing as a whole. This way of perceiving the world has been represented in the art of Japanese Edo period and the periods before. Artists' subjective ways of viewing can be perceived from the incompleteness of the composition and the imprecision of portrayal. The viewer may grasp and interpret the pictorial conceptions through personal experiences and by flexible ways of sensing the spatial dimension or depth composed in the painting.

The flexibility of presentation and the spatial logic embedded in the composition of Japanese paintings in Edo period are regarded by teamLab as ultrasubjective spaces. (Fig 1) That is, by ultrasubjective way of viewing, teamLab states that ancient Japanese people 'easily and completely entered the images depicted in the art of their time and saw them as they saw the world. They readily felt themselves to be an integral part of their world, whether seeing it in reality or in art.'[5] From the viewpoint of ultrasubjective space, teamLab further questions traditional mode of art exhibition because the spatial settings have engendered the separation between art works and observers. By learning from the viewpoint of their forebears, teamLab develops digital arts with no boundary between the beholder and the world presented in their works. Moreover, through applying digital technology to art creation and exhibition settings, dramatic scenarios and interactive relations can be forged in terms of beholders' visual and spatial experiences.

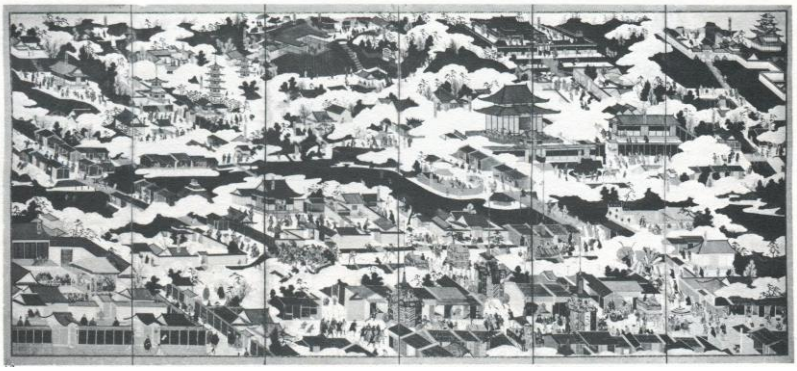

Fig 1: Anonymous, (early seventeenth century), Gion Festival. Source: Louisa Cunningham, The Spirit of Place (New Haven: Yale University Art Gallery 1984), 22.

SIMULATION AND VR/AR

Due to the prevalence of computer-aided drawings and digital arts, it can be stated that new representational media which set for generating simulative objects, spaces, buildings and other realities have produced various ways of viewing and presenting the related content. According to Gerhard Schmitt, '[c]omputer simulations are a new way to predict how a planned building or object may look and how it can be experienced in space and time.'[6] That is, based on the notion of simulation, digital modelling and spatial construction have been used to produce predictive result of an object or its relation to the surroundings, as well as developing virtual reality for further applications to other disciplines, such as art creations and entertainments. With the development of virtual reality (VR), designers can present simulative relations of physical reality through the representation of formal, spatial or environmental model that is operated by digital integration to stimulate the beholder's visual

imaginations and spatial perceptions. Therefore, according to Schmitt, '[t]he two most critical aspects of VR, interaction and immersion, facilitate the direct manipulation of objects and the feeling of being inside the simulated space'.[7] Although the head mounted device allows users to behold synthetic environment and to immerse in virtual situations, the restriction of using the artificial device may limit the viewer's accessibility and sensory perception.

Hence, in order to generate a multiple and perceptual experiencing environment, a sort of human or large-scale stereo projection or installation needs to be set. Especially, in association with computer-generated virtual information and a physical real-world environment, augmented reality is created and which can demonstrate powerful spatial and visual imaginations.[8] Accordingly, by means of providing multiple viewpoints and associative imaginations for viewers, AR has been utilised for creating an immersive environment. This sort of immersive spatial setting introduces dynamic and animated spatial experiences into realistic places, as well as forging tactile dimension for virtual experiences. In other words, 'AR technology augments the sense of reality by superimposing virtual objects and cues upon the real world in real time.'[9] An integral and designed environment that transcends the boundary between real and virtual environment thus can be built. Therefore, in association with digital simulative images, physical objects, spatial settings and digital devices, the construction of AR environment or Mixed Reality[10] may enhance the beholder's perception of the designed place and its spatial scenarios, as well as contributing to the portrayal of related narratives.

CULTURAL VIEWPOINTS IN TEAMLAB'S DIGITAL ARTS

In terms of delivering cultural identity in traditional paintings through the exhibition of digital arts, teamLab intends to transform subjective ways of experiencing the world into digital presentation, as well as reflecting on the Japanese conception of nature as something that includes, enfolds, and embraces people and the things they make. By holding the concept of 'viewer centricity' in Japanese scroll paintings, teamLab generates both perceptional and tactile channels for viewers to immerse in their works because there is no barrier between the viewer and the simulative situations and spaces.[11] For instance, in the work 'Nirvana' that is created by transforming from Jakuchu Ito's square paintings, the image of 3-D animals and spaces is animated by the colour difference of pixel squares, and thus multiple layers and viewpoints of spaces along with a digitalised composition of traditional square paintings can be experienced. (Fig 2) In addition, some works explore traditional Japanese spatial perception through digitalising and spatialising brush paintings in traditional calligraphy, as well as examining dynamic ways of image perceiving by means of divided perspective. 'Crows are Chased and the Chasing Crows are Destined to be Chased as Well' (Fig 3) for example, the setting of multiple perspectival scenes provides the viewer to have experiences of immersing in the theatrical aura of image performance. From my personal visit and the setting of dynamic and multiple scenes of digitalized material representation, the paper emphasises that teamLab's digital arts exemplify the transformation of Japanese cultural references from a genre of traditional art into a contemporary creative means.

Furthermore, in 'HARMONY', Japan Pavilion, Expo Milano 2015, visitors can experience both tangible and simulative AR environment, as well as immersing in tactile spatial settings. The work intends to represent Japanese landscape of rice fields by setting various levels of screen that resemble the terraced rice fields.[12] The endless reflection of materials used for exhibition walls forges spatial infinity and a circle of temporal scenarios engenders a sense of harmonious combination between people and nature. (Fig 4) The flexibility of stalk-like screens along with rice-field images produce an interactive Mixed-Reality and perceptional experiences for beholders when wandering through the simulative fields. Hence, the paper argues that teamLab's digital arts have potentials for delivering

specific cultural characteristics or references by introducing viewpoints of cultural representation and spatial conceptions into their works. Although digital media act as universal means for visual and informational communication, it is possible to disclose a sensory and cultural dimension of spatial composition if digital artists can transcend the technological aspects of modern media and merge cultural identities with mixed realities.

Fig 2: teamLab, 2013-2016, 'Nirvana', interactive digital work, 8 channels, photograph, Tseng, C-p.

Fig 3: teamLab, 2014-2016, 'Crows are Chased and the Chasing Crows are Destined to be Chased as Well', Digital Installation, 7 channels, photograph, Tseng, C-p.

Fig 4: teamLab (2015), 'Harmony', digital installation. Source: teamLab, teamLab, 192.

A QUASI-IMMERSIVE THEATRE AND BORDERLESS SPATIAL RELATIONS

In association with boundless exhibition settings and the interactivity between spectators and digital artworks, teamLab has generated a theatrical relationship between the beholder and the spatial narration of digitally simulative environment or mixed reality. The viewer can not only experience the projected scenic images and spatial auras, but also interact with and participate in the visual and spatial scenarios of the works. However, according to Gareth White, immersive theatre is '… they require the audience to move within the space occupied by the performers, a space that is replete with associations and which becomes performative in new ways in consequence of the audience's presence within it'.[13] That is, if the audience's presence and associations within the performative spaces can produce a creative relationship between performers and audiences, and forge new meanings of the performance accordingly, an immersive theatre could thus be suggested.

In terms of the participatory and immersive relationship between beholders and digital works, it can be discovered that the beholder may not only interact with the presentation of art works, but also participate with the creation of dynamic images and spatial elements due to the setting of computerized sensors. For example, the work 'Sketch Aquarium', which was showed in the exhibition of 'teamLab: Dance! Art Exhibition, Learn & Play, Future Park' in Huashan 1914 Creative Park, Taipei, 2017, encourages visitors to colour prepared drawings of sea creatures and later to scan the image(s) for projecting onto the virtual aquarium. Children's coloured sketches can be associated with other creatures of the work or with other people's sketches, as well as being activated through touching the projected images.

From the projects discussed in above sections, it is clear that the movement of subjects and objects in teamLab's digital images or animations may stimulate the audience to interact with or perform in the synthetic environments, as well as providing visitors with immersive experiences. Nonetheless, as the interactive performances that are motivated by mixed-reality portray visual and spatial scenarios according to preset programme, the interactivities may not respond to certain theatrical relations or narrative associations with specific places. According to Catherine Bouko's model of immersive theatre, the first step can be 'physical integration vs. breaking down formality, the second step is 'sensory and dramaturgical immersion, and the third one is 'immersion and spatiotemporal indete[r]minacy'.[14] The paper thus argues that teamLab's digital arts could be thought of as a quasi-immersive theatre, because audiences immerse in and interact mainly with the changes of synthetic environment, and their

interactions with the digital art may not be merged with related narrative structure and the storyline of theatrical scenarios. Thus, in teamLab's quasi-immersive theatre, theatrical reflections may not be generated by the interaction between the work and different beholders. There will be somehow predictable visual and spatial responses produced according to audiences' varied actions.
Nevertheless, with the potential of shaping both immersive and interactive environment for the engagement of beholders, teamLab's digital arts demonstrate an omnidirectional way of narrating cultural and spatial conceptions. The projected digital animations illustrate dynamic spatial scenarios in association with the correlation between simulative elements and the spectator's body responses, as well as expanding the spatial dimension of the exhibition rooms. The work 'Crystal Universe' as an example, a changeable light sculpture is formed by composing grid structures of light points, in that light particles are digitally controlled to respond to the beholder's interactivity with the work.[15] Because of the variation of viewers' movement and the installation of reflective materials within this light structure, a sense of spatial infinity is forged along with the imagination of boundless universe. Beholders can also interact with the work by their smartphones to select elements for creating respective spatial scenarios of 'Crystal Universe'. (Fig 5)

Furthermore, through breaking the boundaries among respective projects and related exhibition rooms, teamLab's exhibitions in Mori Building, Tokyo, demonstrate a complex connection and dialogues among artworks, visitors and spaces, and further engender endless intermingling with virtual reality, artistic conceptions and physical world. (Fig 6) In this exhibition area, 'there is no map or set course to follow here, since all of the spaces are connected: visitors are instead encouraged to get lost in them and figure out a route for themselves.'[16] It can be seen that the flexibility and fluidity of spatial arrangement correspond to the artistic ideas in that 'the animations are computer-generated in real time, the artwork is fluid: the light projections change and respond to human interaction, allowing visitors to become part of the installation.'[17] Together with visual and spatial variations, music is utilized to 'create a sense of euphoria',[18] so as to generate an immersive and multi-sensory experiences for spectators.

Fig 5: teamLab (2016), 'Crystal Universe', interactive digital installation, photograph: Tseng, C-p.

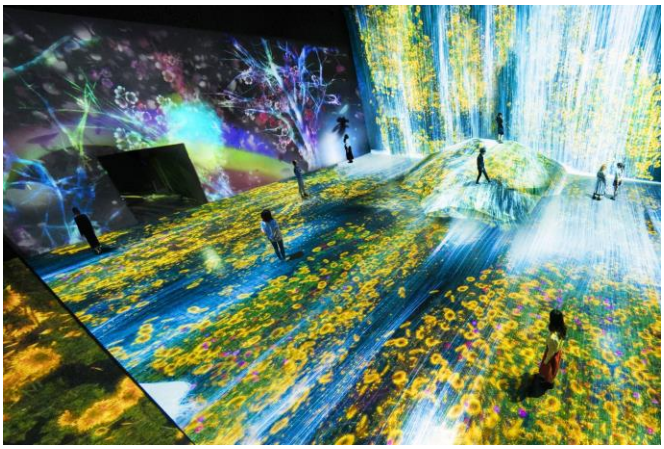

Fig 6: teamlab (2019), Transcending Boundaries, Tokyo, 'Universe of Water Particles on a Rock where People Gather'. Source: Mori Building Digital Art Museum. Accessed: June, 28, 2020. https://borderless.teamlab.art/zh-hant/ew/iwa-waterparticles/.

CONCLUSION

From the above discussions, it can be discovered that teamLab's artworks reveal associations with traditional Japanese cultural aspects as well as their multiple viewpoints of experiencing the complex world. Although most of teamLab's works are confined and showed in exhibition spaces, with the notion of borderless connection with virtual/ augmented reality and physical world, the beholder can expand his/her various senses for further perception and immersion with ultrasubjective space and situations. This intention of creating quasi-immersive theatre may stimulate the audience's subconsciousness and memories of related places or situations. To expand their artistic ideas further, some of teamLab's recent works have been exhibited in cities and cultural heritages, so as to building up a close relationship with specific sites and places. For example, 'Resonating Trees – Forest of Tadasu' and 'Resonating Spheres' at Shimogamo Shrine, lighting/colour resonations and reaction correspond with the presence and movement of people and forest animals. The change of lighting/colour/musical tone of spheres in 'Resonating Spheres' also trace the movement of people, and further react to the lighting colour of trees nearby.[19] These outdoor installations reveal teamLab's intention of connecting digital arts with nature and cultural heritage, as well as disclosing hidden and artistic layers of nature and historical environment.

To bridge the notion of quasi-immersive theatre with on-site digital installation, the paper would propose that teamLab's creative approach could be applied to the setting of site-specific environmental theatre, so as to recall the spectator's memories of the history of and past events at the place by means of producing temporal-spatial discourses between the past and the present. As Rose Biggin states that '[m]ultimedia performance can be defined as a medium that includes both live and mediated elements, both the "real" and the "virtual". [20] To merge site-specific performance with the multi-sensory narrations of teamLab's digital installations, a sort of multimedia performance that associates the present (the real) with the past (the virtual) can be suggested. That is, by introducing past traces of historical environments and narratives of the places into the content of digital artworks, a site-specificity

and a virtual archaeological representation might be co-existing with local people's everyday lives. Furthermore, it can be stated that teamLab's artworks may be transformed from artistic plays into discourses of theatrical relations.

NOTES

[1] Christiane Paul, *Digital Art*, (London: Thames & Hudson, 2011), 31.
[2] In digital photography and print, images collage and blending can be perfectly emerged and seamlessly composed.
[3] See Emily Stokes-Rees, "Exhibition Without Boundaries: teamLab Borderless and the Digital Evolution of Gallery Space," *Museum Worlds: Advances in Research 7* (2019): 239.
[4] Christine Guth, *Art of Edo Japan* (New Haven: Yale University Press, 1996), 15.
[5] teamLab, *teamLab 2001-2016* (Tokyo: teamLab, 2016), 59.
[6] Gerhard Schmitt, *Information Architecture* (Basel: Birkhauser, 1999), 23.
[7] Ibid., 27.
[8] According to Julie Carmigniani and Borko Furht's definition, Augmented Reality (AR) is '… a real-time direct or indirect view of a physical real-world environment that has been enhanced/augmented by adding computer-generated information to it. AR is both interactive and registered in 3D as well as combines real and virtual objects.' See Julie Carmigniani and Borko Furht, "Augmented Reality: An Overview," in *Handbook of Augmented Reality*, Borko Furht ed. (New York, Dordrecht, Heidelberg and London: Springer, 2011), 03.
[9] Julie Carmigniani and Borko Furht, "Augmented Reality: An Overview," in *Handbook of Augmented Reality*, Borko Furht ed. (New York, Dordrecht, Heidelberg and London: Springer, 2011), 03.
[10] According to Milgram's Reality-Virtuality Continuum, Mixed Reality is defined as 'one in which real world and virtual world objects are presented together within a single display, that is, anywhere between the extrema of the virtuality continuum.' See Paul Milgram and Fumio Kishino, "A Taxonomy of Mixed Reality Visual Display," *IEICE Transactions on Information Systems* Vol E77-D, No. 12 (1994): 1321.
[11] teamLab, *teamLab,* 058-59.
[12] Ibid., 192-193.
[13] Gareth White, "On Immersive Theatre," *Theatre Research International* Vol. 37, No. 3 (2012): 225.
[14] Catherine Bouko, "Interactivity and Immersion in a Media-based Performance," *Participations: Journal of Audience & Reception Studies* Vol. 11, Issue 1 (2014): 260-61.
[15] teamLab (2016), *teamLab*, 222.
[16] Christiana Varnava, "Digital Art Projected," *Nature Electronics* Vol. 2 (2019): 8.
[17] Varnava, *Nature*, 8.
[18] Ibid.
[19] teamLab (2016), *teamLab*, 239-243.
[20] Biggin, Rose, *Immersive Theatre and Audience Experience: Space, Game and Story in the Work of Punchdrunk* (Cham: Palgrave Macmillan, 2017), 60.

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MONUMENT NETWORKS INDUCED THROUGH LIGHTING DESIGN IN URBAN ENVIRONMENTS

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INTRODUCTION

This project emerged from the authors' observation of the inconsistent lighting used in the plethora of monuments and historic buildings in the Greek city of Thessaloniki (founded 315 BCE), which thus presents an ideal site for the creation of lighting-induced perceptual monument promenades.

Historic buildings and sites from different eras and cultures are integral parts of all cities, but particularly to those of such antiquity. They stand as a reminder of a place's past and its identity. However, these structures are often isolated within the urban landscape, and, taken out of context, exhaust their impact on passers-by. This is especially true during the night when they tend to blend into obscurity if not properly highlighted. As a result, visitors may find it difficult to make mental and spatial connections between these detached monuments, hindering their enjoyment of a foreign place and increasing their confusion. Even locals may feel detached from their historic surroundings, due to the lack of continuity, leading perhaps to a fragmentation of their sense of community.[1]

This paper will focus on wayfinding strategies for the creation of conceptual pathways within the urban narrative, and on how lighting design can help connect cultural elements in a city's historic centre. In order to forge associations between these elements, a perceptual architectural promenade distinguishable within the urban fabric should be specifically designed so as to retain visitors' attention, allowing for the necessary time to draw correlations within the different elements of an urban cityscape. Subliminal sensations can thus be created, to make the unique monuments part of a distinguishable and clearly readable whole.

Monuments are very often lit during the night, but due to a variety of reasons, inconsistencies may occasionally be observed between monuments of the same style even within the same city. Light, however, constituting a universal language, may operate as a tool linking historic buildings in a cohesive narrative in ways that have yet to be explored.

Throughout this paper, various wayfinding elements will be set out, and three historic city centres (Shanghai, Bremen, Strasbourg) analysed as case studies, with a view to codifying navigational concepts in night-time urban environments. The paper will culminate in a lighting proposal for the historic city centre of Thessaloniki that aims to create a monument network generated through lighting.

DEFINING WAYFINDING AND ITS PRINCIPLES

The modern concept of wayfinding owes much to the American geographer Kevin Lynch who defined it as 'a consistent use and organisation of definite sensory cues from the external environment'.[2] A key factor which Lynch introduced was what he called 'mental maps'. These are comprised of five essential elements: paths, edges, districts, nodes and landmarks.[3]

In the process of wayfinding, the strategic link is the environmental image, the generalised mental picture of the exterior physical world that is held by an individual.[4] This image is a compound product of one's immediate sensation and of past experiences. An unobstructed environmental image makes wayfinding much easier. However, a structured environment can act as a framework of activity and knowledge.[5]

Following this statement, it is important to introduce the fundamental idea of a 'legible city' as 'a city whose various parts are or can be organised in a coherent pattern'.[6] For the purposes of this paper we will take this to be a perceptual architectural promenade designed to include otherwise overlooked monuments hindered from their potential to create a network.

For a wayfinding strategy to be successful there must be no 'danger of losing a basic form of orientation' combined with little bursts of confusion or surprises. This format keeps people mentally and emotionally active.[7]

UNFOLDING THE CULTURAL ELEMENTS OF A HISTORIC CITY

While cities grow and evolve, cultural values need to be sustained through time, in order for the city to retain its cultural identity. Historic cities can also be modern cities, but their reputation lies in their historicity. Therefore, they need to transfer cultural facts of previous civilizations to the following generations. Their unique physical and visual attributes are also important in that they make people psychologically relaxed and culturally satisfied.

In order for this to be achieved, historic buildings and their surrounding environment need to be preserved and highlighted. Furthermore, there is a strong relation between environment and perception, while the visual value creates an immersive environment. Urban formations which are not planned and oriented may cause chaos and deform the character of historic structures. As the National Trust of England states: 'there is a "special joy" at seeing spectacular places lit up at night when normally they'd be closed, and the experience encourages the visitor to look at these places in a different way'.[8]

Categorisation of monuments

The monuments in a city can be categorised in several ways according to their chronological period, their architectural features, location or significance. Additionally, there are buildings that are visible from a distance and can easily be reached due to their location in an imposing position, and buildings that are hidden and harder to access. During this research the monuments of Thessaloniki were organised according to their chronological period, their architectural features and most importantly by the way they are positioned within the urban plan.

URBAN LIGHTING: A WAYFINDING TOOL WITH A SOCIAL HERITAGE COMPONENT

Urban lighting plays an important role in shaping the image and the experience of a city. If one takes under consideration the fact that cities were built under daylight and all functions took place during daytime[9], urban lighting is a determining discovery, as it allows cities to redefine their function during the night. It also enables people to move around safely in the dark by expanding their activities and

socialising, thus offering the opportunity to locals and visitors to delve into a slice of a city's history and identity with positive emotional connotations.

