volume 15 _2023
№ _3

S A J

serbian architectural journal

PHD IN PROCESS:
DIALOGUE BETWEEN HERITAGE AND TECHNOLOGY

2023_3

Serbian Architectural Journal is published in Serbia by the University of Belgrade - Faculty of Architecture and distributed by the same institution / www.saj-journal.org

For informations, please e-mail at saj@arh.bg.ac.rs or write to the following address.

Send editorial correspondence to:
Serbian Architectural Journal
Faculty of Architecture
Bulevar Kralja Aleksandra 73/II
11 000 Belgrade, Serbia

ISSN 1821-3952
e-ISSN 2787-1908

Cover photo
Milica Bozic, M. Arch. / Contemporary flotation tailing pond Veliki Krivelj, May 2021.

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PUBLISHER:
University of Belgrade - Faculty of Architecture

CIRCULATION:
25

PRINTING:
Zonex, Beograd

volume 15 _2023 Nº _3

ISSN 1821-3952
e-ISSN 2787-1908

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Guest Editor: **Ana Nikezić**

DIALOGUE BETWEEN HERITAGE AND TECHNOLOGY

The concept of this particular issue of SAJ is double-folded. On the one hand, it is a part of the edition within SAJ dedicated to the research of doctoral students. It represents a specific form of research in process and examines parts or aspects of doctoral research done in collaboration with mentors.

On the other hand, in the capacity of the vice dean for research and science, as my work is closely related to all aspects of doctoral studies, the topic “Dialogue between heritage and technology” emerged as the one that came out on the surface in PhD applicant’s letter of intention, but also as a topic of great interests for teachers and mentors visible through offered elective courses, seminars and laboratories.

The question of technology and heritage is particularly interesting for the research in architecture and urbanism in the third cycle of education as it crosses different disciplinary fields, such as science and art.

Conducted researches vary from those focusing on the phenomena of heritage perception in the era of digital turn to those intended to deal with heritage in developing improved interpretation models and methodologies.

It is interesting that researches vary from historical interpretation to correlation studies and research by design. The topic of collective memory is elaborated through the relation between the digital realm and intangible memory in the words of Nina Bačun. The issue of reinterpretation, reading, understanding and critical observation of heritage was envisioned in the article written by Milica Bozić, exploring the introduction of hyperobjects; as well as through the article of Francesco Maranelli, focusing on the contemporary interpretation of material culture. The very disciplinarian topic, the use of technology as a new, improved tool in the process of experiencing heritage, was the focus of Milja Mladenović's research elaborated through the position of mixed reality public spaces, as it was the case in Staša Zeković's elaboration of Stimulus-Organism-Response model.

While gazing through articles, one cannot but realise one thing in common to all researches – a need to open new possibilities for interpreting heritage in modern culture and societal circumstances. With the ambition that only young people can strive for, the ideas, topics and experiences discussed in this issue will raise new questions and position this dialogue in the field of architecture and urbanism as a valuable subject of both research and education on one side and profession on the other. Ideally, they will provide a powerful impetus for readers to develop their capacity for learning from heritage in circumstances of a technologically advanced society.

short communication
UDC 72.012:79

admission date 05 09 2022
approval date 16 03 2023

ARCHITECTURAL CINEMATIC SPACES AS COUNTER-ARCHIVE OF COLLECTIVE MEMORY

ABSTRACT

As human life is rapidly unfolding within digital realms, it has become urgent to (re)evaluate the meaning of the intangible heritage of our digital environments by looking closely into Hito Steyerl's re-readings of Walter Benjamin with the recognition of the 'image as object,' not merely as representation. The idea of activating an object could be a starting point, or a productive force, in the new approach towards an architectural digital heritage, advancing the transformation of our everyday reality with new readings of architectural spaces. Even though film has been recognised as a form of heritage, it is less present in the case of architectural heritage. This article questions what is the afterlife of 'cinematic spaces' as an affective memory of the moving image since they are neither neutral nor passive, as film is a form of expression and a product of collective memory. At the same time, it emphasises the necessity of (re)questioning the 'fluid' borders of the 'uncertain and complex' past, the 'acute and unstable' present and the 'desired or possible' future within cinematic spaces by rethinking the practice of archiving 'cinematic architecture' and expanding it into the digital realm.

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KEY WORDS
CINEMATIC ARCHITECTURE
CINEMATIC SPACE
COLLECTIVE MEMORY
COUNTER-ARCHIVE
IMAGE AS OBJECT, NOSTALGIA

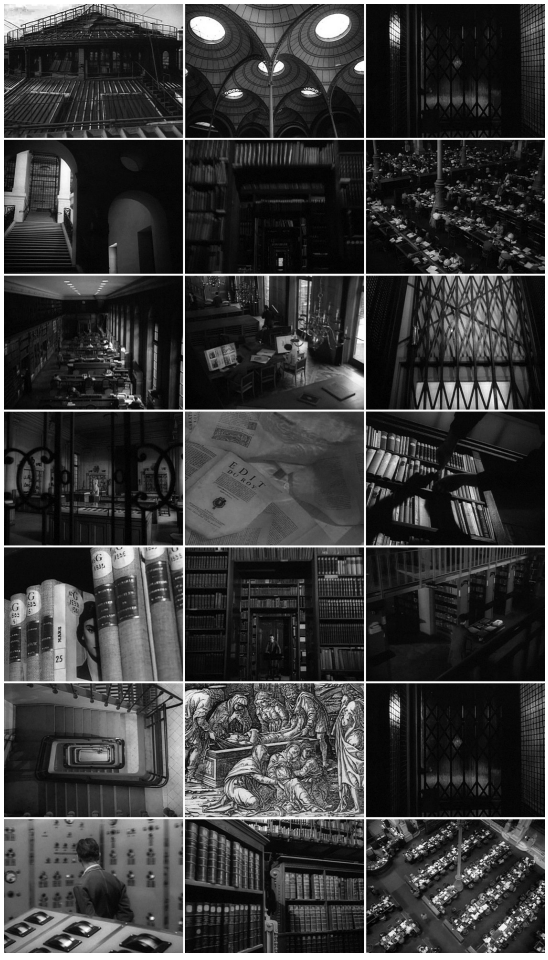
1. INTRODUCTION: ARCHIVING THE INTANGIBLE

Within the so-called 'post-truth' era, our present moment, in which fundamental conceptions of reality are challenged, fiction is given a status upgrade. Fiction has become a reality, or better, dystopian present. Now, walls turn into screens of light and technologies belonging to NASA have become part of our quotidian reality. We are participating in a vibrant digital culture, practising the virtual economy, using digital currency, buying virtual real estate and other cyber phenomena like NFTs ('Non-fungible' Art). As Swagato Chakravorty[1] states, we are now, more than ever, engaged with the growing conflation of screen practices and screen architecture. Since human life is rapidly unfolding within digital realms, it has become urgent to (re)evaluate the meaning of the intangible heritage of digital environments, especially those belonging to the past, overwritten by present time, existing only in 'cinematic spaces,' and film archives. Croatian visual artist Sandra Sterle[2] posits that the present is not as self-sufficient as it seems. This article emphasises the necessity of (re) questioning the 'fluid' borders of the 'uncertain and complex' past, the 'acute and unstable' present and the 'desired or possible' future within cinematic spaces as agents of collective memory, by rethinking the practice of archiving and expanding it into the digital realm. With the assumption that (re)tuning the field comes with (re)examining its tools, looking closely into moving images and cinematic spaces and how they intertwine with core concepts of history writings is essential.

It could also be pertinent to question in addition the inadequacies of the archive as well as what kinds of histories result from 'regular' archives: as Daniel M. Abramson, Zeynep Çelik Alexander, and Michael Osman ask: 'What are the implications of an archive that is too big or too small, inaccessible, or nonexistent?'[3] If it is not possible to resist formal interpretations without reinforcing frames of reference, it is crucial to recognise how the archive (re) animates the textual past. How does it deal with the dichotomy of each piece of evidence when the evidence is chosen by an authority? Who is the authority in question? What is worth memorialising at the frontier of digital and physical, from the intangible here and now? Besides, as filmmaker and producer Peter Van Goethem[4] asks, what if an archived item derives value from the fact that it is archived, not because of its historical value? By being aware that the basic characteristics of the archive are fragmentation, unpredictability and uncertainty with a lack of clarity, one could easily relate it to the cinema. Moreover, if seeing an archive as a privileged site where different evidence can be found, it is crucial to examine the way it interacts with its content. The French film director Alain Resnais gives a formative example of a

relationship between an archive and its content before digital transformation in his homage to the National Library of France within the essay film *All the World's Memory.*[5] Specific cinematic space in this film is created through the narrative by borrowing the library's existing space. The library building itself became a metaphor and protagonist at the same time. Resnais sees the library space as a body of repository - an archive of collective memory - that facilitates the process of remembering, as he finds the power of representation in the affective memory of the image. (Fig 1)

FIGURE 1: *Toute La Mémoire Du Monde*, directed by Alain Resnais, YouTube screenshots:https://www.youtube.com/watch?v=e83SCWlAh8I



To redraw the boundaries of an archive, Abramson et al. note: 'It takes political urgency' and 'historical imagination.'[6] What happens if one shifts gaze beyond the confines of an official archive by using a previously neglected, unacknowledged and unspoken, extending the focus from individual to collective? Within such a move, challenging the text-based archive in its desire for order, coherence and objectivity, Paula Amad interprets the emergence of cinematography. What Amad suggests is an example of a home cinema, with no utilitarian purpose, that 'merely exists to be forgotten, due to its focus on the incidental, the everyday, the non-essential information,'[7] where history can be seen from various angles, providing different perspectives on the phenomenon of memory and the way we construct it.

FIGURE 2: Instagram as counter-archive:
March 14, 2023, at 22:14 p.m., screenshots

Therefore, one could think of a film and its cinematic space - as something that could store the present for future reference - as an alternative archive. What if one, in the twenty-first century, finally starts to consider collaborative practices and subjectivities of cinema as a counter-narrative for an archive? In that case, the collective voice would select what is valuable to be preserved and future archives might base themselves on resilient collective outsourcing systems like The Pirate Bay - a BitTorrent site and various social media platforms: Facebook, Instagram, Tik Tok, YouTube etc. (Fig 2) Those platforms as 'private' archives could eventually mark the end of institutional cinematography as we knew it before total democratisation in the digital era of smartphones. Such perspectives require not only historical imagination but 'a fundamental rethinking and renegotiation of institutional, disciplinary and working arrangements.'[8] If the truth is neither in the represented nor in the representation, archives could be approached as something dispensable that serves only to invent history.[9] Granting that reality is only 'the point of coincidence of different fictions,' as Vilém Flusser[10] tells us, and fiction is another angle of reality - 'the lie through which we tell the truth' - as Albert Camus marked in his famous novel *The Stranger.* If every fiction has its truth, can fiction be seen as a method or a 'space' for collective consciousness? If one realises that each present was once an imagined future, what more can cinematic spaces teach humans as an 'unofficial archive' created with fragments and figments[11] of reality?

2. COMPLEXITY OF CINEMATIC SPACE

Film has been recognised as a form of intangible cultural heritage, but it is less evident in the case of filmic architectural heritage. If film is something that is saving the entirety of our outer reality - 'collective subjectivity' - of the world, then cinematic spaces could be used to (re)construct memory for the digital archives of our future. Cinematic spaces might be considered more complex; perhaps one can start seeing them as a new mode of remembering architecture.

Cinematic space,[12] the type of space in the film, imagined or real, seen as an archive, relies on its perceived potential as intangible heritage, its impact on narration in film and its influence on the memory of built space. Cinematic space is neither neutral nor passive, as film is more than a form of expression. Films tell us stories through their spatial manipulation, often contrary to the usual understanding of built architecture or experiencing space. Therefore, through cinematic techniques, the space assembled becomes a tool for critical research on architecture and heritage, permitting new readings of architectural space(s).

For Jacques Lévy, a geography and urbanist professor, cinema is made up of a 'number of languages that are spatial by definition in that they consist first and foremost of images.' According to Lévy, cinematic space shows the presence of 'space as environment' but also 'spatiality as action – geographicity.'[13] Lévy addresses André Gardies's four kinds of cinematic spaces: 1. 'Cinematographic space' as the 'institutional' setting (the movie theatre, domestic environments containing screens, etc.), in which viewers are immersed in or exposed to; 2. 'Diegetic space' is what the film constructs as a reality independent of the story - film's geographicity, a space as a set or context – 'anecdotal space'; 3. 'Narrative space' relates to the specific spatiality of the characters, which gives substance to the story - as a framework for the action and 4. 'Viewer space' - the spatiality produced by the mode of communication that the film adopts towards the viewer.[14] Lévy argues:

> In the most common form of spectator/film interaction, the film is watched rather than seen. [...] This technical choice echoes the emphasis on narration and correspondingly removes from the cinematographic language the awareness of anything in the image not directly connected with the story, in particular its geographicity.

One needs to learn how to 'see' a film instead of simply 'watching' it. However, the value people place on cinematic space, not as a setting but as a character, is minor. Despite this, it has contributed to the rise of collective nostalgia induced by collective affect, a memory of the mediated collective experience. Using cinematographic language and exploiting its possibilities is far from what it could be in relation to spatial practices and what it could enable. Assuming this to be the case, one can perceive cinematographic techniques - a 'magic' - as something useful for our memories of the past. However, being aware that it suspends the viewer's mechanism of subjective identification and gives the spectator a degree of reflexivity through the knowledge of the 'rules of the game' and the director's craft leads to the avoidance of critical thinking.

3. THE REALITY-FICTION INTERFACE: FACTS VS FICTION

'In 2016, "post-truth" was selected as the word of the year by the Oxford English Dictionary' (OED), as Nele Wynants outlines. This tells us that objective facts are becoming less important as it shows that we are living in a post-truth era 'in which facts, the truth, and reality are increasingly undermined, while fiction is given a status upgrade.'[15] Reality and fiction are diluted, and tension between

them is intensified by the conditions of a 'post-digital era'. The 'sinuous' relationship between images and reality is enlightened. In 2017, the OED word of the year was 'youthquake'; in 2018 'toxic'; in 2019 'climate emergency'; in 2020 'unprecedented'; in 2021 'vax' - a vaccine or vaccination; and in post-pandemic time, in 2022 the neologism 'Goblin mode'. All these words reflect social and material transformations that unexpectedly came together due to the global pandemic in 2020. The virus completely changed our perception of reality and work culture, making us more dependent on digital technology since physical contact became limited. 'In a pandemic context, it is through screens, and the mediation of images in real time, that the relationship with the world is made.'[16] During the indefinite quarantine, one witnessed a viral outbreak and the rise of the digital economy. The focus moved from the physical into the digital realm, from the public to the domestic. Suddenly, an implosion of the public into private space was experienced, which exploded in post-pandemic time to low societal expectations and the act of living in a hedonistic manner. In addition, 'new technology delves deeper and deeper into the private.' With each new invasion, our definition of 'public' changes, as architectural historian and theorist Beatriz Colomina underpins.[17] Colomina examines mass media, especially the new surveillance technologies that emerged in the early years of the last century, as they changed definitions of 'public' and 'private,' and the way(s) architecture handles the bond between them, their interiors and exteriors. Our understanding of architecture is forever changing. The question is how architecture absorbs the latest communication systems if it feeds them and is not threatened by these technologies.

As a medium between constructed and experienced worlds, the film is laden with the hybridity of the everyday and extraordinary since it is a product of an 'affected' and 'mediated' collective memory. According to professor of Fine Arts Sofia Gonçalves: 'Cinema is also a means in which we see, precast and shape […], the reality-fiction interface,' as for cinema, 'there is neither a definitive reality nor an absolute fiction.'[18] Facing a cinema screen, or multiple screens of our online existence, through mechanisms of suspension of disbelief, one projects on what he/she sees or believes momentarily in a possible reality.

4. TACKLING (IM)MATERIALITY: IMAGES-AS-OBJECTS - ALTERNATIVE RELATIONS TO THING(S)

If images operate as a mediator between humans and the world, one needs to acknowledge what a digital image is and how to approach it to stay' tuned' with the present. Along with the recognition of the existence of 'object-images' and its opponents 'subject-images', filmmaker and writer Hito Steyerl observes the material aspect of 'image as a thing' - an object. For her, the objectification of the reproducible image becomes its value. Steyerl shows great potential in analysing the inherent power(s) of the 'object'. In her outstanding essay 'A Thing Like You and Me,' she acknowledges: 'Things condense power and violence. Just as a thing accumulates productive forces and desires, so does it also accumulate destruction and decay.' In Steyerl's reading of Walter Benjamin and his seminal text: 'The Work of Art in the Age of Its Technological Reproducibility'[19] she indicates:

> When the subject identifies with the image as an object, the distinctions that are necessary for representation blur: the dichotomy between objects and images, between subject and object, between the perception of the living and that of lifeless material dissolves.[20]

The archetypical example of objectifying image is pornography or advertising, where bodies are turned into objects of desire and commodity. In contrast, there are subject-images, as José Bartolo writes: 'subject-images are images that hurt, images that assault, that crush; images that exert upon us […] they are images that act upon us,'[21] with their brutal immediacy. We are thought to distance ourselves from those kinds of images instead of trying to construct narratives where the approach to the images is mediated, as Armenian filmmaker Artavazd Pelechian theorised in his work combining archival images and his own original filmic records.[22]

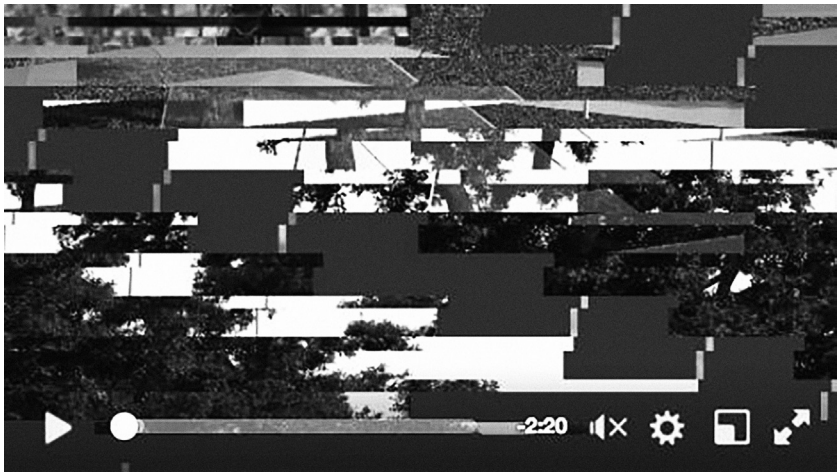
Benjamin's sense of materiality can be seen as enabling history to be presented in objects. For that reason, reproducible technologies like film and photography significantly changed the relationship between history and materiality. According to Benjamin, who was writing before the advent of digitalisation, the reproduction of images threatened the authority of the 'object'. Whereas, after digitalisation, with the extreme growth in the production and reproduction of imagery that is virally shared and reproduced infinitely, as Steyerl detects, the value of the reproducible image is linked to its 'usability'. Therefore, with each download, post, like and share, its value grows, creating a way of

spreading and archiving. What becomes interesting in relation to digital image is that the age value cannot be off the topic, as one could rashly conclude that digital environments do not show symptoms of decay. Steyerl asserts:

> It is a complete mystification to think of the digital image as a shiny immortal clone of itself. On the contrary, not even the digital image is outside history. It bears the bruises of its crashes with politics and violence.

Can glitches and 'dead' pixels become a new value of image within digital archives? (Fig 3)

FIGURE 3: Giunio, Andro (2016) *Playback_issues*, screenshots: https://www.facebook.com/media/set/?set=a.1297279756954061&type=3.



Art critic, curator and writer Marit Paasche notices: 'The image is not enclosed in fiction: it spurs real affections; it motivates political action; it is a "protagonist,"'[23] like in Steyerl's films *November* and *Lovely Andrea*. Paasche renders an important detail of Steyerl's work where she speaks about our desire to transform ourselves and the world we inhabit into images, something that Benjamin could not foresee as a future desire. Paasche suggests a human desire to create and become an image as a productive force - 'a new way of tackling materiality.' Steyerl's optimistic 'objectification of the reproducible image as something valuable' challenges Benjamin's[24] pessimistic outlook of a future

alienated by cameras-based technologies. Steyerl's recognition of the 'image as an object' could be a starting point in the new approach towards digital archives and digital heritage.

Theorist, writer and curator Claudia Giannetti proposes an interesting concept of the 'ecology of images and media,'[25] related to 'contamination of our world with phantasmatic hyper-representations[26] that became mirrors of reality and the world, which, surprisingly, we barely think of when dealing with everyday images. 'Phantasmatic hyper-representations' can be seen as something that Soviet filmmaker and film theorist Dziga Vertov anticipated almost a hundred years ago in the 1930s, enabled by contemporary technology. In his writings and through newsreel series, Vertov developed a theory - 'Kino-Eye' (Russian *Kinoglaz*) - that speaks about the perceptive nature of the camera lens as the 'second eye' - the one that shows the 'deeper' truth - the 'Film Truth' (Russian *Kinopravda*) - more sensible than the human eye, thus able to capture more. In Vertov's words: 'We cannot improve the making of our eyes, but we can endlessly perfect the camera.'[27]

To use yet another phrase by Benjamin: 'Anything about which one knows that one soon will not have it around becomes an image,'[28] one could argue that Benjamin predicted the power of image and the decay of the physical. Steyerl expands this idea and confronts modernism by depicting the desire to transform ourselves and the world we inhabit into images, as she notices 'the subject is no longer the centre of the universe but on equal terms with other objects.'[29] Steyerl introduces a 'shift in perspective,' a concept of the object and objectivity and how images alter the relation between subject and object in identification. Consequently, 'things' become free, active, alive, (co)creative, participatory and possibly influence everyday reality transformation. That said, Steyerl opens up space for discussion on what is worth remembering if history is 'a pile of rubble,' as Benjamin once phrased it. In addition, French philosopher Henri Bergson[30] argues that the world exists not only as an accumulation of physical objects but as a reality of images as well. Those images are the (re) presented or (re)mediated collective memory. Thus, the relationship between man and the world consists of both: the world as an object and an image, more precisely, a moving image that can defy time using film techniques. For French film critic and film theorist André Bazin: 'As soon as it formed, the skin of history peels off as film.'[31] It is interesting to note that Bazin also distinguishes two opposing trends in the cinema: the directors that relate to the plastics of the image and those that relate to the resources of montage, which is 'simply the ordering of images in time.'[32] Bazin also argues that a photographic image is an object free from the conditions of time and space that govern it: 'Every image

is to be seen as an object and every object as an image. Hence photography ranks high in the order of surrealist creativity because it produces an image that is a reality of nature, namely, an hallucination that is also a fact.'[33]

If affirming 'image as a thing', i.e., activating it, in order to prepare it for future archives, it might be helpful to look back into the progressive theoretical writings on the conservation of physical environments from the past. At this point, it may be worth recalling another 'ghost' scholar, Viennese art historian Alois Riegel with his, at the time and somehow still, progressive views on the *revaluation of values* - innovative discussion of memory and forgetting within the essay 'The Modern Cult of Monuments, Its Character and Its Origin,' published in 1903, at the *fin-de-siecle.* Riegel anticipated the relationships one has with the work of art and art history. He outlined a typology of the monuments, within the framework of the Western culture, by highlighting 'age' as the most modern value - a 'deep sense of voicefulness.' Riegel understood right, not to worry about ruins because everything will become ruined one day. Professor of Architectural History Erika Naginski symptomatically notices Riegel builds an argument by opposing critical objectivity and artistic subjectivity of 'scientific aims' and 'aesthetic ends.'[34] In other words, he positions 'rationalism against affect'.[35] Those contradictions could be seen as tools that offer a space for opposing points of view. Riegel's anticanonical view on preservation is underlined within the concept of 'flexible structure' of priorities or values rather than monolithic principles. In Riegel's alternative readings on relations towards things - the material world, the idea of the fragments as an aesthetic mechanism was initiated. This can be linked to a film - as a fragmented whole of moving images - and to cinematic space that constructs its image - a medium in which attention is objectified. Riegl's concept of *Kunstwollen,* cantered on form as the primary source of evidence, was useful in creating a unified narrative for the visual coherence of everything from buckles to buildings.[36] Riegl's emancipatory idea of grasping the work of art's 'large relationships' is giving one an option to visualise the past, which can be associated with interdisciplinarity and intertextuality of the here and now.

5. MATERIALISATION OF IMMATERIAL: CINEMATIC ARCHITECTURE AS CONSTRUCTED NOSTALGIA

Architect Zhivka Hristova[37] departs from the idea: 'The term memory, in our common understanding, refers to two closely related aspects: our recollection or remembrance of past experiences and the ability to recall them.'[38] Among others interested in the phenomenon of memory, German Egyptologist Jan

Assmann[39] argues that memory is a social and collective practice. According to him, the process of remembering is an individual act performed by re-living shared experiences and reconstructing events. Assmann opposes the concept of 'communicative memory' to 'the cultural memory:' communicative memory is a collective memory that constitutes itself in everyday communication with others - oral history - characterised by its proximity to the everyday. It shows thematic instability and disorganisation. According to Assman, its most important characteristic is its limited temporal horizon (eighty to one hundred years into the past). On the contrary, the cultural memory - 'figures of memory' - is characterised by its distance from the everyday (transcendence), as it marks its temporal horizon, revealing the idea that objectivised culture has the structure of memory as well. It is maintained through cultural formation and institutional communication. Assman's theory attempts to integrate and relate all three poles - memory (the contemporised past), culture, and (society) - to each other. Central to this research is Assman's argument related to one of the few main characteristics of cultural memory called the 'capacity to reconstruct.' As the author observes: "No memory can preserve the past. Thus, only what society can reconstruct within its contemporary context matters. Its figures of memory and knowledge are always related to the contemporary context that relates these differently by appropriation, criticism, preservation or transformation. Assman concludes: "Through its cultural heritage a society becomes visible to itself and to others. Which past becomes evident and which values emerge in its identificatory appropriation tells us much about the constitution and tendencies." If so, it is highly important to master how to approach the reconstruction of the past, respecting the contemporary context.

