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Geospatial Memory

Joshua Synenko, Jon Dovey, Duncan Speakman, Matthew Flintham, Jill Didur, Lai-Tze Fan, Manuel Portela, Albert Acedo, Carlos Granell-Canut, Jason Farman, et al.

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An aerial photograph of a winding asphalt road with yellow and white lane markings, curving through a rugged, rocky, and sparsely vegetated mountainous landscape. The terrain is characterized by steep slopes and scattered green shrubs.

Geospatial Memory

edited by

Joshua Synenko

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Geospatial Memory

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Geospatial Memory: An Introduction

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Abstract

This introduction to the special issue situates memory research within the expanded fields of geography, mapping, GIS and mobile media.

Keywords

Collective memory, Geography, Location, Mapping, Media theory, Space

A lot of people in memory studies are invested in questions of space and in spatial phenomena like cities, but lack a detailed vocabulary with which to examine digital spatial mediations in particular, while others doing work in geography, mapping, GIS and mobile media frequently touch on issues that are important for memory research but don't fully appreciate what memory studies offers. By acknowledging these divides, this special issue (SI) provides supplementary theoretical support for analysing geospatial media with a focus on the ontological, epistemological and political stakes involved in geospatial collective memory. It examines the latter both in its capacity as a gatekeeper of official remembrance, including practices of commemoration, musealisation and preservation, and as the basis for expressing a multitude of socio-technical determinations within everyday life.

The issue comprises a grouping of polyvocal contributions that draw from research in archival studies, architecture and urban planning, critical GIS, cultural studies and film studies, and media archaeology, as well as from mobile communications, to address the geoweb's increasing role in producing and reproducing aesthetic, cultural and historical knowledges and practices. Specific articles identify the critical

infrastructures that sustain the geoweb with its ability to shape navigational (or broadly spatial) as well as sensory experienced reality, whereas others explore the power relations that have arisen from this influence. Again, while it is true that spatial analyses have been developed within memory research, and collective memory within the expanded fields of geography and media studies, the specific relationships between them ought to be further explored. On that basis, the larger purpose of this SI is to support the argument that both collective and cultural memory, diverse and unwieldy though they may appear at times, should be provided with a stronger foothold in discussions regarding the geoweb in its experiential, discursive and disciplinary contexts.

Spatial Turns, Locations and Locative Media

Not surprisingly, scholars of memory studies have made repeated attempts to substantiate their work as a discipline of thought with its own canon of literature, to establish a coherent link between the academic and practical (i.e. curatorial) wings of memory research, and to negotiate the linkages between “memory research” and “memory culture” (Radstone, 2008; see also Kansteiner, 2002; Levy, Olick, and Vinitzky-Seroussi, 2011; Radstone, 2000). At a certain point in this process, the shapers and definers of the field were confronted by an additional challenge to acknowledge the inherent spatiality of its subject matter, and participate in a broader “spatial turn” impacting the humanities and social sciences from the 1980s and 1990s up to the present (Arias and Warf, 2009; Ayers, 2010; Bodenhamer et al., 2010; Crouch and Nieuwenhuis, 2017; Soja, 1996). Certainly, people working on issues of collective memory have never been shy to casually drop mentions of “space and time” in their publications – whether to describe a commemorative ritual in experiential terms, or to interrogate a site of atrocity through the frame of a memory “landscape” (Jakubowicz, 2009). In other cases, however, as evident in terms like “archive cities” (Roberts, 2015) or “cartographies of place” (Darroch and Marchessault, 2014), the spatial metaphor gains stronger definition as a specific marking of memory *in situ*. Although, far too often, the situated memory content will be referenced in the absence of exploring the onto-epistemological dimensions of the space actualised in the process. Finally, on the practical or professional side of memory research, spatial analysis tends to be evoked to describe the arrangement of curated museum objects

(Crane, 2000), and the implications of infusing museum-going experiences with new media (Huysen, 1995).