A consistent lighting design strategy to create a monument network would offer some of the key sensory cues from the external environment in wayfinding, constantly mentioned by Lynch.[10] Rapid and dense urban development in recent years, along with frequent changes in city administrations with differing political agendas, have however made the creation of seamless cultural journeys in many urban centres hard to achieve. Strategies for highlighting culture have been fragmentary at best, sometimes focusing on marketing strategies to attract tourists, at other times highlighting solitary monuments. So far, in the case of Thessaloniki, there has been no systematic approach in which the monuments are considered a network or unified whole.

Lighting is essential in the creation of 'mental maps', because it helps identify nested systems of areas, the directions referring in sequence to the tackled area first, the marker for the next area and so on.[11] Also, it has the capacity to deflect the attention away from unsightly imperfections and emphasise the important elements of a city. It can be used to bring out the 'commonly understood symbols, codes and appearances to aid comprehension' as described by Lynch.[12]

A unified lighting network can thus link historic buildings together and create paths between them through the urban environment. Its main target would be to enhance and highlight the historicity of a city through a common design language legible to residents, as well as visitors, functioning as a memory tool for the resident of the urban space and as a trigger to help the visitors familiarise themselves with the history of a place or region.

CASE STUDIES

Three individual case studies will now be described as examples of lighting design impact on a historic city. The main goal of all these interventions was to highlight a historic urban area to create an attraction within the city for purposes of marketing, tourism or general historic interest.

Shanghai's Bund, China

Shanghai, as the host of the International Import Expo, renovated the lighting of its historic waterfront area known as the Bund, in order to create a symbolic image for its citizens and visitors, connecting people with architecture.

The main design principles were the highlighting of the architectural features of the classical 1930s façades, retaining at the same time the familiar character of the area.[13] The entire installation was linked to the same control system in order for all the buildings of the waterfront to interact together in unison. The project can produce dynamic shows moving along the waterfront in ways that best reveal the architecture, taking into account the ambient light in the area.[14]

The final result is extremely homogenous and constitutes a work of art for the city of Shanghai, despite the fact that seven design practices worked on the project. The historic part of the city retained its golden colour which the citizens and visitors were used to seeing in the past, and the moving image creates a statement for the city, providing at the same time relaxation and excitement.

Bremen Lighting Masterplan

The historic city of Bremen in Germany has been lit following a lighting masterplan. The main idea was to emphasise the architectural qualities of the city centre in order to facilitate the orientation of the citizens and visitors at night and at the same time create a pleasant atmosphere that typifies Bremen.

'The lighting scheme builds on the great density of significant facades and, by lighting specific viewpoints, guides people from one site to the next'.[15]
Lighting was applied to the gables and façades of the historic buildings of the city centre. The whole city appears at night as one entity of buildings, squares and streets. This provides the city with a sense of structure and orientation and at the same time defines its focus points.[16]
Warm white colour temperature was mainly applied, either from a distance or by highlighting the architectural features of the buildings, leading the visitor through the streets and squares of the city, offering a unique charm and atmosphere.
Bremen is a city that provides a feeling of safety and orientation, by lighting buildings, squares and streets according to a unified design. Also, the luminance contrast between the buildings and their surrounding environment enables the identification of monuments from a distance.[17]

Strasbourg Grande Île historic centre

Strasbourg's Grand Île consists of the historic centre of Strasbourg that is built around the Gothic cathedral,[18] a UNESCO World Heritage Site that was decided to be illuminated in order provide coherence to the city's public lighting, while at the same time invite tourists and citizens to rediscover the area.
LED lighting with a wide range of white and coloured lights was used to accentuate the different architectural details of buildings, squares and bridges.[19] The unified lighting plan aimed at revitalising the city and enhancing its heritage, through the use of light and shadow, creating a more attractive view for tourists and citizens.
Dark areas of the Grand Île have been turned into beautiful lighting formations at night, while the most important buildings and sites stand out showing the different European interventions through time. The unified lighting approach provides interesting pathways for citizens, while the reflections of light through water create a stunning view.

Comments & Conclusions

The concept of wayfinding is not mentioned in the description of any of these projects. Nonetheless, it is a concept closely related to many parameters taken into account in these particular cases such as orientation, safety and pathway formation within a historic city which are signified through lighting during the night.
In Shanghai the entire waterfront is considered as a unity, without a distinction between important and less important structures. In Bremen and Strasbourg the buildings are distinguished according to their significance, which is brought out by the lighting interventions. This approach helps people create an order in their mind, a 'mental map' and organise them according to specific parameters (e.g. historicity or significance).

THE CASE OF THESSALONIKI

Introduction

Thessaloniki is the second largest city in Greece, located in the northern region of Central Macedonia. Due to its long and turbulent history of 2500 years it is an amalgam of different cultures and traditions, as is evident in monuments such as the Roman-era Rotunda that has served as a pagan mausoleum, a church, mosque and now a museum.
The city became part of the modern Greek state in 1912, almost a century after the liberation of the southern part of the country from the Ottomans. The catalytic event responsible for its contemporary

appearance and civic plan was the great fire of 1917 which ruined most of the city's centre. Following this tragic event, Prime Minister Eleftherios Venizelos hired the French architect Ernest Hébrard to redesign the city.

Hébrard wanted to highlight local heritage as not only part of this particular culture but also of western civilisation.[20] His plan was to create wide boulevards, open green spaces, rectangular city blocks and a unified neo-Byzantine aesthetic among the new administrative and business quarter of the city. However, what is of great significance in relation to this research is the fact that he wanted to create large openings where monuments would be clearly visible from various points of view, and wide roads to link the monuments between them. Unfortunately, he didn't manage to complete his grand scheme and as a result his ideas were only partially implemented. Parts of his plans were scrapped or modified completely between 1920-1924 due to frequent changes in government and the unforeseen arrival of hundreds of thousands of refugees from Asia Minor in 1922.[21] The new city planners only used a few churches as visual reference points, but other than that largely disregarded the city's complex and rich monumental past.[22]

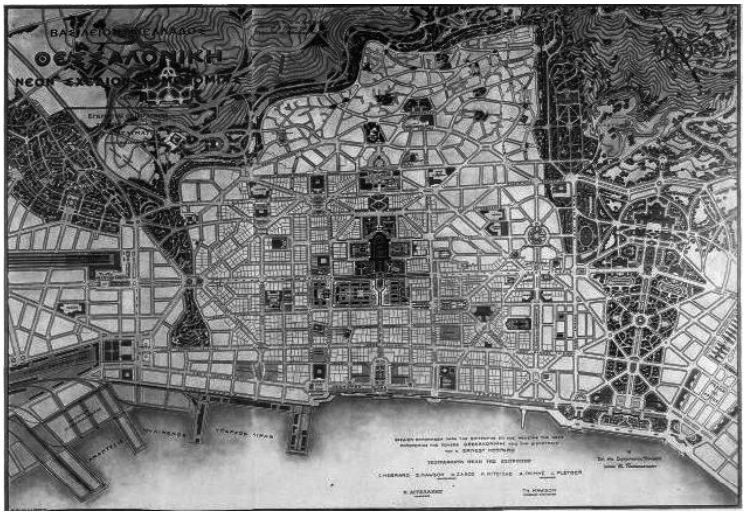

Fig 1. Thessaloniki's city plan post-1917 fire

Analysis

The city's historic centre is demarcated on three sides by its Byzantine walls (North, East and West), and on the South by the Thermaic Gulf. It became evident through this research that within the urban ensemble many buildings of various historic periods coexist, some more visible than others. The proposal to create a unified monument network through light aims to connect structures of the same period, but more importantly monuments of different eras. Through this approach a single network will focus both on the monuments themselves, but also on the routes that lead to and link them. This way, a person, local or visitor, can further comprehend the historic value of the monuments in terms of their connection to the multi-layered history of the city, the architecture of each period and the significance of their position within the urban environment.

The structures that were chosen are significant samples of various historic periods and had a major role in the city's history. The buildings selected to be part of the lighting network belong to three important historic periods, the Roman (4), Byzantine (15) and Ottoman (9). These eras are consecutive and their traces are clearly visible throughout the city.

After on-site observation, it was noted that their lighting during the night is either restricted to each specific building (sometimes even partially), or at best to the structure and its immediate environment. In certain cases, the historic sites are left in complete darkness. As a result, the lighting design of the monuments is fragmented at best and there is no cohesive approach between them.

Fig 2. Roman Forum's existing lighting

Fig 3. Byzantine Walls and Byzantine church's existing lighting

Fig 4. Ottoman Alaça Imaret and Paşa Hamam existing lighting

PROPOSAL/RESULTS

The map created to showcase the monument network through lighting design proposes a unified approach to navigate through Thessaloniki's historic city centre during the night. It depicts twenty seven monuments: thirteen churches[23], five public baths[24], one covered market[25], one orphanage[26], one palace[27], one mosque[28], a Roman forum, a fortification structure[29], a victory arch[30] and a tower which functioned as a prison[31]. It is noteworthy that at least two of these monuments, Hagia Sophia and the Rotunda (or Hagios Georgios), have visible structural characteristics (eg. a minaret) of more than one historic period. This is due to the fact that they were either used for different purposes (eg. churches converted into mosques) or each civilization used the same site by building on the previous one's ruins (eg. Christian temple being built on Roman temple's ruins).

Fig 5. Monument Network Proposal in Thessaloniki through lighting design

One of the advantages of this proposal is the flexibility with which the path should be followed. It is merely a suggestion that can be executed in sections, but that provides a uniformly lit pathway to

reconnect visitors with the monument network. Importantly, it offers the possibility of touring Thessaloniki's monuments at night which can be very useful under certain circumstances.
In brief:

1. The monuments will be brought into a unified whole within the urban cityscape.
2. The perceptual and physical correlation between the monuments will become more evident.
3. A sense of security will be generated through clearer orientation of the visitor, whose interest for further exploration and socialising will hopefully be triggered.
4. The historic city centre will become more legible, offering a more coherent and thus more memorable urban nightscape for both local people and visitors.

A different lighting design approach for the buildings of each historic period would make the interrelation between the sites belonging to the same era more perceptible. The architecture of each period and its characteristic features would be more clearly emphasised. But the main goal would be to allow people walking between these monuments to create their own physical and perceptual path through the complexities of history, guiding themselves in their own unique way and following their own rhythm, towards their own personal 'reading' of the city.

NOTES

[1] According to Lynch 'There seemed to be a tendency for those more familiar with a city to rely increasingly on systems of landmarks for their guides—to enjoy uniqueness and specialisation, in place of the continuities used earlier. Since the use of landmarks involves the singling out of one element from a host of possibilities, the key physical characteristic of this class is singularity, some aspect that is unique or memorable in the context'.Kevin, Lynch, The Image of the City. (Cambridge, MA: The MIT Press): 78.
[2] Kevin, Lynch. The Image of the City. (Cambridge, MA: MIT Press, 2006): 3.
[3] Paths - the roads used to move around, Edges - roads which define the boundaries and breaks in continuity, Districts - areas which share similar characteristics, Nodes - strong intersection points of roads like squares or junctions, Landmarks - easily identifiable entities which are used for point-referencing, usually physical objects. Kevin, Lynch, *The Image of the City*. 46.
[4] Ibid. 4.
[5] Ibid. 4.
[6] Ibid. 2-3.
[7] Ibid. 5-6.
[8] "Should monuments be lit at night?", Caroline McClatchey, accessed May 15, 2020, https://www.bbc.com/news/magazine-15934993.
[9] Sandy, Isenstadt, Margaret Maile Petty and Dietrich Neumann ed. *Cities of Light-Two Centuries of Urban Illumination*. (New York and London: Routledge, 2015), xvii.
[10] Kevin, Lynch. *The Image of the City*. 3.
[11] Tim, Fendley, "Making sense of the city-A collection of design principles for urban wayfinding", Information Design Journal 17(2), (2009): 98.
[12] Ibid. 101.
[13] "Connecting the history and people of Shanghai with Interact Landmark", Interact IoT, accessed May 17, 2020, https://www.youtube.com/watch?v=q9mDM131bDw.
[14] "Shanghai shows restraint in using tunable white LED lighting for façades in the historic Bund", Maury Wright, accessed May 17, 2020, https://www.ledsmagazine.com/architectural-lighting/outdoor-lighting/article/16699029/shanghai-shows-restraint-in-using-tunable-white-led-lighting-for-faades-in-the-historic-bund.
[15] Ulrike, Brandi and Christoph, Geissmar-Brandi, ed. *Light for Cities-Lighting Design for Urban Spaces. A Handbook.* (Basel, Boston and Berlin: Birkhäuser-Publishers for Architecture, 2006): 132.
[16] "City Marketing with Light", Licht.wissen 16, accessed May 20, 2020, https://www.licht.de/de:25.
[17] Ibid.

[18] “Strasbourg, Grande-Île and Neustadt”, UNESCO, accessed May 18, 2020, https://whc.unesco.org/en/list/495/.
[19] “Grand Île's Historic Center”, Colorkinetics, accessed May 18, 2020, https://www.colorkinetics.com/global/showcase/grand-ile-historic-center.
[20] Kalliope, Amygdalou, “Building the Nation at the Crossroads of ‘East’ and ‘West’: Ernest Hébrard and Henri Prost in the near East”, Opticon1826, (16): 15, (2014): 7-8.
[21] Mark Mazower, *Salonica City of Ghosts*, (London: Harper Collins, 2004): 325-6.
[22] Ibid. 329-330.
[23] These are: Hagia Sophia, Hagios Demetrios, Osios David, Vlatadon Monastery, Hagios Nikolaos Orphanos, Hagios Panteleimon, Hagia Ekaterini, the church of the Twelve Apostles, the Rotunda (Hagios Georgios), Panagia Chalkeon, the church of Acheiropoiitos, the church of Metamorfosi tou Sotiros and Profitis Elias.
[24] These are: the Byzantine Bath, Yahudi Hamam, Pasa Hamam, Aigli Yeni Hamam and Bey Hamam.
[25] Bezesteni covered market.
[26] Alaca Imaret.
[27]Galerius’ Palace complex.
[28] Hamza Bey Mosque.
[29] The Byzantine Walls and the Heptapyrgion.
[30] Galerius’s Arch, more commonly known as Kamara.
[31] The White Tower, which is also the city’s symbol.

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Fig 1. Thessaloniki's city plan post-1917 fire, https://upload.wikimedia.org/wikipedia/commons/f/f2/ThessaloniqueH%C3%A9brard.PNG, Accessed July 29,2020.
Fig 2. Roman Forum’s existing lighting, personal archive.
Fig 3. Byzantine Walls and Byzantine church’s existing lighting, personal archive.
Fig 4. Ottoman Alaça Imaret and Paşa Hamam existing lighting, personal archive.
Fig 5. Monument Network Proposal in Thessaloniki through lighting design, personal, created by the authors.

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RETHINKING ARCHITECTURE FROM PAST AND FUTURE: THE CASES OF URBAN BAHRAIN AND RURAL GHANA

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INTRODUCTION

This paper considers the global narratives of modernity and how the phenomenon of globalisation, in relation to architecture and culture, is manifested in the users' lived realities and experiences. It acknowledges the tension between tradition and modernity, between globalisation and the politics of place. It draws an attention to the idea of 'modern', as well as the experience of 'modernity', and what this may mean within a specific context that has especial social, cultural and environmental boundaries. The above are investigated through two case studies, one in urban Bahrain and another in rural Ghana. The paper demonstrates how the specific dynamics of culture, environment, experience of globalisation, narratives of modernity and material cultures may come together in order to transform a global/non-specific narrative into a specific contextual reality. Finally, it endeavours to rethink the relationship between architecture and the users' spatial experience as a way of consuming architecture. This includes the exposure to the new generations' points of view regarding experiencing their built environment and reviving heritage and tradition.

Meanings of Space

Based on this introduction, the research expresses that the spatial experiences of dwellers as well as how these relate to the cultures in which those spaces exist are considered, with a view to explore the meanings of space. Through this discussion, there is an attempt to look at architectural practice through the user's viewpoint, where more attention is paid to the specificity of a given place and the needs of a local community. This means that architecture needs to be considered through the users' perspective, which will help in establishing a more user-oriented architectural practice.

Addressing some of the issues, challenges and opportunities that surround the users' experience within specific social, cultural and economic settings are key. Furthermore, one needs to reconsider space through non- physical aspects, which reflect the narrative of the users' everyday life and therefore emphasise the importance of the users' experience of a built environment.

Historical Background

Since the 1980s, in both regions, Bahrain and Ghana, the growing globalization, modernization and urbanization in the region, has caused the various local housing and building patterns as well as materials to become westernised, and at the same time a gradual disconnection from the local cultures and resources. More often than not the common perception of the locals is that imported architectures, and western materials and ways of building, are more modern and much better than their own.

The spatial experiences of dwellers as well as how these relate to the cultures in which those spaces exist are considered, with a view to explore the meanings of space. What comes to light is: the relationship between change and continuity; the need to reflect on this relationship; and how the local people deal with change and modernity in relation to their built environment and cultural needs.

Hence, using two Community-driven case studies, from Ghana and Bahrain, the paper discusses how such projects explore notions of continuity, tradition and heritage, which embodies traditional knowledge and existing practices, and re-think notions of change and modernity. The two case studies re-imagine built surroundings that are in tune with and responsive to the local context (cultural, social, economic and ecological), and are rooted in local environments, traditions and places.

- Case Study 1:

Primary fieldwork in the City of Manama, Capital of Bahrain, which entailed instigation around the user's spatial experience on two levels, domestic and urban.

- Case Study 2:

Primary fieldwork in the village of Abetenim, which entailed first hand involvement in the building process of a school canteen and kitchen in order to observe and research the complexities involved in building with earth.

CASE STUDY 1: BAHRAIN

Fig 1. Skyscrapers symbolise the favourite style in Bahrain nowadays

Experiencing Manama through walking and discussion: the focus group

This is the primary case study of a PhD thesis titled, 'Immateriality in Architecture: The Users spatial experience within the context of Bahrain', and draws on *cultural studies fieldwork* conducted in Manama, the Capital of Kingdom of Bahrain. The fieldwork entailed city walks with participants to document their spatial experience in February 2015, where the author used the participatory research in

the form of focus group method for data collection in order to rethink the built environment from a broader cultural perspective.

The investigation has led to conducting a workshop with a number of participants, consisted of two parts, a *walk* followed by a *talk*. This research is interested in theoretical debates relating to immateriality as part of the users' spatial experience and how these can inform the design process. It discusses the relationship between architecture as a creative process, and the lived experience of people as a way of consuming space. The particular context that this research is interested in is that of Bahrain, as a typical example of a geo-cultural part of the world, whose economic conditions and cultural values are changing fast.

The case study poses two questions:

- How to understand the culture-architecture relationship in Bahrain with a view to exploring the extent to which the former has an impact on the latter?
- How the understanding of the users' spatial experience could be enhanced as part of the culture-architecture debate?

Fig 2. Skyscrapers in Bahrain nowadays

A lack of connections between architecture, culture and the context in which it exists within the contemporary setting

Recently, in order to transform Bahrain into a financial centre, the country seems to have been heavily influenced by globalisation, which has directed efforts toward the developments of communications, financial services, banking infrastructure, commerce and tourism. Just like its neighbour, Dubai, towers of various forms and heights are standing to enhance the image of Bahrain as a way of marketing it to the world. Skyscrapers symbolise the favourite style in Bahrain nowadays, and are intended to be of multi-purpose use, serving both housing and commercial activities (see Figures 1 & 2).

Apparently, not only Manama, cities in the Gulf region have been experiencing a massive and rapid urbanisation, which has transformed them into something completely different to the traditional settlements that existed before. The new cities that were generated, with new buildings, roads, highways etc. lack the basic sense of city life. In these new cities, pedestrians are not encouraged to walk around, but to use their vehicles instead, which means that people only see each other and the city through car windows. The lack of physical and social interaction with the outside world (outside the boundaries of the car), makes the city experience totally different now to how it used to be in the traditional settlement.

Loss of appreciation for architectural heritage has led to social alienation of the citizens

The focus group discussion around the city had led to a wider discussion around defining *culture* and *heritage*. Although the two terms overlap, each has its own distinctiveness. *Culture* is a vibrant system that changes quite often, which means that the culture of the past is not exactly the same as the present one, and for sure it will be different to the culture of the future. Culture is mainly created by the people and for the people, so it is shared between the people, and it has a strong connection with religion, beliefs, history and tradition, and here exists the overlapping with *heritage*. However, *heritage* is mainly concerned with inherited values from the past, so it is a setting of fixed values that cannot be changed. It also defines the individual's and the nation's greatness and pride, so people are always proud of their heritage. Moreover, given that Bahrain, and the Gulf states in general, were hugely influenced by the contemporary architectural style. Some argue, like Hamouche (2013) and Mahgoub (2011), that this has led to a loss of appreciation for local architectural heritage and social alienation of the citizens. Many traditional houses were demolished and whole neighbourhoods were cleared to provide space for the new architecture to grow.

