Site-Archive-Medium:
VR, Architectural History, Pedagogy and the Case of Lifta

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As a pedagogical tool, virtual reality (VR) is developing at a rapid pace with researchers from various fields calling for a better understanding of its potential.[1] But in the field of architecture, VR has been largely limited either to the reconstruction of sites that have been lost or are otherwise inaccessible, or to the advancement of high-end research. We can enter a Neolithic tomb; we can walk through Hadrian's villa; we can explore an unbuilt Hindu temple. We can now also work more precisely with the interface between hand and robot; we can see through walls to design better structural details. The use of VR in the context of architecture's broader concerns, however, remains quite limited, the reasons being a lack of technological know-how, the limited reach of the technology in classroom settings, and logistical difficulties. But beyond such real-life difficulties that can surely be improved upon in the future, the general intellectual question of how VR can be used pedagogically remains in its infancy and is, in fact, hampered precisely by the technology's general promise of simple, faithful realism.

In the research presented below, based on a workshop conducted at MIT in 2019, we not only embrace the limitations of what can be understood as real within the VR platform, but also exploit the capacity of VR to create jumps and links to other spaces, times and objects as part of its foundational capacity. The article will first present the workshop and the resulting virtual-reality installations, in order to discuss some of the critical questions that arose from the research and the work: can historical evidence be spatialised within the detailed context of the materiality of site? What does an immersive form of representation entail for the pedagogy of architectural history? And what possibility does this framework offer for conveying the complexity of the site of Lifta for other, similarly complex sites?

Within the theoretical posture adopted for this research project VR was not a tool that provided an additional layer of realism to what is being studied, but rather a medium that allowed us to work between various epistemological registers to create something that is just as much a part of architecture as it is of pedagogy. In other words, we wanted to create something that was not just a personal statement, but that could translate into a teaching tool.

In this, we wanted to build a bridge to developments in the art world, where artists have used historical research, to become, in fact, ever more like historians.[2] The well-known African American artist Renée Green, for example, explains that in her work, she

> wanted to begin by examining an artifact, a text, a painting or a group of paintings, a decorative object, an image, a novel, a poem, a garden, a palace, a house. By beginning with these objects or places, and the contexts in which they appeared, it was possible to detect the intricate working of certain ideologies which

were being put forth … and to attempt to decipher the contradictory pleasure which might accompany them.[3]

Similarly, the choreographer Netta Yerushalmy and historian Julia Foulkes developed a hybrid-event project called *Paramodernities*: part performance, part academic conference, and part town-hall gathering.

By placing artistic and historical interpretation in dialogue – and tension – with one another we can begin to open new ways of thinking about the past, as well as its representation in the present. Take for instance *Mitologies,* a VR piece created by Lebanese filmmaker Hisham Bizri in 1997. As Bizri describes it, the work is 'loosely based on the Cretan myth of the Minotaur, the Revelation of St. John, Dante's *Inferno*, and Dürer's woodcuts of the Apocalypse. Music from Richard Wagner's *Der Ring des Nibelungen* serves as a structural motif for the unfolding narrative'. This amalgam of texts, images, objects and sounds is then brought together in an architectural model which

> fuses the exterior of a 3D church modeled after a Leonardo da Vinci sketch of a church that was never built with the interior of the Great Mosque of Cordoba. Beneath the church is a maze built as a "rhizome": every path is connected to every other one, with no center and no periphery. As viewers proceed through the maze, they find themselves on paths that lead to medieval curiosity rooms, to rooms populated by statues of Donatello, the iconography of Cesare Ripa, and so forth.[4]

Here, the historian-as-artist and the artist-as-historian are concerned with particular historical subjects as much as with the mediums and forms through which these histories are represented and conveyed. Rather than separating fiction from documentary modes of representation, works of fiction can be considered as historical documents in their own right; ones that are, in fact, as potentially valid

as a starting point for reflecting on present conditions as documentary evidence, archival materials and other more 'conventional' documents may be.[5] The point is not to do a better history but to unpack history in contexts that defy linear reasoning and in ways that allow for interpretation and discussion. We thus purposefully picked a particularly complicated site, Lifta, a Palestinian village located on the slopes of the western entrance to Jerusalem, evacuated and depopulated by Israeli forces in 1948.

Lifta and beyond
The work presented here is the result of a collaboration between the MIT Department of Architecture and the Department of Bible Archaeology and Ancient Near East Studies at Ben-Gurion University (BGU). Students from MIT in collaboration with archaeologists from Ben-Gurion participated in the study of the evacuated village, and investigated through various methods the archaeological and architectural remains, as well as the various archives, narratives and stories told about the site. Following a series of preparatory lectures, ranging in topics from history, methodology, and technique, we embarked on a two-week long visit to Lifta and Jerusalem. At the site, we used advanced simulation techniques, 3D scanning, and real-time rendering, as well as an array of archival, historical and scholarly resources.

In pursuing this we were in general alignment with the artist Cliff McLucas and his notion of 'deep maps'. In McLucas's point of view deep maps will:

> be sumptuous; … will embrace a range of different media or registers in a sophisticated and multilayered orchestration, … will be achieved by the articulation of a variety of media … will bring together the amateur and the professional, the artist and the scientist, the official and the unofficial, the national and the local … will not seek the authority and objectivity of conventional cartography. They will be politicized, passionate, and partisan.[6]

However, with such an extensive check-list, making such a map can be a tall order. The expectation horizons envisioned by McLucas are, in fact, so intimidating that none but the most hearty will be in a position to fulfil them. Once again, this only emphasises the need for the broad situationalising space of pedagogy, as opposed to the space of art-world theorising.

One cannot achieve the results McLucas wants without extensive and continuous discussions, without input, without reading, learning and writing and without critiques. One also needs time: the time it takes to digest material, to travel, to think and create. The quality of the results depends on the competencies of the educators and students, on the material that can be placed at their disposal and even on the funding that is available. These things are rarely folded into the theoretical discussion or treated as background to the final project.