While each of these approaches attempt to grapple with spatial questions and are valuable on their own, I argue that memory researchers should continue to intensify their engagement, especially given the urgency to address media ecologies in which collective memory appears to be an enduring factor (as described below). In many cases, descriptions of memory in spatial terms suffer from a lack of specificity. One need only consider the sense of obligation many might feel to reference Pierre Nora's (1989) deceptively congenial term, "*lieux de mémoire*" or "memory sites." At the height of postmodernism, Nora developed this term to identify what he considered to be the loss of collective memory by individuals living in contemporary societies. Historical recollection, he argued, has become the exclusive means by which individuals, atomized into populations, seek to understand the embeddedness of the past within present experience. For Nora, history and memory are competing terms, and indeed he takes pains to identify historical representation as the culprit for displacing "tradition...custom...the ancestral" (1989: 7). Above all, whereas "memory" is living, vulnerable, changeable, and connects generations through precarious rituals, traditions, and the acquisition of naturalized social roles, "history" is written, representative, durable, linear and factual.

Nora's work reveals a deep investment in the conceptual engagements of Maurice Halbwachs (1992), who argued that because memory is founded on intergenerational transmissions, it is ultimately sustained by familial bonds, oral history, and the linkages between family and nation – all of these, for Nora, have been imperilled by historical (i.e. spatial) forms of thought and culture. Through the prism of historical time, the work of memory becomes a rarefied activity. That is, by seeking to recover a sense of the collectively shared past, individuals are forced to engage, not with each other, but with the austere *lieux* that surround them, to re-establish the personal significance and resonance of urban exteriors, including facades, monuments, parks, curves in the street, and so on. Nora's use of spatial metaphor is therefore a symptomatic response to displacements in temporality. In other words, while he presses on the necessity of transforming *lieux* into identifiable *places* – into locations supplemented by a necessary but insufficient semiotic anchor – the spatialisation of

memory as evoked by Nora's *lieux* is a direct consequence of instability in our episteme of passing time. Memory, like history, is spatialised.

Perhaps, for obvious reasons, it is tempting to evoke Nora's overtly spatial descriptions of memory as a heuristic for navigating the expanded field of research into mobile and locative media, particularly if we consider the latter's potential for theorising a geospatial memory of "sites." In "Anthropocene Elegy and GeoSpatial Presence," Jon Dovey and Duncan Speakman engage in sited memory of a sort by initiating a controlled experiment in which users are meant to engage in highly individualised sonic "elsewheres." Through the materialisation of located experiences and diverging timescales, Dovey and Speakman's hope is to confront "hyperobjects" (Morton, 2013) such as human-initiated climate change. In "BATTERCTRAX," Matthew Flintham takes a different approach by positioning our investment in "place" against a media archaeology of film. He reflects on a project that involves deploying locative techniques, such as geofencing, to encourage multisensory effects among a sample of visitors at Battersea Park (London, U.K.), an approach that inadvertently harkens back to the obsession with "counter-memorials" (cf. Young, 1993, 2016). In "Between Landscape and the Screen," Jill Didur and Lai-Tze Fan explore the impact of environmental placemaking and transitive reading strategies with an aim to counter repeated historical erasures of indigenous knowing, particularly at Montreal's Mile End, and to develop narrative transformations at the site of neighbourhood-enhancing "urban wilds." Finally, the section devoted to locative media concludes with "Looking for 'in between' Places," in which Manuel Portela, Albert Acedo, and Carlos Granell-Canut develop a theory that challenges the limitations of working through "place attachment," to understand the liminality – and idiosyncrasy – of collective placemaking through the processual flow of everyday life in Lisbon, Portugal.

In one way or another, this collection of articles exposes various *lieux de mémoire* to address questions of temporality, memory and identity from the vantage of mobile and locative media, encompassing lab experiments, artistic projects and phenomenological engagements with mediated localities. The sonic, somatic, visual and haptic dimensions of these projects speak to Nora's insistence that memory

work is necessarily individual, experiential and situated. On the other hand, the breadth of this research alone might provide us with at least a suspicion that Nora's core argument is unable to address the diversity of questions that are raised here. Although aspects of the argument might be valuable and applicable, it's impossible to avoid the fact that Nora's driving concern is to tangle with historiographical representations of pastness, and ultimately to reassert the significance of memory as somehow entropically "communicative" (Assmann and Czaplicka, 1995). The nostalgic flavour of Nora's obsession with a particular experience of the present is simply not transferable in all instances. In fact, the overall framing of memory, with its presumed authenticity objectivised in a very particular vision of collective identity, is a problem.