There is a need of the practice to recognise and promote a user-centred approach, reflecting the social and cultural conditions of the context

Consequently, in the focus group the participants reflected on the meaning and definition of *architecture* in light of the *city-culture-heritage* discussion. Participants revealed that architecture is the container of all of what had been discussed, including identity, experience, reflection and belonging. It is the concept, process and production that exemplifies the embodiment of communications, growth and development, which could be considered as one of the processes of creating the city. It contains the people's culture and heritage when it creates the space and place for them to practice their daily lives with all its dimensions. Architecture then contains the city as well as the city containing the architecture. Against this background, it seems that Manama, lacks sense of 'city-ness' nowadays. The dispersing and interaction goods, information and people is at its minimal level. The city is longer a major site of social interaction and exchanges, which has its direct input on the way of thinking about the city and experiencing. One should think about the city as an environment consisting of people, landscape, buildings, infrastructure etc., which has an urban life engages the conceived, perceived and lived concepts with space, as Lefebvre describes. These interconnected concepts propose a better understanding of the *city* (Lefebvre, 1991).

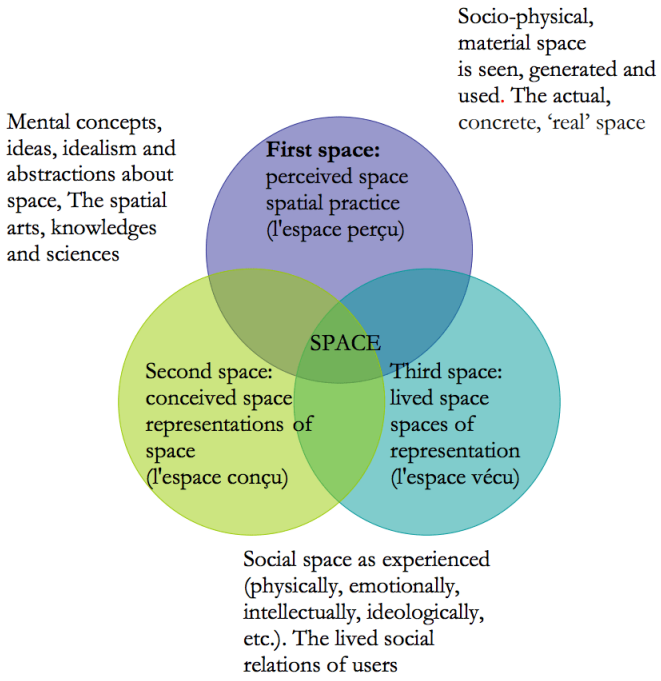

Figure 3 The perceived—conceived—lived triad.

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CASE STUDY 2: GHANA

This is the primary case study of a PhD thesis titled, 'Approaches to the resilience and adaptation through community-driven construction projects in the Global South' (Panta, 2018). It draws on ethnographic fieldwork conducted in Abetenim, a remote village in southern Ghana, through participant observation and participation, in order to rethink the built environment from a broader cultural perspective. The fieldwork entails the author's collaboration with the Nka Foundation, a local non-profit organization (NGO), through her participation in the Earth Architecture construction workshop and her role as a community architect and builder in Abetenim. This process necessitated the author's first hand involvement in the building process of a school canteen and kitchen in order to observe and research the complexities involved in building with earth in this context. The author is prompted to reflect on the global narratives of modernity and to deliberate over the question of how the phenomenon of globalisation, in relation to building materials and trends, is manifested in the lived realities of the South.

Thus, the case study poses the following two questions:

- How can the use of ethnography, through participant observation, help imbue culture and the spirit of a people into the built environment?
- How can local materials and traditional building practices empower local communities in the global South?

The earth architecture construction workshop in rural Ghana is used as a typical example of a community-based initiative making use of local materials in order to empower the local people. The process of 'being there' (Geertz 1973, 1988), or *experiencing fieldwork*, demonstrates how the specific dynamics of culture, the experience of globalisation, narratives of modernity, economy, environment,

governance, ecology, material cultures and political environment, come together in a unique conversation to transform a global or non-specific narrative into a specific contextual reality. By 'global narrative' here the paper refers to the NGO's narrative of building with any earth-based techniques.
The study echoes Turner's view that materials are interesting for what they can do for society, not for what they are (Turner, 1972). Therefore, the building materials are considered as a tool to think about resilience within community-driven construction projects in the global South, as well as the empowerment of local community at hand. The author worked closely with her colleagues as well as the local masons and carpenters with a view to grasp their struggles and aspirations on the building site, and to get a better understanding of the reasons why certain construction materials are preferred over others. What comes to light are the struggle between change and continuity, the notions of **modernity** and how the local people deal with modernity in relation to building materials. Western narratives of modernity differ largely from the narratives of modernity in Ghana, and the South at large.
It argues that buildings and materials are symbolic categories which cannot be separated from the locals' worldview, and that the syncretism of the ethnographic method and architectural practice in the field contributes towards a better understanding of the process of building with local materials, and towards longer-term sustainable adaptation in this context. The predominant vernacular building method in Abetenim is called 'Atakpame', which originates from the town of Atakpame in Togo, and is a method that uses wet mud balls. Atakpame is a specialised skill nowadays and thus its labour is costly. However, the local masons and carpenters at the time of the fieldwork lacked adequate knowledge and experience of building with mud, which partly explains the widespread neglect of the old Atakpame buildings in the village and rural Ghana in general. This is because in the 80's the locals' once familiar scope of practices was confronted by a rapid encroachment of imported building materials and new technologies including cement breezeblocks, corrugated steel sheeting, and the use of formwork, poured concrete and steel reinforcing, which are now considered to be local, and so on. The fieldwork in Abetenim demonstrated that the local community's aspiration is to embrace modernity and to be able one day to build their modern and more 'permanent' houses from cast concrete blocks. Concrete promises to last longer than mud. The locals' priority is to save money and gradually invest in concrete blocks, which they usually store next to their mud/Atakpame dwellings, until they acquire enough quantity to be able to build their new modern houses. At the same time the existing mud houses slowly fall into ruins as their maintenance would entail repairing and re-plastering, which requires skilled and costly labour (see Figures 4 & 5). What's more, ethnography is about the relationship between change and continuity; specifically the study considers how the locals deal with change and modernity in relation to building materials, the deterioration of their earth dwellings, and the influx of imported western materials, like cement, which are now considered to be local.

Fig 4. An atakpame earth building gradually falling in ruins due to lack of maintenance, intense rainfalls and lack of foundations causing the lower part of the walls to deteriorate faster

Fig 5. A pile of cast concrete blocks typically stored next to old earth houses, which are left without repairing or re-plastering so they naturally deteriorate and collapse. The owners will build their new home in their place made from concrete blocks.

In short, the combination of ethnography and architecture opens up a dialogue, which entails the continuous reconsideration, adjustment and negotiation of architecture's boundaries. The first-hand involvement in the construction workshop in Abetenim demonstrates that it should not be a matter of choice between the traditional and the modern; rather, it is the syncretism of the two which contributes to longer-term sustainable adaptation. Some assume that modernity poses a threat to the local culture and building practices, but in fact local culture and traditions are not static entities; they are always in

flux and predisposed to change. Thus, the case study considers the benefits of 'modernising' local traditional materials, which entails integrating the indigenous qualities and knowledge with those adopted from the West, in order to cope with changing climatic, social and economic conditions, to create a modern identity of the place, and also to achieve long term benefits at a local level.

CONCLUSION

Both case studies highlight the relationship between the global and local narratives of modernity and consider how the two narratives might be reconciled; they emphasize the relationship between change and continuity and how the local people deal with change and modernity in relation to their built environment, cultural and climatic needs; they rethink the relationship between architecture and the users' spatial experience as a way of consuming architecture. Ultimately, they rethink architecture and building practices from a broader cultural perspective; they argue that culture can only be learned by experience, as it is the only way to understand the needs of the community and therefore their priorities. What's more, the two case studies demonstrate that first-hand engagement in projects through participatory design methods embodies empirical learning, which requires an ability to unlearn, and consequently re-learn during the process. They demonstrate a need to reconsider the idea of being 'modern', as well as the experience of 'modernity' in a non-western context. They express how the specific dynamics of culture, environment, experience of globalisation, and narratives of modernity may come together in order to transform a global/non-specific narrative into a specific contextual reality. They emphasize the need to explore and consider local heritage and tradition(s) in order to inform the design and improve the creation of built environments that respond to the socio-cultural aspirations of people within a contemporary context. The latter is often characterized by a multiplicity of complexities when compared to traditional ways of life and its production methods.

Further, in order to make a meaningful contribution to both the field of Architecture and the local communities from the ground up, the choice of building materials and design approaches need to be based on human-centric and climate-centric concepts and categories, which must be explored and developed from the periphery itself. To conclude, the paper argues that Architecture has a role of service to the planet, to each other, and to cities. In this stage of consumerism and capitalism, there is an urgency for the realisation that we cannot rely on market solutions nor on top-down approaches to architecture and development. The choices of design approaches and building materials need to be seen through the lens of questioning about their connections to culture, climate, and governance in order to be considered in their totality and to have resonance with the communities at hand.

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DUBAI AND LOS ANGELES: PERCEPTIONS BETWEEN EAST AND WEST

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INTRODUCTION

Dubai and Los Angeles, imagined, dreamt of and projected on are two cities that have not only been the scenery in movies, or advertising campaigns, but have also been the playground for architects, planners, engineers, artists and creative industries in general. Through media, air travel and international trade, cities are more than ever linked to an urban network and arguably even as a global city. Cities are often represented in popular media channels through a singular narrative, which can only partly represent the reality of urban spaces. The same is true for Dubai and Los Angeles which most people know of through countless media representations, resulting in short-sighted conclusions about their very identity or lack thereof.

In exploring the impact of media and its relation to the development of urban culture and city identity, the authors argue that the identity of a place cannot be reduced to one story, but rather is a complex web of experiences and memories by various individuals, where each narrative is specific to time and place. As such memories are multi-layered, impacted by personal interactions and formed through physical experiences and media representations alike. The general perception of Dubai and Los Angeles echoes the importance of storytelling. The paper questions, when cities are connected – not only through trade and travel but also through media and personal narratives – can one place or city truly have a specific identity?

Fig 1. Building 51 in the UAE. Credit: Janet Bellotto

PERCEPTIONS OF CITY IDENTITY

Cities originated based on humans settling near an abundance of water resources. Contrary to common belief, neither Dubai nor Los Angeles' history is based on film and media or solely on oil discovery. Los Angeles for example, is one of the largest tire manufacturing centres in the United States (US) and home to the country's busiest port, while Dubai is home to the world's largest man made port, Mina Jebel Ali, which was opened in 1979.[1] Although the oil discovery in both cities played a crucial role in transforming the urban fabric and supporting the development of significant infrastructures, it was not the sole mechanism for rapid growth. Dubai, for example, has a long-standing history as a trading hub, which led to the establishment of the Dubai Jebel Ali Free Zone as early as 1985.

Today, most cities have some sort of an online media representation, profiling the city with short facts and promoting important information. The need to stay current and relevant has led cities to continuously develop more engaging and immersive ways to prompt their offerings. Thus, online profiling develops both an expectation and visual satisfaction, which often is in competition to the physical experience. Film and the various promotional methods used to immerse the viewer into a story is a successful method to attract and keep audience interest. It is not surprising that urban centres such as Los Angeles, home to the leading film industry, and Dubai, a major hub for urban marketing, make use of such storytelling methods. The promoted content is often a carefully curated visual. Thereby specific places, aspects and even ways of portraying the city forms the very image that society will have about a certain location. In western society, history is preserved through material representation of cultural heritage and is considered heritage and referred to as *authentic*, if it has a physical trace, a connected memory and evidence of its historical context. Both Dubai and Los Angeles' history as trading hubs result in strong presence of multiple influences, creating a culture of coexistence in which exchange and a far greater transience than most other places have are the historical cause.

According to etymology, the word *authentic* from the Greek word *authentikos* is referring to "original, genuine, principal."[2] If we argue that authenticity is about genuine and original aspects, then in the case of Dubai and Los Angeles, coexistence and transience are the foundation to their specific urban culture by being a place of exchange. Thus, creating a heritage in and of itself presented in art, architecture, design, fashion, food, language, and music that is multifaceted and influenced by other cultures and

locations as a place of *crossroads*.

City EastWest: An Online Portal

While *East* and *West* are both cardinal directions typically used as compass directions to navigate the global map and earth terrain, there are also a number of cultural associations with *East* and *West*. Moreover, the definition and demarcation of *East* and *West* is relative to a person's location, such as *East* in Dubai relating to Asia (which in Los Angeles would be considered Far *East*) and *East* in Los Angeles would refer to the *East* coast of the US. Many of such references stem prior to the development of accurate cartography. Locations were often described through their physical presence, proximity to reference places and occupation of a particular community. The various events associated with those groups and locations have impacted the definition of *East* and *West*, adding social and cultural references.

City EastWest is an interdisciplinary research project that has collected stories of urban culture and its transformation through the voice of the creative industry in Dubai and Los Angeles. The project uses qualitative research methods such as oral histories in the form of individual and group interviews and a qualitative content analysis of specific readings related to the development of the creative industry and urban culture in Dubai and Los Angeles as well as observational research in selected representative locations. By combining spatial understanding between art and urban design, the project suggests a new lens to explore and map cities.

The project spans across continents and cultural boundaries, studying two cities heavily impacted by their media presence. The collected narratives eventually can be experienced through an online portal. It is a live archive – including over fifty individuals of both cities so far, emphasizing the interviewees perceived understanding and experienced urban transformation of both cities. The online portal offers an alternative narrative of how to navigate these cities and aims to break some of the perceptions mentioned here within.

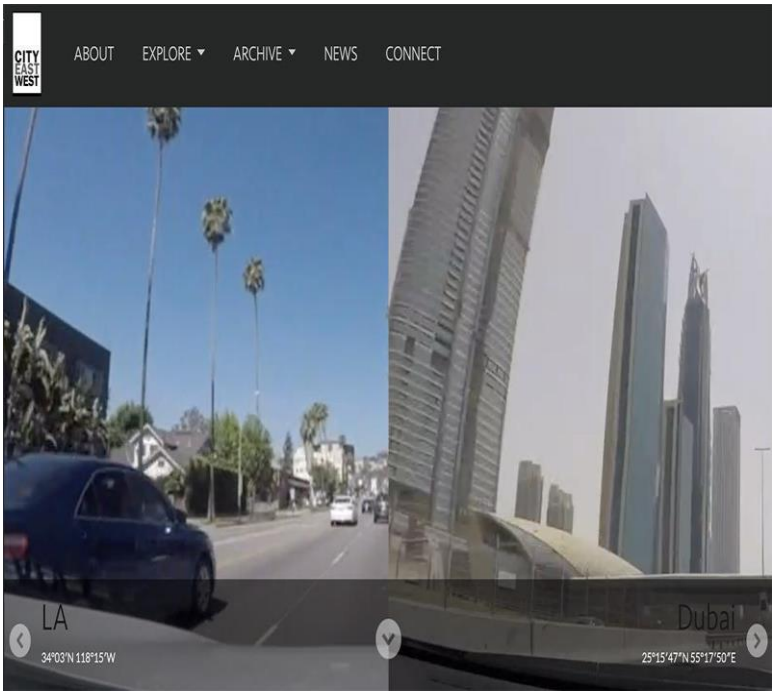

Fig 2. City EastWest website landing page: www.cityeastwest.com.

Viewers can explore the online archive using four different options: Stories (group conversations, events and exhibitions), Networks (individual stories), Topics (shared topics amongst both cities and participants) and Places (buildings and locations in each city). As one selects their journey a map of each city appears, dividing the screen into *East* and *West*. Quotes, anecdotes, video excerpts and documentation fill each page with aspects that highlight and reveal intriguing facts, and sometimes fiction, of each city. The various artefacts are gathered within the "archive" that holds all interview excerpts pre-COVID19, entitled *Archiving the Present*. The next stage of the project, *Interchange EastWest,* will highlight the exchange that occurs between individuals from each city. *City EastWest* will culminate in an immersive publication and exhibition sharing a proposed city reading that has come to be defined by an artist and architect as the "City Imaginary." *City EastWest,* is an imagined city as a confluence of Dubai and Los Angeles – joining two cities from perceived geographic locations of *East* and *West*.

Fig 3. Online Portal exploration maps to navigate through the various stories: www.cityeastwest.com.

During the 1984 Los Angeles Olympics, artists Kit Galloway and Sherrie Rakowicz offered a window into a unified city through their commissioned project, the eCafe (also known as the Electronic Cafe). Using video satellite feed, the project connected people in various cafes across the city through one of the earliest video conferencing methods and created a virtual community environment.[3] Similarly, the online portal for *City EastWest* connects the narrative and experience of the creative industry in two cities across national borders, suggesting a new lens to explore and map cities while forming an imagined city that exists in the non-physical world, the digital primarily – a virtual portal to the multi-layered memories of cities.

NARRATIVES OF CROSSROADS

Globalisation is clearly seen in several examples of the built environment and highlights Dubai and Los Angeles as a place of crossroads. It is the impact of art and design (or creativity), along with the port industry, which makes Dubai and Los Angeles a *crossroad* city. They have captured and projected iconic architecture, with major events developed merging identities, while other elements of landscape and influences of cultural diversity have been imported into these two cities.

The Olympics and the EXPO

Dubai and Los Angeles have been promoted as future cities. Through international events like the 1984 Olympics (LA84) and Expo 2020 Dubai, these locations have been transformed into centres of the world with the potential to build dreams. Already, as the 2028 Olympic Games will be held in Los Angeles, newscasts suggest the "city's status as a 21st-century global economic, entertainment, and cultural powerhouse."[4] Such types of events help to put cities on the map and provide opportunities for rebranding. It was "the look" of the LA84 – strong graphics and colours, with ephemeral designs–that

projected a cohesive identity to TV viewers globally. Surprisingly, traffic – one of the main issues of this city – disappeared through effective planning and enriched the city's identity. "I experienced the 1984 Olympics. It changed the city dramatically. That was the first gentrification project that happened in the city," commented Kio Griffith, an artist from Los Angeles.[5]

Fig 4. Opening Ceremony of the 1984 Olympics, Los Angeles. Credit: AP Photo/Rusty Kennedy, file

Fig 5. Advertisement image for EXPO 2020. Credit: EXPO2020 Dubai

Although delayed until 2021, due to global pandemic of COVID-19, "the Greatest Show on Earth" is what the EXPO 2020 in Dubai is referred to. With its theme "Connecting Minds, Creating the Future" it will bring together a diverse community and gather a global audience into the city. The event comes with lots of anticipation as Michael Corbin, former US Ambassador to the UAE, states: "What used to be called *The World's Fair*, is the first time the Expo has been outside of Europe or America, the first time it is in Africa and the Middle East and the Indian subcontinent. Dubai's winning of Expo 2020 is

a big deal."[6]

International Art Fairs: Frieze & Art Dubai

The art fairs that emerged in Dubai and Los Angeles are examples of bringing the international art world to these *crossroad* cities. In 1997, the Gulf Art Fair (now Art Dubai) was launched and expertise from the United Kingdom implemented a framework that propelled new possibilities for art commerce in those cities. With each edition of Art Dubai – the largest fair in the MENA region – new gallery venues and festival style events emerged in the city. The first Art Dubai Director John Martin stated: "Art commerce is another side of culture, but one that is every bit as exciting and stimulating and vital as anything you will see in a museum."[7] In Los Angeles art fairs have been known to fail. For example, Paris Photo Los Angeles was "canceled due to a lack of sales, the event's organizers, Reed Exhibitions, have announced."[8]

In 2019 Frieze was launched in LA and has come to be, what Ariel Emanuel, Chief Executive of Endeavor calls "the most iconic cultural capital of the world."[9] A British-born operation, Frieze's formula has intertwined with the exclusivity and glamour of Hollywood feeding the expectations of an international fair.

Not all Palm Trees are from California

There are a variety of examples of iconic buildings that suggest international influence, such as the Hard Rock Cafe in Dubai (demolished in 2013) and the Chateau Marmont in Los Angeles (turned into a private club in 2020), but iconic images of palm trees are indicative of this intersection of *East* and *West*. Interestingly, many Palm trees in the UAE originate from California, while the famous date production from the Arabian Peninsula brought dates to California. In 1923 Coachella Valley date farmer Frederick Popenoe sent his sons around the Arab world to retrieve more date palm offshoots. Traveling from Morocco to Oman, the brothers stopped by major date-producers for example in Iraq or Saudi Arabia. They brought back a total of 9,000 date palm tree offshoots, including the famous *Mejdool* and *Fardh*.[10] Bruce Ferguson, former President of Otis College of Art and Design remarks, **"**It's all artificial. The palm trees were brought in. The palm trees aren't natural to LA and yet they're the symbol of LA. The other symbol that [...] in this ironic way is, that the California flag has a grizzly bear at the centre, and they're now extinct in California."[11]

The landscape of Dubai is characterized by palm trees such as the *Washingtonia Robusta*, also known as the Mexican fan palm, which used to line the medians of the roads in Dubai. It is a palm species that is native to the Baja California peninsula for more than 500 years.[12]

Fig 6. Los Angeles Palm Trees. Credit: Janet Bellotto

Fig 7. Dubai Clock Tower Roundabout. Credit: Janet Bellotto

Imagined Future Cities From Personal Narratives

Cities such as Dubai and Los Angeles have long been associated with urban sprawl and traffic issues. The project *City EastWest* gathered over fifty narratives from both cities that complement such aforementioned media stories with personal memories. Through video interviews of artists, architects, theorists, etc., they discussed existing perceptions and everyday realities. Questions addressed how they have seen the city develop, their personal experience, industry knowledge and perception of the other city. The interviewees were also brought together in group interviews through the mechanism of a curated dinner with conversational prompts–where they discussed perceptions, themes and issues and conversed about future development.