5.1 Cinema as a time machine

Artist Yannis Karpouzis[40] made a structuralist analysis of Chris Marker's photo film about time and memory *La Jetée*[41]. Karpouzis sees it as intermedial artwork created in a constant dialogue between photography and cinematography by using filmic signifiers: film stills, storyline and narration. Karpouzis speaks of Marker as a creator of an 'archive' of objects and conditions that have a photographic quality of their own. *La Jetée* is an example of the 'diegetic' reality of 'cinematic space' created by still images. There is an essential difference between memory and time, as Bruce Kawin notices: 'The hero is not sent into his memory; rather his memory is used as a force that helps him to re-enter the past.' Even though *La Jetée* carries the message that 'one cannot escape from time,' escape narration, or escape from the present, it uses the past, the memory and the future of the protagonist within a cinematic space specially created to assure us in its message. (Fig 4) The key line of the film

might be when the narrator says: ‘moments to remember are just like other moments,’ which equals all that is presented at any moment, ‘presenting and retrieving must look the same’, as it outlines how ‘any instant is capable of being remembered, or of being presented as a memory.’[42] Furthermore, as Kawin nicely rephrased, ‘one cannot escape from film.[43] Alternatively, to paraphrase Kawin, ‘one cannot escape reality,’ as our physical reality is not composed of stills, which might change nowadays while being able to engage digital reality.

FIGURE 4: *La Jetée*, directed by Chris Marker,
YouTube screenshots:https://www.youtube.com/watch?v=fU99W-ZrIHQ

5.2 Revising our notions of materiality

Cinematic experiences are also a social practice, more accurately - collective experience - related to the collective memory, which is shared, passed or constructed by the group. However, in our busy societies, one rarely has time for the act of recollection of memories. As a comment or a critic, one could see the opposite version of society shown in François Truffaut’s film *Fahrenheit 451* from 1966 - an oppressive future of controlled society - first described in a dystopian novel by American writer Ray Bradbury. A society

that secretly keeps remembering 'discrete' layers of history while being aware that: 'what remains visible is memory, memory of such is invisible, but the act of remembering makes it tangible, durable, existing.'[44] French historian Pierre Nora argues that in the twentieth century, we are facing 'the projection of a realm of memory' as the sign of memory's disappearance and 'society's need to represent what ostensibly no longer exists.[45] In fine, outlining a hypothesis - 'the act of remembering' - seen as proof - is more important than memory itself.

Rem Koolhaas calls attention to another phenomenon:

> 'Architecture stands with one leg in a world that's 3,000 years old and another leg in the twenty-first century,' [...] we're the last profession that has a memory,' and 'we were actually misplaced to deal with the present, but what we offer the present is memory.'[46]

Koolhaas's hypothesis opens up new ways of understanding the relation between architecture and memory. Since human memory is spatial, architecture has always been one of the ways of inducing memories for the reason we build different kinds of monuments to recall events and experiences. As Umberto Eco states: 'perhaps architecture has always wanted to be a theater of memory… It all depends on what you want to remember.'[47] Instead of a theatre of memory, one could argue, architectural cinematic space reaffirms the notion that cinema has indeed become the site of mediated collective memory.

5.3 Constructed nostalgia as a critical thinking tool and an instrument for retrieving collective memory

Induced nostalgia has a vital role in the writings of Svetlana Boym, who defines nostalgia (from *nostos* - return home, and *algia* - longing) as 'a sentiment of loss and displacement,' and 'a romance with one's own fantasy,'[48] as well as something that enhances and enriches reflection and extends the self. For Boym, the cinematic image of nostalgia is 'a double exposure, or a superimposition of two images of home and abroad, past and present, dream and everyday life. Boym recognises nostalgia as yearning for a different time, not longing for a place. According to her research, in the seventeenth century, nostalgia was considered to be a disease. However, nowadays, creative rethinking of nostalgia can be seen as a 'strategy for a survival' for all those displaced people who share the impossibility of homecoming. Nostalgia is about the 'repetition of the unrepeatable,' as well as the 'materialisation of immaterial,' thus its paradox lies in this fundamental ambivalence. Boym differentiates between 'restorative nostalgia' and 'reflective nostalgia.'[49] The former is concerned

with preserving the essence of things - 'the truth'. The latter is related to ephemerality and deals with fragments and ruins, as Riegl did a century ago and as moving images do now.

British artist Mark Leckey incorporates nostalgia and anxiety of contemporary society, intertwining collage art, music and video. In Lackey's canonical video essay, *Fiorucci Made Me Hardcore*,[50] image is treated as a found object. It is a compilation of found footage from the British underground music and dance scene. These chronicles of club dance floors from the 1970s and 1980s to the Rave scene of the early 1990s can assist one to embody or even overwrite one's memory. This example underlines cinematic space as a tool for 'shaping' - 'constructing' - one's memories. It is not only about 'shaping a memory', but 'shaping a present' through a memory. For that reason, cinematic spaces should be abolished or nursed with care.

If invisible memory is becoming visible through cinematic spaces, could nostalgia be seen as an instrument for retrieving our collective memory? Or, could it be used as a critical thinking tool for overwriting memory that affects the 'post-truth' era?

6. MOVED WITHIN THE MOVING IMAGES: EMBODIED CINEMATIC SPACE

If one still questions the possibility of being 'moved' - affected by a digital environment(s) or cinematic spaces, constantly believing that one can never truly embody those space(s), one should take a closer look into the writings of the scholar of visual art and media Giuliana Bruno for she opens up the alternative way of cinematic space being read as 'embodied space.' If cinematic space can be embodied, then it can be safe to assume that humans are affected by the digital environment(s). Bruno's unusual approach to visual studies is clearly visible in the influential book *Atlas of Emotion: Journeys in Art, Architecture and Film*, which reflects the necessity of rereading Sergei M. Eisenstein's work. As she confirms, his theories gave a new architectural and cinematic aesthetic, a polyfocal alternative to the ocularcentrism of the Renaissance perspective that directed the observer and 'reduced spectatorship to the fixed, unified geometry of a transcendental, disembodied gaze.' Like Eisenstein, Bruno is interested in the notion of 'emotional space' created by film narratives or/and cinematic techniques. She interprets Eisenstein's conception of space and montage as something in which the spectator is a necessary element, 'embodied.' Therefore, Bruno calls attention to the following:

> Cinematic space moves not only through time and space or narrative development but through inner space. Film moves and fundamentally "moves" us, with its ability to render affects and, in turn, to affect. Retracing the steps of the cultural history that generated these "moving" images – our modern, mobile cartography – the book spirals backward into lived space.[51]

Following Bruno, Richard Martin describes the spectators' experience as 'traveling without moving' while sitting in front of 'celluloid cities.'[52] Such cinematic movement is at the centre of Bruno's work. Bruno sees 'cinematic reception' as a spatial practice of 'embodied movement' or 'spatio-visuality'. She emphasises the major importance of motion to the production of emotion. Moreover, Bruno[53] sets out a claim for revising our notions of materiality in the virtual age, such that it is "not a question of materials but rather […] the substance of material relations," opening up space for new discussions.

7. CONCLUSION: CINEMATIC SPACE AS A VALID DIGITAL ASSET

If our relationship with images can (re)configure our perception of the past, how can it contribute to a better understanding of the present or transform the future? If everything is the product of the spirit of its times, as in Zeitgeist theory, and nothing is the result of the thoughts of a single man, who has the authority to decide what is to become a digital asset - valid - to be preserved or (re)vitalised within digital environments?

If affirming image as a thing means participating in its 'collision with history,' should one still depend on Euro-Western academic narratives (re) contextualising them, acknowledging voices from the past in producing new criteria for valuing intangible spaces of our digital worlds? Alternatively, should one mute those voices for the sake of the present moment, although knowledge is there to be studied? However, one might assume that the collective voice as an alternative to the existing dominant narrative, together with resilient collective outsourcing systems, could become influential in deciding what is valuable to be preserved. Moreover, suppose the image does not represent reality and is just a fragment of the real world or a fabrication of it, as moving images are in their nature. In that case, one might consider 'cinematic spaces' as a counter-archive that would: challenge the *status quo,* (co)create and rebuild our physical and social space and permit new readings of architectural spaces, possibly transforming our quotidian reality. For all that,

one needs to be aware that sometimes the only access to certain places we have is through ‘cinematic spaces.’

Film testifies that one can experience nostalgia toward spaces that never materially existed, leading us to the conclusion that nostalgia can be easily constructed within the language of cinema. The act of remembering, as well as forgetting, becomes a social and highly politicised process, notably when placed in the contemporary context. If existing forms of remembrance can be transformed or reinterpreted and new constructed in their place, crucial is the decision whether one takes memory recollection as an advantage or disadvantage, in other words, whether one decides to preserve or overwrite it. Modernism longed to erase and lose memory, but one might reverse that perspective and use it as strength in a dialogue; consequently, memory recollection through moving images can become useful for future generations. However, if memory is embodied within or through cinematic space, then its memory is being effectively constructed.

Suppose the image is the materialisation of memory. In that case, one either has to learn to live with images as they are in their proximity or (un)learn how to look at them because the question is not only what images bring us but where they take us. If moving images, as intangible heritage, ‘move’ their fixed spectators along, it implies that images affect one’s perception of reality. In addition, if one perceives images as things or living persons that can become free and alive, it means that one accepts the digital environment as something non-resistant to decay or even constant reinterpretation and can be easily decomposed.

If ‘cinematic space’ is being perceived as a living image, it might influence the future of architecture and archives. When conceptualised as an archive, the tensions and characteristics of cinema allow us to reproach the concept of the archive broadly read. ‘Cinematic architecture’ - made of intangible moving images - has a specific nature that is being constructed from the fragments or figments of reality. This loss of continuity and fragmentation of memories may become a counter-narrative that could lead to the process of decomposition of reality itself as something particular for this century.

If invisible memory becomes visible within cinematic spaces or a collective memory constructed through film, one could learn how to approach the past, the present and the future. Nevertheless, what if preserving the memory through cinematic spaces becomes more important than material preservation? After all, what is with the virtual afterlife of cinematic spaces in the digital era?

NOTES

1 Swagato Chakravorty, Review of *Superficial Thinking: Screen Practices and Screen Architectures*, by Giuliana Bruno. *Art Journal* 74, no. 2 (2015), 90-93. http://www.jstor.org/stable/43967622.

2 See: Exhibition "Figment of time," Museum of Contemporary Art Zagreb, 2023. http://www.msu.hr/dogadanja/sandra-sterle-figments-of-time-prividi-vremena/1113/en.html

3 Aggregate Architectural History Collaborative, *Writing Architectural History: Evidence and Narrative in the Twenty-First Century* (Pittsburgh: University of Pittsburgh Press, 2021), 10.

4 Peter Van Goethem, "Screening the City: The Role of the Brussels Archive in the Found-Footage Film Night Has Come," in *When Fact is Fiction: Documentary Art in the Post-Truth Era,* ed. Nele Wynants (Amsterdam: Valiz, 2020), 42.

5 *Toute La Mémoire Du Monde*, directed by Alain Resnais (Les Films de la Pléiade, 1965), 0:21:0, DVD.

6 Aggregate, *Writing Architectural History,* 11.

7 Paula Amad, *Counter-Archive: Film, the Everyday, and Albert Kahn's Archives de la Planète* (New York: Columbia University Press, 2010), quoted in Peter Van Goethem, "Screening the City: The Role of the Brussels Archive in the Found-Footage Film Night Has Come," in *When Fact is Fiction: Documentary Art in the Post-Truth Era,* ed. Nele Wynants (Amsterdam: Valiz, 2020), 42-43.

8 Aggregate, *Writing Architectural History,* 13.

9 Hito Steyerl, "A Thing Like You and Me," *e-flux journal*, Issue #15 (April 2010): 1-7. https://www.e-flux.com/journal/15/61298/a-thing-like-you-and-me/.

10 Vilém Flusser, "On fiction," 1966, quoted in Sofia Gonçalves, "Vacant lots and insurmountable territories: Communication design between reality and fiction, between expansion and degrowth," in *Image in the Post-Millennium: Mediation, Process and Critical Tension*, eds. Maria João Baltazar and Tome Saldanha Quadros (Portugal: Esad/idea and Onomatopee, 2021), 38.

11 A figment is something formed from imaginary elements. Daydreams are figments; nightmares are figments that can seem very real. Most figments are everyday fears and hopes about small things that turn out to be imaginary. However, when the radio play *The War of the Worlds* aired in 1938, it caused panic among thousands of people who did not realise the Martian invasion was just a figment of the author's imagination. See: https://www.merriam-webster.com/dictionary/figment.

12 According to French film director Éric Rohmer the primary unit of filmic spatial representation. It can be seen as the ensemble of landscape, buildings,

objects and people. See: Marco Grosoli, "An art of space," in *Eric Rohmer's Film Theory (1948-1953). From 'école Schérer' to 'Politique des auteurs'* (Amsterdam University Press, 2018), 53-63.

13 Jacques Lévy, "On space in cinema," *Annales de géographie*, Volume 694, Issue 6 (2013), 689-711. https://www.cairn-int.info/article-E_AG_694_0689--on-space-in-cinema.htm.

14 Lévy's typology of cinematic spaces can be related to seven levels of filmic reality by philosopher Étienne Souriau; see: Warren Buckland. *The Cognitive Semiotics of Film: The Body on the Screen and in Frame* (Cambridge University Press, 2007), 47.

15 Pascal Gielen et al., *When Fact Is Fiction Documentary Art in the Post-Truth Era*, ed. Nele Wynants (Amsterdam: Valiz, 2019), 10.

16 Isabel Capeloa Gil, "From image to touch in pandemic times," in *Image in the Post-Millennium: Mediation, Process and Critical Tension*, eds. Maria João Baltazar and Tome Saldanha Quadros (Portugal: Esad/idea and Onomatopee, 2021), 10.

17 Beatriz Colomina, "Blurred Visions: Architectures of Surveillance from Mies to Sanaa," in *Urban Images, Unruly Desires in Film and Architecture*, eds. Synne Bull and Marit Paasche (Norway: Oslo Academy of Fine Arts/Oslo National Academy of Fine Arts and Berlin: Sternberg Press, 2011), 165-171.

18 Sofia Gonçalves, "Vacant lots and insurmountable territories: Communication design between reality and fiction, between expansion and degrowth," in *Image in the Post-Millennium: Mediation, process and critical tension*, eds. Maria João Baltazar and Tome Saldanha Quadros (Portugal: Esad/idea and Onomatopee, 2021), 38-39.

19 Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility [First Version]," trans. Michael W. Jennings, *Grey Room*, no. 39 (2010), 11–38, http://www.jstor.org/stable/27809424.

20 Marit Paasche, "The new protagonist: on the films of Hito Steyerl," in *Urban Images, Unruly Desires in Film and Architecture*, ed. Synne Bull and Marit Paasche (Norway: Oslo Academy of Fine Arts / Oslo National Academy of Fine Arts and Berlin: Sternberg Press, 2011), 24.

21 José Bartolo, "The Subject-Image or the Post-Millennial Condition," in Image in the Post-Millennium: Mediation, process and critical tension, eds. by Maria João Baltazar and Tome Saldanha Quadros (Portugal: esad/idea and Onomatopee, 2021), 16. Bartolo gives an example of subject-image describing the image of Georg Floyd dying from the pressure of a policeman's knee on his neck. He explains how this kind of violent image prevents us from relating to it as an object.

22 Artavazd Pelechian, “Les Habitants,” YouTube Video, 1970, 1:30 min, March 16, 2021, https://www.youtube.com/watch?v=lAfb7SCQCfc.

23 Paasche, “The new protagonist: on the films of Hito Steyerl,” 26.

24 Paasche, “The new protagonist: on the films of Hito Steyerl,” 29.

25 The dark side of it all, harder to foretell, as architect, writer and historian Harriet Hariss mentioned during her lecture on February 7 2023, at the Faculty of Architecture — University of Zagreb, is the fact that digital images, that one lives and shares on the Internet, produce tons of Co2 every year, exceeding the amount emitted by air travel. Hence, how can digital environments ever become eco-friendly? Harriss presented the research conducted in preparing the book *The Routledge Companion to Architectural Pedagogies of the Global South* (editors Harriet Harriss, Ashraf Salama and Ana Gonzalez Lara). The book, in four parts, talks about the specifics of space education, theoretical foundations, the relationship with the canons of Western learning methods, political and social contexts, and interpretations.

26 Claudia Giannetti, “Post-representation: Towards a theory of hyper-representation and underrepresentation, Ecologies of the image and the media,” in *Image in the Post-Millennium: Mediation, process and critical tension*, eds. Maria João Baltazar and Tome Saldanha Quadros (Portugal: esad/idea and Onomatopee, 2021), 66-93.

27 Dziga Vertov,” Kinoks: A Revolution,” in *The Writings of Dziga Vertov*, edited and with an introduction by Annette Michelson (Berkeley: University of California Press, 1984), 15-21.

28 Walter Benjamin, “The Paris of the Second Empire in Baudelaire,” in *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism*, trans. Harry Zohn (London: NLB, 1973), 87, quoted in Synne Bull and Marit Paasche (Norway: Oslo Academy of Fine Arts/Oslo National Academy of Fine Arts and Berlin: Sternberg Press, 2011), 43.

29 Bull and Paasche, “Introduction,” 11.

30 Henri Bergson, *Matter and Memory,* trans. Nancy Margaret Paul and W. Scott Palmer (London: George Allen and Unwin, 1911), ix.

31 Bazin quoted in: David Forgacs, *Rome Open City (Roma Città aperta)* (British Film Institute, 2000), 23.

32 André Bazin, “The Evolution of the Language of Cinema,” in *What Is Cinema? Vol. 1*. Trans. Hugh Gray (University of California Press, 2005), 24.

33 André Bazin, “The Ontology of the Photographic Image,” in *What Is Cinema? Vol. 1*. Trans. Hugh Gray (University of California Press, 2005), 15-16.

34 Erika Naginski, “Riegl, Archaeology, and the Periodization of Culture” *RES: Anthropology and Aesthetics*, no. 40 (2001), 135-152. http://www.jstor.org/stable/20167543.

35 Riegel shifts the impact of artworks from their factual relevance to their psychological effect, as he comprehends that the viewer’s historical situation determines his visual reception.

36 Alois Riegl, “The Modern Cult of Monuments: Its Character and Its Origin,” trans. Kurt W. Forster and Diane Ghirardo, 32, in *Oppositions 25* (Fall 1982): 21-51, quoted in Erika Naginski, “Riegl, Archaeology, and the Periodization of Culture” *RES: Anthropology and Aesthetics*, no. 40 (2001), 135. http://www.jstor.org/stable/20167543.

37 Zhivka Hristova, “The Collective Memory of Space: The Architecture Of Remembering And Forgetting,” (Toronto: Ryerson University, 2010), 23. https://rshare.library.ryerson.ca/articles/thesis/The_Collective_Memory_Of_Space_The_Architecture_Of_Remembering_And_Forgetting/14653671.

38 Hristova, “The Collective Memory of Space,” 23-24.

39 Assmann, Jan, and John Czaplicka. “Collective Memory and Cultural Identity.” *New German Critique*, no. 65 (1995): 125–33. https://doi.org/10.2307/488538.

40 Yannis Karpouzis, *The Empty Square of Chris Marker: A Structural Analysis on La Jetée*. Architecture School of Athens, 2019.

41 *La Jetée*, directed by Chris Marker (Anatole Dauman, 1962), 0:28:0, DVD.

42 Bruce Kawin, “Time and Stasis in ‘La Jetée.’” *Film Quarterly* 36, no. 1 (1982), 15-20. https://doi.org/10.2307/3697180.

43 Kawin, “Time and Stasis in ‘La Jetée.”

44 *Fahrenheit 451*, directed by François Truffaut (Universal Pictures, 1966), 1:52:0, DVD.

45 Pierre Nora, “Realms of Memory,” in *The Construction of the French Past, Volume 1 - Conflicts and Divisions*, eds. Pierre Nora and Lawrence D. Kritzman (New York: Columbia University Press, 1996), xii, quoted in Hristova, “The Collective Memory of Space,” 27.

46 Rem Koolhaas, “Architecture Has A Serious Problem Today,” *Innovation By Design* (May 2016). https://www.fastcompany.com/3060135/rem-koolhaas-architecture-has-a-serious-problem-today.

47 Umberto Eco, “Architecture and memory,” *Via*, Number 8 (1986): 88-94, quoted in Zhivka Hristova, “The Collective Memory of Space: The Architecture of Remembering and Forgetting,” (Toronto: Ryerson University, 2010), 21.

48 Svetlana Boym, *The Future of Nostalgia* (New York: Basic Books, 2001), xiii.

49 Boym, *The Future of Nostalgia*, xviii.

50 Mark Leckey, "Fiorucci Made Me Hardcore," 1999, YouTube Video, 15:00, June 4, 2011, https://www.youtube.com/watch?v=-dS2McPYzEE.

51 Giuliana Bruno, *Atlas of Emotion: Journeys in Art, Architecture, and Film* (London: Verso Books, 2018), 7.

52 Richard Martin, *The Architecture of David Lynch* (London: Bloomsbury Publishing, 2014), 107.

53 Giuliana Bruno, *Surface: Matters of Aesthetics, Materiality, and Media* (London: The University of Chicago Press, 2014).

ACKNOWLEDGMENTS
This text is part of a research mentored by Mia Roth-Čerina, PhD, full professor, and Tomislav Šakić, PhD, assistant professor, Academy of Dramatic Art, University of Zagreb, conducted under the Doctoral studies in Architecture and Urban Planning at the Faculty of Architecture, University of Zagreb.

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original research article
UDC 711.61:72(497.11)
930.85

admission date 11 10 2022
approval date 18 06 2023

MIXED-REALITY HERITAGE: EDUTAINMENT POTENTIAL IN STUDENTS SQUARE AREA PUBLIC SPACES

ABSTRACT

Contemporary everyday life acknowledges the wide use of new technologies and digital media in many spheres of public life, making it a valuable aspect to be explored when designing contemporary public spaces. Approaching heritage information within public space, the use of new technologies enables interaction not only with the visible spectre of heritage sites but can also unveil the 'invisible' heritage through mixed-reality environments. Overlapped heritage sites within Belgrade's historical centre around the Students Square offer significant aspects for exploring the potential for creating interactive mixed-reality environments. The paper aims to define the variety of spatial aspects and public space qualities required for creating places of contemporary interaction with heritage sites. Considering the previously adopted concept of edutainment (education + entertainment) to communicate heritage information with users through different media, the research addresses new ways of heritage presentation to improve public spaces with densely overlapped heritage. By viewing mixed reality not only as a means of interaction but as a way of presenting multi-layered information, this research adds the requirements for digital infrastructure to the site analysis. By testing the new set of analyses in Students Square, research offers a new understanding of the relationship between stakeholders, users, and spatial characteristics, required for the mixed-reality presentation of cultural heritage.

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KEY WORDS
HERITAGE PRESENTATION
MIXED REALITY
PUBLIC SPACE
URBAN DESIGN
SITE ANALYSIS

1. INTRODUCTION

The heritage paradigm shift opened the door to using heritage as a motive for reviving public spaces and creating interactive environments. By recognising the use of digital media in the interpretation and presentation of cultural heritage and the guidelines for presenting heritage *in-situ*, public spaces have re-emerged as places of storytelling. Understanding the complexity of overlapped heritage and multicultural influences on the morphogenesis of public spaces, thanks to new media, it is now possible to present them simultaneously and thus make open spaces interactive. Adding multivocal historical narratives to the public space character also adds new meanings to spatial structures. It provides a better understanding of the city and its many contexts, thus enabling a new way of education through public spaces.

The paper explores the spatial potentials and requirements for creating mixed-reality public spaces which promote cultural heritage and enable interactive education through communication with the visible and 'invisible' cultural heritage elements of urban areas. The paper is divided into four sections. The first section opens the question of the use of digital media in heritage presentation and researches the topic of heritage virtualisation. The second section presents the concept of *edutainment* as a new requirement of both heritage presentation and interaction with public spaces. The third section summarises the spatial requirements of mixed-reality heritage presentation for edutainment purposes in public spaces and offers new criteria for site analysis. The fourth section examines the requirements and the criteria in Belgrade's historical core – in the area of Students Square.

The results of the paper offer a new understanding of the spatiality of heritage presentation and present a new approach to the conceptualisation and analysis of contemporary public spaces, regarding the components of their planning and design. By enabling communication between heritage elements and contemporary public life, public spaces act as mediums for interaction. While preserving their contemporary characteristics and adding a virtual layer, public spaces rich with multicultural heritage offer an inclusive multivocal presentation of different cultural contexts. To achieve this, the paper examines the stakeholders, spatial elements, and technical requirements in the compact area of Students Square.

2. NEW HERITAGE PARADIGM AND HERITAGE VIRTUALISATION

According to the old heritage paradigm, heritage in public space was conserved, restored and interpreted mainly through selecting the representative periods, artefacts and sites and emphasising them throughout public spaces as singular sites.[1] The 1964 ICOMOS Venice Charter suggested preserving the artefacts, artwork, monuments, built structures and buildings by conservation or restoration was used to present evidence of specific pasts, extracted as the most representative from the variety of layers. In contemporary heritage studies, the selectiveness of conservation in the old paradigm is considered flawed, because it preserves only some of the values from the past and does not communicate with the heterogonous communities of contemporary cities. The distorted image of the past constructed through the selective politics of memory raises the question of adapting the interpretation and presentation of heritage sites to the complexity of the "invisible" heritage.

After the adoption of ICOMOS *Burra* and *Ename* Charters, in addition to material remnants of the past, the diversity of communities, cultural patterns and historic urban landscape (HUL) became significant heritage elements to be preserved and presented. The multivocal heritage presentation requirements impacted the spatial manifestations of heritage sites. Stepping out from the selectiveness of representative elements into a simultaneous presentation of all societies, cultures and spaces of significance through the need for multivocal presentation raises questions about the spatiality of an adequate presentation.