Topologies of Memory

Given this, memory researchers urgently need to develop forensic approaches to space that depart from this diagnostic model, or at least aim to contextualise it as one topology of memory among many others. "Conceptions of space are intimately linked to those of time" (Shields, 2013: 7), and yet space itself is not unchangeable, or even tangible; instead, it is "real but not actual" (Shields, 2013: 8), and it is therefore engaged in a process of becoming, maturation, entropy. As Rob Shields points out (2013: 103), insofar as it is multi-dimensional, phased, connected, and, indeed, virtual, space is topological as opposed to absolute. Methodologically speaking then, in accordance with Adriana de Souza e Silva and Eric Gordon (2015), a geospatial memory of location should examine spatial topologies to address the way in which locative media organises spatial relations, and therefore to provide a semiotic outline with which to express the "organizational logic" (3) of space through its technological layers. In other words, by acknowledging the "net locality" (de Souza e Silva and Gordon, 2011) exhibited by the devices and codes that comprise such media, perhaps the phenomenological and broadly experiential approaches like those introduced above can be complemented or blended with competing approaches that address topologies of space, and that focus in particular on the materiality of the networks through which "experiences" are legislated.

Jason Farman addresses some of these considerations by taking a materialist approach to questions regarding the "Invisible and Instantaneous," in which he

draws a media archaeological link between the pneumatic tube infrastructure of the late 19th century and the cultural imaginaries surrounding the early days of the Internet. Farman analyses shifts in our collective perception of achievable instantaneity by comparing two apparently distinct networks of communications infrastructure. Following this, in “Modes of Address and Ontologies of Disconnection,” Florian Sprenger takes a materialist approach to the deterritorialization of mobile networks, arguing that by marking place through multiple technologies of addressing, the ontology of networks no longer depends upon specific geographies of location, but rather upon connectivity and movement. Finally, in “Tracing Tempor(e)alities in the Age of Media Mobility,” Wolfgang Ernst offers a rich and yet dichotomous vision of geospatial memory. By holding to a sharp distinction between phenomenological and materialist approaches, Ernst develops an architecture of media memory that is grounded in topology. In a formula repeated elsewhere (cf. 2000, 2004, 2012), Ernst draws from cybernetic research and applied mathematics to argue that “signal processing rather than...semiotics” (2004: 2) provides us with necessary clues into mobile media’s restructuring of space in accordance with the time of mediation. Beyond the murmur of a “retro-effect” (Ernst, this issue, and 2004: 2), media topologies of memory become inseparable from the operation of distributed networks of data storage, algorithmic codes, predictive technologies, and statistical operations.

Certainly, media-archaeological approaches are crucial in terms of emphasising the urgency to develop methods and critiques of media infrastructure in all aspects of media theory (for more on this urgency, see Parks and Starosielski, 2015). This emphasis, however, also represents a point of convergence with locative media research. I argue that by identifying location-aware data processing through the lens of geospatial media infrastructure, for instance, the movement and circulation of information – and the multi-scalar distribution of the material networks that comprise it – can be defined as conduits embedded in a phenomenological account of the very mediations involved in constructing a sense of place. Materialist approaches can therefore help to counter the onset of amnesia that threatens to emerge in response to the messiness of “place” as expressed through its semiotic register (cf. Augé, 1995; Koolhaas, 1997). Quoting Didem Özkul (2015), it is only by

the force of these material operations that locative media can begin to “change the sense of a place, how we perceive it and what a place means to us” (101). Leighton Evans (2015), too, addresses these connections between strata through a reading of “experience design” (20), which he situates within the broader “computationality” (Berry, 2011) of contemporary culture. More specifically, Evans argues that “experience design” is focused on the techno-mathematical determinations that lie “under the surface” (Ernst, this issue), as well as “between” or “through” experience, and indeed it is through this focus that experience design aims to address “the needs, emotions and meanings of people’s everyday experiences” (Evans, 2015: 20). If we put aside the ethical questions raised here for a moment, I argue Evans’ use of this particular term adheres to criteria that match both ends of the methodological spectrum (i.e. phenomenological/archaeological), not one or the other.