Instead of focusing on the end goal, we concentrated on the process, conceiving the workshop as an exercise in design research.[7] In that sense, we were using pedagogical methods that students were familiar with from design studios and seminars. These included daily reviews of the work and progress both during the visit to Lifta and in the workshop's final week, as well as public reviews with guests and critics from the collaborating institutions and beyond. The workshop, supported by special funding from MIT for student research and travel, also featured a cross-disciplinary range of teaching staff who had never previously worked together. While staff from MIT served both as instructors and, to a degree, curators of the work, the role of BGU staff within this framework was to introduce the MIT students to archaeological methodologies including site analysis, survey and approach. Those were delivered in the form of frontal and on-site lectures. The students, who all came from a variety of geographic and disciplinary backgrounds, were asked to form small groups and

to have conversations among themselves and in the process they developed the themes and topics that they wished to explore. All but one student have not visited Israel or Palestine prior to this workshop, and thus approached the set of issues at hand from a relatively uninitiated position. The final two weeks were spent back at MIT, where the students developed their projects for submission. There was a final presentation with a public review of the projects at the Keller Gallery in the MIT Department of Architecture. It is hoped that after the experience in the VR set there will be a discussion about what was experienced, and in that way the pedagogical track moves out of the space of the VR and into the classroom or beyond.

This might seem as just part and parcel of education, but for us these issues were designed to gravitate around the dialectic of incompleteness: the necessary incompleteness of the project's ambition and the structured incompleteness of our expectation horizon. We embraced the foggy, ontological nature of making a narrative so as to go against the tendency to assume that the maker of the narrative map is a type of scientist or perhaps amateur scientist. The narratives the students developed were all made within the framework of a range of gives-and-takes with their own situational realities – most of which can themselves be only vaguely mapped.[8] However, we made it clear that the final project was not just a narrative that mapped only backward onto their personal interests and experience, but had to have the potential to serve as a pedagogical tool for others. We hoped that the projects would reflect not how to learn, but how they learned. In that sense, pedagogy was not some backdrop to the final project, but a palpable force that circulated through these projects.

As a first step, a digital model of the entire site was produced by photographic documentation from above, using a drone.[9] [Fig. 1–3] This model served not just as a 'site' for the interpretations
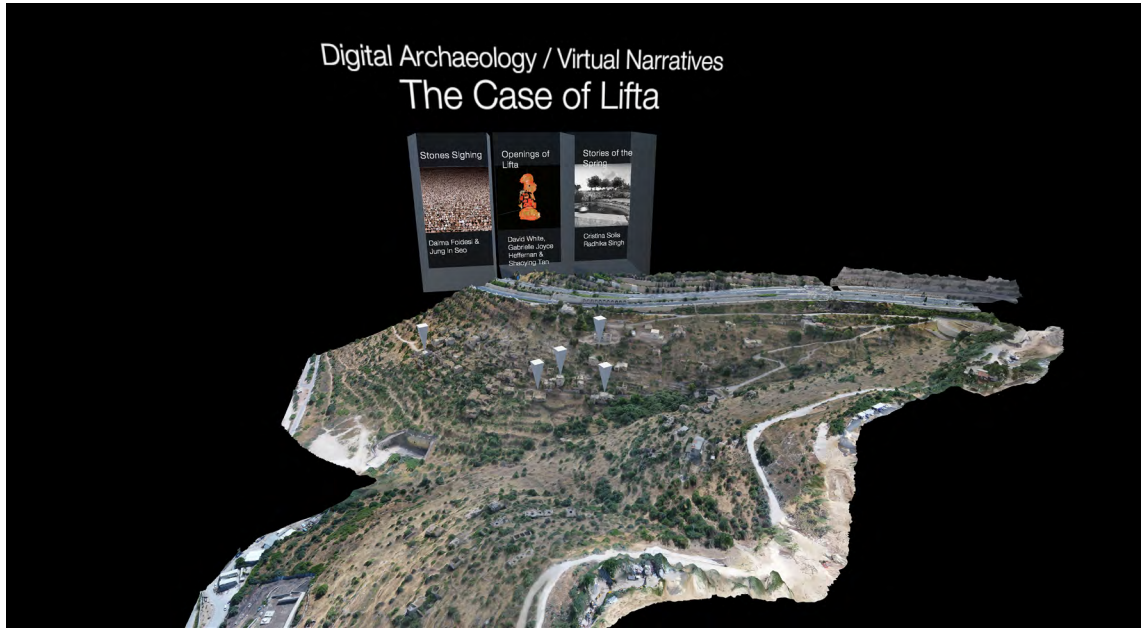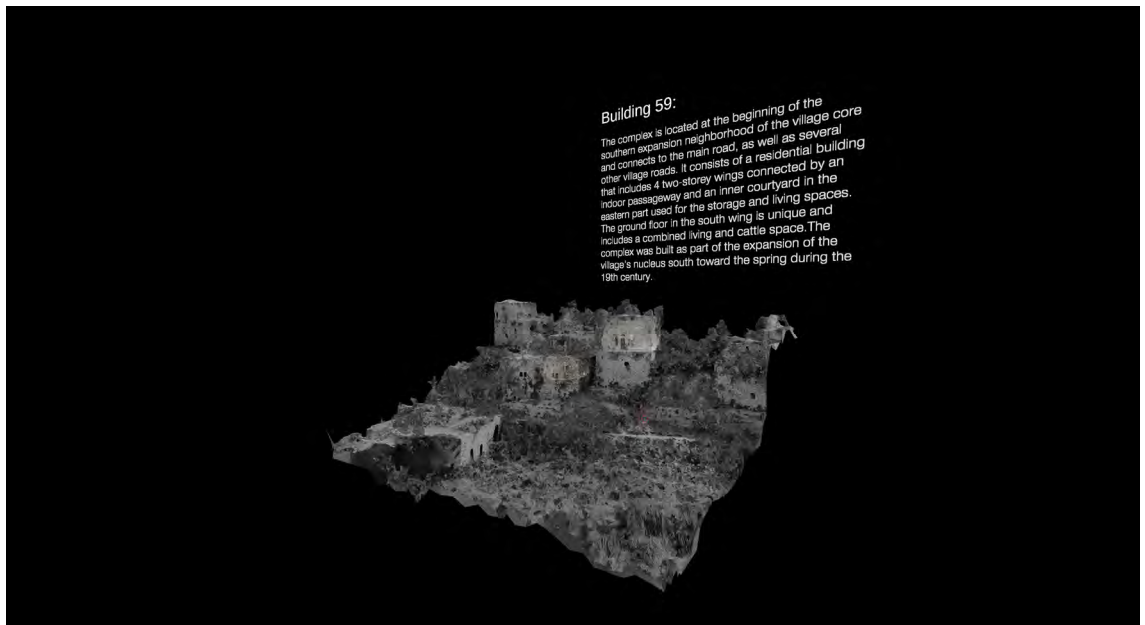
Fig. 1

Fig. 2

Fig. 1: General VR View of the entire Lifta site, with the entrance portals to the student projects.