The density and overlapping of heritage within public spaces of historic cities are often connected to the same spaces, which were inherited as spaces of gathering, worship, trade or culture. During the many processes of urban development, each culture has left traces within these spaces, raising the density of heritage. The new heritage paradigm distinguishes these spaces as places of multiculturality and suggests the presentation of the complexity of meanings and values of the past. In addition, the new paradigm stresses the need for *in situ* presentation, connecting heritage to specific territories. This idea is supported by heritage theory, especially in the context of using museology principles outside of museums. The significance of this approach in urban design and urban planning is connected to concepts of urban design that accent the *genius loci* and concepts related to defining spaces by their identities.

The *in-situ* heritage presentation reactivates different spaces within the urban tissue. Due to the requirement for presenting heritage in authentic sites,

different layers of the past can re-emerge through buildings, streets, parks and squares and provide inhabitants and visitors with new information and levels of interaction. The character of *in situ* interventions stresses both the visible and the 'invisible' identities of spaces, offering dominant guidelines for architectural shaping. The ability of spaces to change[2] and the processes which have impacted the development of urban tissue are significant *in situ* markers which determine not only the HUL elements within a city but also the diversity of influences which provide new insight into understanding the space.

Due to the constant development and rebuilding of city centres, the requirements for the simultaneous presentation of multivocal heritage expand from material presentation embodied in monuments, plaques or different markers of singular elements of the past and transcode to a variety of media. In the documents of the New Paradigm, the digitalisation of heritage is endorsed as a way of presenting heritage independently from a spatial situation or the level of decay of heritage. In the documents, the concept is mainly associated with the potential for unlimited database gathering and preserving heritage elements from decay in the digital version. Although mostly connected to indoor museums, archives or libraries, the concept can be adjusted to outdoor public spaces to present overlapped heritage in public spaces. The value of digitalised heritage in public spaces can rely on Jeff Malpas's thesis that besides digital preservation and documenting, the use of digital media in public spaces influences the presentation of sites in their entirety, regardless of visibility and material characteristics of artefacts within sites.[3] As well as stressing the potential for presenting all the layers of the site, Malpas points out the potential of digital media to create environments which enable the freedom of movement, as well as the freedom of choice of information within the interaction with heritage.[4]

The process of heritage digitalisation within public spaces enables a new way of interacting with heritage. Especially within spaces with dense and multivocal heritage, the use of digital media offers the interlocking of physical and virtual worlds on several levels. Relying on the thesis by Neil Silberman that the 'past is the most virtual of all the realities'[5], mixed-reality environments offer interaction with heritage in spaces in which both the heritage and the user's presence exist in the virtual realm. Treating heritage as digital information, as suggested by Silvio Zancheti, enables the transition between passive and active communication with heritage – from observation to interaction.[6]

The idea of creating interactive environments[7] within cities has been present in the field of urban studies since the middle of the twentieth century, as anticipation of the potential for urban development in the era of rapid technological

development. The wide use of photography, film and early computers in everyday life implied new challenges for the planning and design of public spaces. Considering digital media as a 'connective tissue' with a 'profound impact'[8] on contemporary cities, the approach to urban design should include virtual interventions to enhance interaction between spatial information, user and space. The qualities of virtual and mixed reality environments in public space have the ability to create interactive urban environments by containing multiple layers of information and offering users the choice within the database. More precisely, the element of choice and free movement makes interaction through digital media an individual and personalised experience – crucial for creating contemporary user-oriented public spaces.

In the context of heritage, mixed-reality environments offer spatial experience in interactive surroundings, which can be accessed by different forms of websites or applications or within a *gamified* environment. The mixed-reality public spaces enable users to experience their physical surroundings with added (augmented) virtual layers which offer additional information or types of spatial experience. Within these environments lies the potential for creating interactive education spaces within public spaces, making heritage more accessible and interesting for a wider spectre of users.

3. *EDUTAINMENT* AS A CONTEMPORARY REQUIREMENT FOR HERITAGE PRESENTATION

The interactive character of digitalised heritage introduced new ways of communication between heritage elements and sites with users of public spaces. According to international documents, strategies and agendas, the new need for the popularisation of multivocal heritage led to the establishment of new concepts in heritage management. *Edutainment* is one of the new concepts in heritage presentation, which empowers an interactive and immersive experience of heritage sites. The term is coined from education and entertainment and suggests creating informative and educational content that can be experienced informally.

The idea of making heritage more popular is present in a variety of international documents and agendas, such as the UN Agenda 2030 and many UNESCO documents. The guidelines suggest making heritage 'accessible for all', which can be implemented through different strategies within the field of urban planning. The position of informal education and 'lifelong learning' can be tightly connected with heritage, making public spaces the pilot locations for

the implementation of different concepts. The adaptable characteristics of mixed-reality installations in public spaces overcome different disabilities and barriers in language or physical accessibility, making them optimal solutions for a variety of user groups, thus promoting the 'lifelong learning' concept.

The entertaining approach to educational characteristics of heritage sites as 'non-scientific' principles of communication[9] is a valuable guideline for creating attractive public spaces with dense heritage information. Unlike the traditional methods of heritage presentation, which are frequently limited to observing, heritage presentation designed by the *edutainment* principles expands the group of users and offers a unique experience. The design relies on mixed-reality environments by collecting an interactive database with mixed media content (audio-visual files, textual descriptions, trivia, 3D models, etc.), which can be accessed through personal devices. Using phones, computers and tablets to interact with heritage enhances the familiar ways of interacting with information, treating heritage as an interactive complex database. Thanks to the unlimited database, the complexity of heritage can be sorted or in the language of the new media – 'filtered' by type, chronology or topic, enabling a variety of experiences through interaction.

The flexibility of choice, characteristic of digital media offers a new experience each time by choosing different 'filters', which adds to the entertaining potential of the mixed-reality environment. The *edutainment* concept is already present in different virtual environments, such as video games and virtual communities and their characteristics can be combined with museology principles for an adequate heritage presentation in public spaces. By creating an immersive surrounding, users can experience different layers of heritage in first-person, through VR or AR installations or different sets of informative databases, trivia and videos. This approach enables interaction and identification with locations through heritage for younger users, making heritage more approachable.

The examples of heritage *edutainment* environments range from historical re-enactment in museums and heritage sites, through video games with historical topics and environments, to virtual heritage installations in public spaces. The concept of activating public spaces for heritage presentation in the form of an 'open museum' goes beyond museology development and practice and represents a broader context of expression of cultural identities to raise interest in visitors.[10] Both the virtual and the non-virtual concepts can be applied in public spaces for the presentation of cultural heritage. However, due to the characteristics of overlapped heritage within urban tissue, the paper will focus primarily on the use of digital media and mixed-reality environments. The

virtual heritage content[11] designed for interaction and education within public spaces can be perceived as a kind of 'digital urban acupuncture', not only as a part of the reactivation of public spaces but also as a generator of their tourist potential.

Understanding heritage as a potential for revitalisation of urban spaces and the contemporary need for introducing digital media to different aspects of public life suggest designing the interaction with heritage in public spaces through mixed-reality environments. Relying on the qualities of interactive environments defined in the previous section, the paper will further explore the spatial requirements, opportunities, and limitations for implementing mixed-reality environments on heritage sites in public spaces.

3.1 Edutainment and heritage as a public space event

The possibility to experience educational environments in a virtual or semi-virtual realm has evolved at an 'accelerated pace' during COVID-19 and the development of various apps, programs and immersive environments that enable virtual substitutes for the physical world.[12] During this period, both entertainment and education have transitioned into a new format, enabling the combination of experiences, spaces, and interactions, stressing the importance of further research on interactive *edutainment* installations in everyday public life. These kinds of installations, especially in public spaces, are closely related to Richards and Palmer's concept of *eventful cities* and introduce a new reading to it.

Regarding heritage as the event quality of urban spaces, Richards and Palmer[13] emphasise the following benefits of eventful interaction and heritage preservation: 1) flexibility in contrast to the fixed physical structures; 2) differentiation of environments; 3) offering 'spectacle' and an 'atmosphere'; 4) meeting the need of presence within the historical environment (feeling of 'being there'); 5) economic aspect and cost. Specifically in the context of introducing mixed-reality environments to public spaces of heritage sites, the *eventful city* concept and named aspects, identifying mixed-reality environments as events proposes an already familiar planning concept to heritage in public spaces.

Combining the mixed-reality education environments, and thus implementing the 'non-scientific settings of heritage presentation'[14], and connecting them to contemporary concepts of urban planning enables a new approach both to the design and use of public spaces, as well as to the popularisation of heritage among a variety of users. In this context, the requirements of interactive and

mixed-reality environments present urban design and public spaces with new infrastructural and spatial requirements and, as such, offer a new, more approachable reading of spatial information.

4. SPATIAL AND INFRASTRUCTURAL REQUIREMENTS FOR CONTEMPORARY HERITAGE SITES IN PUBLIC SPACES - A SITE ANALYSIS

In addition to the site analysis required for determining physical and functional characteristics of potential locations for implementing the mixed-reality heritage presentation, the digital media and user-oriented concepts have another set of spatial values to be considered when planning contemporary heritage sites within public spaces. As implied in the paper's second section, the places which are adequate for virtual heritage presentation should have overlapping heritage elements in the same locations, making the material and conventional marking of sites inadequate and selective. For further understanding of the issue and concerning multivocal heritage presentation, the site analysis should include historical analysis and the use of the palimpsest method to determine the sites with the higher density of heritage information. Mapping the heritage sites within the contemporary urban tissue provides insight into the potential for an adequate choice of digital media for interaction.

The mixed-reality environments rely on the use of personal devices and/or internet-based media for interacting with the heritage database. Translating these requirements to site analysis means adding the digital infrastructure layer and the internet coverage level in observed areas. Within the concept of accessibility, *edutainment* environments should not depend just on personal mobile data for use in public spaces, so the spaces are expected to be equipped with internet coverage with free access, thus not limiting the user groups and minimising the potential barriers in use. While the optimal solutions would involve the planned public access networks specifically positioned for the mixed-reality heritage sites, the analysis can incorporate all public access networks and consider them a part of the city's digital infrastructure.

Playful characteristics of the *edutainment* concept imply interaction with younger users and introducing them to heritage sites and values from an early age. Bearing in mind the safety requirements of *child-friendly* public spaces, site analysis should include the analysis of pedestrian areas, surfaces, and paths to determine the safest surroundings or potential hazards which should be eliminated to enable safe use for all. In addition to safety, the

edutainment concept can be implemented in spaces already familiar to the target population, thus adding another layer of interaction to already active spaces. From this aspect, a valuable marker of urban settings includes parks and playgrounds, which are already used by the target population. In places requiring revitalisation, the proximity to public buildings, such as schools, can help determine the presence of anticipated user groups without artificially attracting them to sites.

The social infrastructure significant for determining the potential of public spaces to act as pilot locations for implementing mixed-reality heritage sites relies on the proximity and interest of different stakeholders from the fields of culture and education. In this case, relevant stakeholders include museums, universities, schools, kindergartens and different levels of governance, especially on the municipal level, which can contribute to creating pleasant and educational public spaces.

According to the criteria from different aspects required for the implementation of the *edutainment* concept on heritage sites, the site analysis in this research contains several aspects for determining the optimal locations for mixed-reality and child-friendly public spaces. Based on the criteria from this section, site analysis can be both mapped and conducted through a quantitative chart (Table 1) containing relevant factors, such as proximity to educational buildings, cultural buildings, existing places of gathering and Wi-Fi network coverage of heritage sites. Due to the characteristics of target users, the observation area is narrowed to 400 and 600 meters, optimal for pedestrian movement.

TABLE 1: Aspects of site analysis

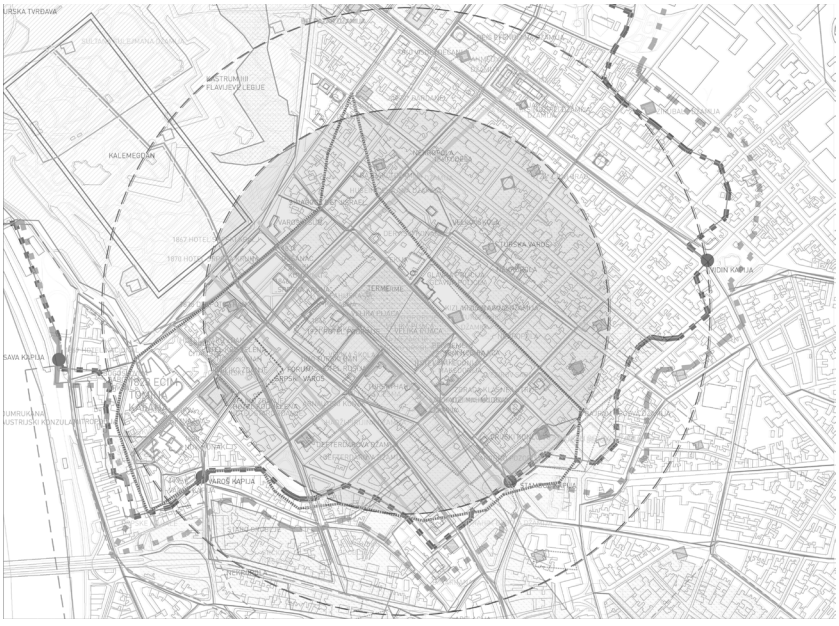
Type	0-400m	400-600m	Total
Heritage sites			
Education			
Culture			
Gathering places			
Wi-Fi networks			

5. MIXED-REALITY EDUTAINMENT POTENTIAL IN THE STUDENTS SQUARE AREA

The area surrounding Students Square is the area of Belgrade's historical centre with the highest density of heritage sites. The sites show the continuity of urban development of the area from the 2nd century AD until today and, observed within a 600-meter radius, the analysed location consists of eighty heritage sites (Figure 1). Most sites are 'invisible' and overlapped with other sites or contemporary urban tissue, making them adequate for presentation in a mixed-reality environment.

Using a palimpsest method for mapping the heritage sites reveals the traces of Belgrade's urban heritage embedded within the urban tissue. By identifying and mapping the sites, it is possible to observe them from the point of the highest density – the University Park and surrounding buildings, as the centre of the walkability and accessibility radius of 400-600 meters. The sites offer a new understanding of the multicultural layers of Belgrade's urban development, from the Roman Empire, through Ottoman and Austrian empires to the Modern Serbian state and the contemporary city.

FIGURE 1: The walking distance of 400-600 meters superimposed to overlapped heritage sites



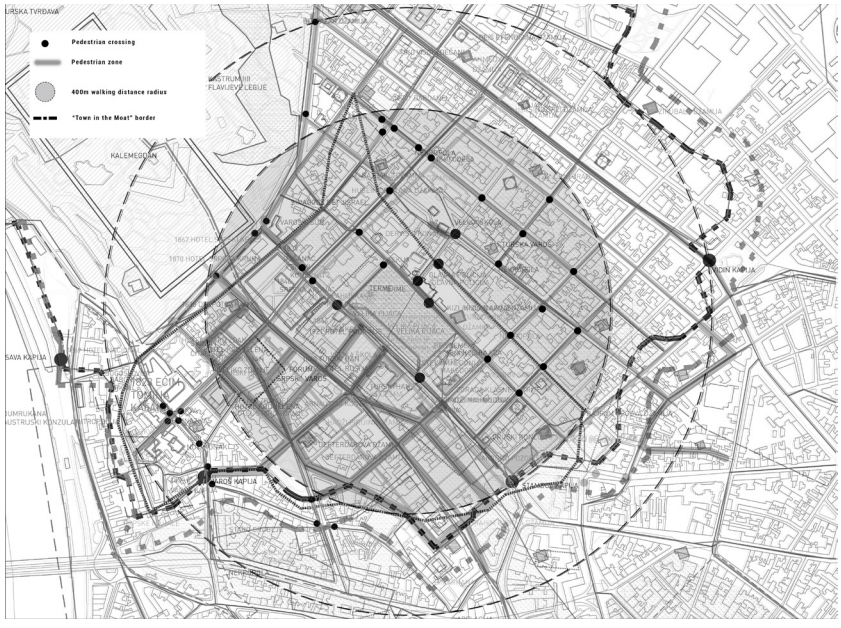
5.1 Heritage sites in the Student Square area

The Student Square area and the observed territory are covered in heritage sites. The quantitative research of the heritage sites is based on overlapped data from the cartographer Željko Škalamera's maps and various strategic and urban plans of Belgrade. According to this digitalised database, eighty heritage sites are dispersed throughout the inner-city core. Of the eighty mapped sites, only thirteen are a part of the visible contemporary urban tissue, while the remaining sites present the places which were, over time, demolished and replaced by contemporary buildings and structures.

Mapped sites include mostly buildings and places of historical everyday life, which enable a wide range of possibilities for gamified interaction. In the *edutainment* concept of heritage presentation in public spaces, the variety of potential mixed-reality environments enables recreating experiences of Belgrade and its public life in different historical periods. By unveiling the 'invisible' heritage sites, the mixed-reality environments enable interaction with the city in different phases of its development.

The walkability analysis of the sites (Figure 2) shows that the eighty heritage sites can be accessed on foot within a comfortable walking distance.

FIGURE 2: Walkability map of Belgrade's historical core

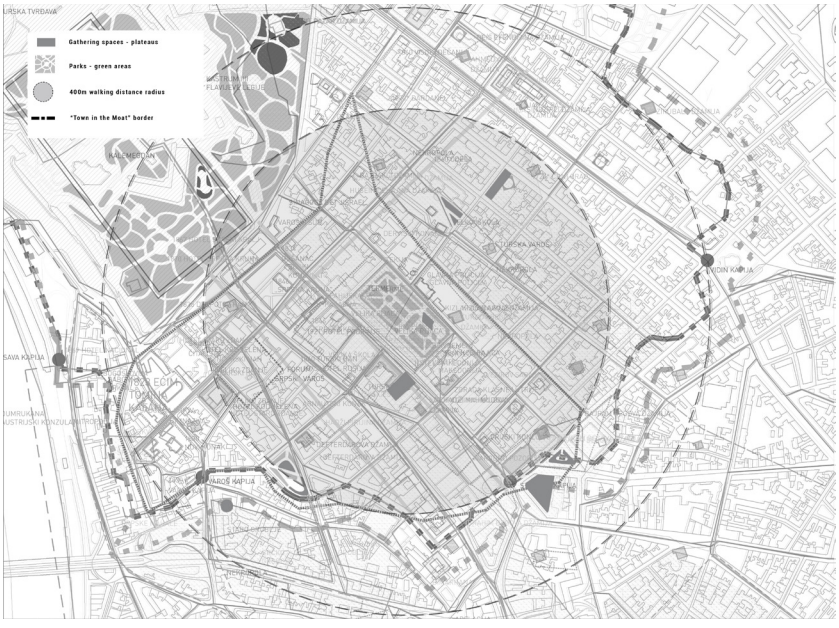


Within the 400-meter diameter are the forty-eight sites and places of memory, and in the wider area of 400-600 meters are the remaining thirty-two sites, which can be accessed by walking or public transport. This proximity and density of sites enable connecting different virtual installations in the forms of single installations or networks of walkable mixed-reality tours. The walkability of the area is determined by the proximity of sites and the safety of use. The majority of the area is connected through a pedestrian zone and clearly marked pedestrian crossings between streets with pavements on each side of the streets, making spaces safe for independent use by younger groups.

5.2 Gathering spaces around heritage sites

For the popularisation of heritage sites among different groups of users, it is optimal to identify the public spaces which are already frequently used and to optimise them for heritage presentation by adding a new mixed-reality 'layer' to their functions. This way, the familiar places for users and communities contain another set of values and contexts, which can provide more levels of communication with spatial information. In the observed area are fifteen open public spaces – parks, squares, playgrounds and open courtyards which attract the community of younger users, which are the target group for implementing the *edutainment* concept (Figure 3).

FIGURE 3: Gathering spaces within walking distance of heritage sites

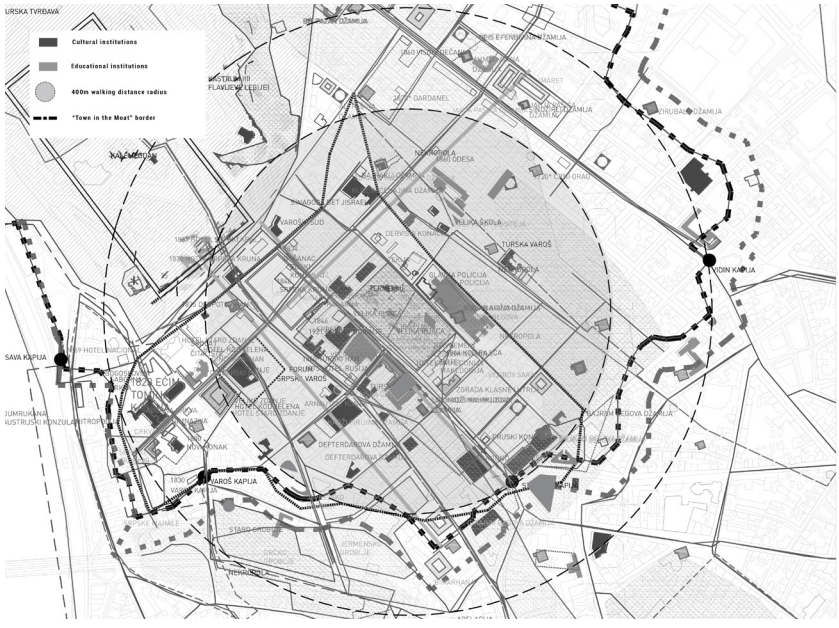


Ten gathering spaces are located within 400-meter walking distance and mostly connected through a pedestrian zone, making it a safe spatial polygon for creating networks of mixed-reality installations. According to the types of places, the mapped gathering areas attract three distinguished age groups, which further determines the types of virtual interaction with heritage sites – 1) the youngest group, which uses playgrounds (children up to the age of 12); 2) teenagers (13-19 years old); 3) university students and young adults (19-25 years old). The gathering spaces and age groups are closely related to educational and public buildings in the Student Square area, which further improves the site analysis by adding different sets of potential stakeholders.

5.3 Education and culture - public buildings in The Student Square area

As concluded above, the gathering spaces in the observed area are mostly related to open spaces near schools, kindergartens and faculties, which attract the majority of users and define the dominant character of spending free time. The twenty educational buildings and thirty-six cultural buildings (Figure 4) offer not only groups of predefined users, but a wide range of professionals who can contribute to the implementation of the mixed-reality *edutainment* installations, from the aspects of adapting the communication between heritage

FIGURE 4: Educational and cultural institutions in the observed area



and users as a means of education through public space, as well as providing materials and data as a contribution to the development of the installations.

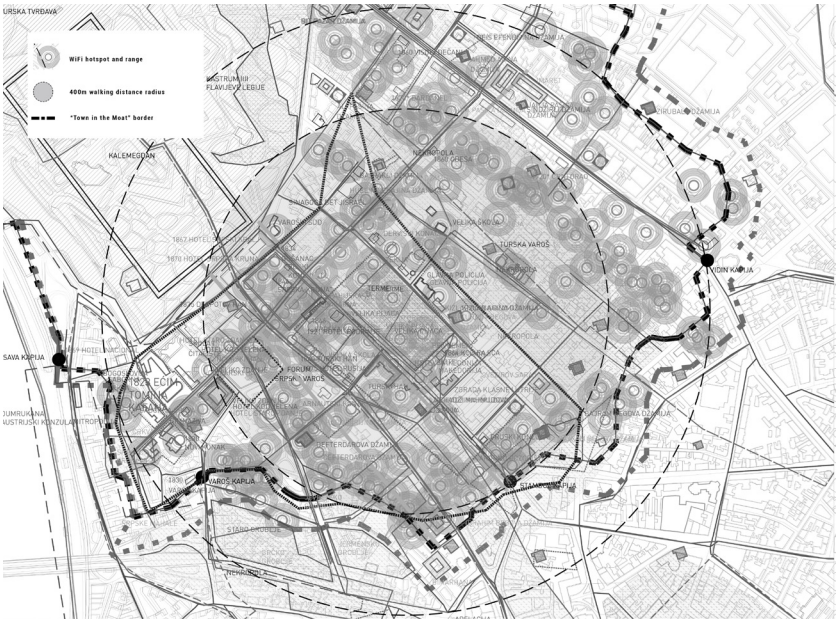
By approaching the educational and cultural buildings as potential stakeholders, the mixed-reality heritage presentation becomes a part of participatory planning and enables collaboration between different fields in creating contemporary places of interaction with heritage sites.

5.4 Overlapped heritage and Wi-Fi coverage

Experiencing the virtual layer of public spaces usually relies on the use of Internet networks and personal devices. In the observed area, the 163 public networks covering the eighty heritage sites enable the almost seamless transition from site to site, creating a continuous flow of users between visible and hidden elements of heritage (Figure 5).

The network coverage contributes not only to the interaction with heritage in mixed-reality environments but also provides unlimited storage for a complex database, which can constantly be improved and updated to facilitate the *edutainment* and promotion of heritage through public spaces. The shift from material to virtual aspects, enabled by Internet coverage, creates new use of spaces without burdening the space with additional physical structures.

FIGURE 5: Wi-Fi network coverage of the observed area



Especially among younger users, using the Internet-based database for presenting heritage also enables the use of different media and categorisation of heritage information by theme or chronologically[15], maximising the potential for individual choice of experience and enabling the users to experience the same spaces through a variety of different algorithms, making each interaction unique and dynamic, based on personal selection and preferences among the mixed media database.

TABLE 2: Quantitative representation of site analysis aspects

Type	0-400m	400-600m	Total
Heritage sites	48	32	80
Gathering places	10	5	15
Education	11	9	20
Culture	27	9	36
Wi-Fi networks	120	43	163

6. CONCLUSION

Including aspects which define and enable a contemporary approach to heritage in public spaces to urban analysis introduces new inputs to designing and planning historic urban cores. The paradigm shift and introduction of concepts of virtuality to heritage presentation enabled the treating of heritage sites as places of entertainment, which attract new users and introduce various layers of heritage to communication between public space and users. The *edutainment* concept embodied in creating attractive environments for communicating heritage in public spaces enables an informal approach to education and makes heritage more approachable to younger users. Intertwining the principles of *edutainment* (such as creating immersive experiences) with urban design attracts new groups of users, but also creates new guidelines for planning places with a high density of heritage.