Fig 8. City EastWest Dinner Conversation, thejamjar Dubai. Credit: Janet Bellotto

Erkki Huhtamo**,** a Media Archaeologist and Professor at UCLA who is an expert in media and the moving picture, discusses perceptions and what are now an imagined reality: "Los Angeles in no way represents the original environment for the moving picture culture. It is more like Los Angeles appropriated that role through the development of Hollywood, in fact Hollywood came to create simulated fantasy versions of that city. There is a very interesting and intimate relationship between the film industry and Los Angeles itself. But what we can say [...] is that the film industry manufactured Los Angeles as part of its own dream image."[13]

Peter Lunenfeld, a Critic and Theorist of Digital Media and also a Professor at UCLA, writes about what he calls "a connectionist alternative history" bringing various stories together. He states: "What's really interesting is that surfing is the sport that the most people in the world have accoutrement for, that they've never done. [...]People wear soccer jerseys, they wear a *Messi* jersey, but they've never kicked a ball. But they wear a surf t-shirt and they live in the middle of the country and they've never seen a wave. Right? It was a lifestyle sold on image. And Modernism, to this day remains something that most people really engage with [...] only through photography."[14]

Los Angeles based artist Alan Nakagawa, who worked for many years on public art projects in LA explains that the city's culinary streams are the most authentic outside of their origins due to the immigrant communities: "Los Angeles has the second largest population of Koreans in the world. It's because they all migrated here and created the supportive economic structure for small business developments, which was genius. [....] Los Angeles has become a respectable place in the culinary

industry. It's partially because of this immigration phenomenon that is Los Angeles. It's not a melting pot. It's more of a collage."[15]

In Dubai, many visitors are surprised to learn that some families from other parts of the world have been in Dubai for more than 150 years. Hetal Pawani, who founded thejamjar – a community art centre and gallery-is the fourth generation in her family residing in Dubai.[16] Such long-term residents have contributed to the identity of Dubai, such as the variety of authentic culinary arts. There are many other aspects of Dubai or the Emirati culture as a whole, that stem from the tradition of living in the desert climate. For example, "falconry was not a hobby, it was a source of food, because that is how they caught their food," Shatha Al Mulla**,** the Director of Visual Arts and Design Department at the Ministry of Culture and Youth of the UAE, states.[17] When she continued speaking of the city she noted, "a lot of people think it is just sand, but if you come to understand the flora and fauna, you could [...] understand how people coordinated, how they lived with all these creatures, because that was their life, they were living in the desert."[18]

Other aspects about the city that do not transpire from some of the media images shared, as the city was growing at phenomenal speed, point to the role as a specialized trading hub when former US Ambassador Corbin first visited Dubai, he said: "It was known as the best place to buy electronics outside of Japan. Whole neighbourhoods, like Deira and around the Dubai Creek, were where the latest electronics from around the world could be found."[19]

CONCLUSION: CONNECTING CITIES THROUGH NARRATIVE

Dubai and Los Angeles have been seen through media representation and advertised stories as the future creative city. Yet, they are a network of creative examples that have offered a platform for the imaginary. The project *City EastWest* aims to challenge perceived notions of place, people and the built environment of these two *crossroad* cities. Such perspectives need to be considered as travel and presentation of urban space become more complex. It is a way to consider future urban development, breaking established perceptions and representing the multi-layered identity of cities. In an attempt to compare and shed light on the cities of Dubai and Los Angeles, on what connects and divides communities (districts) within these cities, the narratives support that perceptions built through the media image does not represent the urban culture of these cities. These cities are a crossroad of international trade and the story told by the creative community encapsulates the complexities of a city that continues to transform and are platforms for the potential of an inclusive and dream-inspiring future.

NOTES

[1]Anonymous. 2015. "Dubai's economy: Growing up." *The Economist*, June 6, 2015. London Vol. 415, Iss. 8941.

[2] Online Etymology Dictionary. n.d. "authentic (adj.)" https://www.etymonline.com/word/authentic (accessed August 1, 2020).

[3] Galloway, Kit. Interview by Janet Bellotto and Adina Hempel. July 9, 2016.

[4] Pacheco, Antonio. 2019. "Before the 2028 Olympics, LA prepared to transform itself." *The Archpaper,* June 20, 2019. https://www.archpaper.com/2019/06/2028-olympics-los-angeles/ (accessed July 27, 2020).

[5] Griffith, Kio. Interview by Janet Bellotto and Adina Hempel. September 9, 2019.

[6] Corbin, Michael. Interview by Janet Bellotto and Adina Hempel. May 21, 2019.

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[11] Griffith, Kio. Interview by Janet Bellotto and Adina Hempel. September 9, 2019.
[12] Ferguson, Bruce. Interview by Janet Bellotto and Adina Hempel. June 12, 2018.
[13] Kew Science. n.d. “World Checklist of Selected Plant Species: Washingtonia Robusta.” https://wcsp.science.kew.org/namedetail.do?name_id=214261 (accessed August 7, 2020).
[14] Huhtamo, Erkki. Interview by Janet Bellotto and Adina Hempel. June 13, 2018.
[15] Lunenfeld, Peter. Interview by Janet Bellotto and Adina Hempel. July 13, 2016.
[16] Nakagawa, Alan. Interview by Janet Bellotto and Adina Hempel. June 11, 2018.
[17] Pawani, Hetal. Interview by Janet Bellotto and Adina Hempel. March 28, 2017.
[18] Al Mulla, Shatha. Interview by Janet Bellotto and Adina Hempel. May 20, 2019.
[19] Corbin, Michael. Interview by Janet Bellotto and Adina Hempel. May 21, 2019.

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LAHORE IN THE FORM OF A CHRONOLOGICAL MAP

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INTRODUCTION

This paper apprehends the inter-disciplinary elements of architecture and the stream of history through a visual representation. The role of communication has been vital for architects, whereas the idea of getting inspired by the city is not recent. History is a discipline that, by its very nature, simultaneously inhibits and exhibits both visual and descriptive form of scripture. It primarily relies on exploring the historical circumstances that led to its creation and, secondly, the visual aid to assist the primary purpose and evaluate the work's aesthetic merits. History has its roots intact with art and can be seen over the centuries, beginning from the cavern artistic creations to the smaller-than-expected artworks of the sixteenth century to the eighteenth century's vast scale war representations. The paper analyses Lahore's historical backdrop through the viewpoint of an accomplished historian Fakir Syed Ejaz Uddin that explicitly investigates and documents the confinements of architecture. The visual translation of his accounts is communicated in the language of miniature painting, a usual specialty of the early Mughal era. It is done by dissecting the miniature painting into layers and then focusing on the architecture layer.

This examination was captivated by the possibility that an illustration/drawing could take on architectural significance past its hidden portrayal as a representation of compositional thought. In other words, the inspiration was to make a drawing/illustration that was somehow the extract of architecture through the layer of one's perception, as drawing has an expanding ability of depiction. The analysis of architecture, in its depiction, let us reconsider those aspects[1].

As David Leatherbarrow says, “Poets make poems, painters’ paintings, and musicians’ music. Architects, however, do not make architecture; they make drawings and models of it – representations meant to direct the development of something conceived into something constructed.” (“Showing What Otherwise Hides Itself: On Architectural Representation”) [2].

In particularity, this research's goal rounds off to the concept of the architectural ideas that might stem out from the act of drawing. Acquisition of this knowledge leads to developing an architectural illustration, amalgamating the core narrative and the supporting literature - with a motivation to make people of the future understand the present of the city rooted in past narratives. It furthermore accounts on how one's point of view can be perceived by the other and how he/she addresses it. The outcome helps in discovering various records of equivalent occasions in a holistic frame.

LAHORE

A city no longer stands with the walls' help, just like the front line's ruler without its *wazir*. Space where one asks and is asked, a spot where having entered, one searches for what is well-known instead of new. A spot where avenues give the advances of a stream of activities just like the limit of blood supply courses in the human body, which floods through the entire body. A wilderness where one sees a breaking point between the streets and the sky framing a scaffold, delivering a stage that shapes a bond between the earth and the sky. A place where wilt inhabitant or guest, one is entirely conscious of having entered and being 'inside' until one has left once more. It is the inclination that an impressive gateway gives. Be that as it may, when a gateway permits one section to a whole network instead of a room or a house, the impression of appearance is heightened. It is the suffering enchantment of Lahore, the walls, the city rambling outward past the gates. Here, twist just not typically blew, yet it additionally sprinkles the vibe of sentiment and romance that has deceived the walls throughout the century. It moreover acts as a stage in which every tangible and intangible element are in a continuous state of dialogue, and they as a whole complement that particular kind of harmony and living, at which point it is told that *"Lahore, Lahore aye"* (Punjabi for "Lahore is Lahore").

"The origin of Lahore can be traced back somewhere between 1st and 7th centuries A.D. It is, however, inferred by historians that Lahore was actually founded by Loh e son of Rama, characterized as the Hindu god in Ramayana. According to Sir Robert Montgomery, Lahore rose to importance between 2nd and 4th centuries. According to the Greek geographer, Ptolemy, Lahore was founded somewhere at the end of the 1st century. According to the book Ood-e-Aalamahore appeared as a town in 882 AD".[3]

Many historians, artists, and writers portrayed and depicted the instances and the city's beauty into their communication mediums. Aijaz Anwar has portrayed the city's life and the celebrations in his watercolor paintings, whereas writers like Majid Sheikh, Samina Qureshi, and Fakir Syed Aijaz-ud-din have written the tales and the experiences of different people who have visited the city back in the history. As many historians portray, the spectrum of vibrant instances and perspectives of Lahore and its culture are not captured in a single visual.

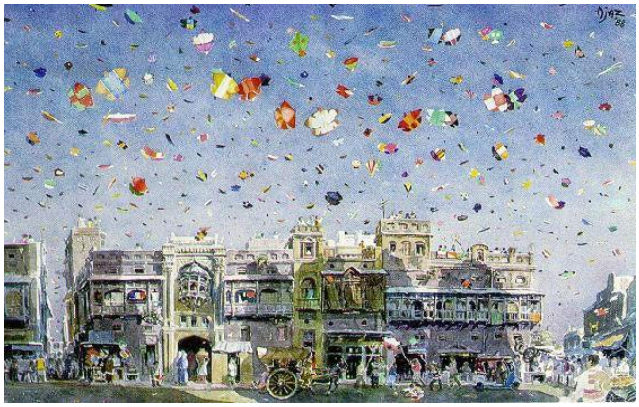

Figure 1: Painting of Lahore by Aijaz Anwar[4]

This situation proposes an opportunity to develop a vision to construct the city over centuries onto a single canvas to experience Lahore and its major architectural monuments.

METHODOLOGY

To develop the cityscape's visuals, multiple narratives and tales were considered to perceive the city from diverse historians' perspectives. Various parchments of history were gathered in order to visualize the city from its beginning. In the end, the story, "Akbar's Capital: Jewel of Sikh Crown" By Fakir Syed Aijaz Uddin was selected as the overarching narrative because it covers the story of Lahore from the time of Rama till the colonization in a brief explanation of how and when the city was built and in how many stages. The goal was to visually translate the city's history through drawing relative to the selected narrative but not similar to the city in reality. It is just like listening to one's story and then visualizing your imagination due to which the story remains the same, but the visual extends beyond words.

The drawing is formulated in chronological order more as a map free of perspective, giving the essence of miniature painting. Miniature paintings represent the glory or the activity of the emperors, illustrating the war or their courts, and the most subjected were the emperors and the people. Such paintings are portrayals of royal glamour and the life of commoners, the beauty of folklore, and more or less the narrative that binds the inspiration and devotion of artists themselves. Another reason for following this type of language was that the miniature painting is based upon different layers of nature, characters, and architecture composed to translate the narratives.

The exercise was to isolate the architecture from the narrative for better understanding and translate it into an investigative drawing. The narrative of the story was kept original but portrayed from an outsider's perspective, and to understand the historical background of the city, multiple other stories and writings were also taken into account as a reference to complete the map.

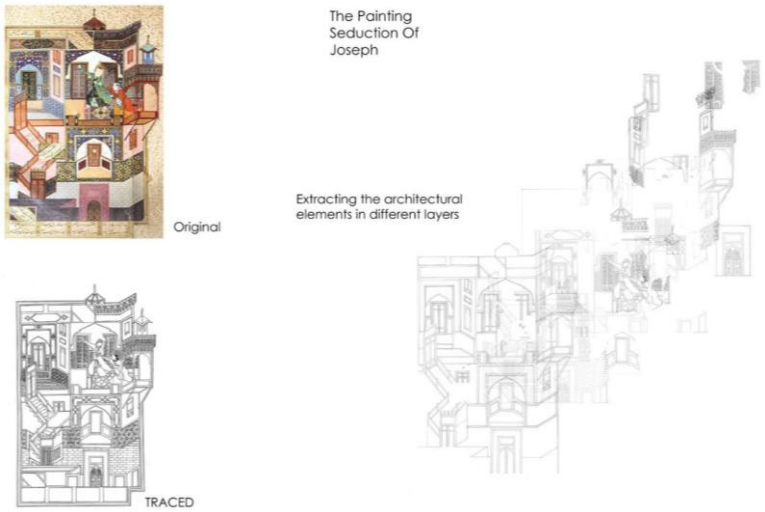

Figure 2: Extraction of the architectural layer from the painting (seduction of Joseph)

The drawing format is the landscape, and an elephant size of the canvas was selected for it. The drawing was not constructed directly onto the canvas. At first, different instances were drawn onto an A5 sized paper to visualize significant instances and the walled City scale through different references such as the "City of Sins and Splendors" by Bapsi Sidhwa. The drawing was developed in a landscape format so that it can be read horizontally. Detailed exploratory sketches were initiated at the start of the exploration to understand different eras' architectural characterization. Lahore is a blend of diverse architectural styles; therefore, it was essential to analyze the key symbolic elements of design before integrating them into one master visual. A data bank was accumulated after long hours of expeditions on existing architectural monuments through literature and on-site documentation. For example, for an

in-depth history of the walled City's scale, references were derived from the book "City of Sins and Splendors" by Bapsi Sidhwa[5], and sketches were developed by visiting to understand what is left of it. Different drawings were carried out to acknowledge the typology and the overall transition throughout the centuries in the architecture of the Lahore Walled City.

Figure 3: Visualization of the walled city through different references

The main drawing is constructed in a series following the chronological order, as explained by the narrator. Different visuals of walled city were drawn on different parts of the canvas randomly, and later on, linkages and fillers were added to detail the canvas. It was done intentionally as the whole walled city was developed organically; it was never planned and was constructed in different segments in different centuries, so following the same pattern, the drawing was constructed. So, this research intended to create a whole image of the city through architectural understanding.

Early Rama Period

The chronology starts from the Rama period, portraying the walled city of that time and how the Hindu settlements were established at the River Ravi's bank as narrated by Fakir Syed Aijaz-ud-Din. As the primary motive is to translate the whole narrative architecturally into the drawing, the scale and the details were exaggerated through one's imagination portraying the city's main structural framework at that time.

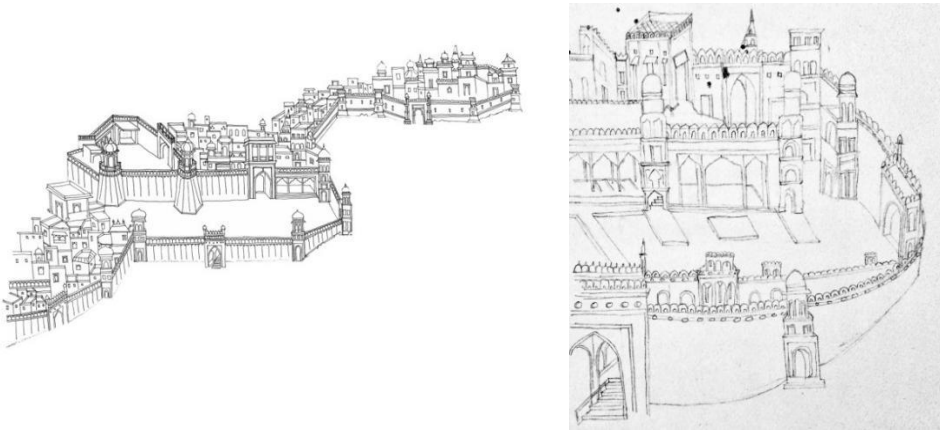

Figure 4: Walled city at the time of Rama

Change of Powers

After Rama, the narrator jumps to the 9th century when the Hindu throne was sabotaged by the Muslim ruler Sabuktagin, the king of Ghazna. This part of the narrative is about the triumph of Sabuktagin and his son Mahmood Ghaznavi. Simultaneously, the story's background shares insight into how they form settlements in the city and made Lahore their capital. A boundary wall was built at the river Ravi bank, and other parts of the city were fortified to defend the capital.

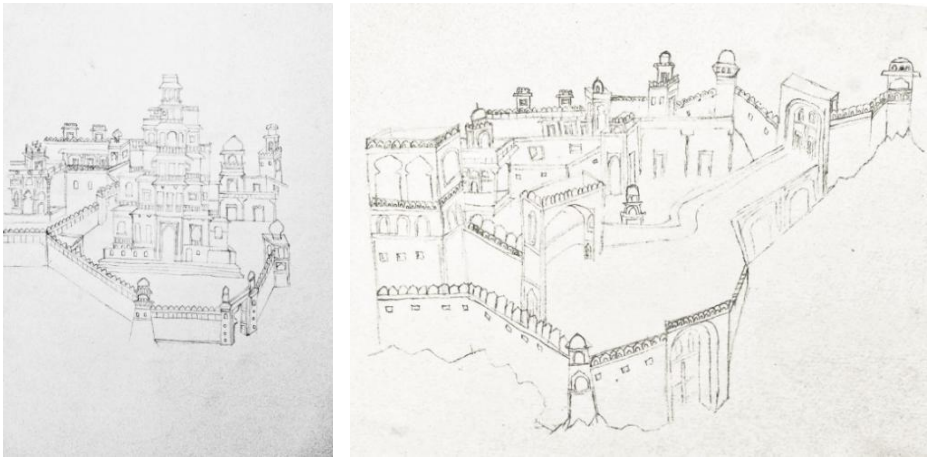

Figure 5: Visuals of the city in 9th century

Mughal Era

The author narrates different events after the Ghaznavids, but they were mostly of the hegemony transfer. The main architectural events occur during the Mughal Empire's establishment, followed by the great emperor Babur in the 16th century. At the start of the Mughal Era, Lahore was not the capital, but later some major transformations were made like the city's boundary was established, royal annexations were built, gardens were designed, and the trade routes established.

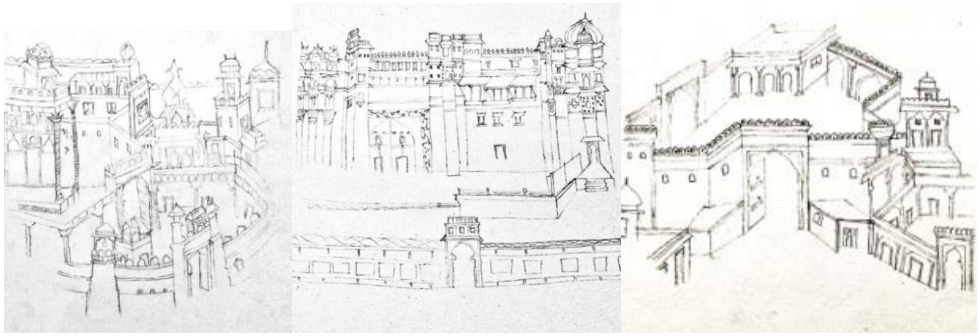

Figure 6: Visuals of the city in Babur's reign

Akbar's Regime

After Babur, the author emphasizes emperor Akbar's regime. Although Lahore was not the capital at Akbar's time, significant architectural interventions took place as royal apartments, cottages, hammams were built, and the city was completely fortified. Roshni Gate was built at the bank of the River Ravi. Building typologies were changed.

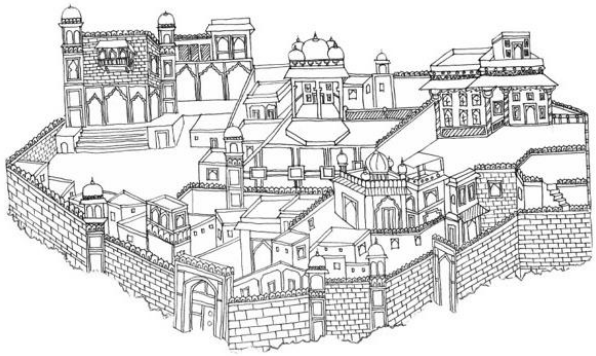

Figure 7: Visuals of Akbar's regime

The Era of Alamgir (Walled City at its Peak)

The glory of the great Mughal Empire comes under the rule of Alamgir. In his era, the walled city was at its prime. The Great Shahi Qila (Lahore Fort) was built, the boundary wall was established around the whole city demarcating the power of rule, thirteen gates were constructed at different points of the walled city. Badshahi Mosque, Wazir Khan Mosque, Shalimar Garden, and other royal buildings were commissioned as narrated by the author. The visuals were constructed by deducting narrative, and with the support literature available about how those buildings and monuments would be at that time because some of them still exist.