Fig. 2: VR exterior view of a building complex house in Lifta, along with text adapted from the IAA (Israel Antiquities Authority) archeological survey.
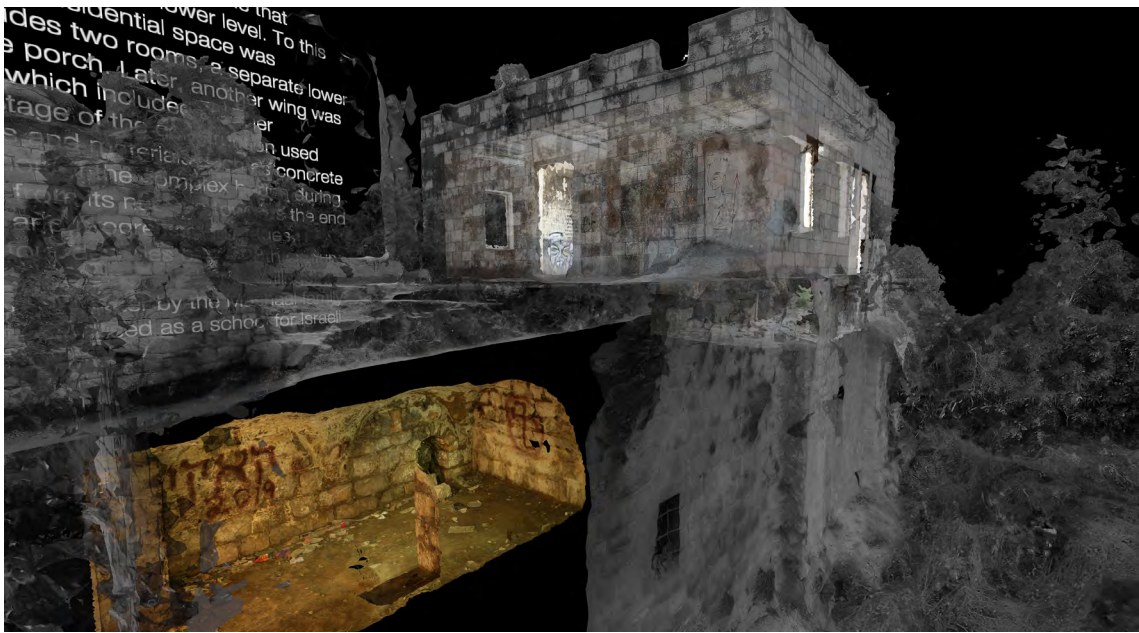
Fig. 3

Fig. 4

Fig. 3: VR sectional view of the Muchtar's (village mayor) house and its different levels.

Fig. 4: Interior VR view of the Bader family house in Lifta, with photos of the Palestinian evacuation. Students: Radhika Singh, Cristina Solis.

by the student teams, but also as a type of portal for the student projects. In each project, the site, its various interlocutors, its archival resources, are all composed in the service of the narratives constructed by the students, through which Lifta's complex histories can be seen anew. The efforts, which were exhibited publicly, provide epistemological and experiential cross-sections through the problematics of the site in the manner of a critical historiography.[10]

Critical historiography accepts that history is written not just by historians, but by a wide range of actors. It also accepts the importance of the subject position of the researcher. Defining one's own subject position is, however, a slippery task, but to ignore it altogether is to assume that position of a normative universal.[11] By the same token, to reduce everything to subject position is to remove oneself from the realities of difference and otherness. Critical historiography is a space of operating between the pulls of objectivity and subjectivity. Within the theoretical context and intersection of conflict histories and their mediation – specifically in sites wrought by supposed objectivity of narratives such as Lifta – the framework offered by critical historiography opens up a unique space for both historical and pedagogical investigations. It is not a method as such.[12]

Lifta is one of the only remaining Palestinian villages that were neither completely demolished or resettled by a Jewish-Israeli population following the Israel-Arab war of 1948.[13] Nestled between the highways and cliffs leading to modern-day Jerusalem from the west, Lifta is a wounded landscape, where the marks left by soldiers and state violence, as well as the wear of time, the force of nature and the stains of neglect are all visible. The village has also been surveyed and excavated repeatedly from the beginnings of the archaeological study of Palestine and the Land of Israel at the end of the nineteenth century up to the most recent survey conducted by

the Israel Antiquities Authority in 2017.[14] Its material remains, its history under different governments and empires, its present place within the Israeli-Palestinian conflict, and its uncertain future, all demonstrate the multiplicities of history's writing and construction. Indeed, Lifta is a unique and paradigmatic locus of conflicted histories, archaeology and landscape; of traumatic memories, contested presents, and potential futures.

Within the dominant Israeli and Jewish narrative, the village's biblical history points to the roots of Jewish habitation of the Land of Israel, marking the border between the lands of Judea and Benjamin as described in the Book of Joshua, and confirmed, supposedly, by various ancient maps; a vernacular fiction that has been used and abused by statesmen in the creation of national claims.[15] In Palestinian history, Lifta was one of the largest and most flourishing towns within British Mandatory Palestine. Today, it is a ruin, waiting for the return of its original occupants, and a battleground for activists from both sides of the political and national map. In between and beyond these narratives, the history of the village dates back to the thirteenth century BCE, and is speckled with unique stories, spaces and events.[16] Presently, the village is the only remnant to survive in such a remarkable condition in Israel and in neighbouring countries. It remains as a living testimony to the landscape that has been common in the land of Israel and Palestine for thousands of years of history.

Taken all together, the site is defined by temporal scales of deep time, modern history and urban processes, as well as by the borders of the map. As the investigation began, students were, therefore, faced with multiple decisions in demarcating and limiting their site of inquiry, and relatedly, by the scale and reach of the archive at hand. A study of any architectural site requires such limits to be set: Is the study limited to a particular period? Are only built spaces to be included or is the landscape,

whether cultivated or not, within those limits? And what of the roads leading elsewhere? What are the trade routes, the streams, the terraces which condition the site's economy and activity? Or perhaps the limits should be set in accordance with municipal and legal definitions, themselves malleable and changing through history, their traces found in maps, construction documents, property bills and plans? And lastly, what are the disciplinary boundaries when dealing with the history of destruction and state violence such as appears at Lifta? Can architectural history offer new perspectives on Lifta's destruction?[17]

In the process of designing a possible platform and interface for Lifta, the projects – as test cases – aim to further the potential of immersive technologies as a pedagogical tool, and to open the critical questions that arose from the research and the work: can historical evidence be spatialised within the detailed context of the materiality of site? What does an immersive form of representation entail for the pedagogy of architectural history? And what possibility does this framework offer for conveying the complexity of Lifta, in relation to other, similarly complex sites?