On the analysed site of Student Square, the urban analysis was conducted with added criteria for *edutainment* and heritage presentation purposes, introducing new aspects and readings to public space. The specified site offers not only a high density of multivocal heritage from different periods, but also a satisfying level of equipment with digital infrastructure as well as proximity to cultural and educational buildings pointing out the positive impact of infrastructural surroundings to creating attractive public spaces optimised for mixed-reality use by younger groups of users. This way, presented in the case of Belgrade, frequently used contemporary spaces can gain an additional layer of an immersive historical environment, enabling interaction with both the visible and the ‘invisible’ spectre of spatial information.

NOTES

The author is a scholarship holder of the Ministry of Education, Science and Technological Development of the Republic of Serbia, Contract No. 2918.

1 ICOMOS, *International Charter for the Conservation and Restoration of Monuments and Sites*, (Venice: ICOMOS, 1964)

2 Gustavo Araoz, "Preserving heritage places under a new paradigm" *Journal of Cultural Heritage – Management and Sustainable Development*. Vol 1 No. 1 (2011): 58

3 Jeff Malpas, "Cultural Heritage in the age of New Media". Yehuda Kalay, et al., ed. *New Heritage – New Media and Cultural Heritage* (London: Routledge, 2007): 18

4 *Ibid.*

5 Neil Silberman. "Chasing the Unicorn? The quest for essence in digital heritage" Yehuda Kalay, et al., ed. *New Heritage – New Media and Cultural Heritage* (London: Routledge, 2007): 82

6 Silvio Zancheti "Values, Built Heritage and Cyberspace". *Museum International* No 15 (September 2002): 23

7 Paul Virilio. *Lo spazie critico* (Bari: Dedalo, 1988): 125

8 Carlo Ratti, Matthew Claudel. *The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life.* (New Haven and London: Yale University Press, 2016): 20

9 Eric Champion, "History and Cultural Heritage in Virtual Environments" Mark Grimshaw, ed. *The Oxford Handbook of Virtuality* (Oxford: Oxford University Press, 2014)

10 Adriaan De Jong, "The first open air museums. Innovative institutions for strengthening feelings of community and national identification". Nikola Krstović, ed., *OPEN AIR MUSEUMS 2014 - FOUNDING FATHERS International Yearbook* (Sirogojno: Open air museum OLD VILLAGE, 2014): 33

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12 Tula Giannini, Johnatan P. Bowen. „Museums and Digital Culture: From Reality to Digitality in the Age of COVID-19." Heritage Vol. 5 (2022): 194

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14 Eric Champion, “History and Cultural Heritage in Virtual Environments” Mark Grimshaw, ed. The Oxford Handbook of Virtuality (Oxford: Oxford University Press, 2014)

15 Milja Mladenović,, ”Kulturno nasleđe u (virtuelnim) javnim prostorima: javni prostor i mešovita realnost“ Mrlješ, Rade, ed. *Zbornik radova sa međunarodne konferencije Graditeljsko nasleđe i urbanizam,* (Beograd: Zavod za zaštitu spomenika kulture grada Beograda, 2022) 422-423

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commentary
UDC 72:004
930.85

admission date 31 10 2022
approval date 13 04 2023

CAN NEW TECHNOLOGIES REPLACE THE EXPERIENCE THAT CULTURAL HERITAGE SITES AND MUSEUMS ESSENTIALLY OFFER?

ABSTRACT

When visiting cultural heritage sites and museums, we rely on our senses in perceiving the world around us, especially architectural and artistic sensations. Even though empirical foundation can often be deceitful, it represents the stimulus we form a response to and what ultimately becomes our memory of the space. With our whole world being constantly digitalised, especially during the COVID-19 pandemic, our personal and work relationships mostly became linked to technology. The aim of this paper is to question new technologies' use (Virtual Reality, Augmented Reality, Natural Interaction, Metaverse), values and dangers recently underlined in the public discourse, as well as whether heritage sites and their users thrive in virtual surroundings at all. Using the Stimulus-Organism-Response model, this paper investigates whether the past still has a future in the traditional, formal sense. The main question is: What is the cultural significance of heritage in a virtual world and is digital heritage possible, or is this an oxymoron? The conclusion suggests that new technologies' use should be carefully and moderately carried out and limited to several situations.

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KEY WORDS
CULTURAL HERITAGE
MUSEUMS
EXPERIENCE
SENSES
TECHNOLOGY, METAVERSE

1. INTRODUCTION

The sign of human civilisation's improvement can be measured in the growth of science and technology. With already developed technologies such as Virtual Reality (VR), Augmented Reality (AR) and Natural Interaction (NI) and their different combinatory implementations, there have been plenty of suggestions about potential Metaverse environment taking place in the near future. However, a fine line needs to be further analysed and investigated between taking place and overtaking. The metaverse concept, as outlined by Mark Zuckerberg, describes an integrated, immersive ecosystem where the barriers between the virtual and real worlds are seamless to users, allowing the use of avatars and holograms to work, interact and socialise via simulated shared experiences.[1] This means that an *alter ego* persona communicates with other people's avatars, does daily routines and errands and is even capable of spending and investing. The vision of how the Metaverse could potentially shape many aspects of how we work and socialise has engendered increasing questioning and debate from academics and practitioners on the numerous societal implications for many people worldwide.[2] Impacted sectors include marketing, education and healthcare, as well as societal effects relating to social interaction factors from widespread adoption and issues relating to trust, privacy, bias, disinformation, application of law and psychological aspects linked to addiction and impact on vulnerable people.[3] While it raises many questions and doubts, how can we, as a society, benefit from Metaverse implementation? With VR, AR and NI already in use in some cultural heritage sites and museums, is there a future in using Metaverse as well? Can it become an invaluable addition, a complete substitution, or should it be separate from traditional forms of visiting heritage sites? What gets lost in translating from the tangible material world to an intangible immaterial since we use our senses to perceive the world around us?

2. MOTIVATION AND METHOD

Architecture and art influence emotions and thoughts. When accepting and processing stimulus in a cultural heritage site or museum, an individual creates a specific reaction, response, thought or emotion (certain behaviour), ultimately becoming a recollection base. This whole process could be formulated as an essential experience cultural heritage sites and museums offer. That is why this paper includes the Stimulus-Organism-Response model (SOR model) as a study method, a theory deriving from *functional psychology* and developed by Robert S. Woodworth.[4] It explains the relationship between a stimulus as an impulse that contains the statement, an organism representing

an individual, and a response that is any effect, reaction or answer. The SOR model underlines that human behaviour results from past, personal or observed experience (external factors). SOR theory may be a useful framework to explore the factors associated with VR […]; it has been widely used to examine the links among inputs (stimulus), processes (organism), and outputs (response).[5] Research, including the topics of aesthetics, has been conducted,[6] as well as some tourism studies on visitor behaviour, all while using the SOR model.[7] Specifically, the SOR theory in relation to innovative technologies has been applied to impulsive buying behaviour in a mobile auction,[8] customer engagement with online brand community characteristics,[9] as well as co-creation in social media communities.[10]

When discussing potential *meta* or *digital* heritage sites and museums, while considering the scenario where the 'stimulus' is completely or semi-technologically aided, the 'cultural heritage site/museum-visitor-response' relationship is different and new. The formula 'site-visitor-response' could be further developed into 'site-visitor-response-memory', an additional layer important to cultural and heritage institutions as places where decay and oblivion are combatted. The authors question whether the experience new technologies offer could replace the experience cultural heritage sites and museums offer in a formal, traditional way. The authors also cast doubt on the excessive exploitation of new technologies in general.

3. CONCEPTUAL FRAMEWORK FOR POLEMICS

3.1 Polemical Proposal

According to ICOM, a museum in its traditional form is a 'permanent institution which acquires, conserves, researches, communicates and exhibits'.[11] However, when examining the definition, no methods in any aspect are mentioned, and if any of the aspects can be digitally conducted. VR and AR have been in use for a few decades, with some experiments and exhibitions in cultural settings already successfully implemented. VR completely immerses a user inside a synthetic environment; while immersed, the user cannot see the real world around them.[12] The gaming industry has been profiting off of VR technology since the early 1990s and has been implementing some 'Metaverse' VR games more recently. Furthermore, VR is an incredible learning tool, especially when exploring extinct species in Natural History museums, for example, or engaging with any other perished world and its phenomena. In this particular case, the stimulus portrays an image of a physically nonexistent/extinct object and the VR installation is the only way to evoke it. The stimulus is visual and auditory, meaning that it contributes to *iconic* and *echoic memories*. It also

provides an insight from the user's perspective that creates an extraordinary experience of seeing animal movement and behaviour through 3D animations, providing depth that a still image cannot. Although a video rendering the same can hold a bigger value than an image when exploring, VR enables the user to experience the world through HMD (Head-mounted display) first-hand. However, as already mentioned, VR contains a set of drawbacks. Firstly, its use is limited outside education, promotion and gaming, and secondly, it implies being detached from any form of the object's physical presence and reality. It forms an illusion of isolation that can potentially be detrimental to both mental and physical health, and this problem is also possible with Metaverse. The only reasonable outcome of its use is as an additional interpretation and educational tool to the existing physical museum frameworks or in the sense of the museum promotion.

Namely, AR might be a better, more humane solution. Azuma concludes that 'AR allows users to see the real world, with virtual objects superimposed upon or composited with the real world'. 'AR technology creates a blend between the real world and the digital, bringing the digital 3D objects literally in our hands […] this experience, applied in a museum setting, can be educational, social and entertaining'.[13] AR could represent an upgraded version of a hologram, meaning that a virtual object is being investigated in a real setting; therefore, it means having a museum (virtual) within a museum (physical, traditional form). It achieves even greater significance when paired with NI, which might be a more human-sized solution. The design of NI systems is focused on recognising innate and instinctive human expressions in relation to some object and returning to the user corresponding feedback that is both expected and inspiring.[14] A group of authors (Kyriakou and Hermon) had created software that enables users to touch a digital replica of an artefact, all while in a museum environment. It is focused on those objects that are in the depot, hence unavailable, or in such a deteriorating, fragile condition that are not to be touched. What is utterly relevant is that it also implements a social component since all users connected can experience what the person primarily wearing the HMD sees. Apart from the sense of a strong visual experience with the objects being realistically modelled, this team patented software which allows users to 'take' an object from a digital shelf, as well as move and rotate it. This experiment has significantly upgraded the virtual experience since an additional stimulus layer relying on the sense of touch (*haptic memory*) has been added. Not only does using touch make a difference in emotional communication and affects the level of closeness,[15] but we use our sense of touch to feel the surface, experience it, and explore an object even deeper after being primarily engaged by the sense of sight. The value of touch and object

handling in museums is little understood, despite the overwhelming weight of anecdotal evidence which confirms the benefits of physical interaction with objects.[16] Tactility is often used to investigate a surface – its texture, temperature, and roughness. However, this cited paper does not disclose that the users felt the surface of an object; it only states that the users 'see some details of the model; understand its general geometry and volume'. In this example, the object is real and existent, but unavailable for visitors, which is why it is being replaced by a 'simulation stimulus'. The stimulus is perceived by the visitor and stored in an 'organism's' mind as *iconic, echoic* and *haptic memories*, which means that this particular combination of technologies can be used as an additional medium of conveying knowledge and information in museums and cultural heritage sites, applicable when there is a need for it.

As Aristotle underlined that humans have five senses (sight, hearing, smell, taste, touch),[17] scientists have long claimed that the sense of sight is the strongest one, as well as being 'often considered to be the sense most valued by the general public'.[18] One of the oldest beliefs about human perception is that we have a poor sense of smell. This is a general belief among the public and appears to have held a scientific basis. However, some recent behavioural studies suggest that primates, including humans, have relatively good senses of smell. 'Resolution of this paradox may come from a larger perspective on the biology of smell. It appears that, in the olfactory system, olfactory receptor genes do not map directly onto behaviour; rather, behaviour is the outcome of multiple factors'.[19] Moreover, an article titled 'What the nose knows' underlines that the sense of smell is the strongest one, in fact.[20] On top of that, Harvard's Venkatesh Murthy claims that 'smell and memory seem to be so closely linked because of the brain's anatomy',[20] regarding its physical proximity. If we further analyse this anatomical fact, memories linked to a particular smell are often deeply engraved in us. For example, remembering recollections that have taken place while linden trees blossom each June or childhood memories of a specific kindergarten teacher's perfume. 'Smell and emotion are stored as one memory', said Goldworm, and childhood tends to be the period in which you create 'the basis for smells you will like and hate for the rest of your life',[20] basically forming storage in a person's *olfactory memory*. When it comes to archaeological and cultural heritage sites, olfactory memory should not be neglected when learning about, exploring and especially visiting sites. For instance, a prevailing memory of visiting the Valley of the Kings in Egypt could be the odour of the tombs that had previously been sealed for thousands of years. This memory most certainly remains a vivid, unforgettable one and is directly linked to the experience of the space and its characteristics.

Regarding the museum settings, some curators have already recognised the

power of the sense of smell in using new technologies to grasp the visitors' attention. Between 1617 and 1618, close friends Jan Brueghel and Peter Paul Rubens collaborated on a group of oils titled 'The Five Senses', containing metaphorical scenes, each illustrating sight, smell, taste, touch and hearing. Brueghel was the first to illustrate the theme of senses by using assemblages of works of art, musical instruments, scientific instruments and military equipment, accompanied by flowers, game and fish.[21] In April 2022, The Prado Museum launched its new technology for one of five paintings, 'The Sense of Smell', and created a palette of odours corresponding to the items painted, such as flowers, animals etc. These smells can be activated at four Samsung interactive touch screens, which diffuse the scents using AirParfum technology developed by perfume company Puig, a collaborator in this project. 'Once researchers had identified the eighty different plant and flower species seen in the picture, Gregorio Sola, Puig's senior perfumer, set about creating some of their scents.'[22] It is further underlined that 'we all have our own *olfactory memory* and the idea of this exhibition is that Jan Brueghel's painting will leave its own memorable olfactory print on all of us […] Those with less olfactory imaginations can head to the Prado in Madrid to fill their nostrils with the scents that suffuse Brueghel's 1617-18 painting The Sense of Smell.'[22] Although other museums and galleries, such as National Gallery and Mauritshuis Museum, have already had similar temporary exhibitions,[23] it is stated that 'fragrance remains a lesser-used element within cultural venues compared to, say, virtual reality'.[24] This is an excellent example of using technology to enhance the qualities that an art piece already possesses, meaning that this system creatively interprets the painting's traits and provides an experience that could be more deeply ingrained in the visitor's memory. The technologically aided stimulus poses an interesting adjunct value to the museum, while the whole experience remains a traditional visit form.

3.2 Phenomenology of (Ir)Real Spaces

What gets lost in the translation from the tangible material world to an intangible immaterial one? Since we cannot physically 'taste' architecture or paintings (though we can 'eat' or 'drink' while being in a museum or another cultural site, which resonates with our experience that eventually becomes our memory of the space), sight, touch, hearing, and smell all play a vital role in embodying a space. Visiting important heritage sites deserves to be a unique experience that visitors engage in with as many senses as possible. Some senses may, however, prevail if the stimulants are amplified. That is where using new technologies in order to compensate senses proposes a different set of questions – how authentic is that engagement and could technology replace the 'real' stimulus of a cultural heritage site or a museum in the cases

where the intention is such? Can we really *move* cultural heritage sites and museums to a *meta* space? Considering that experiences become memories ('response' creates 'memory'), are they bound to become vague if experienced through any imitational technology? Needless to say, different technologies can technically provide smell and touch, but is a simulation enough? Why do people travel still, if only a click away in *Google Maps Street View* they can roam the streets of London or Tokyo? Given the fast development experience, we can predict that *Google Maps Street View* will become more dimensional in the future. Travelling without moving is yet another oxymoron itself, just like 'digital heritage' or 'meta heritage site/museum'. A very similar simulation analogy can be found in Plato's 'Allegory of the Cave':

> The shadows represent a false vision of the truth, an illusion about reality. Because the prisoners have never seen the true objects that exist in the world, the objects which are casting those shadows, they believe the shadows are all that is. [25]

In such a convincing Metaverse environment, are not all users, in fact, prisoners seeing shadows whilst believing they are real? The stimulus is only a 'shadow'. According to The New York Times, 'the Metaverse is the convergence of two ideas that have been around for many years: virtual reality and a digital second life'.[26] This conveys a message of double existence in two parallel worlds, being present at one place physically and at the other virtually and in the user's mind, creating escapism of some kind. Metaverse opposes the principles of visiting a cultural heritage site or a museum since space needs to be experienced and conquered with all senses possible. Essential qualities that cultural heritage sites and museums possess are entirely based on empiricism: experience and observations are key elements that oppose 'digital heritage'.

3.3 Controversy

If experiences become memories, are they supposed to become hazy if the stimulus is only a simulation? Combatting decay is achieved through conservation and memories accumulated and created by the experience. However, decay is inevitable – the nature of things includes transformation, change and, in the end, collapse or disappearance. The Getty Conservation Institute (GCI) claims that 'archaeological sites in particular are vulnerable to the environmental effects of weather, flood, and wind, and to these must be added vandalism, looting, and even tourism.'[27] Cultural properties that are on the 'World Heritage in Danger' list are classified according to the Procedures of the 1972 Convention: Ascertained danger (serious deterioration

of materials; serious deterioration of structure and/or ornamental features; serious deterioration of architectural or town-planning coherence; serious deterioration of urban or rural space, or the natural environment; significant loss of historical authenticity; important loss of cultural significance). Potential danger means the property faces threats that could cause deleterious effects on its inherent characteristics. Such threats are, for example: modification of the juridical status of the property diminishing the degree of its protection; lack of conservation policy; threatening effects of regional planning projects; threatening effects of town planning; outbreak or threat of armed conflict; threatening impacts of climatic, geological or other environmental factors.[28]

Many sudden threats and scenarios are possible as well. When the Notre Dame de Paris fire broke out in 2019, the world watched it crumble, utterly perplexed and in disbelief. What we actually faced was coping with terminality and mortality while watching a nine-century-old symbol and a significant, beloved UNESCO World Heritage Site collapse. However, solace can be reborn and found within another architectural/spatial term – things are ephemeral. Whether they last two thousand years or two months, they are due to end their span, making their inner being transitory and temporary. This does not mean that the deterioration must be linear. As all things transitory, people's needs, social rules, trends and aesthetics change, as well as their appreciation and dedication towards heritage sites and museums. In that regard, a lifespan of a cultural heritage site/museum represents a wavy diagram more than a linear one. Nowadays, it is up to us to heighten the curvature towards yet another peak by reassessing the cultural asset's values.

4. DISCUSSION

> Conservation is the process of maintaining and managing change to a heritage asset in a way that sustains and, where appropriate, enhances its significance. Some legislative requirements refer to it as 'preservation', which is interpreted as 'preserve from harm' – that is, harm to its significance, not simply its fabric. The vast majority of our heritage assets are capable of being adapted or worked around to some extent without losing their significance. Indeed, change is often vital to facilitate the optimum viable use of an asset so that it continues to receive investment.[29]

Technological advance offers great significance in adding value to a site (even *change*, as previously underlined), especially in promotion, education, capturing the attention of younger generations etc. However, it should not

impose substitution for the pivotal role heritage sites and cultural institutions have been playing for centuries by enforcing our identity, history and artistic and architectural achievements. Some conclusions of the analysed examples suggest that the cultural heritage sites and museums could benefit from the use of new technologies when purposed as:

- Promotion/democratisation,
- Presentation and education on unknown/perished/extinct/unavailable elements,
- Creative interpretation as an additional value to the site/museum,
- Temporary solution.

The ancient Greek saying 'golden mean' underlines that 'nothing in excess' is the moral path to embark on.[30] We have become a mass society that induces mass production, mass consumption, mass media etc., and because of that, our civilisation has become an extreme one. In that light, globalisation may have also gone to an extreme and might impose more harm than help. Social media and new technologies might offer more democratisation in the cultural sphere, as well as better visibility and availability; however, there is a great threat to harming social behaviour and mental health. With too much access to Metaverse or any other similar concept, different life aspects could overlap, which is an upgraded version of the constantly 'being online' lifestyle already present today. We have a moral obligation to tread carefully since with such a swift and revolutionary change comes responsibility in facing risks and dangers. That is where 'sustainability' could enter the conversation.

United Nations' Brundtland Commission defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[31] One of the needs of this and future generations is to enjoy its heritage. In general terms, the conservation of our heritage will therefore be delivered by any genuinely sustainable development that meets that definition.[31] Under the umbrella of the term 'sustainable heritage' (European Heritage Days 2022 theme), new technologies and possible 'digital heritage' could be deemed detrimental in the long run. If we focus on meta too much, both in practice and theory and not to mention financially, heritage sites and museums could suffer. Even though technology and social media do provide more cultural heritage site and museum democratisation, as well as democracy and insight for those who cannot provide visiting, we have to bear in mind that nearly three billion people have never used or do not have internet in 2021 according to the United Nations specialised agency ITU (The International Telecommunication Union).[32]

Another digital revolution could further emphasise differences between 'those who have access' and 'those who do not'. Implementing Metaverse would create even greater divisions, while some basic existential problems would remain unsolved. That is why sustainability could be considered the 'golden mean', the balance between deciding whether to take traditional or digital measures depending on each case of a cultural heritage site or a museum.

5. CONCLUSION AND FURTHER STUDIES

Conservation, users' experience and memories are key tools for combating decay and maintaining cultural heritage sites and museums. Senses can be deceitful, as rationalists would underline, and have often tricked us in eyewitness testimony and memory biases situations. However, bearing in mind the SOR model as an analogy method, through senses, we consume architecture and art; surrounded by sensations, we form a response – and there is no right or wrong. Having a reaction, response and experience, which all ultimately cause emotions, thought flow and memories, is supposed to be subjective and individual. The Metaverse approach to cultural heritage sites and museum visits is a *faux* stimulus creating *faux* reality. Technology should be considered as aid, not escapism forms and 'second life' providers. New and developing technologies (VR, AR, NI) are sought to be used wisely – these 'stimulus simulations' could use as an additional educational or creative layer to the initial value of the site. Their use should be carefully and moderately conducted, respecting the principle of sustainability. Also, it should be limited to a number of defined situations and scenarios so that overuse and overexpansion can be restricted. The cultural significance of heritage in a virtual world could exist; however, digital heritage might be an oxymoron itself.

While this paper primarily discusses the nature of the 'stimulus-organism-response' formula by debating its manifestations ('physical/traditional stimuli vs 'virtual/meta stimuli') in theory and by analysing the given examples, further studies could deepen the research, especially focusing on the 'organism-response' relation more. It would be beneficial to carry out a survey that tracks different aspects of stimulus in cultural heritage sites and museums and compares the effects these stimuli have on individuals/groups of people, on the quality of users' reactions, and ultimately, on the behaviour, memories of the space and the whole experience itself.

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original research article
UDC 712(497.11)

admission date 19 01 2023
approval date 24 05 2023

BETWEEN LANDSCAPES AND HYPEROBJECTS: MAPPING THE VISCOSITY OF BOR FLOTATION TAILINGS

ABSTRACT

In contemporary architecture and related disciplines, the understanding of landscape is undergoing transformative changes due to ecological emergencies. Rather than perceiving landscape as a static form, it is regarded as an open process, suggesting its complete comprehension may be elusive. Consequently, alternative models that surpass traditional picturesque representations are emerging within the field of landscape representation. Furthermore, different theoretical frameworks are being employed to grasp the supposed geological epoch of the Anthropocene. Object-oriented ontology (OOO) is a framework that falls under the speculative realism school of thought. Within this theoretical lens, Timothy Morton introduces the concept of hyperobjects, referring to entities that transcend spatial and temporal boundaries and profoundly impact life on Earth. Hyperobjects manifest through diverse phenomena such as global warming, radioactive materials, nuclear waste, pollution, etc. They possess five defining characteristics: viscosity, nonlocality, time undulation, interobjectivity and phasing that may be further interpreted in the architectural discipline. Therefore, this paper aims to contribute to the ongoing discourse on hyperobjects and their essential characteristics while exploring their connections to various architectural landscape concepts. Moreover, it seeks to conduct a design-driven research experiment focused on an alternative viscosity representation in Bor, a flotation tailing in Eastern Serbia.

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KEY WORDS
LANDSCAPE REPRESENTATION
HYPEROBJECTS
OBJECT-ORIENTED ONTOLOGY
TOXIC LANDSCAPES
VISCOSITY

1. INTRODUCTION: CONTEMPORARY LANDSCAPE REPRESENTATION, OBJECT-ORIENTED ONTOLOGY, AND HYPEROBJECTS

Various ecological concerns initiate changes in landscape[1] paradigms in contemporary architecture, landscape architecture, geography, art and other disciplines. Due to an increased understanding of the world's complexities, it becomes impossible to comprehend or represent a landscape truthfully. As a result, the conventional notion of landscape undergoes a fundamental shift, transitioning from a static and rigid norm to an open-ended and dynamic process. Consequently, within contemporary landscape representation, a desire for alternative models arises for ones surpassing the conventional picturesque approach. Instead, they seek to interpret the landscape as a mechanism, unveiling its hidden elements and allowing its transformation.

Moreover, various theories, schools of thought, and disciplines have arisen in an attempt to grasp the expanding impact of human beings on natural processes. One such theoretical framework is object-oriented ontology (OOO), which was established by Graham Harman as part of speculative realism. OOO fundamentally opposes prioritising humans above non-human entities and instead tends to comprehend reality as a composition of tangible and intangible objects. Within this conceptual framework, Timothy Morton introduces the notion of hyperobjects in his book titled *Hyperobjects: Philosophy and Ecology after the End of the World* (2013). The notion of hyperobjects refers to objects so massively distributed in time and space that they transcend spatial and temporal specificity.[2] Hyperobjects manifest through various phenomena, such as global warming, radiation, nuclear waste, plastic, etc. They refer to objects created by direct or indirect human activity and have unperceivable consequences for life on Earth.