Colonial Period

Narrating the demise of the great Mughal Empire, the author comes to the colonial invasion. The author does not narrate this part of the city with much of architectural precedents. However, the references gathered from the supporting literature and archives were sufficient to produce visuals for this era. At that time, a circular road was built around the walled city to segregate it, and the mall road was established with the governor's house, secretariat and bungalows. Lahore cantonment was also settled during the colonial regime.

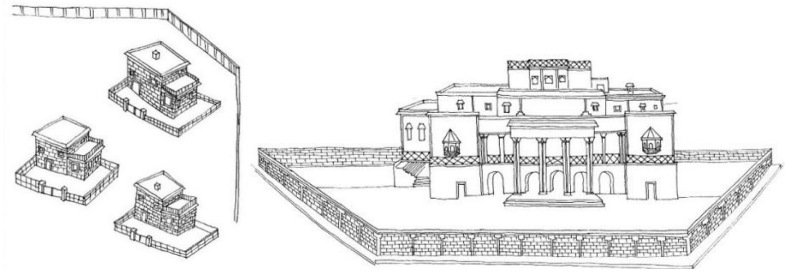

Figure 8: The colonial period

After drawing these instances of the walled city in different periods, further additions were made. Chauburgi, the Baradari of Mirza Kamran, and bridges were added from other references. These instances were drawn and linked with transitional points to form order and sequence, highlighting the starting point and making sense of curiosity and continuity. It also opens the possibility of creating other volumes of this chronological map and can be connected when placed together.

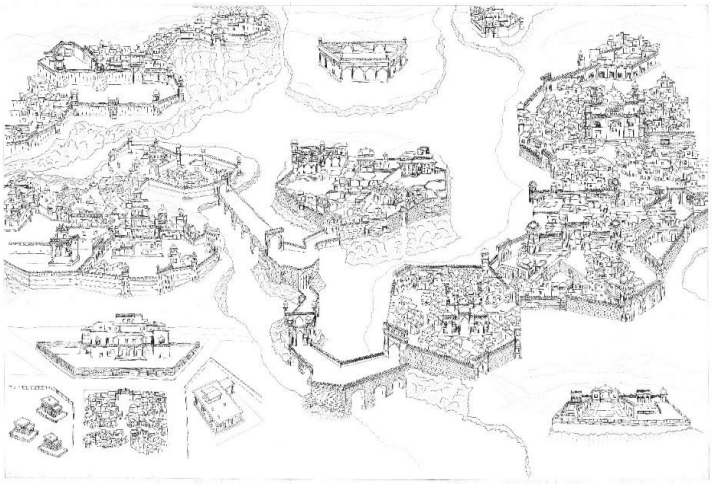

Figure 9: The final drawing

The above figure 9, the chronological map, has been translated architecturally from the main narrative of Fakir Syed Aijaz-ud-Din. The top left corner shows the period of Rama and the beginning of the walled city of Lahore. Moreover, the right side of the canvas, the walled city at the time of Aurangzeb Alamgir, has been shown while passing through all the walled city's visuals and instances in different eras.

After completing this, two more layers were added onto this drawing. As the main inspiration was from the miniature paintings, apart from adding distinct miniature layers, the layer of a season and time was added. The drawing was scanned, and by the utility of software such as Adobe Illustrator and Adobe Photoshop, the other two layers were added.

Most miniature paintings depict the spring season as it has been taken into account for different reasons such as glory, peak, richness, happiness, etc. In contrast to that, autumn was chosen as a seasonal layer to be added. The soul idea converging was the portrayal of the history and formation of the city and how it transforms through the ages and how it has been rusted following the new modernization layer. Secondly, the autumn season usually depicts the wilt of dullness, so as per the idea, which was the city's

chronological map. Fredrick Horsman Varley, the English painter fond of finding God in nature, was selected as an inspiration for choosing and creating the season's color palette.
The addition of the second layer, which was to study the visual according to the specific time of day, evening time, was chosen near the sunset to cast a long shadow and relate it with the city's scale and expansion—the end of the old and the wait for the dawn. The top left corner was marked as North and the sun was projected at the bottom left of the drawing.

Figure 10: The final drawing

Each walled city of different eras has its color palette. The color of the River Ravi changes throughout the painting, starting from blue and ending in grey. The transition of colors was intentional to show how the river and its deteriorating condition over the centuries.
Lahore is also known for its nightlife, creating a dilemma of its own because it remains open till dawn. Occasionally the streets, roofs, and the bazaars are illuminated all night long. A stream of activities generated throughout the day expands at night time. Among one of the thirteen gates of the walled city, the gate closest to the bank of River Ravi is known as Roshnai Gate, meaning the illuminated gate which acted as a beacon throughout the centuries, as the gate was profusely illuminated during the night to aid travelers. While reading different narratives and stories of people's experiences, many of them also describe the city's nightlife such as in "The Dreadful Night" by Rudyard Kipling and in the poem of Faiz Ahmed Faiz, "City of Lights." Taking this into account, it was decided to produce a night version of this drawing to portray and perceive how the city looked at night in early times and why it was called the city of light. For this third version, another color palette and different day times were experimented with, while the season remained the same. The city was illuminated under a full moon, culminating the darker areas and casting consequential shadows.

Figure 11: The Night Version

CONCLUSION

The chronological maps are produced by stitching and translating different layers of history, perception, time, and seasons; it is observed that by adding each of the mentioned layers, the city's overall aura transforms into visual reminiscence. These layers resonate palimpsest of different cultures and architectural sustenance in a gamut once experienced by this city. Parallel to these layers, multiple narratives were woven, giving birth to this visual narration. These densely knitted accounts are the main factor that changes the course and molds the ideologies throughout history—leading to an understanding of the architectural wilderness, portraying the lost charm and the city's romance.

The illustration subliminally highlights the very layer, the layer of desire. The architectural characters transformed, the morphology and the typology of the city changed, the question of identity and the dynamic shift in culture and idealism is observed. Desire exists parallel to multiple dimensions of history residing in every aspect of events, notions generating a dialogue of architecture with the context. It highlights the factors, circumstances upon which the ideologies change, different cultures overlap, which changes the city's overall fabric over time. This very notion is to study to predict the image of the city that how it can be morphed or transformed while keeping the culture and ideologies intact as desire leads one into its catalepsy.

As Lahore's walled city has never been illustrated as a whole, the acquisition of this knowledge leads to developing an architectural illustration, amalgamating the narratives and the local literature - with a motivation to make people of the future understand the present of the city. It furthermore accounts on how one's point of view can be perceived by the other and how one addresses it. The result helps in finding different records of proportional events in a comprehensive casing. It also assists with comprehension and anticipates the city's urban fabric of various times and predicts new urban fabric or line the new with the bygone one that supplements the city in general instead of repulsing it, isolating the walled city with the new.

NOTES

[1] Arkell, Andrew. 2020. "Drawing as Architecture: Representational Space Architecturally Transformed.

[2] Leatherbarrow, David. “Showing What Otherwise Hides Itself: On Architectural Representation.” Harvard Design Magazine (Fall 1998): 50-55. Avery Index. Web. December 2010
[3] "Historical Background | Punjab Portal". 2020. *Punjab.Gov.Pk*. https://punjab.gov.pk/lahore_historical_background.
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ARCHIVETHING – A DIGITAL PUBLIC COMMONS FOR CREATIVE PRACTICES

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INTRODUCTION
ONLINE ARCHIVE FOR PRACTICE-LED RESEARCHERS – A NEW ARTIST-RUN SPACE:

Connecting space and production

The current situation of physical distancing and the realities of our online interactions draws a new focus to our project, archiveThing, adding another aspect to the already multiple intersecting facets. Through this project we are defining 'space' for contemporary artists' research and practices; and simultaneously we query a techno-philosophical relationship of physical to digital artefacts. On a practical level, the platform addresses the diminishing opportunities for artists to share their work and contribute their research to a larger arena of interested communities. Theoretical discussions arise around art-objects and artefacts' nature as both epistemic[1] and boundary objects[2]. And learning from Henri Lefebvre, we question the socio-political aspects of this 'third space' (neither home nor work space)[3]. Let us consider online space as abstract space. Here we borrow from Lefebvre the concept that abstract space is intrinsically connected (fused) to the objects embedded within space – as two sides of a coin. Objects conceptually and socially 'create' and define space. Lefebvre's description of this composite situates artefacts as part of an interconnected logical structure – a set of iterations with resonant interactions and implications. This speaks very closely to the artists' practice-based methods – where multiplicity and combinations of elements catalogue parts of a whole, creating an 'intelligibility'[4]. The comprehensive cataloguing, as Lefebvre suggests, "contains not just the tools of everyday life, of home and work, but also the containers of those tools – huts, cabins, houses, buildings, streets, squares and so on".[5] We stretch the 'so on' concept of the container to include online archives, space for digital artefacts to merge and become part of the comprehensive logic of this type of space. In this way we suggest that archiveThing becomes part of the continuum of social space. And, as art objects normally presented in more traditional exhibitions, these objects and artefacts perform – they imply, prod, suggest through their representations within the space of archiveThing.

We position this social space further as both a commons (public) and studio space (more private). Both spaces are relevant to artist research practices, and here we address the expansion of studio methods

and interdisciplinary methodologies. We propose one of the biggest changes in contemporary art practice is the variety in studio production, incorporating into the discussion how the work has been made. For some time emphasis was placed on the content and context but today we stretch this to include dialogue around the making. In 'Art in the Making' editors Glenn Adamson and Julia Bryan-Wilson list some of the reasons for a critical investigation of artists' studio production. While they concentrate on three categories, there are many more and with the digital archive we will be able to accommodate a growing list of studio concerns and methodologies.

Here Adamson and Bryan-Wilson suggest that creative friction speaks to the skills limitation, material affordance and constraints; the politics of production and labour describe an artist's workday through a feminist lens and identity discussion; and thirdly, they have identified making as a form of thinking.[6]

In our artist designed and artist managed space, archiveThing becomes a place to reveal the details of these creation processes with their conceptual and contextual frameworks interlinked. It is our task to allow this variety of processes yet detecting the connections and potential fertilization between the art works. As noted, Lefebvre suggests the relationship between the space and the artefacts create a logic,[7] and the elements begin to form a kind of fluidity. Not a linear narrative, but a rhizomatic interconnection of elements that can be studied as distinctive items or part of a whole (as the object that sits within the practice and research context).

As we mentioned earlier, materiality, concepts and process skills are interrogated – an artist might modify their tools to achieve a specific or speculative form and unique output. And in other instances an artist would turn to commercial fabrication processes to produce an industrial finish not otherwise achievable. While we have stressed these analogue processes we are naturally including media and digital production to further reveal a co-existence of ways of working.

While these artist narratives can be found in individual catalogues and selected books, the archive we are envisioning creates the links between the disparate stories, biographies, as we can tag people, materials, tools, techniques, contents, contexts, geographies, times et al. All components of a rhizomatic network become part of a complex narrative accessible through our platform and related metadata schema.

ART ARTEFACTS - BIOGRAPHIES OF THE OBJECTS

Artefact Contexts

Epistemic objects are what Lorraine Daston refers to when she writes of the objecthood of scientific artefacts[8]. Though she is speaking of scientific objects as the epistemic prompts, we propose that art objects function in a similar vein. The objects and their contexts are meant to propose questions or queries to viewers or researchers.

We present the artefact as having agency, and this contained knowledge and biography is revealed through a complex and non-linear process. We argue with Rheinberger[9] that a work's visual representation is located between the concrete and the abstract and it is this unfolding and continuous process that we claim as containing knowledge. Our objects fulfill an epistemic task by speaking to the social, political, conceptual, aesthetic, and technical. But as the object is formed these knowledges also transform and, as practitioners and cross disciplinary researchers, we are closely observing and keenly interested in these changes.

Linking the knowledge building capacity of the epistemic art object with the concept of boundary object and by transitioning from the physical object to a more generalized and abstracted representation of the object, we land in the centre of the digital humanities methodological framework of research-creation[10]. Our approach is interdisciplinary, artistic, technical, and scholarly, and intends to produce a new

location for digital humanities projects. We aim to be inclusive, allowing for the personal, subjective, exceptional, radical and speculative.

The conversation about the object's material affordances and our own conversations with the materials provides a lively *dyadic* relationship[11] that we hope to address and capture through the architecture of the digital archiveThing. The attempt to document and include diverse and non-dominant practices moves the expected mode of scientific objectivity to the more provocative resilience of artmaking. We pay particular attention to the seemingly passive object when we move it from the artist's studio to the digital platform. How can this repositioning be preserved and narrated to the archive user? How will we preserve the layers of the conception and production, the contextualization and recontextualizations of the work in progress?

ARCHIVETHING – DISCUSSION

The project considers the new realities around contemporary artist studio production, where created works will likely live outside of institutional frameworks such as galleries, museums and publications. This situation has been intensifying over the past few decades for artists and creative practitioners, and now is currently exasperated by the global pandemic, as access to these types of public spaces is further complicated and opportunities are diminishing.

archiveThing is to be an artist focused online platform, an archive of digital and digitized artefacts emerging from artists' studios. Technically the archiveThing project consists of a digital archive built as an open source platform, an artist-focused metadata schema, and a finding aid functioning as a graphical user interface and 'exhibition' space. Acknowledging that material-based, time-based, and conceptual works are equally as valuable in a practice as born-digital artefacts, we propose an expansive and mutable set of metadata fields to surface the richness of these studio practices not typically seen in current schemas.

Artist focused metadata schema

Generally archives use descriptive metadata to make artefacts retrievable by current and future researchers. Metadata schemas are complex descriptive fields and rules that form an organized framework, this becomes the tool used by organizations to describe, store and access their particular collections.

Though there are a few existing metadata schemas developed for storing and retrieving cultural artefacts within a digital archive, as practitioners we find the descriptive fields do not address the realities of the artist's research and production we have been discussing here. Missing are fields to describe processes of making and thinking – where, we propose, new knowledge is potentially created. Usually shared through exhibitions, publications, studio visits, screenings, performances this new knowledge seeks a new space. We conceptualize this as a new public commons.

The artist focused metadata schema forms the organizational system behind archiveThing. It is the conceptual framework – the mechanics used to describe, store and share the digital artefacts. Our artist focused schema proposes a structure to allow for in-depth descriptions that we know comprises the types of work and research performed in artists studios. Here we include material studies and research, readings, experiments, mistakes, failures, and also encompasses multiple media, variety of practices (2D, 3D, performance, time-based, born-digital, conceptual, etc.) When developed, following the spirit of shareable resources and open access politics, we plan to make this schema publicly available to organizations or individuals that wish to use the framework for their own collections.

Retrievability

A public-facing finding aid is a graphical interface used by people to search for and find artefacts (retrieve) within the archive system itself.

For files to be retrievable across disciplines, standardized metadata fields and descriptors are usually employed. This includes agreeing on administrative data and information such as language, spelling, date format, etc. Accompanying the schema are discussions of how the metadata fields are framed and designed. This usually addresses standards for common components of metadata like dates, names, and places, and general rules and instructions for use. Many discipline-specific schemas have been designed and are used to describe and address specific elements and research findings used by a particular discipline. For instance, there are scientific, technical, biological, library, and cultural schemas. Though as we suggest, in our research, the cultural metadata schema are designed for artefacts and objects that have already been placed in a public realm, and do not delve into the details we describe in active studio-based research.

Interoperability – a utopic dream

The underlying impetus behind any archive is to create sharable resources for current and future researchers. Conceptually this leads to a discussion of interoperability. Clearly the hypothesis has been around for some time. We can see resonances with varying degrees of success across human-made systems: think varying train-track widths across European jurisdictions; new blockchain systems; International Standards Organization numbers for machine parts; coffee pods; phone jack plugs; power cords, etc.

A world where parts and modules 'automagically' fit with another seamlessly is a 'nice-to-have' functionality, through perhaps more the stuff of 'FX' in science fiction films. In reality, we more often see our systems falling short of instant and easy connections. In the digital realm, think of websites using modules and plugins that 'break' when an inevitable software update comes along.

Information and digital artefacts too, can be varied, particular, unique, individual, vague, messy, and so on, making the potential for tidy classification complicated. As a way of agreeing on how and what to store in archives for future researchers, schemas and classification systems are already in use (for example Dublin Core; Library of Congress Subject Headings). We also note that there is a cultural artefact schema called Cataloguing Cultural Objects[12] developed by the Visual Resources Association - an excellent schema for archivists, librarians, and other disciplines interested in archiving cultural heritage.

As artist practitioners we know that studio practices don't tidily fit within these descriptive fields.

Standing on the shoulders of giants, our proposal expands upon these and other existing metadata schemas – adding new descriptive fields to allow for the poetic, process-driven, inconclusive, rhizomatic nature of contemporary art works. We identify this as an artist designed and focused metadata schema.

Operating as an 'expansion pack' for other existing schemas – we hope to edge towards a shareable framework which functions as a place for alternative narratives. Descriptive fields become a space for storytelling. And we hope, closing the gap between the research and studio processes of contemporary practices - and the more formal models of archiving for institutional exhibition, collection and curation.

The archiveThing metadata schema proposes that there can be other ways of searching, retrieving, and researching artists' works, adding to the potential for cross disciplinary research. Future researchers will have access to processes, studio journals, research inquiries, failures, iterations, and tests that

encompass and form an artist's practice – messy details, narratives, usually not accessible or made available in the smoother public presentations of the finished works.

CASE STUDIES

As artists & makers, we introduce two case studies which explore digital methods: as a production environment; as digital storage; and where local and cloud computers might function as dwelling for digital works – whether completed or in progress. Both cases show studio practices that straddle drawing, collage, construction, performance, digital modelling, photography, and printing. And both consider how the studio research can become shareable including discussion of the representation, form, context and intention – whether digital or material.

Case Study Research Questions

In these practice-led research projects, we ask, how does the studio practice change or respond to the practical realities of:

- Sustainability and material concerns, such as the socio-political and ecological questions of the Anthropocene?
- The situations and conditions of the post-studio, post-exhibition, post-materiality?
- New and changing platforms for exhibiting and sharing research, including digital landscapes?
- How can contemporary studio practices negotiate new and emerging technological systems / platforms?
- How can we curate, interact and experience these digital artefacts?

Both projects have material beginnings that lead to theoretical and practical discussions about digital representations and documentation of works. We propose that the digital versions of our studio artefacts comprise important facets of the work itself – the digital files are not simply a digitization of material works.

Our proposition also speaks to the artists' studio practice – practice-led research – as a complex, interdisciplinary model of creating new knowledge. With this as a backdrop to this project, we consider the platforms for sharing this research needs to be *equally* expansive, rhizomatic, sharable, extensible, and interoperable.

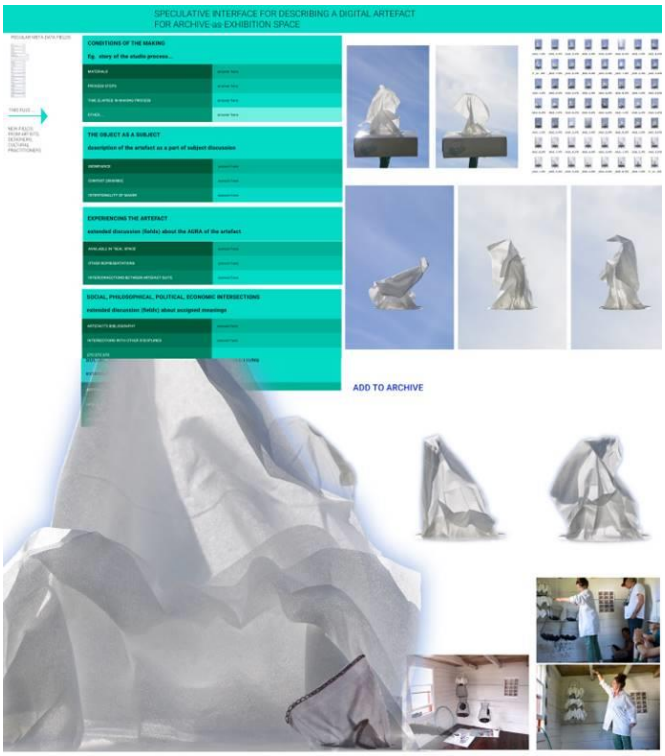

Figure 1. Sketch for archiveThing metadata schema, with Tissue work by B. Rauch

Case Study 1

Tissue: Barbara Rauch, artist, researcher, educator:

'Tissue' is a work in progress. It manifests through the gesture of pulling a single tissue out of a tissue box. The sculptural form and shape is mostly a result of the material's affordance and the light that bounces off the tissue's thin and opaque material. The artist's efforts are intentionally reduced to a repetitive motion of pulling out the tissue. We work through the entire box of tissues, about 100. Deceptively unassuming at first look, this project reveals a multitude of details that when coordinated become a complex narrative and context for a performative exploratory studio work that touches on the poetics and politics of ephemeral and mutable forms, on consumer culture, on weather, on chance and making.

The metadata samples we suggest here focus on the quick performance with simultaneous sky studies. The shooting method responding to the spontaneous setting provides a context: digital camera, generic tissue box mounted on stick, time of day selected (for wind, light, precipitation).