Malcolm McCollough’s (2013) contribution to the discursive arena of “smart cities” provides an illustration of experience design. McCollough proposes a multidisciplinary initiative aimed at generating solutions to the overwhelming sense of placeless distraction (i.e. amnesia) that results from the growing prevalence of mobile media. Addressing “information superabundance” (2014: 41), a phenomenon that refers directly to human experience, McCollough suggests that urban design technologies ought to take a page from contemporary neurosciences and find ways of responding to the limited human brain capacity for consuming information. Similar to Evans, McCollough argues that urban planners and designers should begin to focus less on the aesthetic, semiotic or “semantic” layers of the city, as on the layer of “intrinsic information;” in other words, on information “inherent to the material, structure or constitution of something” (2013: 37). By developing an “ambient interface” (2013: 7-25) based on the application of materialist principles, McCollough argues that planners and designers can manage to avoid developing technologies that aim to *grab* our attention, or create a spectacle that redirects our attention to particular sites of urban encounter, because this result would only contribute to the initial problem. Rather, through a subtle deployment of design solutions, McCollough insists that a civic culture can reemerge by retooling the environment in such a way that citizen-subjects can begin to physically and psychically forget the mediation of their devices – and the infrastructures that sustain them – to reinvest in placemaking activities that are responsive to the specific needs

of their communities (2013: 285-95). Beyond amnesia, then, this would be to transform smart city design initiatives into engines of collective memory. Or, to use Evans' framing of this question in the form of an argument, "technological devices can reveal the world *poetically* rather than simply technologically" (2015: 19).

Not surprisingly, the rosy vision put forward by McCollough and others invites detractors. For instance, Rob Kitchin and Martin Dodge (2007) explore the "ethical implications of machines that never forget" (431), whereas Mark Shepard (2011) focuses on the oncoming threats associated with non-human sentience as read through the prism of algorithmic control, while Benjamin Bratton (2016) offers a description of the sovereign foreclosures inscribed into the planetary architectures of "the stack." More narrowly, these formulations cast further light on the fact that unequivocal separations between phenomenological and materialist approaches are viable only as a polemical means to an end. Methodologically speaking, the separation between them ought to be as small as possible. If there is to be anything resembling an encyclopedia for geospatial memory, for instance, it would necessarily have to include an acknowledgment of the contradictory impulses, sites of conflict, and transformations that factor in any discursive engagement with space. Given this, I argue the convergence of diverse approaches and methods delivers a model of spatial analysis enriched not only by thick description, but by a multi-dimensional category of space that is unevenly ontological, epistemic, practical and aesthetic, as well as rhetorical and polemical or ideological. For Doreen Massey, this fact signals "the contemporaneous heterogeneities of space" (2005: 5). She writes:

The trajectories of others can be immobilised while we proceed with our own; the real challenge of the contemporaneity of others can be deflected by their relegation to a past (backward, old-fashioned, archaic); the defensive enclosures of an essentialised place seem to enable a wider disengagement, and to provide a secure foundation. In that sense, each of the earlier ruminations provides an example of some kind of failure (deliberate or not) of spatial imagination. Failure in the sense of being inadequate to face up to the challenges of space; a failure to take on board its coeval multiplicities, to accept its radical

contemporaneity, to deal with its constitutive complexity. What happens if we try to let go of those, by now almost intuitive, understandings? (Massey, 2005: 8).

Encounter, Mediation, Mediumability

In the spirit of Massey's appeal, it is worth pointing out that memory researchers have taken approaches entirely distinct from Nora's. Most importantly, Jan Assmann and John Czaplicka (1995) have developed a methodology that is responsive to memory's spatial turn and to spatiality in perhaps a different way. Through challenging the orthodoxies of "communicative memory" (cf. Halbwachs, 1992; Nora, 1989), Assmann and Czaplicka urge us to reconsider the neglected (and often coded "historical") domain of "objectivized culture" (1995: 128-29), which refers to a material realm of cultural artifacts that condenses into the striations and patterns of the historical present. By Assmann and Czaplicka's description, objectivised culture exceeds the intergenerational transmissions that occur between members of a group or between groups, and acts to supplement such transmissions with a material realm including "texts, images, rites, buildings, cities, landscapes" (1995: 128). Unlike Nora's diagnostic approach, then, the field of situated objects and artifacts can be approached through their relationality, and less through nostalgia and the sense of irredeemable loss.