The archive
An enormous archive of documents, representations, surveys, testimonies and stories was collected to bring out the tension between narrative, representation, evidence and myth. These included a history of habitation, occupation, ownership, planning, design and surveying; an ever growing body of visual representations, images, drawings and works of art; a history of materials and waste, their decomposition, their layering, accumulation and continuous effects on the reality of the site; and a history of narration, activism and resistance by organisations such as the Save Lifta coalition, or our main guide throughout our fieldwork, the Palestinian refugee and former resident of Lifta, Ya'akub Uda.

As important as these all are, when we asked the students to use the digital mapping as a way to explore the archives we stressed that there are many types of archives. Some, obviously, already exist and can be mined, like those just mentioned. Some, on the other hand, exist only abstractly, like newspaper articles or sets of postcards. They still need to be curated in order to tell a story. Some archives have not yet been created, but can be both created and curated in the same activity, like interviews or on-site documentation. And finally, there are some archives that can be works of art or fiction and that move between disciplinary realms.

In addressing this, the student-teams developed three themes that represented an intersection of the various materials, objects, narratives and historical studies to which they were exposed. The themes – Water, Stone, and Openings – are relevant to the site, but are also rooted in architectural and cultural histories that transcend the limits of Lifta, Palestine or Israel. Its water is more than just the local spring, but a deeply metaphysical proposition; its stones are imprinted, both literally and figuratively, with centuries of rituals and violence; and its openings are testimonies both to specific traditions of architecture and craftsmanship, and to state violence and neglect.

For some of the students, the archive that was brought to bear in the visualisation consisting of personal interviews conducted on site; for others it consisted of photographs, both old and recent; for others, these were the sounds recorded; and for others it consisted of more traditional archival documents and newspaper articles. In each case, students used multiple archives, sewing and stitching them together, as one would a fabric to develop a narrative that aimed to open epistemological questions. In this way the students learned that the site condenses certain possibilities of where to look for existing archives, while opening up possibilities of understanding and creating new ones.

For Palestinian artist Raida Adon, empty houses in Lifta are synonymous to empty dresses. The absence of Palestinian bodies, women's bodies specifically, is part of what is striking about the spring.

Fig. 5

"We know that nearly all the springs in Palestine are thought to be haunted by spirits...Kahle thinks that two conditions must be fulfilled to make a spring holy: 1) that the source be mysterious, such as a large cavity; and 2) that the spring play an important role in the watersupply of the adjacent village."

Taufik Canaan, Studies in Palestinians Customs and Folklore, 1922

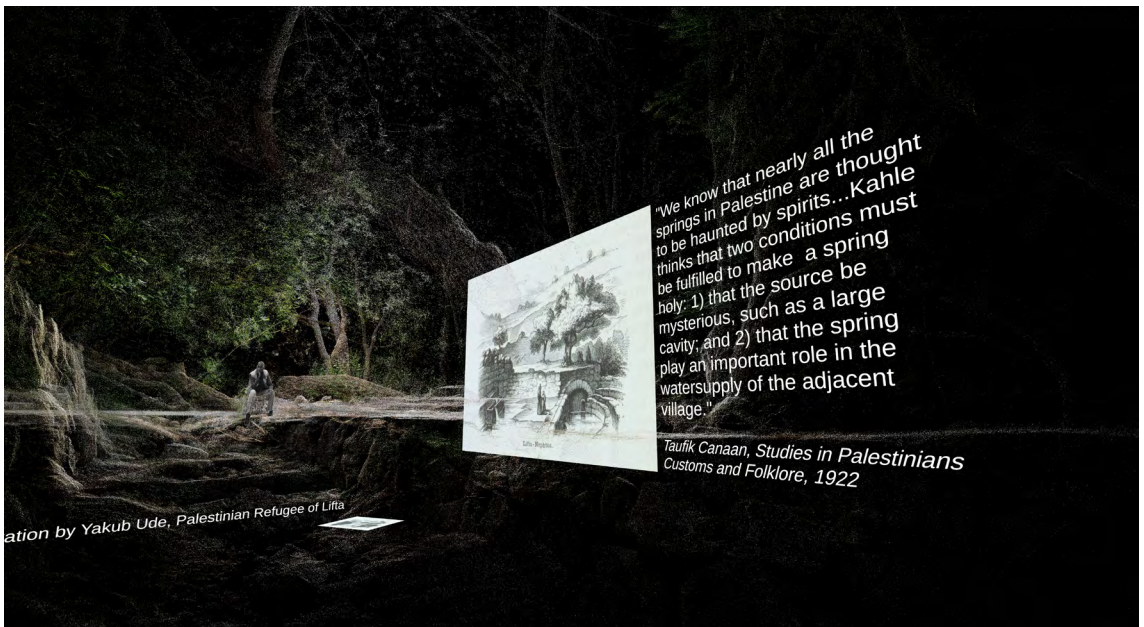ation by Yakub Ude, Palestinian Refugee of Lifta

Fig. 6

Fig. 5: View of the Lifta Spring, composed with images of Orthodox Jews collected from news items, and referencing the art of Palestinian artist Raida Adon. Students: Radhika Singh, Cristina Solis.

Fig. 6: Point cloud VR view of the 'Paradise' area in the Lifta spring, composed with 19th century engraving of the spring, text by Tawfiq Cana'an and narration by Ya'akub Uda. Students: Radhika Singh, Cristina Solis.

Fig. 7

Fig. 8

Fig. 7: VR view of the entrance space to the 'Stones Sighing' project depicting the Mamilla shopping center in Jerusalem designed by Moshe Safdie. Students: Dalma Földesi, Jung In Seo.

Fig. 8: Interior VR view of an early cave dwelling in Lifta, composed with drawings of ancient tomb drawings, found in the Israel Antiquity Archive. Students: Dalma Földesi, Jung In Seo.

The resultant epistemological message at the core of each of the three projects was curated using software which facilitated visual material that can be manipulated and interacted with in real time by a future viewer.[18] The scanned models of the site were implanted into VR, to be experienced in a room-scale scenario through a head-mounted display, thus allowing the viewer to inhabit the site in changing scales, to encounter a textual document, to move through a drawing, or to hear sounds emerging from a particular location designated in space.

While VR adheres to the limits of traditional historical studies, it also presents opportunities directly related to its representational capacities and experience that both stretch the boundaries of such inquiries, and expose them. The complexity of Lifta's recent and more distant histories, as well as its current material and political conditions, present precisely such a unique opportunity for experimentation and exposure. Rather than adhering to VR's hyped ability to transport one into realistic environments and creating a sense of 'being there', we consider VR for architectural history pedagogy as a move away from supposed objectivity, and as a challenge to the very notion of the real, which allows modes of interpretive surveying that are in flux. With a VR headset, one steps into these assembled landscapes and is able to inhabit the space, interact with objects within that space, and form new agency.