In this context, Richard Weller, James Corner's successor at the Department of Landscape Architecture at the University of Pennsylvania, proposes a transition from hyperrealistic representations, which reduce the complexity of landscapes, to landscapes of hyperobjects. Parallelly, within the MS Synthetic Landscapes SCI-ARC Master program, David Ruy and Timothy Morton explore the landscape concerning the current paradigm shift directly related to hyperobjects. They also investigate the new relationships that OOO establishes with architecture. Moreover, Christophe Girot explores these topics within the Department of Landscape Architecture at the ETH University in Zürich and in his practice. Primarily, he investigates the potential of *point cloud* technologies and video formats to grasp the new representation formats of landscapes. In addition, Diana Agrest, an architect and architectural theorist from The Cooper

Union in New York, focuses on representing extreme natural phenomena by applying architectural tools and techniques.

Girot states that creating virtual landscapes makes it possible to recognise and understand a natural territory through a different reading, in a different order of things.[3] This statement is essential concerning the concept of hyperobjects. They alter the landscape to the extreme, and sometimes those changes stay invisible to the human eye. However, the importance of introducing the debate on hyperobjects in architecture lies in the fact that it is necessary to acknowledge the intangible layers of landscapes. All hyperobjects share five characteristics: viscosity, nonlocality, time undulation, interobjectivity, and phasing).[4] Understanding these traits and finding their position within architecture is of great importance since contemporary architects are obliged to conceptualise and design in great time and space frames. Discussing these concepts opens possibilities of understanding a particular territory that goes beyond only the visible.

The territory of Bor contains visible viscous hyperobjects' manifestations that dictate the landscape's appearance and character. This viscosity is rendered through various visual mediums such as photographs, GIS overlays, montages, and three-dimensional models. The primary objective of this research is to stimulate dialogue within the context of OOO and architecture. Therefore, this research aims to foster ongoing discourse surrounding hyperobjects and their fundamental attributes through the establishment of the following framework:

1. Firstly, through an exploration of Bor's landscape, encompassing its industrial heritage, mines, and flotation tailings

2. Subsequently, by undertaking genealogical insight focused on the concepts of viscosity, nonlocality, oscillation in time, phasing and interobjectivity from three perspectives: elucidating the meaning of these concepts, examining their position within architecture and OOO and assessing their relevance to the contemporary discipline

3. Finally, by employing a design-driven research experiment that involves the visualisation of the viscosity within the Bor's landscape.

1.1 Bor: Legacy of the City and the Mines

Bor represents a post-industrial and post-socialist city in Eastern Serbia, undergoing a prolonged transformation.[5] The town was established in 1945 and was planned and realised as a mining centre. What initiated the master plan

of BOR was the opening of the first copper mine in 1903, directed by Đorđe Vajfert. However, only after World War II did Bor officially become a city. During the Yugoslavian period, Bor was expanding and evolving in importance on the international mining scene. However, it was primarily urbanistically and architecturally developed during the post-war industrialisation period.[6] After the disintegration of Yugoslavia, the mines in Bor were still functional and rich in copper, but the organisation and productivity decreased significantly. The city' and its residents' contemporary problems are deepened by years of disruption, decay, and contamination.

At the moment, the owner of the mines is a Serbian conglomerate of Chinese company ZiJin, which keeps the mining and surrounding areas strictly private, with no possibility of entering its properties.[7] Therefore, many tangible and intangible methods of devastation in Bor remain unexposed under the regime of the new owners. The complex of copper mines in Bor is one of the largest in Europe. There are three active mining units: Veliki Krivelj, Jama, and Cerovo. Along with the mining infrastructure, flotation tailings ponds were formed. They represent landfills for disposing of waste due to soil degradation caused by mining. Disposed material contains dangerous substances, such as mercury, arsenic, lead, etc.[8] Therefore, tailings are highly dangerous places that significantly impact the environment. There are several flotation tailings ponds in Bor. The old flotation was in use until 1987, after which new ones, such as RTH, Severni and Južni Plavir, and Veliki Krivelj, replaced it. The Veliki Krivelj flotation was formed in the valley of the Kriveljska River, next to the Veliki Krivelj mine. This landscape possesses the qualities of what Elizabeth Meyer names *industrial sublime* and *toxic discourse*, which represents a fascination with landscapes that, due to their destructive properties, possess a distinct aesthetic value that can be described as toxic.[9]

The problems of Bor are appearing globally and are affecting many areas in the world. That is why various issues of this city were also unraveled at the 17th Architecture Biennale in Venice. *How Will We Live Together?* (2021), in the Serbian Pavillion titled *The 8th Kilometer*. The authors MuBGD, a group of young architects from Belgrade, recognised multilayered problems of Bor that included the environmental concerns, the cultural patterns, the spatial planning, demographic structure, and others. The exhibition achieved significant success since it managed to present Bor's current state and explore possible solutions for the near future.

However, the contemporary landscape of Bor reflects a surreal image. The border between the mines and the city outskirts is reducing daily. The pits are

becoming more extensive, and the city gives the impression of an abandoned structure ready to fall into the pit, even though almost thirty thousand people live there. In the surrounding area, the great mine Veliki Krivelj and its flotation tailings remind of a black hole, ready to destroy whatever living human or non-human nearby. Looking from afar, the artificial landscapes of neon blue colours and topographies of mine pits, with smoke coming from pulling earthly material, strike with inexplainable beauty. That is why this paradoxical observation initiates the discussion on environmental pollution, its aesthetical manifestation, and its consequences. Therefore, by introducing the concept of hyperobjects in architecture, this discussion may be broadened and understood as highly relevant for the future of devastated territories; suppose hyperobjects could be explored by decomposing to their essential characteristics (viscosity, nonlocality, time undulation, interobjectivity and phasing). In that case, the landscape itself may be understood through a more comprehensive and open-minded approach. In the following part of this paper, various traits of hyperobjects will be investigated separately to expose the relation and actuality of hyperobjects to the most contemporary architectural thoughts of landscape (Figures 1-5).

2. CONTEMPORARY ARCHITECTURE AND HYPEROBJECTS' CHARACTERISTICS

2.1 Viscosity

The attribute viscous (lat. *viscous*) describes something tractable and sticky. Viscous is a body that constantly changes its shape under pressure on its surface.[10] In the book *Hyperobjects: Philosophy and Ecology after the End of the World*, Morton describes viscosity as follows: "The more I struggle to understand hyperobjects, the more I discover that I am stuck to them (...) The more we fight phenomenological sincerity with our reason, the more glued we figure out we are." That is, Morton refers to the fact that even though humans perceive fragments of hyperobjects, they are still not fully accepting their presence as a real threat. For example, Morton uses the oily melting mirror construct to describe the viscous character of global warming.[11] Regarding the concept of landscape, viscosity pertains to the characteristic of hyperobjects to adhere or merge with the landscape, becoming an inseparable component. Morton frequently highlights the phrase commonly found on the passenger's side mirror in cars across various countries such as the United States, Canada, India, and others: 'Objects in mirror are closer than they appear.' Morton employs this expression to illustrate the immediacy of the detrimental impacts

UP: FIGURE 1:
Active flotation tailings pond Veliki Krivelj in Bor, Narodna bibioteka Bor. “Industrial Blues”

DOWN: FIGURE 2:
Contemporary flotation tailing pond Veliki Krivelj, Photo by the author, May 2021

UP: FIGURE 3

MIIDDLE: FIGURE 4

DOWN: FIGURE 5

Photo essay: Toxic beauty landscapes of Bor, Photo by the author, May 2021

caused by hyperobjects, using it as a metaphor to initiate a discussion about global warming.

On the other hand, Christophe Girot talks about the irreplaceable bodily experience in the landscape, which is related to perception and phenomenology. According to him, it may be achieved through *point cloud* technologies or video formats that represent the landscape in the most authentic way.[12] Furthermore, Elizabeth K. Meyer delves into the notions of industrial sublime and toxic beauty, along with the associated discourse of toxicity. She uses these concepts to describe the viscosity of the landscape, which explains the universal paradox where the more destructive landscapes are, the more aesthetically provocative and pleasable they become. An example of a landscape with viscosity and toxic beauty is the Gulf of Mexico after the Deep Water Horizon disaster in 2010. During this catastrophe, oil was spilt into the ocean, forming a new viscous landscape, changed permanently, with no possibility of tracing the path of pollution (Figure 6).

Therefore, viscosity in architecture opens up a discussion about hyperobjects as visible or invisible elements of the landscape that constitute new typologies of toxic beauty. These altered landscapes demand innovative modes of recognition and representation due to their broad influence on built and speculative architecture.

2.2 Nonlocality

Locality or local (lat. *localis*) stands for something that 'belongs to a place, refers to a place,' as well as "the one that corresponds to the needs or circumstances of a place and its position, which is important only for one place."[13] As a concept, nonlocality initially emerged in quantum physics, where it refers to phenomena that, due to their properties, cannot be interpreted or understood in local frameworks. Therefore, locality represents a phenomenon related to a particular place and its elements. Nonlocality, on the other hand, establishes a connection with a more comprehensive, unlimited, possibly global area.

Morton describes nonlocality as follows: 'When I look at the sun gleaming on the solar panels on my roof, I am watching global warming unfold. Yet I do not see global warming as such (...) Action at a distance is involved'. Here, Morton refers to the paradox of the contemporary moment within climate change. It happens equally and gradually in all places on Earth, but humans do not perceive it only through a particular form of local manifestation. In that sense, one territory may no longer be perceived as purely local because hyperobjects affect globally, and their characters are mutually dependent.

Many contemporary architects, landscape architects, and artists thematise these issues in their work. Richard Weller draws different global landscape networks through different representation techniques within the *Atlas for the End of the Word* platform (Figure 7).[14] Another example, among many others, would be the interdisciplinary initiative THE CENTER FOR GLOBAL ARCHITECTURE was established to study the planetary changes affecting the spatial characteristics of the landscape in a contemporary context.[15]

The theme of nonlocality in architecture initiates the debate on the network of landscapes on a large scale, where it is essential to emphasise various emerging phenomena relevant globally. Hyperobjects are nonlocal, and they provoke new scales and encompass colossal spatial and time extents, dramatically affecting the discipline's course.

2.3 Temporal undulation

The notion of undulation (lat. undulatus) represents something wavy. It comes from the Latin word unda, which is a wave. The undulation also refers to movement, rippling, or swaying.[16] In this context, temporal undulation is a feature of existence and circulation in massive time scales. Morton describes it as follows: 'Hyperobjects envelop us, yet they are so massively distributed in time that they seem to taper off, like a long street stretched into distance'.[17] Morton introduces this topic to start a debate on issues of the distant future and argues that a discussion of defined time intervals rather than a discussion of eternity. This approach is considered effective within contemporary environmental tendencies since it raises awareness of human actions.

In this context, the French landscape architect Gilles Clément developed the Third landscape prototype in Henri Matisse Park (1995). In the central part of the existing structure, Clément places a massive, hard-to-reach concrete rock on which he projects a new landscape, which becomes a base for developing a micro-ecosystem within a protected context. Almost twenty years later, rare species of bees and plants are starting to appear in the park, and it is assumed that more significant changes in the macro ecosystem of the site are yet to follow.[18] This project illustrates the designing for ample space and time scales, where the realisation of the project is ever-evolving and relevant even in the distant future.

The expansion of time intervals in which architects and landscape architects conceptualise projects becomes more significant than ever. For example, nuclear waste storage facilities, such as Onkalo in Finland, are designed precisely to the postulates of time undulation. Therefore, undulation in

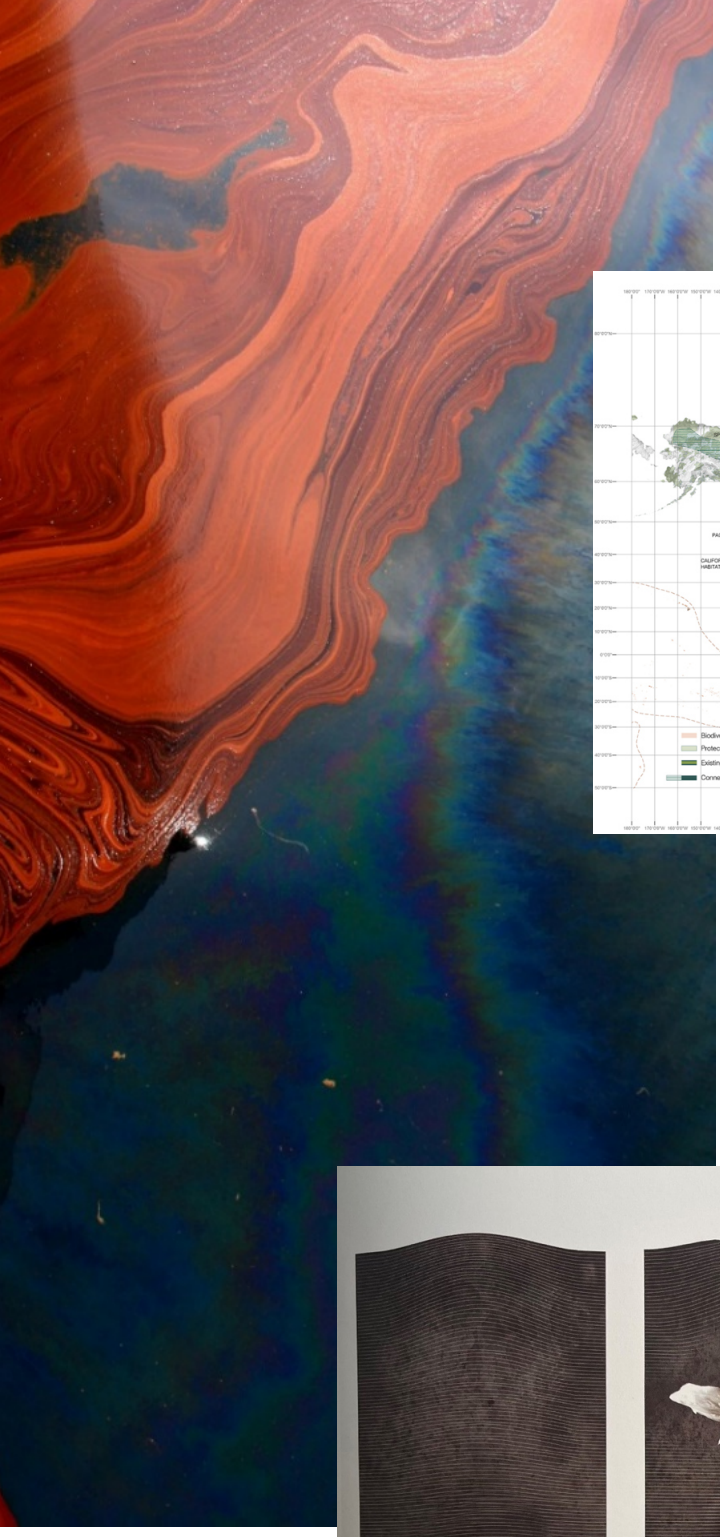
contemporary architecture refers to the conceptualisation for extensive time intervals, which becomes essential in contemporary archaeology of synthetic materials, which from 2020, exceed the weight of biomass on Earth.[19]

2.4 Phasing

A phase (gr. *phainesthai*) represents an appearance. In astronomy, *mena* (Moon and Venus phases) stands for different phases of the Moon and planets that depend on their position relative to the Sun and the Earth.[20] In that sense, phasing represents the characteristic of a particular phenomenon displayed locally and relatively only in certain phases.

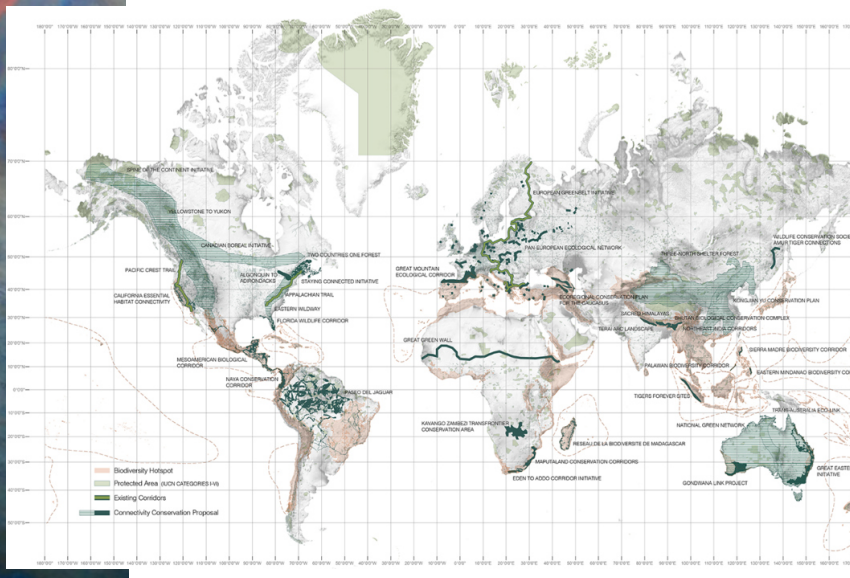
As Morton states: 'Hyperobjects seem to phase in and out of the human world. They are phased: they occupy a high-dimensional space that makes them impossible to see a whole on a regular three-dimensional human-scale basis. The reason hyperobjects appear nonlocal and temporally foreshortened is precisely because of this transdimensional quality.'[21] Morton claims that hyperobjects occupy transdimensional space; therefore, their manifestation is phased, and it is possible to see them only to the extent that they are displayed (this is related to nonlocality and time undulation). The discussion on phasing landscapes introduces fragmentary, transdimensional, and unfinished thinking about the surrounding world. In the book *Architecture of Nature, Nature of Architecture*, Diana Agrest constructs representations of extreme natural landscapes. She treats them as architectural elements by applying architectural techniques and tools (drawings, models, diagrams, plans, axonometric views, physical models, and similar). She synthesises the known narratives alongside her students and other contributors by implementing available data from other disciplines. Their interdisciplinary approach is focused on gathering massive spatiotemporal scales and strives to represent natural phenomena from the position of an architect. The phasing of the research object is also a research problem and conditions the author to show phenomena that are exclusively phased for humans due to differences in geological and historical time and spatial characteristics (Figure 8).

In this regard, the understanding of phasing as a natural state of contemporary phenomena of hyperobjects is an introduction to a more thorough understanding of reality within the discipline of architecture. Accepting the phasing of contemporary architectural objects and landscapes, the necessity for deeper conceptualisation occurs since the architect becomes aware of the importance of understanding and representing landscapes' unexposed character.



UP: FIGURE 6:

The Deepwater Horizon Disaster in the Gulf of Mexico (2010): A Toxic Viscous Landscape

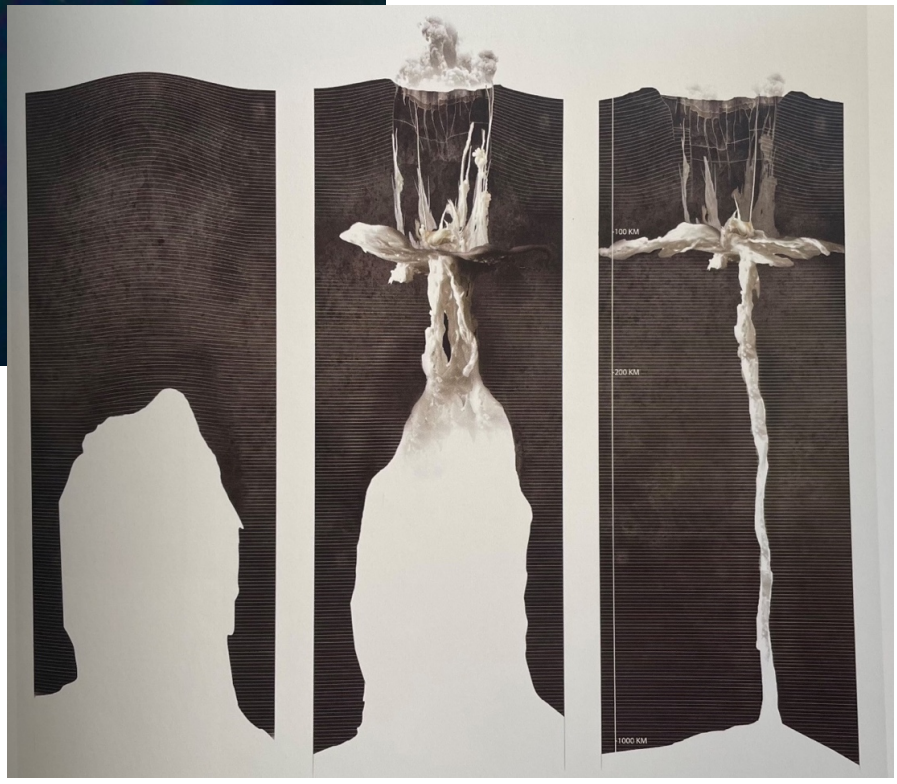


MIIDDLE: FIGURE 7:

Atlas for the End of the World - GLOBAL LANDSCAPE CONNECTIVITY PROJECTS - a map that thematises the connection of the landscape into the global landscape

DOWN: FIGURE 8:

Yael Agmon, p.189: A section through the Snake River, showing the three stages of volcanic interactions with the lithosphere: a representation of volcanic processes as an object of research through a combined technique of architectural montage and drawing



2.5 Interobjectivity

The notion of intersubjectivity derives from social sciences. In philosophy, psychology, sociology and anthropology, it denotes the relationship or intersection between people's cognitive perspectives. However, the notion of interobjectivity was first used by Bruno Latour in 1996 in the book *On Interobjectivity. In: Mind, culture, and activity*, he refers to human and non-human relations. This is when interobjectivity becomes a relevant concept in contemporary philosophy and metaphysics. Directly referencing Latour's definition, Morton borrows the term: 'What is called intersubjectivity - a shared space in which human meaning resonates - is a small region of a much larger interobjective configuration space.' Interobjectivity provides a space that is ontologically 'in front of' objects, in which phenomena such as the mind can happen'.[22] That is, Morton introduces a posthumanist position that dictates that intersubjectivity is part of a more extensive network of interobjectivity, which symbolises the interactions that objects make with each other and tries to prove that hyperobjects are a medium through which insight into these states is provided.

Accordingly, the discussion of interobjectivity in architecture primarily includes forming and defining relations between human and non-human factors. These questions are addressed by Girot's Robotic Landscapes studio at the ETH University of Zurich, which publishes research on this topic in the book *Robotic Landscapes: Designing the Unfinished* (2021). It focuses on bio-synthetic landscape architecture, where the use of robots and artificial intelligence in landscape design and construction aims for models that agree with the selected territory's tectonics and topology. They follow the natural processes and character of the terrain so that the landscape, over time, accepts all the natural processes that occur on it and develops under them. Likewise, François Roche experiments with the relationship between human and non-human entities through various projects, dealing primarily with ecological and psychological issues.

Thus, interobjectivity in architecture acts from a posthumanist position from which one may discuss the various relationships between humans and non-human entities that exist in the landscape but are not explicit or directly related to humans. It is essential to understand the relationships of a site before acting on it to conceptualise the most optimal and appropriate architecture.

3. THE VISCOUS LANDSCAPE: A DESIGN-DRIVEN RESEARCH EXPERIMENT

Design-driven research is a methodological approach that encompasses artistic and applied research conducted by architects, landscape architects, designers, artists, urbanists and other professionals within the DDr network. By embracing nonlinearity, uncertainty and unexpected elements, this approach offers significant potential for exploring uncharted research areas that may remain undiscovered otherwise. The DDr network, built on the premise of demystifying complex design processes, encourages researchers to engage in extended disciplinarity, prioritising the design process and the transformation of reality. In the present study, DDr methodology will be employed to investigate the concept of viscosity in the context of Veliki Krivelj flotation using GIS materials and three-dimensional models.

Situated in the valley of the Kriveljska River, Veliki Krivelj flotation is characterised by a water surface contaminated with mercury, arsenic, lead and other harmful substances. As such, viscosity can be understood not only as a metaphorical attribute of the landscape but also as a physical one. Viscosity, or internal friction, occurs when a faster-moving fluid layer drags along a slower-moving adjacent layer and vice versa. Consequently, viscosity manifests aesthetically, giving rise to a landscape of toxic beauty, where elements of the toxic environment adhere to each other and the surrounding objects. The physical and aesthetic nature of viscosity in the landscape of Veliki Krivelj flotation provides a means to discuss long-term ecological issues associated with vast spatial extents. This exploration of viscosity and its aesthetic manifestation can be facilitated through GIS orthophoto materials, which offer a broader perspective on the viscosity of hyperobjects that is only discernible at a large scale.

To examine the viscosity of the landscape, a sample of GIS materials is obtained from three specific points at Veliki Krivelj flotation, using three relevant maps: Google Maps, Bing Maps and Satellites.pro. These positions are chosen due to their heightened manifestation of viscosity. By comparing the three situations within each map, it is observed that they do not convey a singular sense of space but rather expose distinct conditions that complement one another. The three specific points (44.0921411, 22.1429588; 44.0883826, 22.1296219; 44.0943975, 22.1327293) captured through three different maps (Bing, Google, Satellites) showcase varying degrees of viscosity, influenced by the variability of the provided information (Figure 9).

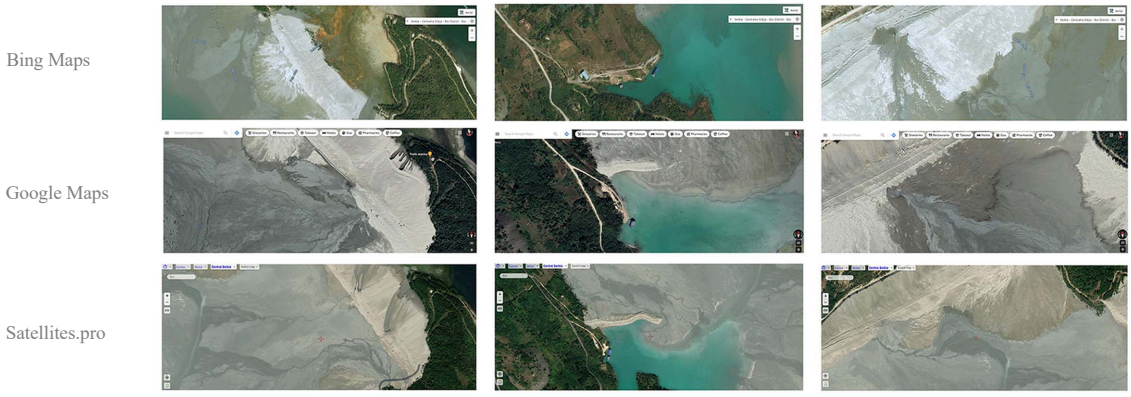
Consequently, Veliki Krivelj flotation represents an inaccessible and destructive location where GIS materials alone fail to provide an accurate insight into the state of the territory, particularly its viscosity, which constitutes its primary physical and aesthetic characteristic. This issue prompts a discussion on overlapping different GIS image states to explore their representations. By superimposing GIS images of the same positions from different maps and mapping the viscosity of the location, three representations emerge as the most authentic depictions of the viscosity state formed by the hyperobjects. Through the overlay of GIS images, these representations depict sectional states of the landscape shaped by hyperobjects. These novel depictions of specific points serve as a means to examine the viscosity of the landscape as a feature of hyperobjects. Given the dynamic nature of the landscape, which constantly changes, no authentic image exists. Thus, the employed strategy of overlapping various degrees of viscosity within different maps can be considered the most authentic portrayal of the landscape, allowing hyperobjects to be recognised as tangible phenomena (Figure 10).