Assmann and Czaplicka support their argument for prioritising "cultural" as opposed to "communicative" memory with a reference to *The Mnemosyne Atlas*, an eccentric art historical project authored by Aby Warburg in the first quarter of the 20th century. In this project, which has recently become more widely known to readers of English (cf. Didi-Huberman, 2018), Warburg sought to illustrate the hidden paganist themes and motifs of Renaissance-era art. Warburg would curate images and objects in a pastiche design before posting them to a collection of boards intended for gallery viewing. Warburg's aim, however, was not only for the *Atlas* to materialise sinews of resemblances between objects, or the networks inherited within them, but more specifically to concretise "the forces of primitive creation" (Gombrich, 2001: 50) that connected art in the Renaissance period to the past. Assmann and Czaplicka use the architecture of Warburg's project as a way of illustrating the spatialisations of "cultural" memory, including the sediments and gradations impossible to capture by

extolling or lamenting “collective” or “communicative” practices. This demonstrates the fact that such memory crystallises, both within objects and through their particular arrangement, in ways that exceed (if not precede) the living bonds that might otherwise exist. Through this, Assmann and Czaplicka’s project develops a kind of archeology of memory-work.

Marianne Hirsch’s (2008, 2012) take on these questions goes one step further by attempting to bridge the “communicative” and “cultural” divide.¹ Recalling a fraught relationship with her Holocaust surviving mother, Hirsch describes an intensely personal experience of having embodied a spatial reality hampered by the persistent denials of unconscious revelation. Citing Eva Hoffman (2005), Hirsch explores her own physical embodiment of her mother’s traumatic experience in terms of a “deeply internalised but strangely unknown past,” (6), and of symptoms unexplained and yet paradoxically relieved in the process of using photographs as a means of indirectly engaging with her mother’s concealments. For Hirsch, the disclosure of recorded images makes the encounter with memory a practical device with which to heal from the silent pain of inherited violence. Hirsch seeks to exploit this potential in ways that foregrounds the importance of framing memory, not as a procedure of individual recollection or even experience, but as a collective process. To be more specific, it is that photographic mediation which provides a space of encounter between bodies, and therefore an opening, a mechanism for symbolising the unknown. Hirsch refers to “postmemory” as exhibiting “a sense of afterness within collective experience,” a concept that demonstrates “a generational structure of transmission deeply embedded in...forms of mediation” (2008: 114).

These questions form an important thread between several contributions in this SI. For instance, in “Memory Expurgation?” Mona Abaza offers her own position on the spaces of encounter by detailing the circulation of “vernacular” (cf. Westmoreland, 2016) street photographs during the social and political upheavals in Egypt c. 2011-13, noting the myriad oscillations between revolution and restoration that occurred throughout. For Abaza, photographic images depicting Egypt’s uncertain future should be put toward countering the nostalgic feelings that continue to be held by many Egyptians, and can, as a result, become a means of bracketing the

troublesome iconicity of so-called revolutionary images. Photography also illustrates the complexity involved in forging together space for those belonging to opposing generations, and of groups holding deep antipathies toward each other. In “The Psychogeographies of Site-Specific Art,” Shana MacDonald pushes back against the ideologically-driven and corporately-financed urban street art campaigns designed to extoll the virtues of the “creative class” (Florida, 2002), and instead focuses on projects that emphasise “site-specific, socially-oriented content situated in direct collaboration with audiences.” Through site-specific analysis focusing on projects in Montreal, Quebec, and Kitchener-Waterloo, Ontario, MacDonald revisits the canon of literature exploring the dimensions of socially produced space, socially engaged art, and psychogeographic placemaking activities. Finally, in “Socially Engaged Archive,” Lu Pan pursues a similar line of thought with an analysis of East Asian digital archives as created both during moments of social and political change, and in response to ongoing environmental uncertainties. In addition to noting adjustments within the architectures of storage and preservation, Pan highlights the significance of democratising the archiving process through digital media, as well as its potential for advancing social engagement. Focusing part of her contribution on sound, Pan calls to mind the specificity of the digital archive in terms of its *mediumability*, or communicativeness via diverse sensory channels.