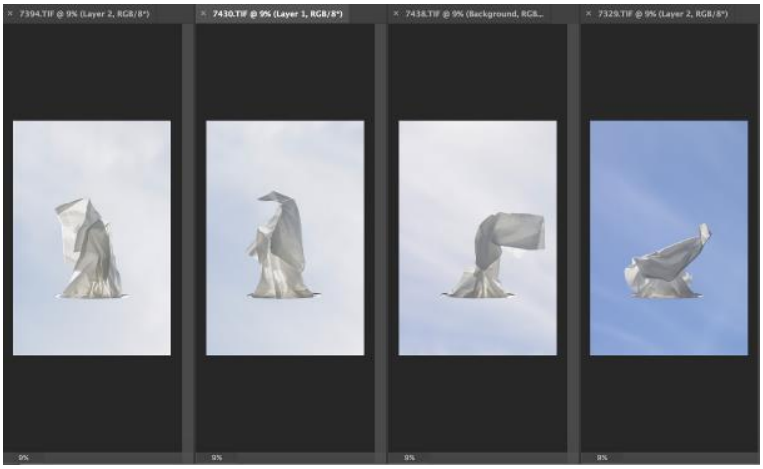

Figure 2. Tissue (2016). Final works as digital files, on screen, as grid. B. Rauch.

Figure 3. Tissue performance with skies and variable light conditions. B. Rauch.

When considering the descriptive metadata we included the details, such as, the entire box of tissues has been "processed"; the box of tissues is brandless; the sky changes over duration of the performance; the preliminary selection and curation of tissue forms for potential digital printing; and maintaining the "mishaps" as part of the conceptual aspect of the work (Figure 3).

It became clear when working on the images that we needed some more choice of sky (to set different moods); conceptually the idea was to have a continual suite and animation of Tissue Sculptures.

In addition there would be a Print-on-Demand version of this work (Figure 4).

Initially all photos were considered for digital postproduction and here technical details find their way into the discussion of the work. Magnetic lasso tool used, feather 0px, Anti-alias on, Width = 5px, contrast = 17%, frequency = 57. After the sky selection is complete, inserted tissue on a layer within the design software and the final work is produced, ready to become a physical printed photograph (Figure 5).

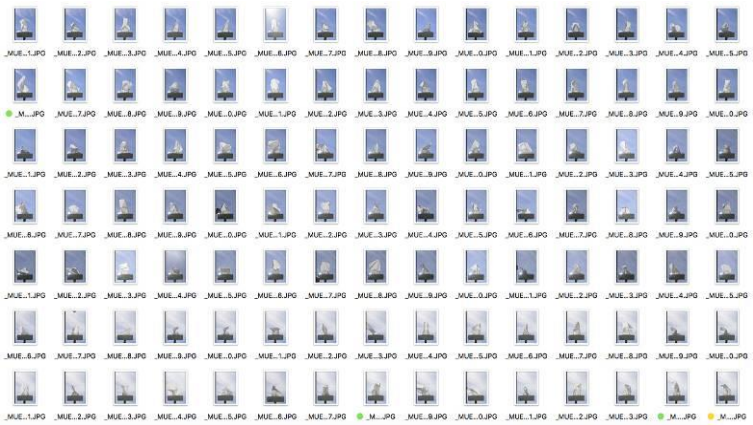

Figure 4. Tissue performance expanded providing more variation in light, colour, contrast and background colours. B. Rauch.

Figure 5. Tissue, archival print on paper, 42 x 59.4cm, 2016, B. Rauch.

Case Study 2

Huts for Future Living: Michelle Gay, artist, designer, researcher:

This next practice-led research project focuses on the concept of speculative infrastructural city planning. Asking what if artists participated in Urban Planning for cities of the future? Questioning how to engage non-planners in complex and important discussions about urban issues, climate change and sustainability. Relatedly, artists' studio situations are changing as urban development continues - often displacing and reducing physical space. This in turn affects the material practice itself.

In the project 'Huts for Future Living', the models were created as speculative propositions. The objects, not meant to act as instructions or blueprints for building, urge us to think about potential near-future infrastructures, structures, systems and scenarios. Here a sled for moving clouds, a giant movable bee-hive, a low-tech twirling communication system, climbable debate forum, a cantilevered fishing system – are examples of how the objects are meant to spur imagination, ideally prompting questions about how we can build and live differently in our communities. These models act as poetic prompts to stimulate conversations and thinking about urban conditions and our collective futures. Urban research performed through practice-based work.

In a post studio, post storage, post gallery environment, a simple rule set was proposed:

1. Construct and build low-fidelity models out of found or inexpensive materials
2. Document & digitize models
3. Recycle models, opening up precious space in the studio to continue working.

Digitization was attempted in a number of series, as animations, and from a wide variety of camera points-of-view. Digitization though is not necessarily documentation – and this raised the first set of questions about 'viewpoint. Which view tells the story the best? Documenting a work that has

dimensions, is performative, is time-based, and has scale, among other dimensions reveals the complexity. These are not new questions or issues, but we raise them again when we consider the proposition of archiving, and making public, the practice-led research as a fluid expansive set of interconnected artefacts. How do we encapsulate the fulsome experience of these models – and other complex practices?

Documentation experiment 1:

The images in Figure 6 pose the question: which point-of-view (POV) best tells the story of this artefact?

Figure 6. Platform (from Huts for Future Living), cardboard, glue, twigs, wooden sticks, paint. Approximately 10" high. 2017. M. Gay.

Documentation experiment 2:

Does animating an object capture something of its subjectivity (Figure 7)? Does an animated digital file reveal to us (as viewers) something more about the story of the artefact?

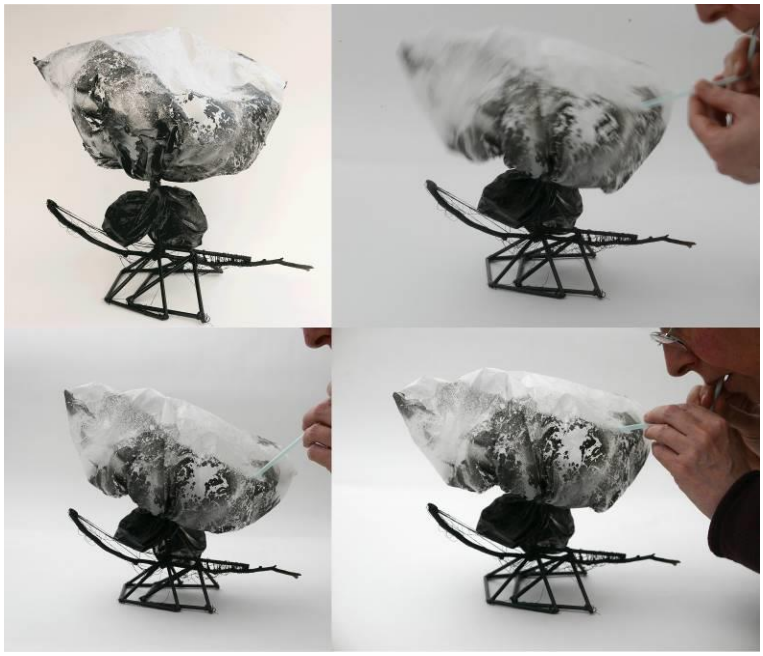

Figure 7. Cloud Sled (from Huts for Future Living), plastic bag, sticks, glue, paint, breath through straw. Approximately 8" high. 2017. M. Gay.

Documentation experiment 3:

The third attempt at documentation (Figure 8) used a photogrammetry process, capturing in 360 degrees, many images of the models. The images are processed through software to create digital models exported as code with texture maps. With this experimentation, surprising artifacting was produced by the software and its algorithms – things happen in digital space which simply do not occur in 'real space'. In the example shown here Cloud Sled (Figure 8), seems to have attached itself to a landscape – or the landscape has attached itself to the model – now encased in the creamy indeterminate immaterial digital material. These new digital files seemed to grow new bones, new structures not imagined through the low-fidelity process in the original creations.

Figure 8. Cloud Sled (from Huts for Future Living), Digital Model from two camera views. 2018. M. Gay.

Cloud sled (digital) became a new *form* occupying this digital space – where atmosphere, scale, weight, gravity, and context of the original model are removed. This facet of the experiment introduced another set of inquiries to the project.

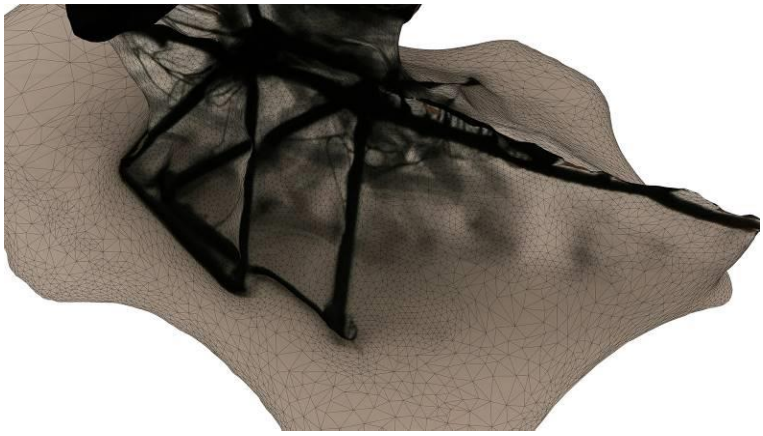

Figure 9. Cloud Sled (from Huts for Future Living). Digital Model closeup showing digital material fusing with model image. 2018. M. Gay.

As often happens in practice-led research, these documentation experiments surface more questions than answers. Suggesting that provisionality might extend to our understanding of built form for our

near futures. And, do these mesh models point to a new project - one not conceived of originally with the production of the low-fidelity models? What can these new landscapes and attached artefacts share with us about digital and actual worlds? How do they function as physical material objects; digital models and representations of ideas?

CONCLUSIONS & CONSIDERATIONS

There are numerous technical questions that we've identified throughout our research and many will be addressed in the actual development process. Theoretically we remain curious as to how digital artefacts can maintain a connection to material counterparts.

As we have discussed, the artists' studio is changing, it is becoming a research site. We suggest that practice-based research produces artefacts that function as epistemic prompts and boundary objects[13] – opening up to cross disciplinary researchers, viewers, and scholars. Art objects no longer need to make their final trajectory the spaces of exhibitions, performances, screenings, and publications. Our proposal positions archiveThing as an online space functioning similar to an artist's studio visit, and becomes a place to share the complexities of contemporary creative practices including the processes, methods and findings. We are interested in the ontological potentials of practice-led research and the interdisciplinary methodologies of creative practitioners.

As a public commons, we are curious to see how communities will engage and interact with the objects, artefacts, and the resonant networks of people connecting within and through this space.

NOTES

[1] Lorraine Daston, (ed). *Biographies of Scientific Objects*. (Chicago and London: The University of Chicago Press, 2000). p. 1 – 41. In this edited book, in her chapter entitled "The Coming into Being of Scientific Objects" Daston introduces and explores how objects acquire the state of 'objecthood' to become epistemic artefacts. These types of artefacts, it is suggested by Daston et al throughout the book, are those objects and tools researchers may employ for inquiries and investigations - prompting new knowledge, new hypothesis and new discoveries. We borrow the concept 'epistemic object' to assign to cultural artefacts as Daston et al do for scientific tools, as a way of signaling their use not solely as aesthetic artefacts but as part of a network of interconnected 'things' which can be used to consider issues and topics across disciplines.

[2] Dick Boland, "The Concept of Boundary Objects and the Reshaping of Research in Management and Organizational Studies," In *Boundary Objects and Beyond – Working with Leigh Star*, ed. Geoffrey C. Bowker, Stefan Timmermans, Adele E. Clarke, and Ellen Balka. (Cambridge, MA: MIT Press, 2015), 233 – 237. Susan Leigh Star identified and defined the term Boundary Objects as a conceptual tool to help cross disciplinary researchers work beyond their usual disciplinary boundaries. There are many excellent scholarly discussions around this extremely valuable concept. In this chapter, Boland writes: "Star named a place in which actors with heterogeneous knowledge can succeed in cooperating to do work of science without having any prior agreement on the nature of the objects, actions, measures, or goals that they were working on." ... "When we name an action or a thing as boundary object, the meanings do not come from a set of familiar uses, but are brought to it by the actors who are observing and interpreting it in their cooperative interaction". Boland's assertion is that this tool aids the process of reconceptualizing the boundary of any particular discipline, suggesting that the edges are fluid "[a]s residual categories leak out of what we thought had been stabilized". And as actors in any system of categorization, Boland suggests the concept "encourages us to expect that each individual who participates in an inquiry will exercise a distinctly original interpretive power". Though Boland and Star were writing about scientific artefacts, we find that this discussion and conceptualization pertains equally as well to cultural artefacts, where individual actors (viewers, audiences, researchers, curators, public) can approach the elements of contemporary studio works with their own interpretive powers and plasticity.

[3] Henri Lefebvre, *The Production of Space,* trans. Donald Nicholson-Smith (Malden, MA: Blackwell Publishing,1991), 188.

[4] Henri Lefebvre, *The Production of Space,* trans. Donald Nicholson-Smith (Malden, MA: Blackwell Publishing,1991), 295.

[5] Henri Lefebvre, *The Production of Space,* trans. Donald Nicholson-Smith (Malden, MA: Blackwell Publishing,1991), 295.

[6] Glen Adamson and Julia Bryan-Wilson, Art in the Making: Artists and their Materials from Studio to Crowdsourcing. (London: Thames & Hudson, 2016), 19.

[7] Henri Lefebvre, The Production of Space, trans. Donald Nicholson-Smith (Malden, MA: Blackwell Publishing,1991), 295.

[8] Lorraine Daston, ed. Biographies of Scientific Objects. (Chicago and London: The University of Chicago Press, 2000), 16.

[9] Hans-Joerg Rheinberger, "Cytoplasmic Particles: The Trajectory of a Scientific Object". In Biographies of Scientific Objects, ed. Lorraine Daston, (Chicago and London: The University of Chicago Press, 2000), 270 – 294.

[10] In 'Research-Creation: Intervention, Analysis and "Family Resemblances"', Canadian Journal of Communication, Chapman and Sawchuk define research-creation as an emerging new category within the social sciences and

humanities that speaks to new modes of knowing. A typical research-creation project integrates a creative process, an experimental aesthetic element and/ or artistic work as part of the research. They consider four modes of research-creation: “research-for-creation,” “research-from-creation,” “creative presentations of research,” and “creation-as-research.”

[11] Knorr Cetina, Karin, 'Objectual practice'. In *The practice turn in contemporary theory*, ed. Theodore R. Schatzki, Karin Knorr Cetina, and Eike von Savigny. (London: Routledge, 2001), 175-188.

[12] Visual Resources Association, VRA. Accessed July 25, 2020. http://vraweb.org.
[13] We are indebted to the scholarship and work of Lorraine Daston and Susan Leigh Star, and thank them for these extremely useful concepts.

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A CONNECTIONIST APPROACH IN CREATING CULTURAL HERITAGE CONTENT: THE OPEN CITY MUSEUM APP

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INTRODUCTION

With the passage of time and the radical technological developments, the narration of history is developing dynamically. For, the technological means associated with this narration are constantly evolving to follow the contemporary means of learning and perceiving information. Primary historical documentation practices are affecting the society's image of its past since the historical documentation and representation processes in physical space can affect the apprehension and perception of historical concepts. Photographs, drawings, and charts have been the most common means of historical visualization, since the 18th century. [1]

Until now, these analog and digital methods of promoting cultural heritage were oriented in accurately representing and narrating historical events. Open City Museum (OCM) is an AR application featuring Athens' cultural heritage through a virtual time leap, that adopts an alternative approach regarding the method of representation[2]. Realizing that AR plays just the role of the medium, it is significant to support the adequacy of this medium by employing an innovative content approach[3]. Our approach concerns both the cultural narrative of each monument and the atmosphere that frames the depicted historical period. Integrating the Augmented Reality Technology with the Visual Layering technique, enhances the relationship between the visitor, the surrounding environment, and the monument, through the portrayed atmospheric information and the level of interaction.

In this paper, emphasis will be given on the process of analyzing and constructing the virtual content, its operation through the AR application, and generally the link between the history of the monument and the visitor's experience. In the following pages, we will briefly present the visual layering methodology, the historical data, and the topological analysis for the relevant historical site, as well as the progress of the AR technical solution.

VISUAL REPRESENTATION METHODOLOGY

The general content approach followed in this research project addresses the ability of the human brain to perceive environmental information and sustain attention into a specific range of visual cues. According to Kaplan and Kaplan an individual's voluntary attention capacity is limited; thus, a visually rich environment cannot not be entirely perceived in detail.(R. Kaplan and Kaplan 1989) Involuntary attention will initially be captured by the most prominent and fascinating stimuli.(S. Kaplan 1995)

The Visual Layering Methodology was developed by the TUC TIE Lab and introduces a virtual content optimization theory according to which the generated salient stimuli and cues are able to capture the user's attention and the context awareness is enhanced by enabling a level of interaction between the user and the virtual elements/ stimuli. More specifically, this technique deconstructs the visual elements of an image and reorganizes them into separate layers based on the characteristics and semantics of each object. Furthermore, the extracted visual objects/ layers are being presented separately in a specific order, while the inactive visual layers blur into the background. This process filters out the irrelevant components from each visual layer by achieving an overall level of abstraction and, as a result, improves the comprehension of the whole image and its atmosphere.

Each extracted layer is classified as "active" or "passive" according to its semantic value. Active layers usually contain the more salient stimuli of the whole image such as moving objects and foreground action. These principal elements are included in the first and second active visual layers, while the elements that support the main action belong to the third active layer. The passive layers are a compilation of surrounding elements that compose the overall atmosphere of the theme and promote the "sense of place" (i.e. ambient environment, skyline, color, textures). (Figure 1)

The Visual Layering Methodology was initially implemented in the Automatic Kinetic Theater (AKT), and has been optimized for educational and cultural settings.(K. Oungrinis 2014) After being implemented in different classroom layouts, the technique has been reintroduced in the Hybrid Environmental Projection Platform (HEPP) functioning as an enhanced educational approach in cultural contexts.(K.-A. Oungrinis et al. 2018) "VISUAL NARRATIVES A METHODOLOGY FOR LAYERING AND DECONSTRUCTING DIGITAL PROJECTIONS." HEPP is currently being developed to reach TRL 10 and the content will adopt an advanced Visual Layering approach, which utilizes interactive visual elements and operates with the use of depth camera sensors, allowing for a medium level of interaction that will increase the level of immersion.

The Open City Museum project (OCM) is the first research project to incorporate the Visual Layering Methodology inside an Augmented Reality (AR) environment.(Kallergis et al. 2020) The theoretical concept remains the same, however, the scale of the medium (smartphones, tablets) is constrained, thus the level of immersion is significantly lower. Nonetheless, the OCM achieves the desired atmosphere via a "time leap" narrative. Each historic period is designed based on a connectionist approach, and the emphasis is given on delivering the overall feeling of the era instead of achieving archaeological precision and pictorial realism, which most of the time prove to be challenging and problematic due to the lack of visual data. The same approach will be introduced in the upcoming HEPP v.04 platform and it would be rather interesting to compare the level of immersion, attention, and memory between two platforms of different scales (Social VR projection against mobile AR application). The HEPP v.04 will also expand the range of stimuli by adding auditory cues that complement the relevant visual layers.

To sum up, the Visual Layering Methodology represents a holistic approach to multimodal educational content creation and visual representation and can be adapted to address cultural settings and narratives as well as educational concepts. The technical way to achieve such a result may differ, depending on

the available software and the volume of the visual data input. In the near future, Machine Learning algorithms could be optimized to improve the output efficiency by streamlining the image processing.

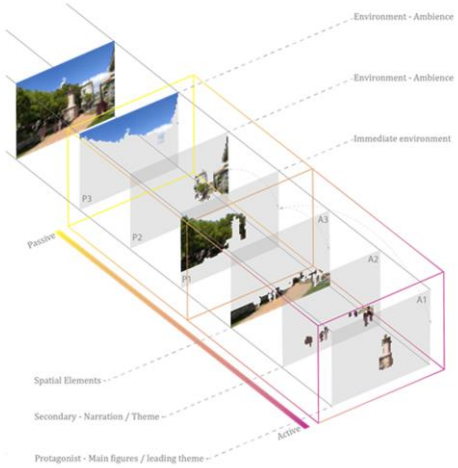

Fig 1. Visual Layering Methodology, example

HISTORICAL DATA ANALYSIS AND ITS VISUAL IMPLEMENTATION

Historical Data Analysis

Augmented Reality is one of the emerging technologies to reconstruct historical buildings and monuments. It offers the experiences of a real environment. AR's contribution is even greater when it comes to documenting and interpreting monuments. In recent years, there have been a number of significant researches and techniques that have been developed, focusing on virtual reconstruction of historical sites. Similarly, the City Museum app focuses on the monument of Lysicrates' depiction, visualizing it through its most important historical periods: 4th c. BC – original construction –, 17th c. AD – part of the monastery – and 19th c. AD – fully excavated accessible to visitors.

A widely known example of AR in the service of cultural management is the Museum of London's "Streetmuseum" app, pulling in virtual content (in their case) pictures/paintings and overlaying them into their 'real' place in the world. "Ancient Pompeii" is another project based on 3D reconstruction of ancient frescos for real-time revival of their fauna and flora, featuring groups of virtual animated characters with artificial life dramaturgical behaviors in an immersive, fully mobile AR environment. In this project, video-see-through HMD is used to capture real scene. Lastly, the "Archaeoguide" project is a personalized electronic guide and tour assistant. The system was developed to transform the method of viewing and learning about a cultural heritage site for the visitors. All these projects are performed in a mobile and wearable setup with markerless tracked camera and are implemented in real-time.