One of the projects developed by the students, for example, focuses on the history of public rituals and present conflicts around Lifta's spring. [Fig. 4–6] Titled 'Stories of the Spring', it begins when one is placed inside a depopulated ruin of a house overlooking the village's water source. From there, the spectator is able to roam around in the evacuated interior in its current dilapidated state. On the crumbling floor of the Palestinian home, the students placed old family photographs of Palestinian refugees found in online archives, as if those were left behind while in a rush. Gazing on the photographs, the VR spectator triggers a text written by the early twentieth-century Palestinian ethnographer Tawfiq Canaan, describing the interior of Palestinian homes.[19] Simultaneously, a voice narrates the space: a testimony of the Palestinian refugee and native of Lifta recorded by the students while at the site, who shares the story of the family who owned the house. As the visitor approaches the house's window, a view of the spring itself is exposed, assuming the point of view of the house's original inhabitants.

The project goes further to present not only the spring's presence in history and past conflicts, but its contested present as well. The user finds herself standing by the spring's waters, witnessing next to the fresh water the accumulation of refuse. Within the scene, the visitor encounters a *tallit*: a piece of garment traditionally used by religious Jewish men, which, when focused on, activates the archive of which the scene is composed. Using cut-out figures from journalistic photographs, an array of news items, and sounds of children playing in the water recorded during our fieldwork, the VR exposes the visitor to daily conflicts occurring in Lifta between religious Jewish men who claim the space around the spring and use it as a purifying *mikveh*, while preventing, at times aggressively, women of any ethnicity or religion to access the site.[20] To this the students added yet another artistic and archival reference: an visual excerpt from the work of Palestinian artist Raida Adon, who had placed empty dresses around the spring, representing Lifta's houses, now emptied of the bodies that used to inhabit them and which have been violently removed.[21]

Site archive
Moving between the real, the imagined and the constructed means that we were not seeking some essential aspect of the site, nor were we trying to articulate some artistic or poetic take on it, but rather allow for multiple visions and voices. To do

this required shifting from an epistemological to an ontological and operational perspective on the issue of the reciprocity of site and archive, objects and their narration. The viewer is expected to accept the doubling of history as both past events and present narratives, and not get caught up in dichotomous thinking (for example past as real versus past as constructed).[22] The immersive quality facilitates a reciprocity between the site as it is recorded, represented and narrated, as well as the numerous existing and constructed archives, or the various testimonies about the site. As these intermingle with one another through the work and the investigation, the site itself becomes yet another archive, while the archive transforms, or better yet, it is exposed, as what it always has been: a site of intervention and design.

Such archival interventions would require an engagement both with the archive and its absence. In a recent article Anne Gilliland and Michelle Caswell coined the concept of an 'impossible archival imaginary' as a way to undertake what the messy business of contesting, renegotiating, and redefining collective memory of the past to 'to take absences – and their attending affects – into account, and in situations where our ethics and humanity demand it, striving to turn impossible archival imaginaries into possibilities'. This means, they argue, that we should complicate 'the link between record and event in order to accommodate records collectively conjured by affect rather than created by event'.[23] And we would agree. Our work in Lifta aims to take a step further, to link absent records, events, and the site itself in the collective project of making an archive possible, while acknowledging that ontological absence.

The intermingling of site and archive is also evident in the project 'Stones Sighing', whose narrative focuses on the main building material, 'Jerusalem' limestone, from which the buildings were constructed. [Fig. 7–9] Giving voice, presence

and representation to the history of the limestone, this project pulls strings from various sources in order to create a new space and expose the composition and decomposition of the site. The archives and histories brought into this space are multiple: a detailed scanning of various domestic spaces within Lifta, from early caves to dwellings almost completely collapsed under the weight of time; an archive of drawings and diagrams depicting the traditional construction methods of Palestinian masons, and their appropriation by Israeli architects; historical texts, both primary and secondary, discussing the role, meaning and history of stone masonry; and lastly, an autobiographic poem, 'Standing before the Ruins of El-Birwha', written by the Palestinian national poet Mahmoud Darwish, which is used to structure the entire experience.[24]

Using these materials, the work weaves three narratives. The first is carried by the poem, inflecting the scene with the voice of Palestinian memory, and the story of the forced evacuation of 1948. The second focuses on the stones themselves. Here, every scene takes place in a space that represents a different moment in the life cycle of Lifta's stones, thus animating the supposedly silent material through its historical procession. It begins with an excavated cave, continues to one of Lifta's older houses, moves onto a late-Ottoman era residence, then a renovated house still occupied by an Israeli resident, and ends in a collapsed and punctured ruin. The third narrative revolves around the ideological, daily and symbolic role of stone. Focusing on the tradition of Palestinian masonry, the narrative exposes the manner in which traditional Palestinian methods and labour became an instrument in the service of Israeli ideology and architectural design. Adopting the vernacular traditions associated with masonry, modern Israeli architects often employed the stones of Lifta (and of other villages) in the cultivation of a biblical imaginary in the design of contemporary, quasi-vernacular architectural works.[25] To emphasise this, the narrative begins and
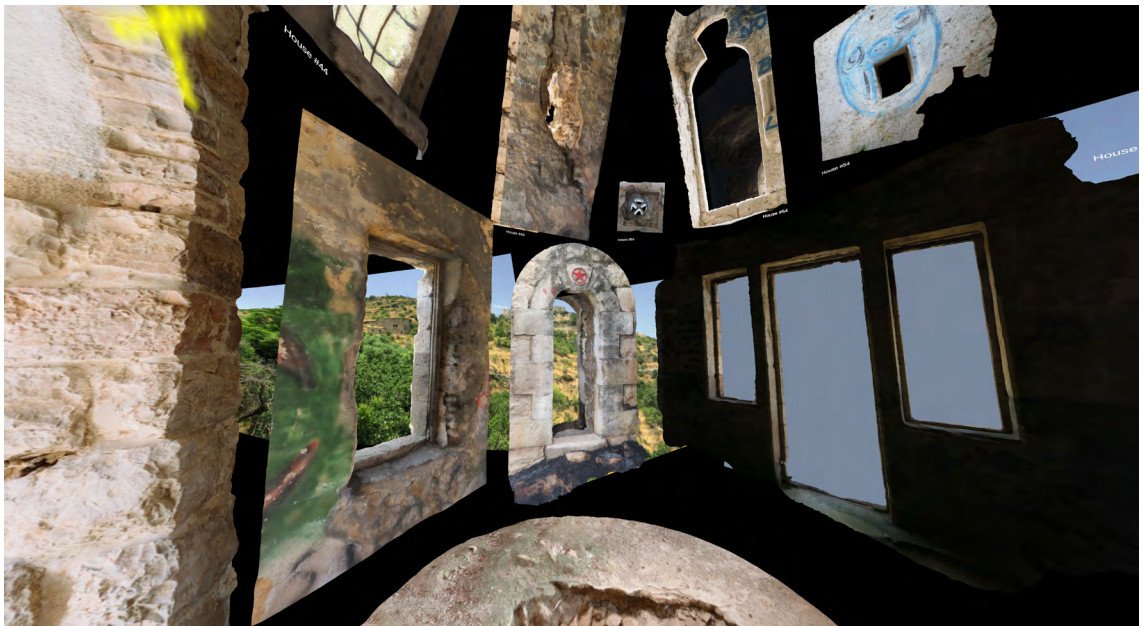
Fig. 9