Cityness,² Imageability,³ Gentrification

Taken as a whole, the subset of contributions described above begins to reveal (and reveal in) the liminal spaces of encounter between archives and city streets, and, in doing so, allows for an opportunity to further push Assmann and Czaplicka’s provocative methodology toward the urban. Kevin A. Lynch (1960) famously argued that cities, like objectivised culture, are the product of relationships – relationships that exist not only between the people who inhabit a city space, who become familiar with it, but also those exhibited by the network of artifacts that materialise the city itself. Lynch’s particular demand was that urban planners, architects and designers should begin to challenge the austerity and fetishism for efficiencies, and ultimately to reimagine the city’s “imageability” (1960: 9-14), to demonstrate care and attention toward shape, directionality, capacity for integrating cultural practices, rituals and memories, capacity for sustaining social ecologies, and so on. For Lynch this demand boiled down to honing inspiration from the path, landmark, edge, node, and district

(1960: 46-91), and therefore to draw inspiration from the elemental or generic properties of urban environments. By connecting this appeal to Warburg's energised networks and Assmann and Czaplicka's obsession with the artifact and relationality, I argue Lynch's desire for a new urban design programme can be linked with similar memory research. Above all, the city should be examined not only in terms of its capacity to be a storehouse of memory – which, after all, amounts to a rather simple concretisation of “objectivised culture” – but also in its capacity to be a canvas for the memory *of* cities, whether accumulated through walking, feeling and remembering, or, indeed (cf. Lozowy, 2016), through returning and documenting.

In “Memory, Movement, Mobility,” Danielle Drozdewski offers a unique approach to the memory of cities by investigating commemorative memorials in Singapore with a deliberate emphasis on the sensory aptitudes of the human body. Drozdewski conceives of embodiment less through the lens of identity and culture as a locus of Deleuzian intensities and affect. Tactility in particular is linked to memory in ways that cognition and conceptual elaboration could never be. It provokes a set of questions regarding the potential for researchers – sensory ethnographers – to access dimensions of the city that are otherwise underexplored by methodologies hampered by single-channel receptors. In “CityCenter, Las Vegas,” Kurt Kraler considers another aspect of imageability by looking to the streets of Las Vegas, Nevada, during a period of stealth transformation marked by the de-theming of its iconic strip beginning in the 1990s and subsequent efforts to preserve the dismantled signage at the city's Neon Museum. Evoking canonical works such as *Learning from Las Vegas* (Brown, Izenour and Venturi, 1977) and Deleuzian themes of de/reterritorialization, Kraler examines the phenomenon of de-theming through the indices of violence, erasure and musealisation, the re-centering of traditional powers, and the exultation of capital over labour. Kraler writes, “urban rejuvenation and gentrification rely on a select set of images, reproducing the same urbanism for the express purpose of accelerating consumption and speculative value.” Finally, in “Ruts of Gentrification,” Markus Reisenleitner explores questions of urban transformation from the vantage of present-day Vienna, Austria, focusing on the inclusion of digital media, including GIS and cartography, to aid in the planning and promotion of new development projects. However, Reisenleitner also examines

particular surfaces of urban gentrification throughout Vienna in search of the “ruts;” that is, “unintended remnants of overlooked or deliberately concealed habitual movement and directionality from the past that are part of urbanity’s memoryscapes.”

Taken as a whole, these contributions approximate a kind of “deep mapping” (Mattern, 2015, 2017) of the media city. They engage multi-dimensional, multi-scalar and multi-sensory approaches to examine the surfaces of cities, to trace their perceptible and imperceptible changes, and ultimately to create a map that not only traverses different urban geographies (i.e. Singapore, Las Vegas, Vienna), but one that also highlights the sediments of different timescales and forms of media. Perhaps these contributions signal the potential for a “psychogeophysics” (Parrika, 2015: 61-7) of the urban, in the sense of amplifying the city’s nonhuman dimensions, and offering ways to engage with the linkages between technology and nature. For Shannon Mattern (2015), “deep mapping” accomplishes four methodological aims: it puts old and new media into dialogue (“Our cities have been mediated, and intelligent, for millennia,” xiii); it recognises the tangible connections that exist between urban and media infrastructures (“Our media histories are deeply ‘networked’ with our urban and architectural histories,” 12); it diversifies our single-channel urban imaginaries (“Much existing work on the media city presents it as a visual entity,” 22); and finally, it challenges the conceptual assumptions of media archaeology (“What if we took media and network archaeology literally...?” xiii). On this basis, a geospatial memory of the urban ought to encourage “deep mapping” as a means of bringing further attention to the spatial themes persistently muted throughout memory research in general.