These are only to name a few of the cases where AR brought cultural heritage closer to the visitor. Such is the aim of the City Museum app only with a twist: combining historical knowledge of the monument's

surroundings during the aforementioned periods in conjunction with each period's characteristic artistic style, it aims to give to the visitor a holistic experience of history brought to life. Since the monument itself is fully preserved in its original form – with the exception of the tripod, the focus was directed mainly in bringing out the monument's environment through art. The image created is imprinted in the spectator's mind, offering a better – and more memorable – understanding of the time presented.

The choragic monument of Lysicrates is found in the heart of the historical center of Athens, in Plaka, and it is one of the best preserved monuments in Greece. More accurately, it stands now in a little garden on the Tripodon Street ("Street of the Tripods"), which follows the line of the ancient homonymous street. The street led to the Theater of Dionysus and was once lined with choragic monuments, of which only foundations were discovered. Such monuments were erected by the winning patrons – choregoi – of musical performances. The monument of Lysicrates was erected by the choregos Lysicrates, in 334 BC and it was originally crowned with a bronze tripod, the prize awarded to Lysicrates' chorus. It is known as the first use of the Corinthian order on the exterior of a building. It is one of the monuments that has affected architecture in the 19th century and has been reproduced widely in modern monuments and building elements· famous British versions of the choragic monument include the Dugald Stewart Monument and Burns' Monument both on Calton Hill in Edinburgh.

Throughout history, the monument itself remained unaltered externally, suffering only the loss of its bronze tripod. Its most major change was its annexation in 1669 to a French Capuccin Monastery – which was built in 1658. The monks turned the monument at first into a chapel, and later into a library. Despite its historical (and architectural) significance, as its central location, the choragic monument of Lysicrates remains one of the most unpopular and unknown monuments of Athens. Combining its historical value and current management methods, it has been selected by the Open City Museum team to be highlighted on the archaeological map of Athens via Augmented Reality technologies.

Artistic as well as literary sources and exhibits were used for its most accurate visualization: public (ex. National Monument Archive) and private archives (Gennadius Archive/Library)· the Athens Archaeological Society Library, as well as the National Library and the library of the National and Kapodistrian University· private foundations (ex. Aikaterini Laskaridi Foundation)· foreign Archaeological Schools at Athens (ex. The American and French Arch. Schools)· and of course, the National Archaeological Museum of Athens Archives.

Visual Implementation:

Capturing the feeling of the era

For every historical phase that is depicted, the most prevalent art style of each historic period is selected, aiming to capture the visual essence of the image projected to the user in order to create an experiential, and an imaginary journey into this era.

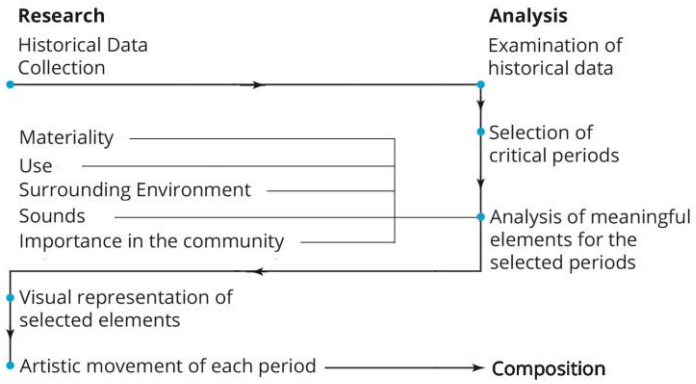

Fig 2. Methodology used from research to composition

Specifically, for each image, the synthesis process is the following:

Around 335 B.C.

In order to create the background, a canvas with Fresco texture is created, combined with the presence of colors, as historically more appropriate to the style used for coloring monuments of Ancient Greece. Wanting to activate the connotative memory, the chosen colors are fainter, people in the background are added along with some visual props, in order to enliven the scene and depict the role of the monument, which was existentially entangled in the daily life of the world around it.

Fig 3.1. The creative process of the Fresco art style

1669

During that time it became a part of a Capuchin Monastery complex. The technique of gravure is chosen, which clarifies the contours of the buildings and imprints a sense of impact to the image, bringing the monument one step closer to today in relation to the intensity. The way the environment is treated is the same as in the previous phase while still choosing a less realistic medium since the buildings around the monument no longer exist.

Fig 3.2. The creative process of the Gravure art style

Around 1900

The monument is depicted more vividly in front of the user's eyes with the style of first stage photography that seems more realistic and more dramatic than previous depictions. The environment is more pronounced, as well as the feeling of everyday life in the coexistence of the monument with the people passing by. It is particularly important to portray the buildings that were built at that time and have been framing the monument ever since. The whole picture is full of tears and wear in an attempt to evoke emotions in relation to antiquity and authenticity.

Fig 3.3. The creative process of the Photography art style

Pathfinding

The purpose of the application is to combine in a common experience the edutainment offered by taking a walk in the known or unknown parts of a city, with the need for historical transformation and understanding of the environment. According to the above, distinctive routes are selected which meet the following basic criteria (Figure 4):

- Accessibility and service of public transport stations as starting/ending points of each route.

- Correspondence to monuments that have lower recognizability, in order to promote the city in its entire range and to highlight its lesser known cultural wealth. This also helps decongest streets and busy areas of the city center, however, while still remaining in close range from landmarks, for greater attractiveness.

- Short distances between each chosen monument. Where this is not possible, then an attempt is made to pass the user through other points of interest.

- The starting point and the end point are not very far apart, so that the user does not feel disoriented and tired.

In the above, it is worth noting that points of the route are considered ideal when there is visual contact by the user from one monument to another, as this gives off a sense of natural connection from one point to the next. Such applications also help in the general decongestion of the city and the better flow of the circulation.

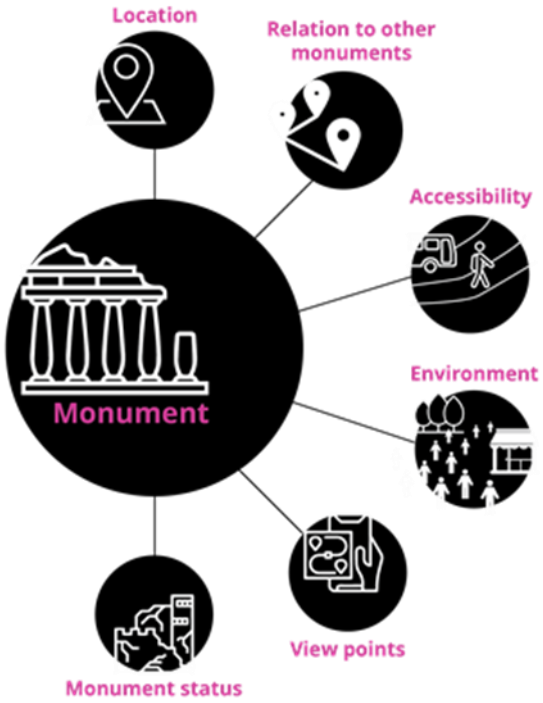

Fig 4. Topological Analyses

Topological Analysis:

After the determination of the proposed routes, each monument is classified according to these factors (Figure 5):

1. Location

The location of the monuments, both in relation to their general location in the area, and in relation to their accessibility in terms of service with nearby public transport stations.

2. Relation to other monuments

Their association with other monuments, in order to constantly give a sense of natural flow of movement from one point of interest to the next.

3. Accessibility

Their accessibility in terms of ease of walking and free movement around them, so that the user can stand comfortably in each point without pressure to move on from his environment and fully take in the offered experience. (eg. Placing a spot on the road would be avoided).

4. Surrounding environment

Monuments surrounded by picturesque images and places that complement the whole experience culturally. It is also important to ensure the safety of the user throughout their stay there.

5. Viewpoints

The visual escapes from the specified point of use of the application, which encourage moving on either through visual access to the next point, or through access to a road with interesting features.

6. Current Wear and Restoration Status

The state in which they currently are and the alteration they have suffered over time, both naturally and artificially. The more the image of a point in history has changed, both aesthetically and utilitarian, the more interesting it becomes and the need to explain the phases it has gone through, emerges.

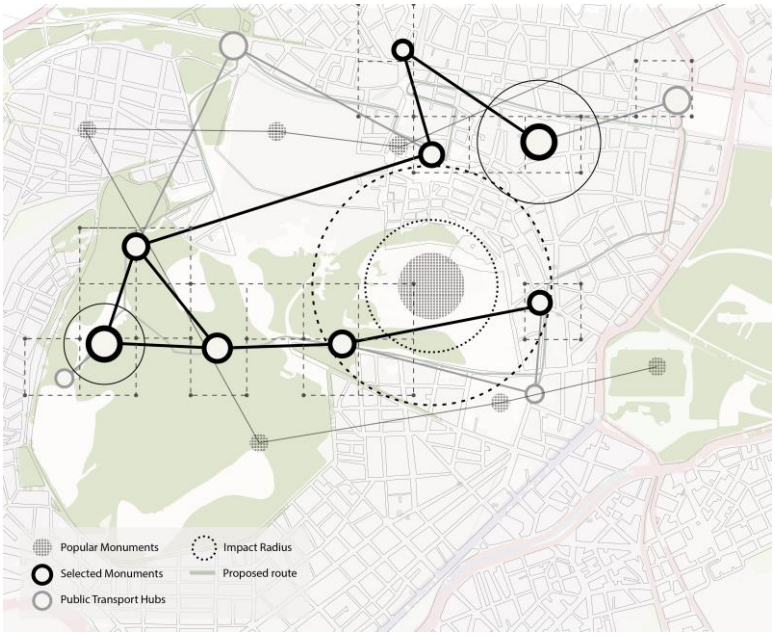

Fig 5. Pathfinding diagram

TECHNOLOGICAL REALIZATION (WIKITUDE)

Several AR frameworks exist that cooperate with the Unity game engine, with various characteristics. At first, the Vuforia AR SDK was selected, that supports image recognition. The disadvantage of this method was that it successfully worked only on one specific viewing angle and at specific lighting conditions. This was because it uses a single photograph of the monument for target recognition. The AR framework that was selected was the Wikitude SDK. Wikitude uses an advanced method of target recognition, called Scene Recognition. This enables the tracking of a large object, from a series of photographs, taken from a variety of angles. It's a method similar to photogrammetry (Figure 6). In order to evaluate the photographs that were taken from different angles, a photogrammetry program, 3DF Zephyr, was used. Next step was to supplement with extra photographs in some specific angles. The final step was to generate the Object Tracker in Wikitude Studio as a .wtc file and import it into

Unity. Wikitude Studio is an online application of Wikitude that enables the user to create the tracking objects.

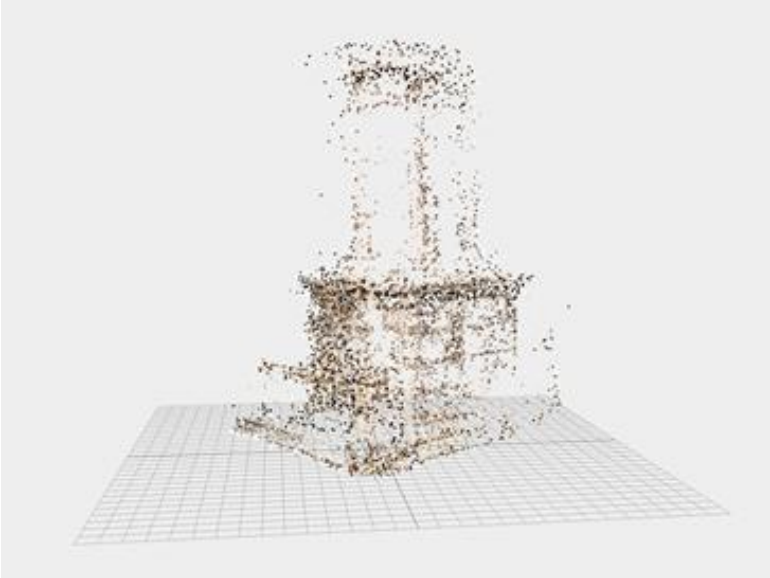

Fig 6. Point Cloud of Object Target of monument, in Wikitude Studio.

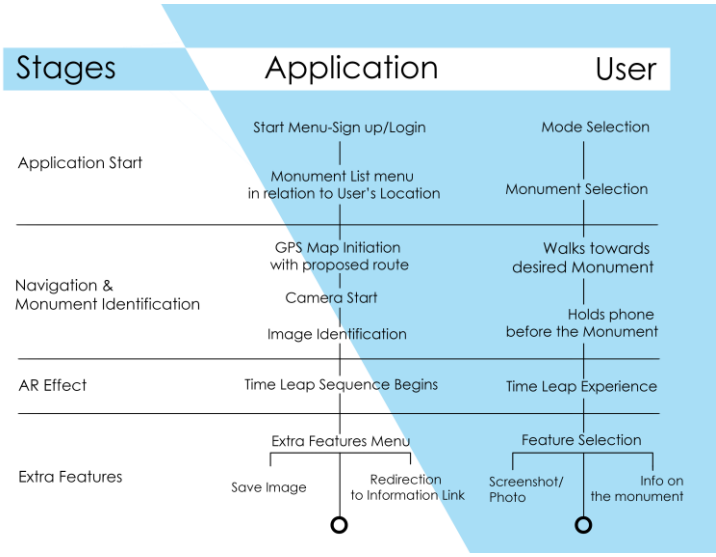

Fig 7. Activity diagram of O.C.M. application.

CONCLUSION

This paper describes the design and developing process of an AR application that focuses on shedding light upon the cultural heritage of Athens, using a virtual time leap. The proposed application suggests an innovative way, in which the user may decide under a new prism the monuments they should visit, while exploring the city with a unique depiction of each monument's history.

The visual representation of the monument is based on TIE Lab's Visual Layering Theory, which takes advantage of passive and active image layers in order to assign different meanings and semantics to each one of them.

After the visual analysis into said layers, the next core point of the process is historical research on the monument, using various available sources. During this process, the historical phases are being recognized and divided into categories, such as quantity of historical references, narrative and visual quality of information gathered e.t.c.

In parallel, O.C.M focuses on a holistic experience that goes beyond the representation of each monument, providing the users with a navigation system, which is based on certain values, like location, accessibility, viewpoints and a few others.

In terms of technology, the application achieves all of the above using Unity's Platform, **Wikitude AR SDKit** for the monuments' real – time recognition and utilizes UI/UX principles in order to discover and fulfil the users' needs.

Currently, the first version of O.C.M is developed, containing key parts that shape its character like routes and time leap. To achieve its present stage, quite a few experiments were conducted. From a creative point of view, the application went through various changes. Apart from the major change in the Unity platform that was being used, the application went through changes in image production and there were thoughts on installing physical points next to the monuments themselves, that would signify the use of O.C.M. app, a plan discarded due to high cost and inefficiency. Having resolved those issues, our next goal and next crucial update is to repeat the design process for all the selected monuments on the chosen path (Figure 4) as well as to expand the idea of O.C.M into social media, allowing for a platform that will let users create their own content, based on tools the application provides.

Still, the proposed application is a characteristic example of human computer interaction enabling people to enjoy the long history of Athens' monuments and engaging them with a more interactive and emotional way bys offering a unique experience.

NOTES

[1] Donald H Sanders, "Why Do Virtual Heritage?," 1996, http://www.villardman.net.

[2] Georgios Kallergis et al., "Open City Museum: Unveiling the Cultural Heritage of Athens Through an -Augmented Reality Based- Time Leap," 2020, 156–71, doi:10.1007/978-3-030-50267-6_13.

[3] Alan B Craig, "Understanding Augmented Reality: Concepts and Applications," 2013.

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RETHİNKİNG URBAN ARCHAEOLOGY İN TERMS OF HETEROTOPİA AND HETEROCHRONY

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INTRODUCTION

Heritage areas are inextricably associated with spatial, temporal, and social systems that continue to change in present-day cities. Therefore, it is insufficient to tackle them using only traditional processes, such as cataloguing and physically protecting them. We need to confront their heterogenic relationship with changing city life. Archaeological sites especially are more heterogenous than other heritage areas because of their uncertain aspects. These mystical places become relatively independent from the past. In other words, they can't be anchored to a specific time despite belonging to their historical period. Among archaeological remains, the past is as practical as the present and the future.

Moreover, urban archaeological fragments are mnemonic devices and evoke memories shaped by imaginations. They inspire many artistic representations such as *Giovanni Battista Piranesi' s engraving*[1] which interprets historical monuments in a fictional manner. In-depth analyses that consider all tangible and intangible aspects are needed to understand archaeology's real potential for cities. The study aims to prove an alternate reading of archaeological sites. So, heterotopic and heterochronic concepts as introduced in Michel Foucault's inspiring text *Of Other Spaces*[2] are put forward for the interpretation of archaeological sites in today's confusing metropolis. Among the multiple meanings and principles of heterotopias in Foucault's text, two heterotopic characteristics are outlined for an alternate reading of archaeological sites of cities in the study: *spatial and temporal otherness*[3]. These two characteristics can be profoundly understood using the information Foucault explains in his book '*The Archaeology of Knowledge*[4]. Unlike the traditional historical techniques ruling out narratives and practices of communities except for transcendental subjects, he developed an immanent analyzing method seeking discourse on objects themselves for society's in-depth knowledge. He also evaluates archaeology as a method of establishing the regularity of statements without any Cogito or transcendental subject. In doing so, he indicates the temporal formalization of social structures and puts forward our societies' *relative autonomy*[5] that is neither homogeneous nor arbitrary but indicates the distribution of historically contingent materials. Figuring out this variability redistributes foregone spaces and histories. Spatial and temporal otherness revives new heterogenic compositions in physical space and linear history.

According to Foucault, human-made structures such as cities and institutions stem from the accumulation of different social relations and flow in the historical process. So, institutions,

architectural forms, regulatory decisions, laws, administrative measures, scientific statements, and philosophical, moral propositions are *dispositifs*[6] and all of which can be read as *diagrams*[7] because of indicating the network of social relations underlying the form of visible. If they are read diagrammatically, their heterogenic characteristics suddenly come to light. Foucault's theoretical approach to physical forms afterwards ensured the deep understanding of heterotopias as well as read historical physical spaces diagrammatically in the study.

The theoretical framework indicates that Foucault's challenge in *Of Other Spaces* is to convert cartesian space into a new one, which shows others/in-between narratives and practices. In his conceptualization, space is no longer crystallized and homogeneous but lively and heterogenic thanks to the establishment of a network of the relations between societies' narratives and practices. His space concept, known as *heterotopia*[8], consists of the arrangement of different spatialities and temporalities. The inspiring heterotopic idea has been transcribed to multiple urban studies. However, it hasn't been considered for urban archaeology, although the theme has a rich research history in the academic field. And as far as Foucault is concerned, heterotopias work at full capacity in spaces such as *cemeteries and museums*[9] where traditional time has accumulated. And even if they are known as dead monuments, they are still connected to the living parts of cities. Therefore, the study uses heterotopia and heterochrony as potential tools for understanding archaeological sites' relative autonomy like these specific areas. The heterotopic concept allows a better understanding of urban archaeology using contemporary methods and enables us to see the different potentials of archaeological sites beyond their normative characteristics.

The study in general consists of two parts: finding out what heterotopia and heterochrony mean as spatio-temporal otherness and transcribing them for archaeological sites. In the first part, these two specific concepts were examined through the mirror in *Édouard Manet's painting.* The mirror reflected distortions in his famous painting named *A Bar at the Folies-Bergère,* so that otherness of space is figured out in contrast to its normative characteristic. Heterotopia, such a Manet's mirror shows doubling effects in the space in which we live. The mirror and heterotopia convert space into a diagram consisting of an ensemble of different relations.

In the second part, the study transcribed heterotopia and heterochrony for urban archaeology. The inspiring concepts provided a more comprehensive insight for urban archaeological sites because they enable us to see that Archaeological ruins inspire the creative design process in cities. The study deconstructed two masterpiece projects which are the *New Acropolis Museum* and *Basilica of Siponto* to explore their heterotopia and heterochrony. These projects augment the heterotopic potential of the sites because of their doubling effects. The diagram explored during the heterotopia analysis was also utilized in the deconstructed methodology for displaying heterotopias of the archaeological sites. Then, the study produced several diagrams covering their heterotopic and heterochronic possibilities. Thanks to this study methodology which deconstructed archaeological sites through heterotopic and heterochronic concepts, a new perspective has been developed for historical urban spaces and narrative studies.

MIRROR OF SPACE: HETEROTOPIA AND HETEROCHRONY

The structure of society consists of things and words or content and expressions. Therefore, physical objects are as important as thoughts and expressions to understand social formalization. Foucault is concerned with what happened between social objects more than what this or that social object is because power or knowledge is a relationship, not a thing.[10]Therefore, he used to read art objects such as paintings diagrammatically. He was particularly interested in painters such as *Édouard Manet* and

Diego Velázquez[11] because they reflected other possibilities between objects behind their normative characteristic in their tables.