Fig. 10

Fig. 9: Interior VR view of early residence in Lifta, composed with nearly identical drawings of stone vaults produced by the Palestinian ethnographer Tawfiq Cana'an (left) and the Israeli architect David Kroyanker (right) almost a century later. Students: Dalma Földesi, Jung In Seo.

Fig. 10: General VR view of the 'Openings' project, with local background as backdrop. Students: Gabrielle Heffernan, Shaoying Tan, David White.

Fig. 11

Fig. 12

Fig. 11: VR view of the entrance space in the 'Openings' project, showing various types of openings scanned in Lifta. Students: Gabrielle Heffernan, Shaoying Tan, David White.

Fig. 12: Interior VR view of the dilapidated house in Lifta, the roof opening of which was created by explosives placed by Israeli forces. Students: Gabrielle Heffernan, Shaoying Tan, David White.

ends in a space that is several kilometres removed from Lifta: the Mamilla shopping centre by the old city of Jerusalem, a contemporary architectural project inspired by the stone masonry embedded in Lifta's stones.

The third project is titled 'Openings', and examines Lifta's history through the wide array of the apertures on the site, some of which are natural, some designed, some created by violence and war. [Fig. 10–12] The VR experience begins with a somewhat abstracted space, which, not unlike early modern cabinets of curiosities, collects 'objects which appeared to transgress the boundaries between nature and artifice'.[26] Here the project offers a kind of aperture museum in which various scanned openings are arranged. While some apertures offer entrance to the original spaces in Lifta from which they were extracted by 3D scanning, others lead to archival texts and images related both to Lifta and to notions of photography and vision. Also, some of the openings connect beyond the limits of Lifta and provide the audience to look through them to related geographic locations, such as other Palestinian villages and cities, or sites of conflict and ruination throughout the world.[27]

Together, these works demonstrate several of the capacities that VR holds as a technological platform for critical historiography and critical thinking. Wearing the VR head-mounted display and moving around a gallery space, the viewer is required to take action: to move within representations, image, texts and sound, as part of an unfolding event taking place in accordance with one's action and the feedback of the machine. The participant is not a passive observer of the archive, but an archive maker, collecting and connecting materials from various sources. This invites a sort of theatricality in which the observer becomes an actor of sorts, not unlike an archaeologist who is recreating a story from the materials found.

Indeed, and similarly to the VR designer, the archaeologist's imagination constitutes a kind of dramaturgy, in that it resembles that of a writer, a choreographer, or a director who organises the motives, behaviours and actions of anonymous, fictional individuals within bounded analytic spaces in meaningful ways.[28] As soon as archaeologists begin to replicate, reconstruct, represent and restage the past, they invariably employ the scenographic devices and dramatic techniques of theatrical practice. VR, with its immersive and interactive constellation, brings the choreography of archaeology to the observer, far away from the site. Furthermore, these technological affordances enable one to generate multiple, forking site archives, in which the viewer becomes the narrator of the history constructed – another voice to be accounted for – as she generates narratives in real time in a sort of performative unfolding of archives, images and historical materials in space.[29]

Such an intimate bond between an archiving gesture and a transformative gesture puts a lot of stress on the thematics and its qualities. For that reason, this work cannot be limited to the historical investigation per se but exists most fully as a result of site visits, discussions and interviews along with access to the site's complex presence in all sorts of media. Thus, design research is fundamental to historical research and vice versa. Work can only be experimental by both actively positioning itself relative to existing archives and through new archiving moves. Lifta, a unique, particular and significant case, is also representative of numerous other places, histories, archives and narrations, demanding a contemporary and complex way of engagement and pedagogy. By utilising the capacity of VR space into the design of historical research, history itself can be told, created, learned and experienced in new, critical ways.

Notes

1. See for instance: Ali Geris and Nesrin Özdener, 'Design Models for Developing Educational Virtual Reality Environments: A Systematic Review', in *Virtual and Augmented Reality in Education, Art, and Museums,* ed. Giuliana Guazzaroni and Anitha S. Pillai (Berlin: Springer International Publishing, 2017), 1–22; Tassos A. Mikropoulos and Antonis Natsis, 'Educational Virtual Environments: A Ten-Year Review of Empirical Research (1999–2009)', *Computers & Education* 56, no. 3 (April 2011): 769–80; Ivan Stojšić, Andjelija Ivkov-Džigurski, and Olja Maričić, 'Virtual Reality as a Learning Tool: How and Where to Start with Immersive Teaching', in *Didactics of Smart Pedagogy: Smart Pedagogy for Technology Enhanced Learning*, ed. Linda Daniela (Berlin: Springer International Publishing, 2019), 353–69; Jin Rong Yang and Fabian Hadipriono Tan, 'Classroom Education Using Animation and Virtual Reality of the Great Wall of China in Jinshanling: Human Subject Testing', in *Didactics of Smart Pedagogy*, 415–31.

2. Mark Godfrey shows a trend of an increasing number of artists whose practice starts with research in archives, and others who deploy what has been termed an archival form of research (with one object of inquiry leading to another). These varied research processes lead to works that invite viewers to think about the past; to make connections between events, characters, and objects; to join together in memory; and to reconsider the ways in which the past is represented in the wider culture. These tendencies are as prevalent in object-based work such as that of Carol Bove, Tom Burr, Mark Dion, Sam Durant, Renée Green, Thomas Hirschhorn, Ian Kiaer, Simon Starling, and Fred Wilson. Mark Godfrey, 'The artist as historian', *October* 120 (Spring, 2007): 140–72.