Digital Memory and the Restoration of Historical Time

While some groundwork has been laid to establish connections between memory and media, including film (Garde-Hansen, Hoskins, and Reading, 2009; Hoskins, 2018; on film, see Lansberg, 2004), there is still considerable lack in terms of addressing digital media and memory in relation to space in particular, and in fact, many of the attempts to explore these relations betray a strong bias in favour of historical time. While notions of space and time are obviously situated and historically specific in themselves, I argue that by privileging historical frameworks, memory research by and large disallows sufficient spatial understanding to emerge (Soja, 1989). Granted,

historical time may rightly be associated with a range of spatial phenomena, yet the persistent lack of identifying these on their own terms tends to reify abstractions and common-sense assumptions regarding space in general. For example, in *Save As...Digital Memories* (2009), one of the earliest volumes on digital memory to appear in English, the editors offer a description of memory that clearly, but implicitly, foregrounds the space of artifacts. These include:

online mementos, photographs taken with digital cameras or camera phones, memorial web pages, digital shrines, text messages, digital archives (institutional and personal), online museums, online condolence message boards, virtual candles, souvenirs and memorabilia traded on eBay, social networking and alumni websites, digital television news broadcasts of major events, broadcaster websites of archival material, blogs, digital storytelling, passwords, computer games based on past wars, fan sites and digital scrapbooks” (Garde-Hansen et al., 2009: 4).

Arguably, the list clearly establishes the range of any future digital memory studies, yet notably absent from this description is any acknowledgement of the spatial dynamics that might otherwise be clearly present in specific items. Space is addressed more deliberately in a subsequent volume, titled *On Media Memory: Collective Memory in a New Media Age* (Neiger et al., 2011), in which the editors express the desire to put forward “a concept of digital memory as one that rethinks time as linear and moves toward a concept of time and memory as spatial...” (20). Yet in the volume’s individual contributions, references to space don’t go much further beyond a discussion of global media flows. Beyond this, the volume’s subheadings, such as “Digital memory: the end of history – the beginning of memory,” further cement the fact that any conceptual development will from this vantage point bear the mark of debates concerning the limitation of methodologies associated with the discipline of history, or, alternatively, with the integration of sociology and psychology.

One of the strongest efforts at coming to terms with digital memory can be found in a recently published volume, *Digital Memory Studies: Media Pasts in Transition* (2018). In

it, Andrew Hoskins addresses the “connective turn” both from the vantage of memory studies and popular culture. He describes the shift toward “participatory” models fueled by ubiquitous digital and social media, and the associated imperative of being constantly plugged in to what he describes as “a new coercive multitude” (Hoskins, 2018: 2). Predictably, connectivity has been explored at length from the vantage of mobile media (cf. Wilson, 2014; Licoppe, 2004). However, as Hoskins explains, the imperative to connect not only includes the demands made on individuals and groups to archive and document their everyday lives through mobile devices. It also includes demands made on organisations to digitise their archival collections (Hoskins, 2018: 3) and the push to align academic funding streams with open access publishing models.⁴ By acknowledging these, Hoskins wants to raise the possibility that the digital has become integrated with knowledge production, not simply with ideological reproduction.