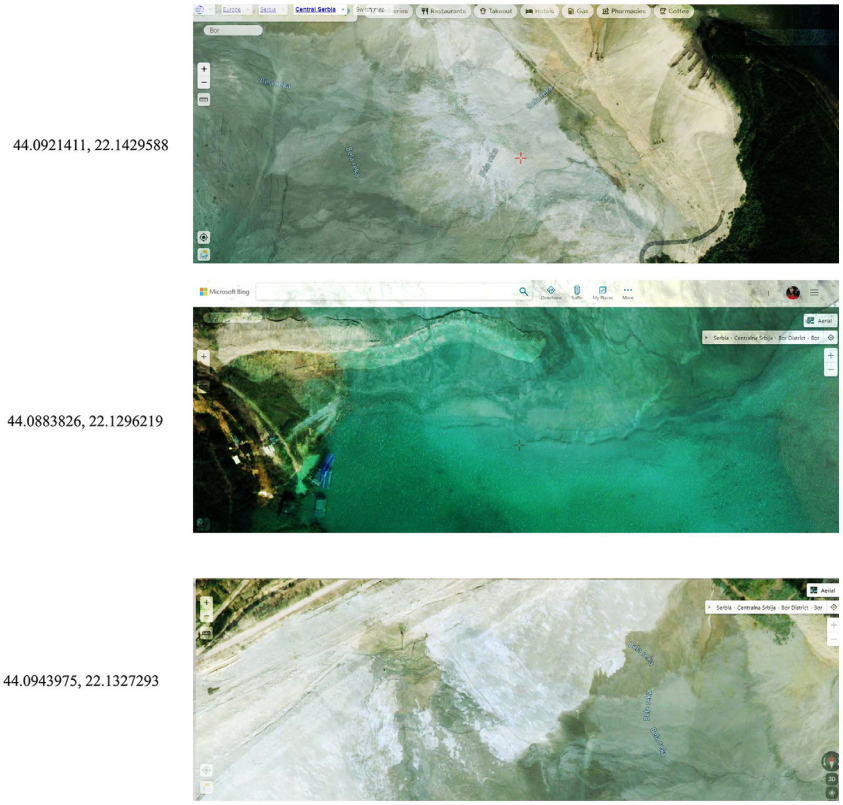
The utilisation of new speculative maps prompts an inquiry into the nature of the spaces they generate. These maps give rise to a virtual space that closely approximates the reality at the time of capturing the GIS images. The resulting three-dimensional models generated from these images facilitate a discourse on authenticity. However, it is essential to acknowledge that these models can only be regarded as speculative due to the constant and dynamic changes in the natural state of the flotation territory, rendering it challenging to comprehend fully. Consequently, these novel three-dimensional models provide a platform for a speculative visualisation of viscosity (Figure 11).

In conclusion, the representation of specific points characterised by viscosity presents an opportunity to employ mapping and montage methods to create a hybrid form that delves into the viscosity of the landscape as an inherent feature of hyperobjects. By building upon these new landscapes, virtual representations of three-dimensional landscapes are formulated, serving as sectional depictions of the states of these specific positions.

UP: FIGURE 9:
Three specific points with three different maps exposing the various degrees of viscosity.

DOWN: FIGURE 10:
Overlaying GIS images. There is no authentic image, so the implemented strategy of overlapping different degrees of viscosity within different maps can be declared the most authentic landscape state where hyperobjects can be recognised as tangible phenomena.





4. CONCLUSION

This ongoing research focuses on the concept of hyperobjects within the framework of object-oriented ontology (OOO), as formulated by Timothy Morton, and its relevance to contemporary landscape paradigms. The study encompasses several key components: an exploration of Bor's site, including its industrial heritage, mines, and flotation tailings; genealogical research on the characteristics of hyperobjects such as viscosity, nonlocality, time undulation, phasing, and interobjectivity; and the application of a design-driven research strategy to represent the concept of viscosity in the landscape visually.

The city of Bor serves as a prime example of a territory profoundly impacted by pollution. The mining activities conducted over the years have resulted in significant landscape deformations that can be further examined and understood as hyperobjects. By integrating the concept of hyperobjects into architectural discourse, a broader understanding of devastated territories may be achieved. It is evident that the traits of hyperobjects are already intertwined with the architectural discipline, either directly or indirectly, and they hold significance in the continued development of architectural theory. Object-oriented ontology extensively discusses spatial issues, offering the potential for its relevance in architecture and prompting critical inquiries into landscape, scale, temporality, technology, ecology, aesthetics, and related topics.

Furthermore, investigating viscosity within the landscape of the flotation tailings in Bor marks the initial stage of a comprehensive analysis of hyperobject properties within landscapes. Emphasising the importance of a design-driven research strategy, this approach enables the development of a unique methodology to address the problem, the results' generation and evaluation, as well as the incorporation of potential errors as indicators for further research directions. By examining realistic representations of the flotation tailings landscape, encompassing GIS data and photographs, it becomes apparent that these representations do not convey a singular message about the space due to the landscape's high viscosity, which is constantly subject to change. The direct physical experience of the selected location is hindered by its destructive nature and the dynamic character of the viscous landscape, making it challenging to establish an authentic image. Consequently, a strategy incorporating overlapping maps with varying degrees of viscosity emerges to capture the most authentic state of the landscape and recognise hyperobjects as tangible phenomena. Mapping hyperobjects as invisible entities within the landscape facilitates an expanded understanding of the space.

Regarding Girot's perspectives and the initial research hypothesis suggesting that the implementation of different narratives centred on hyperobjects can allow for the discussion of a unique physical space in an alternative order, it is concluded that the resulting speculative landscapes effectively generate new three-dimensional spaces characterised by viscosity. In a realistic context, landscapes of this typology remain inaccessible as long as the destructive elements associated with the tailings dump persist. The research findings indicate that changing landscapes resulting from extreme manifestations of hyperobjects are in need of innovative narratives that provide deeper insights into their impact. This can be achieved by observing these spaces through the lens of hyperobject's characteristics. In the further development of the research, it may be explored how other characteristics of hyperobject's position translate into architecture and how they may be explored through design-driven research methodology.

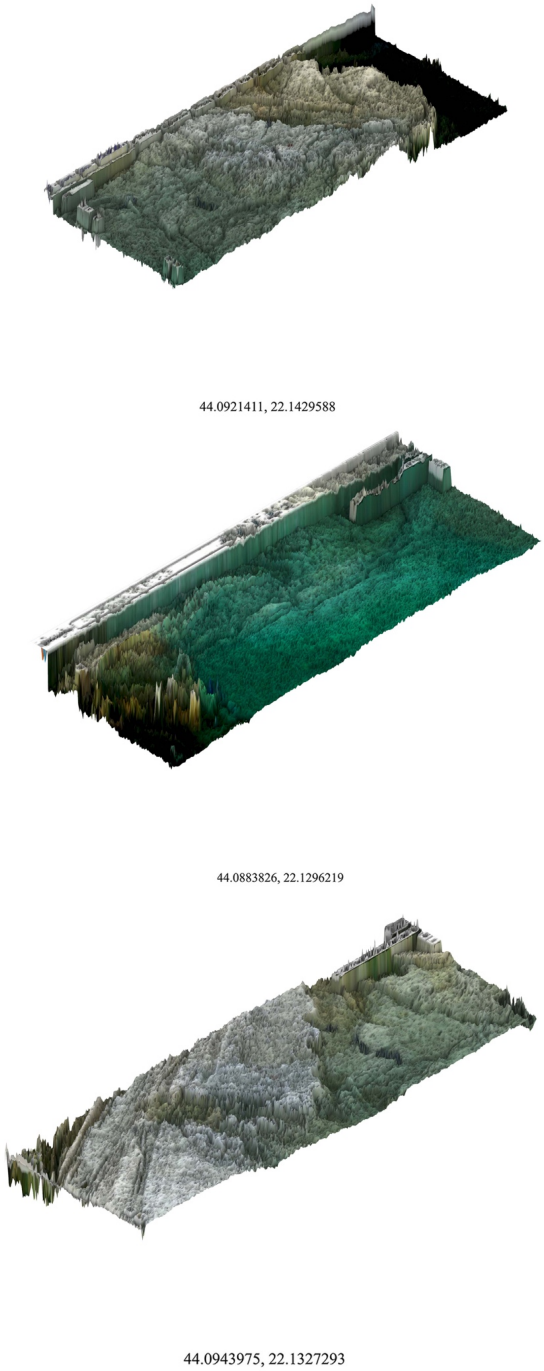


FIGURE 11:

The new landscapes as a cross-section state of three positions - a three-dimensional virtual landscapes within the most authentic states of positions 1, 2, and 3 - the obtained speculative landscape maps, and then forms a new landscape that embodies the concept of landscape viscosity.

NOTES

1 There are many definitions of landscape. The most common one, according to J. J. Jackson, states that the notion derived from the German *Landschaft*, which means land shaped by human action and the Earth's surface modified by human activity. According to James Corner, a landscape may be a construction, a representation, or a complex of schemes and ideas that inform people's perception of their environment and influence their behavior.

2 Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (University of Minnesota Press, 2013), 2.

3 Christophe Girot and Dora Imhof, eds., *Thinking the Contemporary Landscape*, First edition (New York: Princeton Architectural Press, 2017), 146.

4 Morton, 24.

5 *8th Kilometer: Pavilion of Serbia at the 17th International Architecture Exhibition - La Biennale Di Venezia, 22.05 - 21.11. 2021. = Осми Километар = L'ottavo Chilometro* (Belgrade: Museum of Applied Art, 2020), 24.

6 *Ibid*, 34

7 The author tried to get in touch with ZiJin to ask about the statements of their mission, which include the environment, health and security, and social responsibility. However, the author did not manage to receive an answer.

8 Vojka Gardic et al., "Impact Assessment of Mine Drainage Water and Municipal Wastewater on the Surface Water in the Vicinity of Bor," *Hemijska Industrija* 69, no. 2 (2015): 5, https://doi.org/10.2298/HEMIND140128031G.

9 Elizabeth K. Meyer, "Sustaining Beauty. The Performance of Appearance: A Manifesto in Three Parts," *Journal of Landscape Architecture* 3, no. 1 (March 2008): 8, https://doi.org/10.1080/18626033.2008.9723392.

10 Milan Vujaklija i Drago Ćupić, *Leksikon stranih reči i izraza*, XI dopunjeno i redigovano izdanje, prvo zajedničko izdanje (Beograd: Štampar "Makarije," 2011), 153.

11 Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (University of Minnesota Press, 2013), 28, 36.

12 Davide Deriu, Krystallia Kamvasinou, i Eugénie Shinkle, eds., *Emerging Landscapes: Between Production and Representation* (Farnhan Surrey, England; Burlington, VT: Ashgate Publishing, 2014), 86.

13 Vujaklija i Ćupić, *Leksikon stranih reči i izraza*, 516.

14 "Atlas for the End of the World," accessed December 22, 2022, http://atlas-for-the-end-of-the-world.com/.

15 "GLOBAL ARCHITECTURE," accessed December 10, 2022, https://global-architecture.org/.

16 Vujaklija and Ćupić, *Leksikon stranih reči i izraza*, 944.

17 Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, 55.

18 Matthew Gandy, "Entropy by Design: Gilles Clément, Parc Henri Matisse and the Limits to Avant-Garde Urbanism: Gilles Clément and the Limits to Avant-Garde Urbanism," *International Journal of Urban and Regional Research* 37, no. 1 (January 2013): 19.

19 Mathias Bernhard et al., *Robotic Landscapes: Designing the Unfinished*, ed. Ilmar Hurkxkens, Fujan Fahmi, and Ammar Mirjan, Auflage (Zürich: Park Books, 2021), 23.

20 Vujaklija and Ćupić, *Leksikon stranih reči i izraza*, 951.

21 Morton, *Hyperobjects: Philosophy and Ecology after the End of the World*, 70.

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original research article
UDC 711.4(450)
721(450)

admission date 25 02 2023
approval date 21 07 2023

READING AND BUILDING VENICE, 1984. CAPPAI, MAINARDIS, PASTOR'S *CASE POPOLARI* AS MATERIAL CULTURE.

ABSTRACT

In the 1980s, Venice was a unique laboratory for studies on the relationship between contemporary architecture and the historical city, a matter which is critical today as well. Architecture projects of this period are precious testimonies to ways of reading the historical context and building within it. In February 1984, four architecture firms delivered the documentation required by the Venice Municipality's Extraordinary Housing Programme competition, concerning the construction of four housing projects in the Venetian territory. These were among the city's first new housing schemes directly operated by the Municipality after World War Two. Based on the analysis of archival documents, this study focuses on architects Cappai, Mainardis and Pastor's project, which proposed a reading of the city and their interpretation of housing as the expression of a 'material culture'. Beyond formal analogies, they chose to structure their project around the persistent material culture which underlay residential construction in both historical and contemporary Venice. Understanding the material culture of their time as inseparable from the building market, they adopted modern building industrialisation techniques. As the group was selected to build three schemes, their theoretical effort was eventually matched by an episode of actual prefabrication within the island's historical centre.

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KEY WORDS
VENICE
HISTORICAL CITIES
BUILT HERITAGE
SOCIAL HOUSING, MATERIAL CULTURE
BUILDING INDUSTRIALISATION, PREFABRICATION

1. INTRODUCTION

In the 1980s, Venice was a unique laboratory for historiographical and theoretical studies on the relationship between contemporary architecture and the historical city. Manfredo Tafuri, Massimo Cacciari and Francesco Dal Co's discussion of the 'myth' of Venice and the city's 'resistance' to modernity, as well as Vittorio Gregotti's definition of Venice as a 'city of a new modernity' were part of issue 22 of the magazine *Rassegna*, of 1985. The 'new' architecture of sixteenth-century Venice was among the subjects of Tafuri's *Venezia e il Rinascimento*, also of 1985. Paolo Maretto's inquiry on the Venetian house from its origins to the 19th century was published in 1986.[1] Studies such as those by Giandomenico Romanelli and Elia Barbiani on Venetian housing between the nineteenth and the early twentieth century addressed the 1920s debate on 'Venetian-ness' in social housing projects, between hygienic constraints and the problem of preserving a coherent urban morphology.[2] They went even further back, to the 'dialectic between history and modernity' in the choice of materials and typologies for the Venetian house of the nineteenth century, where the ideal of the healthy house and the search for continuity with a supposedly typical Venetian building tradition clashed.[3]

The construction of new housing schemes in Venice during the 1980s granted that those discussions on the historical city the opportunity to shape concrete design experiences. Venice was being built, especially in those areas of the island identified as the 'inner outskirts'.[4] The term hints at the contrast between the different parts of the city's territory which were available for new construction: a periphery *intra forma urbis*, within Venice's apparently complete urban form made of compact masses of Gothic fabric and Renaissance *ganglia*,[5] where new architecture was problematic; and a periphery *extra forma urbis*, in the mainland settlements of Mestre, Marghera, Chirignago, Favaro Veneto, Zelarino and Malcontenta, where the technologies and forms of contemporary construction could find space.[6] In the 1970s, 80% of the residential stock on the Venetian mainland had been built after the war.[7] There, building industrialisation experiments were carried out for new housing schemes.[8] What could be the space for new technologies and forms within the brick-and-timber urban fabric of insular Venice?

Some design strategies and projects for the historical city devised in the 1980s, such as Gino Valle's public housing complex in Giudecca, have been widely studied. Valle's 'mat-building' structure and dense network of paths evoked Giudecca's urban morphology and the spatial qualities of the Venetian *calle* (narrow street), *sotoportego* (covered passage) and *campiello* (small square); its architectural language alluded to the forms, colours and construction traditions

of the island's past.[9] Other projects of the same period, such as the one presented in this essay, although lesser known, are precious testimonies to other ways of reading the historical context and building within it. The historical analysis of these Venetian schemes, with their singularities and within their specific urban planning, social and economic contexts, is an important tool to tackle some of the contemporary challenges historical cities face.

2. THE 1983 EXTRAORDINARY HOUSING PROGRAMME

In late February 1984, four groups of architects delivered the documentation required by the Programma Straordinario di Edilizia Abitativa's *concorso-appalto* (Extraordinary Housing Programme competition-call for tenders) to the Venice City Council's General Secretariat.[10] The call for tenders had been issued on 19 December 1983 and was supported by a loan of over 27 billion *lire* from the Comitato per l'Edilizia Residenziale (C.E.R.: Housing Committee).[11] With the call for tenders, the Municipality organised a pre-selection of candidates to carry out four publicly funded housing schemes within its territory, both on the mainland and the lagoon islands. The call for tenders' technical brief, prepared by the Assessorato all'Edilizia Convenzionata (Department of Social Housing), instructed professionals to devise a proposal for 352 dwellings, with precise dimensional and technological features, for the ex-Saffa area in Cannaregio, on the Venetian island (150 units); for the ex-Fregnan area in Sacca Fisola, a small island adjacent to the Giudecca (40 units); and for Chirignago (76 units) and Zelarino (50 units), two urban areas on the mainland.[12] The Programme also involved the construction of 36 units on the island of Mazzorbo. However, this fifth scheme was not part of the call for tenders and was managed by the Istituto Autonomo di Case Popolari (I.A.C.P.: Popular Housing Autonomous Institute) instead. The tenders, which were to be delivered by designers in association with construction companies, had to be composed of an economic estimate and a detailed design proposal, complete with all technological and constructional information. The brief's *Foglio condizioni* specified that every group should present a tender for all four areas. Each housing scheme would be illustrated by a single, individually delivered pack of design documents. For each scheme, the City Council would evaluate the best proposal among those presented by all eligible participants. Only after this preselection would the authorities begin a private negotiation with the winners for the executive design of the four schemes and their construction.[13]

The call for tenders is a significant episode within Venice's political and urban

history. Firstly, it demonstrates the function of a national ministerial body, the Public Works Ministry's Comitato per l'Edilizia Residenziale (C.E.R.). In 1971, the C.E.R. became Italy's main institutional structure in charge of the housing agenda, regulation and research, as well as of gathering and managing funding for all of the country's public housing.[14] Regional authorities became co-responsible institutions as far as the administration of funding for their territories was concerned. Regions were tasked with distributing financial resources among Municipalities, which were now in charge of public intervention policies in the field of housing. This was an innovation: all public housing was formally and effectively financed by Regions (rather than by the State) and managed by local authorities. As Valeriano Pastor writes, this already relevant role played by local institutions in public housing was further expanded by a number of laws issued in the 1970s and 1980s. These gave Municipalities new responsibilities and funding for purchasing land parcels and properties, as long as these were part of areas designated for redevelopment and *ex novo* construction by urban planning policies. No longer a 'passive controller' of public housing management, the Municipality, now a mostly autonomous local institution, 'acquired, designed and delivered'.[15]

In Venice, Mario Rigo's two mandates as mayor (P.S.I.: Italian Socialist Party, 1975-1980; 1980-1985) constituted the political context of a prosperous public housing season. Manuela Pivato's "Le case popolari 'firme' d'autore" ("Designer people's dwellings") column in the *La Nuova* newspaper, published in February 1989, finely attests this.[16] In the promotion and management of this season, important roles were played by the highly competent members of Rigo's Councils, such as deputy mayors Giovanni Pellicani and Paolo Cacciari (architect), urban planning councillor Edoardo Salzano (professor at I.U.A.V., the Istituto Universitario di Architettura di Venezia) and social housing councillors Gianfranco Pontel and Bruno Cassetti (architect). A large portion of the housing schemes delivered during this period concerned the Giudecca, one of the islands within what formally was considered the historical city. As historian Marco De Michelis wrote, after 1975 the Giudecca was part of a 'programme of interventions [...] so extensive as to amount to a comprehensive project for the islands, even in the absence of a fully formulated strategic frame of reference'.[17] Interventions included housing schemes such as Gino Valle's, built in 1980, Gambirasio's 'familistery' at the former Dreher brewery,[18] and the outcomes of the 1985 Campo di Marte competition, which Alvaro Siza won. Valle's Giudecca development was also the first of a series of Venetian public housing schemes directly operated by the Municipality (rather than the I.A.C.P.). The first four of the five Extraordinary Housing Programme schemes were part of that series as well.

The Programme addressed the need for 'distributing the new units within municipal areas where the housing problem was emergent and pressing'. It concerned areas identified as municipally owned, urbanised or soon-to-be urbanised by urban planning policies.[19] When the call for tenders was issued, the Chirignago and Zelarino areas were part of two Piani per l'Edilizia Economica e Popolare (P.E.E.P.: Economical People's Housing Plans) as variants to the Piano Regolatore Generale (P.R.G.: General Urban Regulation Plan; as it was Mazzorbo's I.A.C.P. area). As far as the two historical city developments were concerned, the ex-Fregnan lot, of about 13.000 square metres and municipal property since 1973, was identified as a residential area by a Piano Particolareggiato (Detailed Plan);[20] the ex-Saffa lot, a privately owned area of about 28.000 square metres, was identified as a residential area by the P.R.G.[21] With the Programme, the City itself was proposing a far-reaching vision for its own urban development. This was a nodal episode in twentieth-century Venice's political and urban history, especially considering that two of the four housing schemes would be located within the island's historical centre – 'margins of the body: body nonetheless'.[22]

Beyond the quantitative requirements for the dwellings, the call for tenders' *Foglio condizioni* and technical brief highlighted the qualitative aspects that the board of examiners would carefully assess. Among these were urban planning, technological and typological choices, the relationship between buildings and the environmental context, energy efficiency, comfort, and the quality of the building process. Interestingly, the documents devoted particular attention to the possibility of adopting building industrialisation systems.[23]

3. CAPPAI, MAINARDIS, PASTOR'S PROJECT WITH THE POLESE CONSTRUCTION COMPANY

This essay presents the proposal for the competition call for tenders submitted by the group constituted by architects Iginio Cappai (1932-1999), Pietro Mainardis (1935-2007) and Valeriano Pastor (1927-) with Polese S.p.a., a construction company based out of San Donà di Piave. The focus of this essay is not the reconstruction of their answers to the dimensional and technological problems identified by the competition brief but, instead, how the group offered a reading of Venice in the form of a housing project and devised a design strategy for the city's historical centre. The study of this reading was made possible by analysing archival material documenting the design process leading up to their bid, which is part of the Studio Cappai Mainardis fonds at Iuav University's Archivio Progetti in Venice. These include sketches as well

as the definitive set of drawings, but especially several drafts of their project bid notes and preparatory materials: manuscripts, book scans and photographs taken on the island until February 1984. These materials can all be regarded as gazes upon Venice, attempts at understanding its urban structure and building culture – aspects which then became critical design instruments.

Among the documents delivered by Cappai, Mainardis and Pastor to the Municipality's General Secretariat, the four project notes (one for each area) are particularly interesting for this study. The structure of the notes declared the designers' intents: they shared a common introductory section, printed on white paper, which contained the "Offer Contents" and "Design Solutions" paragraphs. The opening paragraphs stated the objectives and instruments shared by the four schemes:

> For the Venetian historical city and Mestre areas, the offer presents a design and economic frame which is unitary in its *criteria,* technologies and architectural solutions, with different urban planning or architectural complexities depending on the different environmental and legislative conditions. [...] each note repeats the technological arguments which constitute the unity of objectives, methodologies and procedures, identifying the paragraphs which highlight differences and specific traits among the schemes with different page colours. From the perspective of economic and cultural value, the relationship between the unity of *criteria*, technologies, form and the plurality of cases and differences is a fundamental trait.[24]

The second section of each note, printed on yellow paper, specifically commented on its specific scheme. It began with an analysis of the context, a declaration of the site-specific design strategy and a more detailed description of the plan, technological and constructional features.

A third section, printed on white paper, illustrated the main elements of the four schemes through *collages* of drawings, scans taken from art history books, photographs, diagrams and fragments of text. A large part of the images came from the book *Venezia Minore* (first edition 1948, second edition 1972), by Egle Renata Trincanato (1910-1998) and from the first two volumes of the *Civiltà di Venezia* series, edited by Guido Perocco and Antonio Salvadori (first editions 1973, 1974). Each *collage* was dedicated to a specific aspect. The structure of this section was identical in each note; however, its content changed according to the different characteristics of the four schemes. As an example, one of the

features Cappai, Mainardis and Pastor proposed for the ex-Fregnan and ex-Saffa schemes (so distinctive local newspapers even highlighted it[25]) was the *cavana,* a building traditionally used in Venice for the mooring of small boats. In the pages of the ex-Saffa and ex-Fregnan notes, one would find a sheet with a *collage* illustrating its constructional tradition; while the sheet was clearly not included in the Chirignago and Zelarino notes.

4. THE PROJECT BID NOTES AND THE QUESTION CONCERNING MATERIAL CULTURE

The second paragraph within the shared introductory section stated the "Design Solutions" - the theoretical and methodological principles. It began with a programmatic declaration: the bid acknowledged architectural form as the outcome of a research which tied 'the essence of technologies and cultural processes' together. In this sense, according to Pastor, Cappai and Mainardis, the 'economical house' should not be interpreted as the lesser product of more important design processes, or as a field reserved to exclusively technical practices; but, rather, as 'the place of expression of a material culture, where the need for living quality and a sense of historical values' were tightly intertwined. Within the limits of the technical and economic rules set by the call for tenders, the designers aimed at 'manifesting a form of culture', identifying the persistent features of the material culture underlying all Venetian historical construction and using them to formulate a design proposal.[26] Their primary reference was the Venetian historical city: due to the harsh constraints they imposed and the 'suggestions' they provoked, the ex-Saffa and ex-Fregnan areas constituted the principal objects of their design programme.