3. Renée Green, 'Introduction', *Negotiations in the Contact Zone*, ed. Renée Green (Lisbon: Assírio & Alvim, 2003).

4. Hisham Bizri, 'Story Telling in Virtual Reality', *Leonardo* 33, no. 1 (February 2000): 17–19.

5. It is worth noting however that any documentary 'evidence' entails an aspect of fiction or narrative. As Bill Nichols notes in his discussion of documentary cinema, while all documentaries aim to tell a 'true' story or depict a certain truth, they are still subjective artefacts, retelling history from a specific point of view. Though assuming an objective position, they are still personal perspectives. While 'fiction may be content to suspend disbelief (to accept the world as plausible) … non-fiction often wants to install belief (to accept the world as actual)'. Bill Nichols, *Introduction to Documentary* (Bloomington: Indiana University Press, 2001), 2.

6. Cliff McLucas quoted in Trevor Harris, 'Deep Geography – Deep Mapping: Spatial Storytelling and a Sense of Place', in *Deep Maps and Spatial Narratives*, ed. David J. Bodenhamer, Corrigan, John Corrigan and Trevor Harris (Bloomington: University of Indiana Press, 2015), 39.

7. The workshop took place during the 2019 summer and autumn terms. It was funded by the MIT International Science & Technology Initiative (MISTI), which fosters collaboration between international institutions and MIT. Specifically, this was the first collaboration of its kind between the Architecture Department and the Department of Bible Archaeology and Ancient Near East Studies, and was supported by a fund designated for collaboration between BGU and MIT. At the end of a selection process eight graduate students from the MIT School of Architecture and Planning were chosen (five from the Master of Architecture programme, one from Design-Computation, one from Art, Culture and Technology, and one from City Planning). The MIT students were joined in Israel by staff and students from BGU led by staff members Yuval Yekutieli and Eli Cohen. As a whole the workshop was conceived as an intensive four-week programme, which included a week of preparatory lectures, drone training, and software tutorials (Metashape, Unity, Reality Capture) prior to the visit to Lifta; a two-week long visit to Jerusalem, which included tours and lectures from BGU associates and others, daily fieldwork, and design reviews, including a public mid-review of the

materials collected and project concepts; and a week-long intensive development of the projects themselves which took place at MIT in the VirtualXDesign Lab. Future collaborations between the departments and institutions are currently being considered, employing similar methodologies to other sites in both Israel and the United States.

8. For example, David J. Bodenhamer argues: 'How we construct these narratives will depend, in part, on the richness of our evidence and the tools at our command, but deep mapping can be an ideal story-board for humanists. It goes beyond traditional uses of GIS and seeks to capture the essence of place and a humanistic sense of distance, direction, and iden-tity'. Be that as it may, we would argue that narratives are only valuable if they expose the multiple poten-tial 'essences' of a place and in that way do not try to foreclose either the past or the future. David J. Bodenhamer, 'Narrating Space and Place', in *Deep Maps,* 23. Though we also generally agree with the following sentiment by Trevor Harris: 'A deep map then is more than a topographical product in that it interweaves physical geography and scientific anal-ysis with biography, folklore, narrative, text, memories, emotions, stories, oral histories, and so much more to contribute to a richer, deeper mapping of space and place' (*Deep Maps,* 39), we, would argue that there can only be deep maps (i.e. in plural), and secondly 'deep' can never be ascertained as a place to which one has ever arrived through any type of general prescription even with many deep maps. The quali-fier 'deep' should never promise an objectivity that is impossible to prove. After all, who is the judge of depth? The three narrative maps that the students made are only the fragmented beginnings of a depth that can never be achieved in this traumatised land-scape, and yet, there can be no doubt that the whole experience was 'deep' for the students. See: Harris, 'Deep Geography – Deep Mapping'.

9. Deployment of drones for the purposes of cultural heritage and archaeological surveying has become prevalent in recent years, as drones became more affordable. See Dominique Meyer, Elioth Fraijo, Eric Lo, Dominique Rissolo, and Falko Kuester, 'Optimizing UAV Systems for Rapid Survey and Reconstruction of Large Scale Cultural Heritage Sites', in *2015 Digital Heritage* 1 (IEEE, 2015): 151– 54. In the field of digital heritage the discussion on the use of drones has remained fairly technical, focusing on efficiency and urgency of the use of drones for surveying, modelling, and managing heritage sites for preserva-tion purposes, failing to give a critical account of the use of drones as instruments of state power. Such a stance is expressed by Lisa Parks and Caren Kaplan who trace the inherent militaristic instrumentality of drones. According to Caplan and Parks, disregarding the power inscribed in drone perspective might impli-cate one in continuing a colonising gaze, especially in conflict zones such as Lifta. Lisa Parks and Caren Kaplan, *Life in the Age of Drone Warfare* (Durham: Duke University Press, 2017). The work in Lifta, however, used drones with the purpose of allowing self-generated 3-D models, instead of using avail-able city and state-made maps. This selected strategy aimed at repurposing drone imagery as part of critical design projects.

10. Given the nature of VR, the exhibition could accom-modate one visitor at a time, and over its duration had over a hundred visitors from both MIT and beyond.

11. Dominick LaCapra suggests the term 'secondary witnessing' to shed light on the intrinsic problem of the historian's positionality when witnessing destruc-tion and violence: 'Experience involves affect both in the observed and in the observer'. For the observer 'the problem of experience should lead to the ques-tion of the role of empathy in historical understanding'. Empathy, LaCapra argues, becomes a kind of surro-gate or virtual experience, centred not on identifying with or substituting for the experiences of others but rather on attending carefully to 'the possibly split-off, affective dimension' of those experiences. Dominick LaCapra, *Writing History, Writing Trauma* (Baltimore: Johns Hopkins University Press, 2001), 41.

12. Mark Jarzombek, 'A Prolegomena to Critical

Historiography', *Journal of Architectural Education* 52, no. 4 (May 1999): 197–206.

13. For a comprehensive study of the evacuation of Palestinian villages in 1948 and after, see Walid Khalidi, ed., *All That Remains: The Palestinian Villages Occupied and Depopulated by Israel in 1948* (Washington: Institute for Palestine Studies, 2006).