Fig 1. A Bar at the Folies-Bergère[12]*, Édouard Manet, 1881-2*

Manet overtly made that material technique visible while other artists sought to hide the materiality of their painting in the traditional western painting discourse. Foucault shows how he does this, noting *three main techniques*[13]: use of the canvas space, use of lighting within the picture, and the positioning of the viewing subject. The final technique, which he relates to just one picture called *A Bar at the Folies-Bergère*[14] especially, plays a crucial role in his space concept. The painting's background is closed off by a mirror that dominates the picture. The objects on the pictorial surface appear differently thanks to the mirror. The mirror's reflection uncovers the other possibilities; the painter must be here, and he must be there; he must have someone here, and he must have no-one there; there is a descending gaze, and there is an ascending gaze. Following these possibilities unearths different emplacements and relations simultaneously on the table. Moreover, the connections and disjunctions between the pictorial surface and the mirror translate the table into a diagram consisting of different arrangements of the objects and subjects' positions.[15]

A mirror is a specific object linking Manet's painting and Foucault's space concept. Foucault's space concept called heterotopia acts as Manet's mirror because of *their doubling effect*[16]. Like a mirror, heterotopia occupies a place although it is a place without a place. Heterotopia also differs from utopia because it shows changing arrangements within everyday life. It juxtaposes unusual spaces and events in a single real place. Heterotopias such as theatres and cinemas inject otherness into the sameness, the commonplace of our cities. Spatial otherness interacts with actual physical space with heterotopia conceptualizations. The information given by his heterotopic concept indicated that space is not defined as a sort of vacuum in which individuals and things can be located, but as a set of relationships that define different positions which cannot be equated or in any way superimposed on our cities.[17]

Moreover, heterotopias relate to the notion of temporality, transforming not only normative space but also the traditional time within continuity. According to the fourth principle of heterotopias, which is one of the main concepts of this research, they are linked to *heterochrony.*[18]They are time accumulations and depict both history and the present at the same time. They also inject temporal otherness into physical space. Heterotopias like Museums could be linked to different parts of time. The past isn't told through a big narrative anymore. It is as practical as the present and the future in museums and libraries. These specific spaces have narratives and epistemological functions, and they assist societies in

conceiving complex thoughts in various ways. Thus, they can be read as diagrams which illuminate the network of relationships in physical space. This theoretical framework allows a more comprehensive insight into urban spaces in our era. Therefore, this study particularly tried to read urban archaeology through a heterotopic lens and then to render archaeological heterotopia and heterochrony using the architectural project's diagrams.

URBAN ARCHAEOLOGY AS HETEROTOPIA AND HETEROCHRONY

Archaeology is commonly understood as a normative discipline comprising the processing of excavating, listing, and physically protecting. However, if observed more closely, in the urban environment it is more than these processes. Cities transform archaeological sites while protecting them because they would like to keep them according to today's city condition. So, Urban Archaeology is relatively *autonomous* from traditional history. In other words, it is a dynamic and evolving transformation when tackled within traditional and official regulation. It is not only traditional history but also transformation and otherness. So, this study offers a more flexible reading than the traditional process of urban archaeology by using heterotopia and heterochrony and considering their transformations and otherness.

During history, there *two distinct methods*[19] assessing archaeological sites. Another way to emphasize the potential of the study's reading is to follow these methods. Primarily, the first methods are generally associated with the traditional process. It physically returns the archaeological site to a known earlier state and tries to freeze monuments within a linear time concept in which time has a beginning and an end. The second method is connected with contemporary approaches which discuss the city's heritage as a social and cultural value in postmodern societies. Archaeology is interpreted in the context of the present and the future. In contemporary methods, a monument becomes an embodiment of the non-linear time concept in which all layer of time is experienced simultaneously. The second method is one step closer to reality and demonstrates heterotopic and heterochronic potential. The heterotopic concept stems from filling the void and interpreting site with spatio-temporal otherness following the disappearance of the original practices of the place. Archaeological remains inspire a new arrangement such as a new museum complex which deconstructs the monument's original form and reconstructs its otherness. So, there is no single answer to the question of how one could think about cities' archaeological sites using contemporary methods.

Urban Archaeology inspires many artistic projects in today's architectural and urban deliberation. But especially the New Acropolis Museum and the Basilica of Siponto stand out as heterotopia of archaeological sites for the study. These projects augment the heterotopic potential of sites because of their doubling effects. That is to say, the projects reflect both the original monument, and at the same time their alterity. To transcribe the main concepts, the study firstly verified heterotopia, i.e. the spatial otherness of the projects by uncovering other visibilities and subsequently confirmed heterochrony, i.e. their temporal otherness by uncovering other narratives. Finally, it produced diagrams indicating the networks of relationships between ancient spaces and their heterotopia and heterochrony. Thanks to this methodology, many embodied notions were uncovered and discussed.

New Acropolis Museum

The *New Acropolis Museum*, which is the most important museological event of our era, deserves attention for the study's methodology because the New Museum juxtaposes the common and hidden narratives associated with the ancient and political situations in *Acropolis Hill*. *Bernard Tschumi* designed the location of the museum building depending on *the Parthenon Temple*.[20]The Museum also emplaced The Temple's architectural fragments and sculptures in their original positions. Therefore, it is the reflection of the Parthenon.

The study, however, overemphasizes how the Museum provides spatial otherness and temporal otherness in the Acropolis while physically replicating the Temple. In line with this objective, the most crucial feature of the Museum is indicating which parts have been lost over time. Empty spaces inside the Museum accentuate this loss. Absence on display injects alterity among the Parthenon's fragments and provides an opportunity to explore hidden objects and narratives. The empty spaces of the exhibition represent *the Elgin Marbles*[21] consisting of collections of the Parthenon's friezes and sculptures in the British Museum. The Parthenon's friezes were fragments of ancient storytelling about public life. In ancient times, the sacred spaces of The Acropolis Hills were not generally designed for congregations. However, inhabitants of the city *used to climb to The Parthenon Temple for prayer and sacrifices* during the *Panathenaia Festival*[22]. *The Friezes were built into* The Parthenon's face to tell stories about the Festival. *Unlike the scripts and parchments, the Friezes were meant to be read by touring around the Sacred Building. Tschumi repeated the same fiction inside the Museum as well as indicating the absence of The Elgin Marbles. In doing so, he attached other times and visibilities between ancient ones. In the 1800s, Some of the storyteller* friezes were moved to London by Lord Elgin due to the political situation. After this situation, The Greek Ministry of Culture organized several competitions which brought an ideological as well as rhetorical complexity to the significance of place and displacement within a museological discourse.[23]

The Museum' new link between the Temple and extant/non-extant fragments allows one to experience all the historical times of the Parthenon simultaneously. Therefore, the Museum acts similar to Manet's mirror as well as heterotopia for The Parthenon. In other words, it is the doubling effect or other reflection of the Parthenon. The absence of fragments verifies the heterotopia and political narrations also confirms heterochrony thanks to spatio-temporal otherness. The Acropolis transforms into a diagram thanks to relationships between the Parthenon and the Museum as another reflection. To render the diagram (Fig.2), the study deconstructed two different building in the Acropolis Hills, specifying topics and reminding all visibilities and narratives, and then juxtaposed them with multiple relationships. The diagram indicates embedded notions and evokes memories and new links between the ancient and the contemporary.

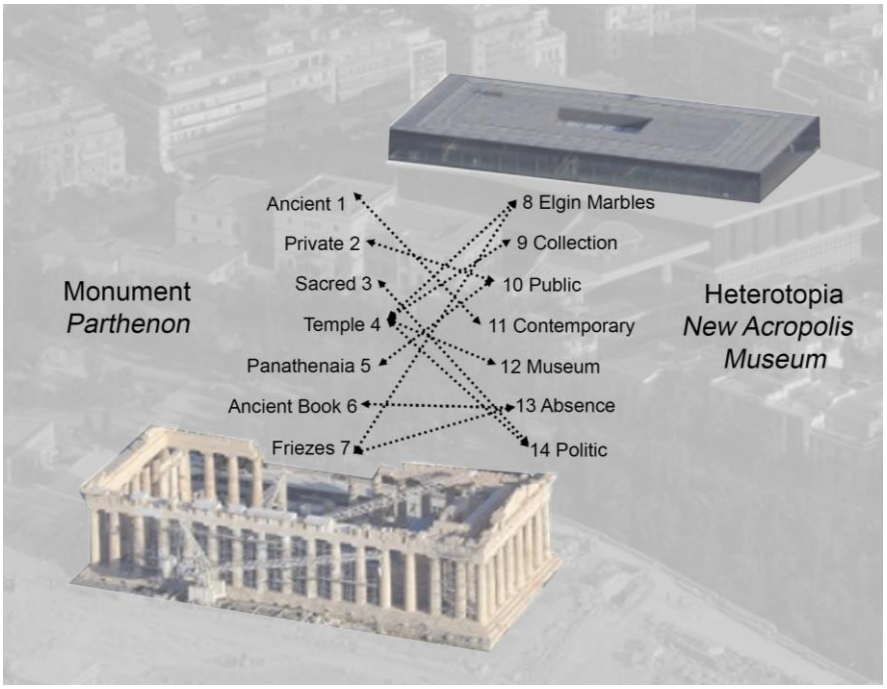

Fig 2. Diagram of the relationship between The Parthenon and the New Acropolis Museum as heterotopia and heterochrony[24]

Basilica of Siponto

Another project examined as heterotopia of archaeologic site is the *Basilica of Siponto* in Italy. *Edoardo Tresoldi* made an artistic wire mesh installation simulating a real model of an early-Christian church in accordance with the real proportions. Like the New Acropolis Museum, Edoardo Tresoldi's Transparent sculpture on Archaeological ruins represents *absence matter*[25] while replicating the Basilica. The absence, however, is associated with the imagination of the monument in this instance. The sculpture displays spatio-temporal otherness with its transparency transcending the time-space dimension.

The Early Christian Basilica was built in the Puglia region of southeast Italy between the 11th and the 12th centuries. Then, it was evacuated when it collapsed during an earthquake in the 13th century. Many restoration projects were realized after exploring the ruins of the Basilica in the 1900s. However, these projects didn't reconstruct the Monument and didn't reflect the genius loci because the information about the plan of the Early Christian Basilica was so severely incomplete.[26] Tresoldi's Installation finally represented this absence matter using a creative solution by filling the void with the wire mesh to imitate a known earlier state of the Basilica.

The Basilica is carried from the past to the present, and the Wire Mesh Sculpture of the Basilica conveys the feeling that it doesn't completely exist. Therefore, the Sculpture acts as a heterotopia of the Basilica because of its doubling effect. The representation of the absence verifies heterotopia like the New Acropolis Museum. The experiential and abstract narration of The Basilica also confirms heterochrony. The Basilica transforms into a diagram thanks to relationships between the original ruins and the Wire Mesh Sculpture as heterotopic and heterochronic reflections.

The study deconstructed The Basilica of Siponto and The Wire Mesh Sculpture in the same place. Then, it juxtaposed the topics specifying all their visibilities and narratives, and finally intersected the multiple

relationships between them. The diagram (Fig.3) renders the tangible and intangible aspects of the Basilica and evokes memories with imagination.

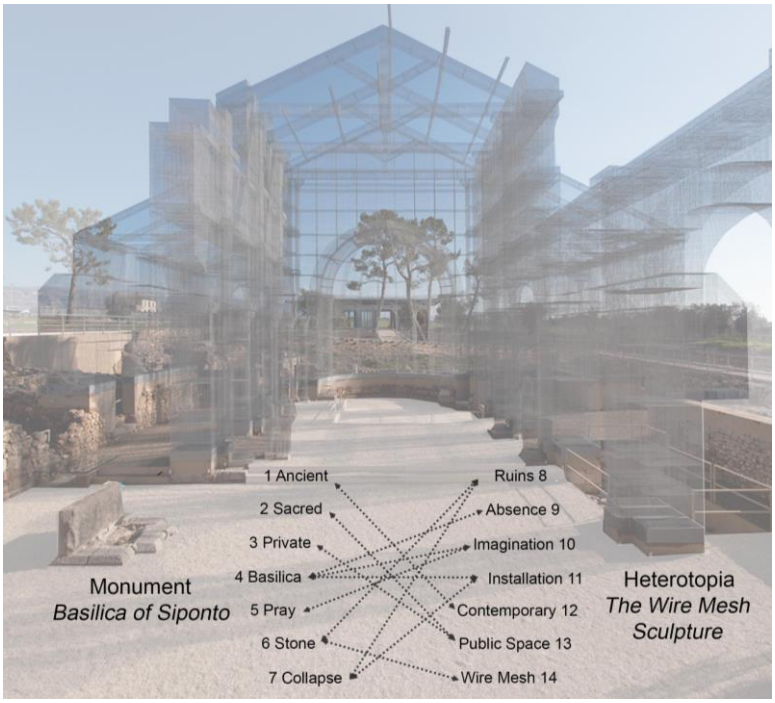

Fig 3. Diagram of the relationship between the Basilica of Siponto and the Wire Mesh Sculpture as heterotopia and heterochrony[27]

CONCLUSION

The archaeological site is now one of the most inspiring but uncertain heritage areas in our modern cities. Multiple visibilities and narratives accumulate and juxtapose in these historical places. So, they show relative autonomy because of the components of the past and future topics. This study tried to explore their relative independence through two inspiring concepts: heterotopia and heterochrony i.e spatial otherness and temporal otherness. The study reflected the heterotopia and heterochrony of two contemporary architecture projects in the different archaeological sites and rendered their spatio-temporal otherness and multiple relationships with their original historical situations. Thanks to the deconstruction of heterotopic projects, many embedded notions of the archaeological site were uncovered. Their social and political narration, absence matter, reflection, fragmentation, discontinuity, simultaneity, accumulation, imagination etc. are conflict with archaeological site's normative features. All of these uncovered notions generate a network of relationships with archaeological sites in cities.

From a wide perspective, heterotopia and heterochrony allow us to analyze urban archaeology with an interdisciplinary approach involving philosophy, art, architecture and technology. Especially the notions such as mirroring, the doubling effect, and diagrams allow us to render the connection between historical space and Foucault's heterotopia. They help us understand the archaeological site from a new perspective. Also, heterochrony is used to display the relationship between history and the present, and

it provided a method of assessing archaeological sites with other temporal notions such as simultaneous and accumulation.

As a result, the study shows that heterotopia and heterochrony enable us to interpret historical places with plural relations. This approach is a step closer to the reality of our societies because the historical spaces of cities are the mnemonic devices which communities experience and image over and over again.

NOTES

[1] For the metamorphosis of the historical context in Piranesi's engraving, see Smaranda Spanu, *Heterotopia and Heritage Preservation: The Heterotopic Tool as a Means of Heritage Assessment*, (Cham:Springer International Publishing, 2020), 51.
[2] This text, entitled 'Des espaces autres' was a lecture given by Michel Foucault in 1967 to the Cercle d' études architecturales (Circle of Architectural Studies), for translation of the lecture, see Michel Foucault, "Of Other Spaces: Utopias and Heterotopias," in *Rethinking Architecture: A Reader in Cultural Theory*, ed. Neil Leach (New York: Routledge, 1997), 330-336.
[3] Spanu especially mentioned these two characteristics of heterotopia for alternate reading on heritage, see in particular introduction, Spanu, *Heterotopia and Heritage Preservation*, 2.
[4] Michel Foucault, *The Archaeology of Knowledge*, trans. Alan Sheridan Smith (New York: Pantheon Books, 1972), 69-76.
[5] The term is used here because social history involves ordering and transformation together. Katherina et. al. also used the term for defining cities through Michel Foucault's archaeological methods:'while being thoroughly extensive, is not unlimited.' (1094) For more discussion about cities' immanent regularities, see Katharina Borsi, Tarsha Finney, and Pavlos Philippou, "Architectural Type and the Discourse of Urbanism," *The Journal of Architecture* 23 (2018): 1094, accessed July 20, 2020, doi:10.1080/13602365.2018.1513478.
[6] Gordana Fontana-Giusti, *Foucault for Architects* (New York: Routledge, 2013), 83.
[7] It is worth noting that the diagram has been developed for defining Foucault's dispositif as visual apparatus by Gilles Deleuze, An important point for Deleuze is that diagrams are Foucault's inspiring way of understanding relation or power within the knowable, the think-able, the say-able and the do-able. "The diagram is no longer an auditory or visual archive but a map, a cartography that is coextensive with the whole social field. " (34) "If there are many diagrammatic functions and even matters, it is because every diagram is a spatio-temporal multiplicity. " (34), "The diagram or abstract machine is the map of relations between forces, a map of destiny, or intensity, which proceeds by primary non-localizable relations and at every moment passes through every point, 'or rather in every relation from one point to another" (36), For more information about Foucault's diagrams, see in particular, the part named A New Cartographer in Gilles Deleuze, *Foucault*, trans. Sean Hand (Minneapolis: University of Minnesota Press, 1988), 23-47.
[8] Heterotopia which is the concept of the research introduced as the other of normal places, common places. That is to say, it emplaces an intersection of real/ imaginary and normal/ other because of mirroring real spaces. Unlike utopia, all the other real places can be found within society. Therefore, Foucault explored heterotopia within modern societies by giving a spatial referent with the six basic principles. For a detailed description of the six basic principles of heterotopia, see Foucault, Of Other Spaces: Utopias and Heterotopias, 332-335.
[9] Ibid., 334.
[10] See Nicolas Bourriaud, introduction to *Manet and the Object of Painting*, by Michel Foucault, trans. Matthew Barr (London: Tate Publishing, 2012),11.
[11] Bourriaud mentioned Foucault's common approach on the techniques of painters such as Diego Velázquez, Édouard Manet but also René Magritte and Paul Klee: "Foucault is less interested in what the image says than by what it produces -the behaviour that it generates, and what it leaves barely seen among the social machinery in which it distributes bodies, spaces and utterances. Representation? It forms an integral part of processes of social differentiation, of exclusion, assimilation and control. Foucault tries hard to articulate the implicit and invisible strategies that confine painting, to render visible what it shows, but equally what it conceals.", see Ibid., 13.
[12] See Michel Foucault, *Manet and the Object of Painting*, trans. Matthew Barr (London: Tate Publishing, 2012), 78.
[13] Foucault point toward these three techniques when delivering his conference on Manet in 1971, see Ibid. 14.
[14] *A Bar at the Folies-Bergère* exhibits in Courtauld Gallery, London. Foucault's analysis of the painting is about the distortions of representation in the mirror. This distortion enables the viewer to see other possibilities of the table. For more discussions on the picture, see Ibid., 78.
[15] For more information about the relationship between Manet's mirror, heterotopia and diagramming, see Kevin Hetherington, "Foucault, the Museum and the Diagram," *Sociological Review* 59 (2011): 471, accessed July 20, 2020, doi:10.1111/j.1467-954X.2011.02016.x.

[16] The term is used here for a brief description of the mirror as well as heterotopias which intersect the normality of everyday life and their imagination or illusions. Boyer points toward a similar term: "heterotopian spaces operate via a double logic: they are real spaces that show the reality to be the illusion.", for more information about the double logic of heterotopias, see M. Christine Boyer, "The Many Mirrors of Foucault and Their Architectural Reflections," in *Heterotopia and the City : Public Space in a Postcivil Society*, ed. Michiel Dehaene and Lieven De Cauter (New York: Routledge, 2008), 54.
[17] See Foucault, Of Other Spaces: Utopias and Heterotopias, 331.
[18] Heterochrony is used for temporal otherness or the timelessness of specific spaces such as libraries and museums which endlessly gather, accumulate and archive things in a single real space. See Ibid., 334.
[19] see Spanu, *Heterotopia and Heritage Preservation*, 374.
[20] Lending brings to light the political and ideological complexity of The Parthenon fragments and the value of The New Acropolis Museum in this complexity. For more information about The New Acropolis Museum, see Mari Lending, "Negotiating Absence: Bernard Tschumi's New Acropolis Museum in Athens," *The Journal of Architecture* 23 (2018): 802, accessed July 20, 2020, doi:10.1080/13602365.2018.14959 09.
[21] The Elgin Marbles are the Parthenon's fragments moved to the British Museum. The collection of the Elgin Marbles consists of friezes, sculptures, and metopes belonging to the Temple. For the brief story of the Elgin Marbles, see Ibid.,799-800.
[22] For more detail about the Panathenaia Festival on Acropolis Hill, see Fangqing Lu, "Architecture as Spatial–Textile Storytelling: Metamorphosis of Frieze as a Narrative Medium Mediating the Panathenaia Festival," *Frontiers of Architectural Research* 5 (2016): 491, accessed July 20, 2020, doi:10.1016/j.foar.2016.08.003.
[23] See Lending, "Negotiating Absence.",802.
[24] Adapted photo source: "Overwhelmed by History: The New Acropolis Museum," Culture Trip, accessed July 8, 2020, https://theculturetrip.com/europe/greece/articles/overwhelmed-by-history-the-new-acropolis-museum/.
[25] The notion is used to define his inspiring transparent sculptures by Tresoldi, for more details, see "Edoardo Tresoldi Interview: Capturing the Poetry of Absence with Wire Mesh," Designboom | Architecture & Design Magazine, accessed July 8, 2020, https://www.designboom.com/art/edoardo-tresoldi-interview-wire-mesh-sculpture-01-08-2018/.
[26] The history of the Basilica of Siponto and its reconstruction issues are discussed by Carmen, see Carmen Innaco, "L'altra metà della Rovina. Il progetto di Edoardo Tresoldi per la Basilica di Siponto," *PsicoArt – Rivista on line di arte e psicologia* 9, (2019): 2, accessed July 20, 2020, doi:10.6092/issn.2038-6184/9685.
[27] Adapted photo source : "Basilica di Siponto," Edoardo Tresoldi, accessed July 8, 2020, https://www.edoardotresoldi.com/works/basilica-di-siponto/.

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