Their objective was to produce an image that was 'coherent with the historical one'.[27] However, this would not force them to reference specific formal images or to choose 'eighteenth century compositions' for their buildings. Instead, it would make them investigate the 'tectonic' nature of the historical system: the expression of a simple, diagrammatic relationship between the structure of buildings and space.[28]

The architects further marked the distinction between the two approaches within the project bid note manuscript. The coherence with the historical city's 'code' did not imply a '*mimesis* of materials and images', but, rather, an adherence to the 'truthfulness of the technological character'.[29] The proposed building system presented a formal analogy, but the image was 'tectonic' in nature. It spoke of Venetian settlement configurations developed according

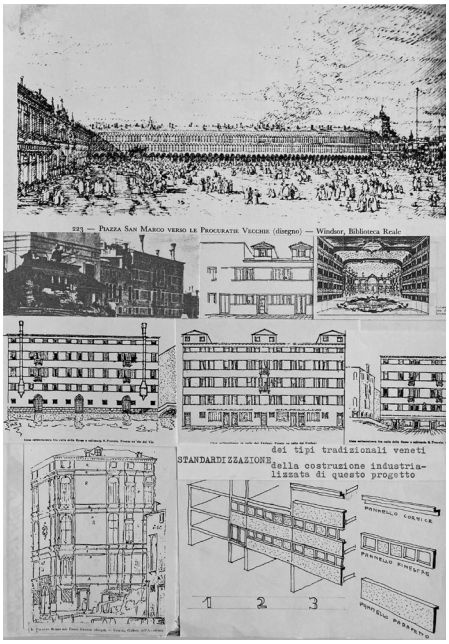
to the specific building site conditions.[30] We find the distinction again in an essay by Carlo Cappai and Maria Alessandra Segantini published in Valeriano Pastor's 1998 book *Edilizia residenziale pubblica. Ristrutturazioni a Venezia in un'esperienza didattica*: there, 'Venetian-ness' as 'an image reduced to a purely formal expression' was contrasted with a 'Venetian-ness' which was 'rich in meaning and in the original tectonic and formal complexity which consisted in its constructional traits'.[31] Architecture journals which published the ex-Fregnan scheme in the early 1990s, such as *Edilizia popolare* or *Industria delle costruzioni*, finely captured the essence of this design intention: building in Venice should not lead to 'picturesque effects' or to some sort of '*mimesis*'.[32]

For Pastor, Cappai and Mainardis, the 'economical house' represented the core terrain where a Venetian 'material culture' had developed in the past and should persist in the present. '[...] the economical house as the outcome of modern processes is recognised as the product of a material culture, as it had been in the tradition as the product of known techniques'.[33] Commenting on the ex-Fregnan scheme in 1993, Pastor wrote that he and his two colleagues had not pursued a formal image (or *mimema*, to use his words), but rather an image of the 'thinking (*ethos* and imagination) of a large class of humans': a transfiguration of technical processes into a 'poetic dwelling device which meets tradition'. This was the meaning, for Pastor, of the '*casa economica e popolare*' notion (economical people's dwelling).[34] Cappai and Segantini's 1998 essay, adopting many of the themes and terms used in Pastor's 1993 text, would further tie the 'material culture' and 'people's dwelling' concepts together: '[...] *casa popolare* because it is built for the people (as per the traditional meaning) and people's dwelling because it is built by the people.' In their essay, the totality of users corresponded to a 'way of thinking-style', to be found in 'common sense', in ways of dwelling and building. Architects might adopt it to orientate their design process. *Case popolari* would be direct expressions of the 'material culture' of an age in a specific social context. Cappai and Segantini chose Sansovino's Moro houses in Cannaregio as an example of this. There, they wrote, Sansovino abandoned the flatteries of architectural *inventio* to choose a *consuetudo*: his design elements became those of his time's constructional know-how, as if the city itself and its material culture were dictating the technological and compositional rules for the building. The architect became the silent interpreter of an ancient lexicon – a 'forming form' which could be instilled in new projects.[35]

In the contemporary world, that very 'common sense' could be found as much in the technological way of thinking of the past as in that of the present day: the technologies and the forms the designers adopted referred both to the contemporary culture of the Venetian 'metropolitan' complex and to its historical origins. Moreover, the state of material culture could not be separated from the construction products market.[36] These theoretical musings were reflected in Cappai, Mainardis and Pastor's collaboration with Polese S.p.a.[37] They did design 'figures' which echoed traditional Venetian settlements; but they did so with building industrialisation processes and 'advanced technologies'.[38] Building industrialisation belonged to the contemporary world and, as such, was understandable by everyone, 'by every user as well as by every construction worker'. The 'simplicity' and 'pure technicity' of the chosen construction systems, vehicles of Venetian material culture, allowed for the generation of 'urban forms that were coherent with the historical ones'.[39]

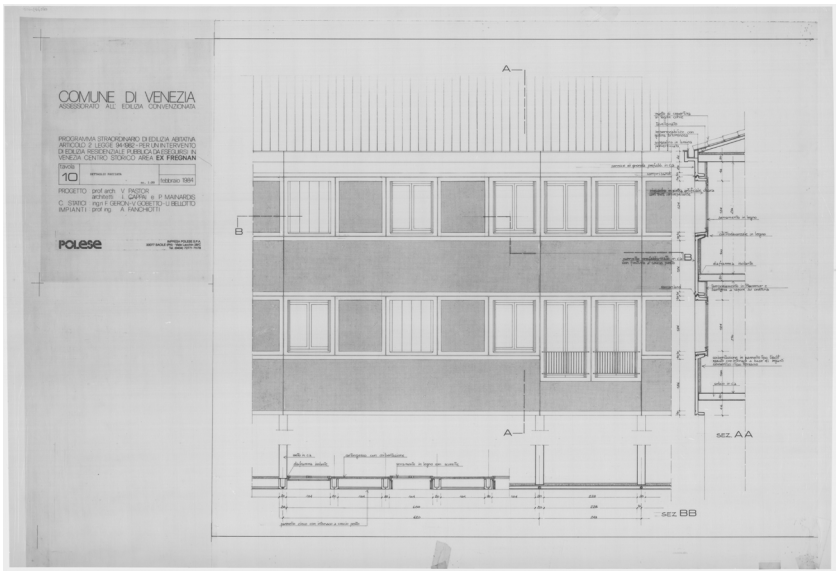
5. GRAMMATICAL TRANSFORMATIONS:THE INDUSTRIALISATION OF TRADITIONAL BUILDING SYSTEMS

The rationalisation and industrialisation of traditional building systems did not lead to a reinterpretation of historical forms, but to what the architects defined as 'grammatical transformations'.[40] The meaning of this critical concept, which became a design instrument, is hinted at by the thematic *collage* sheets. Among the *collages* which more directly referred to the 'material culture' notion was one entitled *Standardizzazione dei tipi tradizionali veneti / della costruzione industrializzata di questo progetto* (*Standardisation of traditional Venetian types / of the industrialised construction of this project*; Fig. 1). It described the solution adopted for the façades: self-supporting prefabricated vibrated reinforced concrete panels, anchored to the concrete walls that formed the 'structural fabric' of the scheme (Fig. 2).[41] In the vertical development of the façade, solid ribbed panels alternated with perforated panels made of light-coloured artificial stone with a water-repellent treatment, forming 'Vierendeel-like beams'.[42] The five holes of the lattice panels could be completed with infill elements, with wooden window frames, or they could remain empty ('or, rather, seasonally closable'). The façade terminated with a prefabricated reinforced concrete cornice, which also functioned as a gutter. Panels were coupled by means of a special watertight patented device, the JOINT P71 type joint.[43] Air tightness was achieved through silicone sealing.[44] The internal surfaces of the panels featured an insulating coating made of plasterboard sheets coupled with polystyrene, with an aluminium foil vapour barrier in between. The external finishes of the panels were in 'Veneto material': *marmorino* in Cannaregio, *pastellone* in Sacca Fisola.



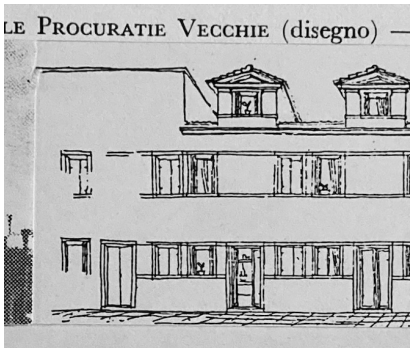
UP: FIGURE 1:
The original 'standardisation' *collage* sheet.
Source: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083).

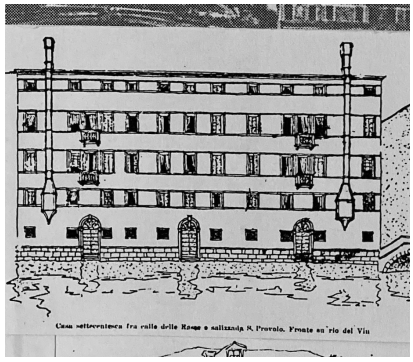
DOWN: FIGURE 2:
Definitive project drawing for the first ex-Fregnan lot, illustrating the façade technology.
Source: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Scatola 64 (NP069743).



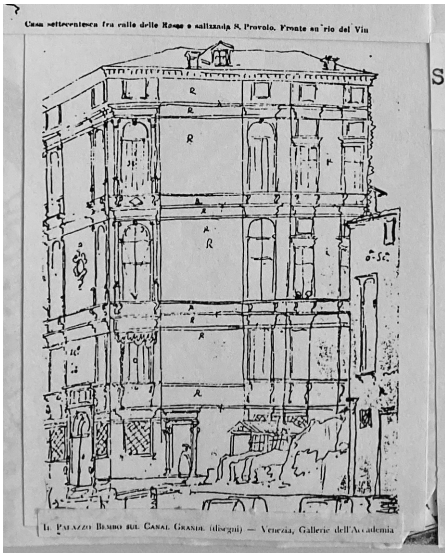
Within the project bid note, the architects highlighted how self-supporting façades, shaped as sequences of 'lattices of varying complexity' had been a feature of traditional Venetian construction.[45] 'In the historical constructional forms', they wrote, 'the opportunity to subdivide wall surfaces and to mark them with joints (Istrian limestone façade horizontal marks) has a progressive development, especially with eighteenth-century rationality'.[46] The images crowding the *collage* directly spoke of this eighteenth-century constructional rationality. The authors gathered Trincanato's drawings from the *Venezia minore* pages dedicated to eighteenth-century Venetian residential buildings: a fragment of the Calle delle Mende dwellings (Fig. 3), two façades of the house between Calle delle Rampe and Salizzada S. Provolo (Fig. 4), a Calle dei Furlani house.

FIGURES 3-5:
Fragments of the 'standardisation' *collage*: the Calle delle Mende dwellings, the Calle delle Rampe/Salizzada S. Provolo house; a fragment of Canaletto's Campo Ss. Apostoli painting (1697-1768). Source: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083).





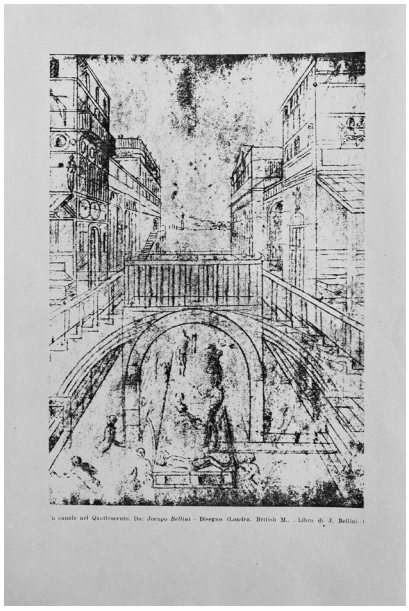
To these, they added a fragment of a painting of Campo Ss. Apostoli by Canaletto (1697-1768), which they probably took from volume two of Perocco and Salvadori's *Civiltà di Venezia* (Figs. 5-6), Canaletto's '*scaraboto*' (sketch) of Palazzo Bembo (Fig. 7), one of his views of Piazza San Marco's Procuratie Vecchie (c. 1740) and an engraving of the San Samuele theatre interiors, by Antonio Codognato (1753). These were not all eighteenth-century Venetian residential buildings. However, they shared a fundamental trait: they all had façades which were clearly dominated by horizontal lines and a vertical succession of solid and 'lattice' panels.



FIGURES 6-7:
Canaletto (1697-1768), Campo Ss. Apostoli, the painting from which the detail in Fig. 5 was taken; Canaletto's 'scaraboto' of Palazzo Bembo (Gallerie dell'Accademia a Venezia, c. 1730). Sources: Venice, Fondazione Giorgio Cini, Fototeca dell'Istituto di Storia dell'Arte, Fondo Pallucchini, SDPALL191-1-81, (Codice 529118); AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083).

We find these same features in the Ponte San Stin palace photographed for several *collage* drafts and in Jacopo Bellini's sketch, which the architects attached at the end of every note's *collage* section (Figs. 8-9).

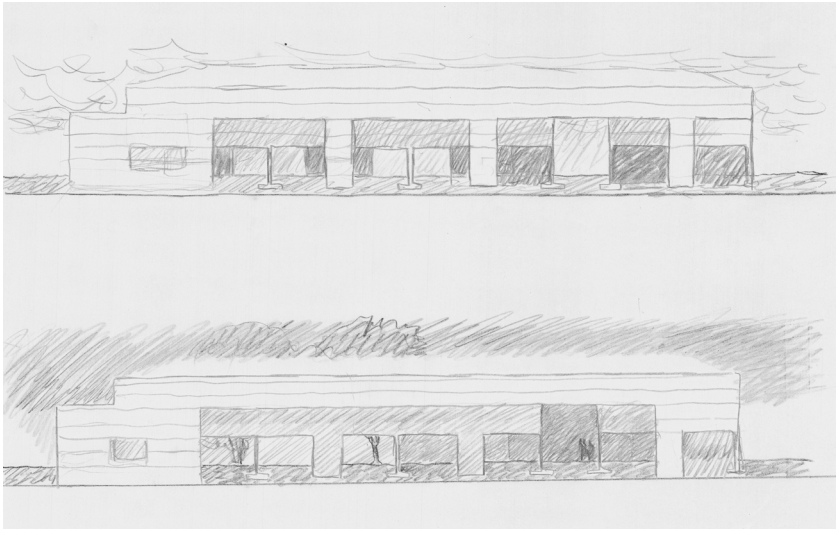
FIGURES 8-9: Picture of a Venetian palace taken from Campo San Stin, featuring the Istrian limestone horizontal marks; Bellini's view of a fifteenth-century Venetian canal. Even in Bellini's "abstract" preliminary drawing one finds the façades' horizontal lines. Sources: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 222 (NP070083); AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083).

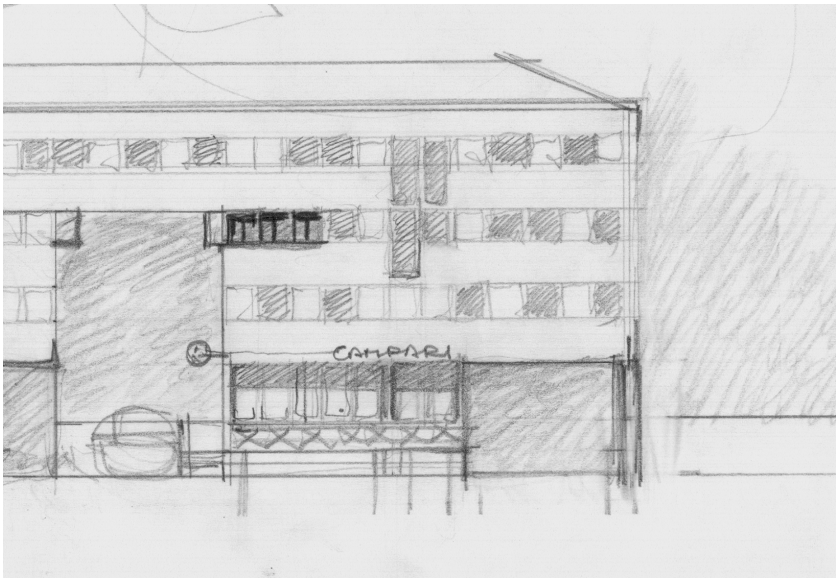


Thus, this was the inevitable 'analogy in the formal outcome' with Venetian buildings achieved by their design; an outcome which was not the result of mere imitation but rather of a shared research in constructional *ratio* (Figs. 10-11).[47] Present-day rationality concerned building industrialisation, which brought together '*in situ* execution, specific prefabrication and installation of industrial products', granting simple and clear forms, great performances and flexibility thanks to its modular system (Figs. 12-13).[48]

Similarly, the 'grammatical transformation' notion can also be adopted to describe the technological solutions for the design of public space within the four schemes (Figs. 14-15). The 'public pedestrian routes paving', designed for the ex-Fregnan courtyards and the ex-Saffa *campi* and *sotoporteghi*, re-proposed the formal outcome of traditional Venetian paving patterns, which were often framed by blocks of light-coloured stone.

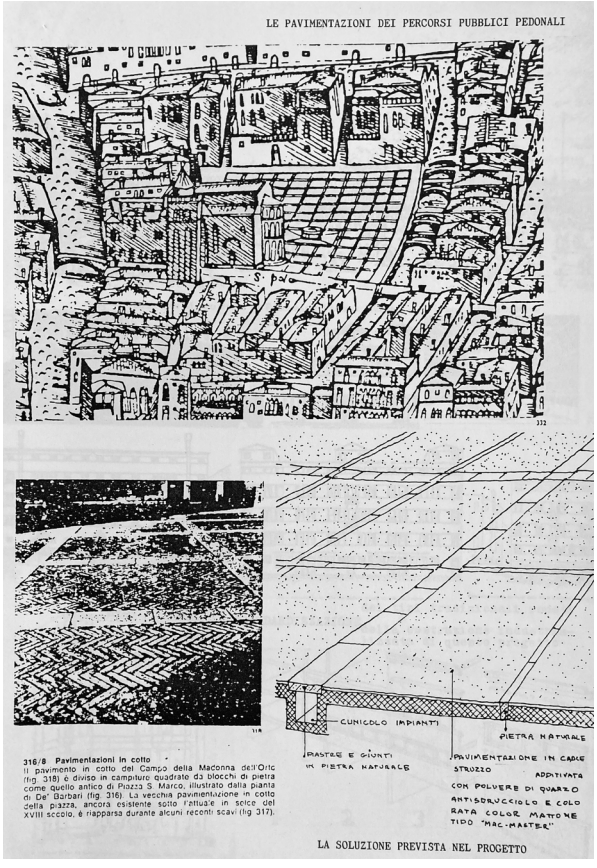
FIGURES 10-11: Two preliminary drawings highlighting the horizontal marks characterising the buildings' façades. Source: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Scatola 42 (NP069743).





FIGURES 12-13: Two building site photographs documenting the construction process for the first ex-Fregnan lot. Source: AP Iuav, Cappai-Mainardis 4.Fotografie/39, Scatola 283 (NP071805).

FIGURES 14-15: The ‘public space paving’ *collage*; the completed ex-Fregnan pavement, as photographed by Roberto Righetti. Sources: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083); AP Iuav, Cappai-Mainardis 4.Fotografie/50, Scatola 280 (NP071803).



More specifically, as the *collage* images suggested, the reference was to that of Campo San Polo, as shown in De' Barbari's Veduta di Venezia (taken, for this *collage,* from page 267 of *Civiltà di Venezia*, volume one) or to that of Campo della Madonna dell'Orto, made of terracotta bricks (taken from page 259 of the same book). However, the technology also belonged to the sphere of industrialised building. The blocks were to be made of concrete, with quartz powder additive and 'Mac-Master type' brick-coloured pigment; the main light-coloured bands, made of natural stone, were also used as lids for inspectable underground ducts. The project bid note manuscript's last page hosts a list of pencil-written memos on its *verso*. 'Venetian-ness', states one of the memos, should be found 'within urban planning standards – services as well as within the walls defining [?] public space // not in *altane* [traditional Venetian wooden rooftop terraces] or in private balconies'.[49] Even the technological solutions chosen for details such as outdoor paving were profoundly coherent with the 'material culture' and 'grammatical transformation' principles adopted by the three architects. They equally contributed to the construction of spaces one could experience as intrinsically 'Venetian'. The last memo of the list is an interrupted sentence: 'Venice is not seen from above but'.[50] In its substance, the same memo can be found again as a statement of intents, typewritten in small capitals, in the white pages of the notes' shared part:

> The city, the neighbourhoods, the buildings are recognised in the daily experience, in fragments of space and in the flowing of time: the vision from above, the "birds' eye view" is estranging hermetic if compared to what is experienceable, unable to anticipate its images and the comprehension of its structure. We thus preferred the representation of moments and visual fragments of the concrete experience [of the city].[51]

Among the materials produced for the competition-call for tenders, one finds only one 'all-encompassing' axonometry, but numerous perspective drawings and urban scenes. Even Bellini's sketch can be understood as a demonstration of the spatial outcomes of the Venetian material culture: once again, the 'simple, diagrammatic relationship between the structure of buildings and space'.[52]

6. CONCLUSION

In April 1984, the Venetian Department of Social Housing prepared the *Relazione del programma definitivo per il Programma Straordinario di Edilizia Abitativa* (*Definitive programme note for the Extraordinary Housing Programme*), which was then published on the public notices board on 3 May.[53]

After a 'strenuous analysis' of the four proposals and the subsequent private negotiations, the City Council selected the solution presented by the Polese company with architects Cappai, Mainardis and Pastor ('which involved the adoption of prefabrication systems') for the Chirignago, Zelarino and ex-Fregnan developments; and the solution presented by the Consorzio Imprese Veneziane Nuove (C.I.VE.N., based off Santa Croce, Venice) company with architect Vittorio Gregotti for the ex-Saffa development. The Cannaregio area, as the note explained, played 'an important role within the historical city centre', leading to the choice of the best design solution adopting 'traditional technologies'. In the definitive programme, the number of dwellings grew from 40 to 43 for the ex-Fregnan area, from 76 to 79 for Chirignago and from 50 to 51 for Zelarino. It diminished from 150 to 134 for the ex-Saffa area. The maximum construction cost allowed by the programme remained the same for the three Cappai, Mainardis and Pastor schemes, while it grew by around 40% for the ex-Saffa scheme.[54] On 7 May 1984, social housing councillor, Prof. Bruno Cassetti (P.C.I., Italian Communist Party), wrote a letter to the selected construction companies, attaching copies of two Municipal determinations dated 17 April 1984.[55] With those, the City Council approved the definitive programme and scheduled the issuing of the building concessions. The largest intervention for the ex-Saffa area was handed to Gregotti. However, Cappai, Mainardis and Pastor were given the opportunity to direct the executive design and construction of one of those 'inner outskirts' which constituted the field for Venice's public housing season of the 1980s – Sacca Fisola.[56] The design principles stated in the project bid note were translated into a fabric of reinforced concrete walls and industrialised façades in the first ex-Fregnan lot. In this sense, the ex-Fregnan scheme (and the Programma Straordinario products as a whole) should not be understood as relevant for urban planning, economic or political reasons only. In an essay entitled "Disegnare, pezzo a pezzo, il futuro. Nuovi progetti per la città storica," Marco De Michelis suggested how Venice's 'rejection' of the Wright's, Le Corbusier's and Kahn's extraordinary 'attempts to originally interpret the Venetian exceptionality' of the 1950s and 1960s could not be only interpreted as a 'simple renunciation of any sort of transformation'.[57] Hundreds of building extensions had been carried out within the historical centre islands during the post-war years: a praxis of 'normalisation' of the historical city. This highlighted a recurring inability to accept any greater attempt at conceiving 'modern representations of the Venetian unicity'. The construction of the ex-Fregnan scheme was part of the process which led to the end of a 'paralysing dilemma': the dispute between the radical preservation of the urban organism and the legitimacy of contemporary architecture to operate on the historical matter of the city.[58] In the same years when Venice became part of the Unesco World Heritage (1987), a recognition which explicitly

acknowledged the rare persistence and homogeneity of its historical image, the city was also continuously read, designed and built. Cities with relevant built heritage can indeed be transformed by contemporary architecture. Well beyond the design questions posed by the 1985 Biennale, which had 'fragile meanings', the 1980s housing developments aimed at finding answers for the ancient city's 'salvation' through its very transformation. In particular, they did so by retrieving the '*raison d'être*' of its margins (Fig. 16).[59] According to De Michelis, this process continued during Massimo Cacciari's mandates as mayor and with the design opportunities, either public, private or hybrid, of the 1990s. Examples are Cino Zucchi, Boris Podrecca, Bernard Huet and Luciano Parenti's buildings in the ex-Junghans area. The relevance of the 1980s and 1990s built projects is thus markedly cultural as well. Even though they were not part of a single, homogeneous development programme for Venice, they contributed to re-designing the historical city and its future, 'as tiny movements of form'.[60] Pastor had wished for a 'jumble [...] of many discourses revealing a shared linguistic structure' for Venice.[61] The jumble of 'modern representations' of the city, such as that proposed by Cappai, Mainardis and Pastor, contributed, 'piece by piece', to the material construction of contemporary Venice as well as of its architectural culture.[62]

FIGURES 16: A montage of four photographs, part of the Cappai Mainardis fonds, illustrates three of the 1980s Giudecca housing schemes: on the right, Gambirasio's; in the middle, Valle's; on the left, Cappai, Mainardis and Pastor's first ex-Fregnan lot. Source: AP Iuav, Cappai-Mainardis 4.Fotografie/39, Scatola 283 (NP071805).