14. Israel Antiquities Authority, Conservation Administration, *Lifta Survey (2014–2017)* http://iaa-conservation.org.il

15. In a recent study, architectural historian Alona Nitzan-Shiftan makes note of the use of Palestinian masonry motifs, methods and styles by Israeli architects and planners in post-1967 Jerusalem. According to Shiftan, the annexation and unification of the city after the Six-Day War was followed by a shift in the practice of architecture and planning and was meant to evoke an image of a biblical and vernacular – rather than modern – image of Jerusalem, and to lend historical, ideological and even religious legitimacy to the existence of the state. Alona Nitzan-Shiftan, *Seizing Jerusalem: The Architecture of Unilateral Unification* (Minneapolis: Minnesota University Press, 2017).

16. Though not a consensus among archaeologists, a prevalent assumption is that the name 'Mei Nephtoah' was derived from the name of the thirteenth-century Pharaoh Merneptah. As the argument goes, 'the "Wells of Merneptah which are in the hills" is the group of springs at Lifta, near Jerusalem, and were so named by Merneptah after his victory over the Israelites, whom he compelled to evacuate Jerusalem itself'. Frank J. Yurco, 'Merneptah's Canaanite Campaign', *Journal of the American Research Center in Egypt* 23 (1986): 213.

17. We, of course, believe that under certain terms it can. In recent years, architectural historians have pointed to the disciplinary issues that such engagement entails. For instance, architectural historian Andrew Herscher foregrounds the representational problem of architectural history when dealing with destruction: 'When architecture is destroyed, however, it is typically regarded as just such a product, effect, expression,

or mediation. Destruction usually displaces architecture from architectural discourse, if not the domain of "culture" more generally, and positions it in the domain of "violence", and so, in typical formulations, in radically different disciplinary sites and epistemological frameworks'. Andrew Herscher, *Violence Taking Place: The Architecture of the Kosovo Conflict* (Stanford: Stanford University Press, 2010), 4.

18. The software development environment was done using tools for game design and development, mainly the game-engine Unity. The video-game industry has pushed forward a new medium for real-time, interactive representation, which can be imported to architecture, history and pedagogy.

19. Various writings by Tawfiq Canaan were used in the context of the work: his text about the tradition of Palestinian masonry, and the history of mythical beliefs in relation to water sources and springs in Palestine. Tawfiq Canaan, *The Palestinian Arab House: Its Architecture and Folklore* (Jerusalem: Syrian Orphanage Press, 1933); *Haunted Springs and Water Demons in Palestine* (Jerusalem: Palestine Oriental Society, 1922).

20. For instance: Nir Hasson, 'Men and Women, Religious or Not, Battle for Rights at Israeli Springs', Haaretz, 29 June 2018, https://haaretz.com.

21. Laura van Rij, *Interview with Raida Adon* on the *Zochrot* website, 24 July 2013, https://zochrot.org.

22. Gavin Lucas, *Understanding the Archaeological Record* (New York: Cambridge University Press, 2012).

23. It is worth noting that neither Gilliland nor Caswell are historians. Gilliland is a scholar in the field of information studies, and Caswell in archival studies. Thus, the perspective offered in their work is a disciplinary one, but not that of the archival tourist, be it the historian, artist, or designer, but somewhat of an archival curator or even a gatekeeper, so to speak. Anne J. Gilliland and Michelle Caswell, 'Records and Their Imaginaries: Imagining the Impossible, Making Possible the Imagined', *Archival Science* 16 (March 2016): 75.

24. The English translation used by the students is by Senan Anton, and appears in the posthumous collection of the poet. See: Mahmoud Darwish, *I Don't Want This Poem to End: Early and Late Poems* (Northampton: Interlink Publishing Group, 2017).

25. Nitzan-Shiftan, *Seizing Jerusalem*.

26. Stephanie Bowry, 'Before Museums: The Curiosity Cabinet as Metamorphe', *Museological Review* 18 (2014): 30–42.

27 Although somewhat problematic, one of the recurrent references when speaking to activists who are involved with Lifta is Machu Picchu. For instance, the architect Gadi Iron, who is part of the Save Lifta Coalition, states that 'we want to make a kind of Machu Pichu out of the village, Lifta is just as important'. Laura van Rij, 'Interview with Gadi Iron, Architect' on the Zochrot website, 1 May 2013, https://zochrot.org. We also encountered this reference in conversation with architects involved in the Save Lifta coalition during our fieldwork.

28. Mike Pearson and Michael Shanks, *Theatre/Archaeology* (London, New York: Routledge, 2001).

29. A theory of performativity most frequently associated with the work of Judith Butler sees performative behaviour as one which enacts that to which it refers. In such anti-essentialism, gender, for example, can be described as performance, as both something one is doing and a thing done. Judith Butler, 'Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory', *Theatre Journal* 40, no. 4 (December 1988): 519–31. In the case of a site's historical examination and the VR experience described here, one could argue that the archiving gesture operates similarly; the archive is both acted upon, while its being enacted, that is, created anew by each user. An example of a performance art piece which intermingles site and archive – or for that matter, the subject of investigation and the evidence which allows its appearance, in a way that they become one and the same. This form of historical performance – where the act and the matter of examination are superimposed – can be found in the 2001 piece *The Battle of Orgreave* by British artist Jeremy Deller, who organised the restaging of a 1984 clash between police and striking miners. With this work, Deller resurrected the repressed memory of a troubled period of recent British history and, by involving protagonists from the clash, also triggered personal confrontations with that past. It was crucial that Deller used a battle reenactment society. Such societies are more frequently involved with English Civil War recreations. Their participation in this project points to the way in which English history tends to be addressed only when romanticised and no longer deemed to be of political impact.

Biography

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Mark Jarzombek is a professor in the history and theory of architecture at MIT. He works on a wide range of topics – both historical and theoretical. He is one of the country's leading advocates for global history and has published several books and articles on that topic, including the ground-breaking textbook entitled *A Global History of Architecture* (Wiley Press, 2006) with co-author Vikramaditya Prakash and with the noted illustrator Francis D.K. Ching. He is currently working on a book that interrogates the digital/global imaginaries that shape our lives. A chapter from that book, 'Digital Stockholm Syndrome in the Post-Ontological Age', was published in 2016 by the University of Minnesota Press as part of its Forerunners: Ideas First series.

Eytan Mann is an architect and game developer, currently pursuing a PhD in Architecture at the Faculty of Architecture and Town Planning at the Technion Israel Institute of Technology. Prior to the Technion, Eytan earned a BArch and MArch from Tel Aviv University, and a SMArchS degree in Design Computation from the MIT School of Architecture and Planning, where he also served as a researcher in the Design and Computation Group. His interests include digital humanities and heritage, spatial computing, gaming, and the history and theory of architecture. His research examines the relationship between new modes of remote sensing and user-interaction with the history and historiography of architecture in conflict zones.