The debate on the dialectic between contemporary architecture and the historical city was critical in 1980s Venice as it is today. The current instability of the housing scenario in European cities, as well as the growing evidence of the economic, environmental and cultural value of working on existing built heritage, hint at the relevance of renewed reflections on this relationship.[63] A variety of architectural projects of the recent past, not unlike the one presented in this essay, aimed at finding answers to similar challenges. Their rigorous study may highlight the characteristics of their specific urban planning, housing policy, social and economic contexts. It may also reveal the rich complexity of possible approaches towards integrating new structures (for instance, housing schemes) into urban contexts with relevant historical fabric.

NOTES

1 Manfredo Tafuri, Francesco Dal Co, Massimo Cacciari, "Il mito di Venezia," *Rassegna* VII, no. 22 (June 1985): 7-9; Manfredo Tafuri, *Venezia e il Rinascimento. Religione, scienza, architettura* (Torino: Einaudi, 1985); Paolo Maretto, *La casa veneziana nella storia della città dalle origini all'Ottocento*, with an essay by Gianfranco Caniggia (Venezia: Marsilio Editori, 1986).

2 Elia Barbiani, "Case popolari tra industrializzazione e urbanizzazione," in *Edilizia popolare a Venezia. Storia, politiche, realizzazioni dell'Istituto Autonomo per le Case Popolari della Provincia di Venezia*, ed. Elia Barbiani (Milano: Electa, 1983), 11-34; Giandomenico Romanelli, "Dalle 'case dei poveri' ai quartieri degli anni Trenta. I residui del linguaggio," in Barbiani, *Edilizia popolare a Venezia*, 35-67. For a recent study on this topic, see: Alexander Fichte, *Städtische Wohnquartiere in Venedig (1918-1939). Urbane Gestalt zwischen modernen Anforderungen und lokaler Bautradition* (Berlin: Jovis Verlag, 2022).

3 Romanelli, "Dalle 'case dei poveri' ai quartieri degli anni Trenta," 38-39.

4 Carlo Magnani, PierAntonio Val, "La misura del progetto," *Rassegna* VII, no. 22 (June 1985): 78-83. See also the "*antiperiferia*" (antiperiphery) concept in Franco Mancuso, *Venezia è una città* (Venezia: Corte del Fontego, 2009), 69; and Jacques Lucan's essay "Lezioni di Venezia," *Vesper. Rivista semestrale di arti e teoria* 8, no. 1 (Spring/Summer 2023): 98-99.

5 Lucan, "Lezioni di Venezia": 91.

6 Barbiani, "Case popolari tra industrializzazione e urbanizzazione," 17. The mainland settlements had been characterised by a demographic boom in the first three decades of the 20th century, with the construction of the port and industrial areas in Marghera and residential areas in Mestre. Mestre then experienced another demographic growth between 1945 and 1975, rising from 82,620 inhabitants to 210,674: Romanelli, Rossi, *Mestre*, 36-39, 51-52.

7 Giandomenico Romanelli, Guido Rossi, *Mestre. Storia territorio struttura della terraferma veneziana* (Venezia: Arsenale Cooperativa Editrice, 1977), 58-60. As Romanelli writes, the urban development of the Venetian mainland system can be read as dual to that of the island city, with housing both directly linking the mainland with the island and fueling an irreconcilable contrast between the two: Romanelli, Rossi, *Mestre*, 9.

8 Nicola Sinopoli, Gian Franco Geron, "Case popolari e politica tecnica," in Barbiani, *Edilizia popolare a Venezia*, 141-156: 150-153. This also had to do with adopting new procedures for call for tenders through law no. 584/1977, which introduced the notion of the "most advantageous offer" and favoured building proposals involving shorter completion times and high-quality solutions. An example of this was the use of 'tunnel' construction systems for housing schemes in Favaro, Mirano and Chirignago around that same time.

9 Pierre-Alain Croset, Luka Skansi, *Gino Valle* (Milano: Electa, 2010), 214-223, 232-237. For a rich bibliography on this project, see page 223.

10 The Programme was regulated by article 2 of Italian law no. 94/1982.

11 C.E.R. resolution, 19 May 1983. See: Venice, Archivio Progetti, Università

Iuav di Venezia [henceforth AP Iuav], Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083): *Programma straordinario di edilizia abitativa. Disciplinare tecnico,* ed. Franco Costa (Venezia: Comune di Venezia. Assessorato all'Edilizia Convenzionata, 1983), 6 [henceforth *Disciplinare tecnico*].

12 For details concerning dwelling types, see: Costa, *Disciplinare tecnico,* 13.

13 The executive project was to be completed within 75 days after the negotiation. AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083): *Programma straordinario di edilizia abitativa. Foglio condizioni*, eds. Franco Costa, Vittorino Favaretto, Maria Maddalena Morino (Venezia: Comune di Venezia. Assessorato all'Edilizia Convenzionata, 1983), 5-10 [henceforth *Foglio condizioni*].

14 Tullio Campostrini, "Dalla GESCAL agli anni della riforma incompiuta," in *Costruire a Venezia. Trent'anni di edilizia residenziale pubblica*, ed. Tullio Campostrini (Venezia: il Cardo, 1993), 22.

15 Valeriano Pastor, "Progetti e costruzioni a Venezia nel dopoguerra. Il contributo dell'esperienza veneziana alla soluzione dei problemi della casa", in Campostrini, *Costruire a Venezia*, 45. Special law no. 171/1973, and law no. 25/1980, were particularly relevant in this sense.

16 Manuela Pivato, "Colloquio con Gregotti sulle case popolari. Questa città 'intoccabile'," *La Nuova. Cronaca di Venezia*, Thursday, 23 February, 1989, 15; Manuela Pivato, "Le case popolari "firme" d'autore. Quando Gino Valle ideò l'area Trevisan," *La Nuova. Cronaca di Venezia*, Friday, 24 February, 1989, 15; Manuela Pivato, "Gli alloggi popolari 'firme' d'autore. Mazzorbo in azzurro secondo De Carlo," *La Nuova. Cronaca di Venezia*, Saturday, 25 February, 1989, 16; Manuela Pivato, "Gambirasio e la cura dei dettagli. Quarantaquattro appartamenti realizzati con Gianfranco Brusati," *La Nuova. Cronaca di Venezia*, Sunday, 26 February, 1989, 15; Manuela Pivato, "Concentrazione di case d'autore. Roma studia le 'firme' I.A.C.P.," *La Nuova Venezia*, Wednesday, 1 March, 1989, [x].

17 Marco De Michelis, "Nuovi progetti alla Giudecca. Tipi di edificazione e morfologia dell'isola," *Lotus international* 51, no. 3 (1986): 84.

18 Pastor, "Progetti e costruzioni a Venezia nel dopoguerra," 48.

19 *Disciplinare tecnico*, 6-7. A central role for this publicly funded housing season (operated by the first Venetian left-wing City Councils after a decade of Christian Democracy administration) was played by the 1979 flooding and by the challenges it posed to the 'rotational dwellings' programme. See: Carlo Cappai, Maria Alessandra Segantini, "La cultura materiale nella costruzione della casa a Venezia," in Valeriano Pastor, *Edilizia residenziale pubblica. Ristrutturazioni a Venezia*, eds. Maura Manzelle, Mario Spinelli (Venezia: Il Cardo, 1996), 95-96.

20 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 164 (NP070083): *Atti notarili per compravendita ex-Fregnan*.

21 Respectively, by decree no. 2929, 13 June 1978, of the Veneto Region President; and by decree of the Italian Republic President, 17 December 1962. See: *Disciplinare tecnico*, 8-12.

22 Pastor, "Progetti e costruzioni a Venezia nel dopoguerra," 31.

23 *Disciplinare tecnico*, 18-19; *Foglio condizioni*, 2-10.

24 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083): *Contenuto dell'offerta – Fregnan,* 1 [henceforth *Contenuto dell'offerta – Fregnan*].

25 La Nuova, "Ecco le case Fregnan, ci sarà la cavana," *La Nuova. Cronaca di Venezia,* Friday, September 24, 1984, 9.

26 *Contenuto dell'offerta – Fregnan,* 3.

27 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Plico di appunti B*.

28 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Manoscritto relazione*, 4 [henceforth *Manoscritto relazione*].

29 *Manoscritto relazione*, 17.

30 *Contenuto dell'offerta – Fregnan,* 4.

31 Cappai, Segantini, "La cultura materiale nella costruzione della casa a Venezia," 93, 101-103.

32 Tiziana Quaglia, "Iginio Cappai e Pietro Mainardis. Il lavoro a due mani per una sola architettura," *Edilizia popolare* 212, no. 1 (January/June 1990): 48-53; see also: Iginio Cappai, Pietro Mainardis, *Architetture e trasformazioni urbane*, exhibition catalogue (Cadoneghe, Ca' Ghedini, 11 – 18 October, 2002), with essays by Guglielmo Monti, Francesco Tentori, Adriano Cornoldi (Rubano: Turato, 2002), 20-21; Renato Morganti, "Iginio Cappai e Pietro Mainardis. Edilizia residenziale pubblica a Venezia," *Industria delle costruzioni* 255, no. 1 (January 1993): 4-7; Massimiliano Casavecchia, "L'architettura di Cappai e Mainardis," *Parametro* 147, no. 5 (June 1986): 12.

33 *Manoscritto relazione,* 4.

34 Pastor, "Progetti e costruzioni a Venezia nel dopoguerra," 59. The traditional '*casa popolare*' (people's dwelling) term had been formally abandoned with law no. 865/1971, which substituted it with the '*edilizia residenziale pubblica*' (publicly funded housing) term. Pastor highlighted how the '*popolare*' notion had apparently gained a negative meaning. The change was also tied to how the housing problem now concerned a structurally and culturally dynamic variety of social classes. See: Pastor, "Progetti e costruzioni a Venezia nel dopoguerra," 44.

35 Cappai, Segantini, "La cultura materiale nella costruzione della casa a Venezia," 88, 90-91, 95-96. The notion of a material culture underlying design processes was splendidly expressed by Giancarlo De Carlo in the *Parametro* issue dedicated to Cappai and Mainardis: '[...] they love to work within their territory, because they believe architecture must be first and foremost specific to have an intense meaning; it needs to respond to nature's rhythms, to cultural traditions, to the temperament of its inhabitants and place. [...] they consider the architectural event as a context of details which all need to be wisely solved to reach a unitary whole. But the destiny of this whole is to be itself a detail within the broader environmental context it takes part in. [...] they accept the

rules of the architectural profession as self-discipline; they consider facts, needs, the programme, deadlines and so on as concrete measures and inputs for the architectural practice: they take all the ingredients in their possession as they are and, at the same time, as they will be when composed together at the right moment and in the most proper of ways. Indeed, if one makes them explain how they design, they may quote Carlo Emilio Gadda as he tells how a *risotto alla milanese* should be prepared – how there is no other way to prepare it'. Giancarlo De Carlo, "Per giudicare l'architettura," *Parametro* 147, no. 5 (June 1986): 6.

36 Cappai, Segantini, "La cultura materiale nella costruzione della casa a Venezia," 88.

37 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Plico di appunti A.*
Vedi anche AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Plico di appunti B.*

38 *Contenuto dell'offerta – Fregnan,* 6.

39 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Contenuto dell'offerta – Saffa*, 22-23 [henceforth *Contenuto dell'offerta – Saffa*]. As Pastor wrote in 1993, this 'pure technicity' opposed the character of most contemporary housing in Venice, particularly Sacca Fisola. More than half of Sacca Fisola, managed by other associations and private groups, was characterised by linguistic chaos and formal 'commonplaces'. Pastor partly excluded Duilio Torres' 1940s I.A.C.P. scheme from this critique. The project allegedly tried to interpret the traditional architectural language as a form of popular culture and the notion of 'modern Venetian-ness' as a 'principle which aimed at constituting both proximity to and distance from history', in opposition to a complete immersion within it. See: Pastor, "Progetti e costruzioni a Venezia nel dopoguerra," 31-37.

40 *Manoscritto relazione,* 2.

41 The concrete for these walls was poured *in situ*. AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Relazione tecnica*, 8-9 [henceforth *Relazione tecnica*]. The façade elements would be assembled on site, with an extruded polystyrene film separating them from the concrete structure. The Cappai Mainardis fonds contain a dossier which apparently came from architect Gian Paolo Mar's atelier. Within it, one finds technological details for a housing scheme with a constructional system which is analogous to that adopted by Cappai, Mainardis and Pastor: reinforced concrete walls and prefabricated concrete façade panels similar to those adopted by the three architects except for the indentations under the windowsills. In a cross-section, a graphite drawing, possibly by Cappai, Mainardis or Pastor, transformed Mar's cornice solution, which did not feature the prefabricated gutter, into the more complex one designed by the three architects. See: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Fascicolo "Studio architetto Mar. Tipologie edilizie".*

42 *Contenuto dell'offerta – Saffa,* 24, 30.

43 The P71 system granted water and air tightness in all vertical joints. It was made of three PVC elements: two '*gouttière*' profiles embedded in the panels, functioning as tracks, and a '*clé*' profile which provided water tightness and was

assembled during construction. With this system one could avoid the use of *in situ* sealing.

44 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Relazione tecnica*, 8-9.

45 *Contenuto dell'offerta – Saffa,* 24.

46 *Contenuto dell'offerta – Fregnan*, 4. '[...] with a technical-constructional purpose, the joints marking the daily layers of plastering, were framed with Istrian limestone bands or, even more simply, with plaster of different colour'. See: AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165, (NP070083), *Corpo 30*.

47 'Or, to put it simply: what is achieved here is a direct assonance between architectural forms produced by a dry constructional *ratio* – a prefabricated system of industrial production – and the forms of the Venetian tradition [...]'. Pastor, "Costruire a Venezia," 59.

48 The need for flexibility was satisfied on three levels: dwellings could be personalised as they were inhabited; the percentages of unit types could be changed as time went on or during the private negotiation, without needing to transform the overall structural and formal outline. See: *Contenuto dell'offerta – Saffa*, 28-29.

49 *Manoscritto relazione,* 27.

50 *Manoscritto relazione,* 27.

51 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 164 (NP070083), loose sheet.

52 *Manoscritto relazione,* 5.

53 AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083), *Relazione del programma definitivo per il Programma Straordinario di Edilizia Abitativa,* Assessorato all'Edilizia Convenzionata del Comune di Venezia (Venezia: 1984).

54 The fact that Cappai, Mainardis and Pastor's project did not exceed the maximum construction cost allowed demonstrates the quality of the competition brief indications, which had encouraged the adoption of building industrialisation systems. Gregotti's 'technologically traditional' scheme also adopted prefabricated elements, although these were more conventional from a constructional and formal point of view. See: Cappai, Segantini, "La cultura materiale nella costruzione della casa a Venezia," 98-100.

55 Venetian City Council deliberations no. 1507 and 1508, 17 April, 1984. AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 162 (NP070083).

56 With engineers Franco Geron, Walter Gobbetto, Aldo Fanchiotti and Roberto Drigo. AP Iuav, Cappai-Mainardis 2. Attività professionale/1/095, Busta 165 (NP070083), *Corpo 30*.

57 Marco De Michelis, "Disegnare, pezzo a pezzo, il futuro. Nuovi progetti per la città storica," in *Venezia. La nuova architettura*, exhibition catalogue

(Fondazione Giorgio Cini, Venice, 26 March – 13 June, 1999), ed. Marco De Michelis (Milano: Skira; Venezia: IUAV, 1999), 31.

58 De Michelis, “Disegnare, pezzo a pezzo, il futuro,” 35.

59 De Michelis, “Disegnare, pezzo a pezzo, il futuro,” 39-41.

60 De Michelis, “Disegnare, pezzo a pezzo, il futuro,” 42.

61 And by Giuseppe Samonà before him. See: Pastor, “Progetti e costruzioni a Venezia nel dopoguerra,” 37.

62 Massimo Cacciari, “Introduzione,” in De Michelis, *Venezia. La nuova architettura*, 8.

63 European Parliament. “Decent and affordable housing for all. European Parliament resolution of 21 January on access to decent and affordable housing for all,” *Official journal of the European Union* 64, C456 (10 November 2021): 145-160. See also: Federica Fava, Laura Fregolent, “Report dal fronte casa. Storie, quantità e prospettive della residenza pubblica a Venezia,” *Archivio di studi urbani e regionali* XLX, no. 125 (August 2019): 95, 97-98.

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A B S T R A C T S : S E R B I A N

ARHITEKTONSKI FILMSKI PROSTORI KAO PROTO-ARHIV KOLEKTIVNE MEMORIJE

Nina Bačun

Budući da nam se životi ubrzano odvijaju unutar digitalnog prostora, neizbežno je preispitati značenje nematerijalne baštine virtuelnih okruženja detaljnim proučavanjem Hito Steyerlinih čitanja Waltera Benjamina, uz razumevanje 'slike kao objekta', a ne samo kao reprezentacije. Ideja o aktivisanju objekta slike poslužila bi kao polazna tačka ili produktivna snaga u novom pristupu arhitektonskom digitalnom nasleđu, ubrzavajući transformaciju naše svakodnevne stvarnosti novim čitanjem arhitektonskih prostora. Istraživanje postavlja pitanje što je zagrobni život filmskih prostora kao afektivnog sećanja na pokretnu sliku, budući da oni nisu neutralni ni pasivni, jer se film definiše kao oblik izražavanja i proizvod kolektivnog sećanja. Istovremeno, naglašava nužnost (pre)ispitivanja 'fluidnih' granica 'neizvesne i kompleksne' prošlosti, 'akutne i nestabilne' sadašnjosti i 'željene ili moguće' budućnosti filmskih prostora kroz promišljanje prakse arhivisanja filmske arhitekture i njenim širenjem u digitalno područje.

KLJUČNE REČI: ARHITEKTURA FILMA, FILMSKI PROSTOR, KOLEKTIVNO SEĆANJE, KONTRA-ARHIV, SLIKA KAO OBJEKAT, NOSTALGIJA

NASLEĐE U MEŠOVITOJ REALNOSTI: POTENCIJAL JAVNIH PROSTORA U BLIZINI STUDENTSKOG TRGA ZA KONCEPT *EDUTAINMENT*-A

Milja Mladenović

Savremena svakodnevica afirmiše upotrebu novih tehnologija i digitalnih medija u mnogim sferama javnog života, zbog čega postaje dragoceni aspekt koji treba istražiti prilikom projektovanja savremenih javnih prostora. Pristupajući informacijama o nasleđu unutar javnih prostora, upotreba novih tehnologija omogućava interakciju ne samo sa vidljivim spektrom lokaliteta nasleđa, već može da omogući otkrivanje i interakciju sa 'nevidljivim' nasleđem u okruženjima mešovite realnosti. Preklopljeno nasleđe u istorijskom jezgru Beograda, posebno na području Studentskog trga nudi značajne uvide vezane za istraživanje potencijala za stvaranje interaktivnih okruženja mešovite realnosti. Cilj rada je da definiše raznovrsnost prostornih aspekata i kvaliteta javnih prostora, neophodnih za stvaranje mesta savremene interakcije sa lokalitetima nasleđa. Imajući u vidu prethodno usvojeni koncept *edutainment*-a (obrazovanje + zabava) za prenošenje informacija o nasleđu korisnicima putem različitih medija, istraživanje se bavi novim načinima prezentacije nasleđa kojim bi se unapredili javni prostori bogati velikom gustinom nasleđa. Po-smatrajući mešovitu stvarnost ne samo kao sredstvo interakcije već i kao način predstavljanja višeslojnih informacija, istraživanje tradicionalnoj analizi lokacije dodaje i zahteve za digitalnom infrastrukturom. Ispitivanjem ovog pristupa analizi na Studentskom trgu, istraživanje nudi novo razumevanje odnosa između mogućih stejkholdera, korisnika i prostornih karakteristika, neophodnih za prezentaciju kulturnog nasleđa u prostorima mešovite realnosti.

KLJUČNE REČI: PREZENTACIJA NASLEĐA, MEŠOVITA REALNOST, JAVNI PROSTOR, URBANI DIZAJN, ANALIZA LOKACIJE

DA LI NOVE TEHNOLOGIJE SUŠTINSKI MOGU DA ZAMENE ISKUSTVO KOJE SPOMENICI KULTURE I MUZEJI NUDE?

Staša Zeković, Marko Mihajlović

Prilikom poseta spomenicima kulture i muzejima, oslanjamo se na čula u sagledavanju sveta oko nas, posebno arhitektonskih i umetničkih senzacija. Iako empirijska osnova često može da bude varljiva, ona predstavlja stimulans na koji formiramo odgovor, i koji na kraju postaje sećanje na prostor. Pošto se svet konstantno digitalizuje, a posebno tokom pandemije KOVID-19, lični i poslovni odnosi uglavnom su sve više vezani za tehnologiju. Cilj ovog rada je da dovede u pitanje upotrebu novih tehnologija (virtuelna realnost, proširena realnost, prirodna interakcija, metaverzum), kako vrednosti, tako i opasnosti koje su nedavno istaknute u javnom diskursu, kao i da postavi pitanje da li spomenici kulture i njihovi korisnici uopšte mogu da se razvijaju u virtuelnom okruženju. Koristeći model stimulans-organizam-odgovor, ovaj rad istražuje da li prošlost još uvek ima budućnost u tradicionalnom, formalnom smislu. Glavno pitanje je: kakav je kulturni značaj nasleđa u virtuelnom svetu i da li je digitalno nasleđe moguće, ili je navedeno oksimoron? Zaključak sugeriše da upotrebu novih tehnologija treba pažljivo i umereno sprovoditi i ograničiti na određene situacije.

KLJUČNE REČI: KULTURNO NASLEĐE, MUZEJI, ISKUSTVO, ČULA, TEHNOLOGIJA, METAVERZUM

IZMEĐU PEJZAŽA I HIPEROBJEKATA: MAPIRANJE VISKOZITETA BORSKE FLOTACIONE JALOVINE

Milica Božić

U savremenoj arhitekturi i njoj srodnim disciplinama, razumevanje pejzaža prolazi kroz transformativne promene usled različitih ekoloških uticaja. Umesto shvatnja pejzaža kao statične forme, on počinje da se posmatra kao otvoreni proces, što nagoveštava da je sveobuhvatno razumevanje ovog pojma gotovo nedostižno. Shodno tome, u oblasti pejzažne reprezentacije pojavljuju se alternativni modeli koji prevazilaze tradicionalne pitoreskne predstave pejzaža. Sa druge strane, različiti teorijski okviri pokušavaju da objasne Antropocen, pretpostavljenu geološku epohu u kojoj se čovečanstvo trenutno nalazi. Jedan takav okvir je i objektno orijentisana ontologija (OOO), koja potpada pod školu mišljenja spekulativnog realizma. U okviru nje, filozof Timothi Morton (Timothy Morton) uvodi koncept hiperobjekata (eng. *hyperobjects*), koji se odnosi na entitete koji prevazilaze prostorne i vremenske granice i fundamentalno utiču na život na Zemlji. Hiperobjekti se manifestuju kroz različite fenomene kao što su globalno zagrevanje, radioaktivni materijali, nuklearni otpad, zagađenje, i slično. Oni poseduju pet osnovnih karakteristika: viskoznost, nelokalnost, undulaciju u vremenu, interobjektivnost i faznost, koje nose značajan potencijal daljeg tumačenja u disciplini arhitekture. Sa tim u vezi, ovaj rad ima za cilj da doprinese tekućem diskursu o hiperobjektima i njihovim osnovnim karakteristikama kroz istraživanje veze hiperobjekata sa različitim konceptima pejzaža u arhitekturi. Štaviše, ovaj rad nastoji da sprovede istraživački eksperiment koristeći se metodom istraživanja kroz dizajn (eng. *desgin driven research*), fokusiran na alternativnu reprezentaciju viskoziteta pejzaža u Boru, flotacijskom jalovištu u Istočnoj Srbiji.

KLJUČNE REČI: REPREZENTACIJA PREDELA, HIPEROBJEKTI, OBJEKTNO ORIJENTISANA ONTOLOGIJA, TOKSIČNI PEJZAŽI, VISKOZITET

ČITANJE I IZGRADNJA VENECIJE, 1984. KAPAIJEV, MAINARDISOV I PASTOROV *CASE POPOLARI* KAO MATERIJALNA KULTURA.

Francesco Maranelli

Osamdesetih godina prošlog veka Venecija je predstavljala jedinstvenu laboratoriju za proučavanje odnosa savremene arhitekture i istorijskog grada, što i danas predstavlja kritičnu tačku. Arhitektonski projekti ovog perioda su dragocena svedočanstva o načinima čitanja istorijskog konteksta i građenja u njemu. U februaru 1984. četiri arhitektonske firme dostavile su dokumentaciju traženu na konkursu za vanredni stambeni program Venecijanske opštine, a koji se tiče izgradnje četiri stambena projekta na teritoriji Venecije. Ovi planovi su bili među prvima koji su se nakon Drugog svetskog rata ticali stambene izgradnje, a da je njima upravljala opština. Na osnovu analize arhivskih dokumenata, ova studija se fokusira na projekat arhitekata Kapaija, Mainardisa i Pastora, koji je predložio čitanje grada i njihovu interpretaciju stanovanja kao izraza „materijalne kulture“. Osim formalnih analogija, odlučili su da strukturiraju svoj projekat oko uporne materijalne kulture koja je u osnovi stambene izgradnje u istorijskoj i savremenoj Veneciji. Shvatajući materijalnu kulturu svog vremena kao neodvojivu od građevinskog tržišta, usvojili su moderne tehnike industrijalizacije zgrada. Pošto je grupa izabrana da izgradi tri šeme, njihov teorijski napor je na kraju usklađen sa epizodom stvarne prefabrikacije unutar istorijskog centra ostrva.

KLJUČNE REČI: VENECIJA, ISTORIJSKI GRADOVI, NASLEĐE, SOCIJALNO STANOVANJE, MATERIJALNA KULTURA, INDUSTRIJALIZACIJA, PREFABRIKACIJA

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SAJ : Serbian architectural journal / editor-in-chief Vladan Đokić. - Vol. 1, no. 1 (2009)- . - Belgrade : University of Belgrade, Faculty of Architecture, 2009- (Beograd : Zonex). - 27 cm

Tri puta godišnje. - Drugo izdanje na drugom medijumu: SAJ. Serbian architectural journal (Online) = ISSN 2787-1908
ISSN 1821-3952 = SAJ. Serbian architectural journal
COBISS.SR-ID 172308748

ISSN 1821-3952