The digital creates a situation in which individual and collective memory are simultaneously over-present and under threat, and, on this basis, the argument goes, we need new approaches to address the digital through collective memory. Hoskins in particular wants to emphasise the ontological and epistemological implications of this shift. He writes that the digital “transcends the time of now and then, reconnecting, reimagining, and reconstituting the past as network, archive, present” (Hoskins, 2018: 5). He then describes this realignment in terms of a collective experience of losing the ability to make critical and conceptual distinctions regarding digital media, at least in the same way that was imagined possible during other media revolutions. Cultural memory, likewise, has become tethered to an infinitely retrievable data-driven topology, and, as such, the mediated form that memory takes can no longer be understood simply as a “carrier” (Hoskins, 2018: 6) of information regarding the past. Undoubtedly, the digital has the effect of opening memory-work to a host of new threats surrounding privacy and security, to say nothing of the durability of digital preservation (5-7). Hoskins’ final aim, however, is to redirect these issues toward analyzing the deep entanglements of media memory. He writes:

A new ontology for memory studies is needed that is cognizant of media, and not as some partial or occasional or temporary shaper of

memory, but as fundamentally altering what it is and what is possible to remember and to forget (Hoskins, 2018: 7).

Hoskins is undoubtedly correct to make this point, yet his subsequent attempts at ontological reframing tend to reinforce long-held assumptions of historical time, and as I argued above, this reinforcement prevents us from exploring dimensions of space. At one point, Hoskins supports his claim by referencing the Gutenberg parenthesis (2018: 12-14), in which he argues that the “connective turn,” which defines media memory today, concretises an epochal dislocation from the age of print or literate culture, and signals the dawn of a “secondary orality,” evoking the ontological claims put forward by Walter J. Ong (1982: 135), and, to a lesser extent, by Marshall McLuhan (1962). Not including critics of this approach (see below, “spatial mediations”), the Gutenberg parenthesis ultimately prevents Hoskins from fully examining how digital media acts to transform space as opposed to simply eliminate it.

Hoskins, however, situates the “connective turn” even further within the confines of historical time by referring to a “second memory boom” (2018: 15), referencing Andreas Huyssen’s (1995) attempt at working through the obsession with memory that accompanied postmodernism beginning in the 1970s. For Huyssen, the memory boom was “a sign of the crisis of that structure of temporality that marked the age of modernity with its celebration of the new as utopian, as radically and irreducibly other” (1995: 6). Yet that obsession was expressed in highly contradictory ways, given that “cultural amnesia” (Huyssen, 1994: 21) was pervasive despite the fact that there were more techniques and tools than ever with which to reconstruct and engage the past. The argument here is that every successful attempt at establishing a durable link between present and past necessarily leads to deepening the memory crisis. Huyssen hypothesised a number of reasons for this crisis, including “technological change, mass media, new patterns of consumption, work, mobility,” and so on (1995: 21). For Hoskins, then, a “second memory boom” is defined as one that responds to the amnesic foreclosure of a convulsive historical moment, as digital media “affords a synchronic and diachronic unlimited depth of vision

that...makes us aware of the limits of the human capacity to arrest and to hold and to keep the archive..." (2018: 5).

Historical representations of pastness, and historical rupture, can be found throughout the canon of memory studies, particularly in reference to European traditions. Prominent examples include Richard Terdiman's (1993) description of the memory crisis as an amplification of 19th century-era fears over the disruptive potential of new technologies, or, on a different register, Susannah Radstone's (2000) claim that memory research began during a cultural moment in which memory was no longer something to be recollected so much "as actively *produced*, as representation, and as open to struggle and dispute" (7). While any of these variations may be instructive for different reasons, the prevalence of historical time in each of them suggests that memory research is deeply informed by its disciplinary ties, in particular to history. On the one hand, this effort at "disciplinary embedding" (Radstone, 2008: 35) is necessary, because without it there would be no viable way in which to separate "memory research" from "memory culture," and therefore memory could be used as a means to refer to anything whatsoever. Radstone (2008: 32) draws a parallel between a generational debate within cultural studies to support her argument that disciplinary embedding is a prerequisite to achieving any of the political and ethical aims that memory research has put forward. However, given the shortcomings of this research, whether dealing with analog or digital formats, to engage with questions of space or spatiality, perhaps significant gains can be made by embedding memory studies in alternative disciplinary formations, such as geography, mapping, GIS, and mobile media.

Spatial Mediations

Above all, memory researchers need to find ways of acknowledging, together with geographers, that "digital media are becoming progressively spatialized" (Leszczynski, 2015: 732). The spatialisation of digital media stems in part from the deregulation of Geographic Information Systems (GIS), and the subsequent effort to diversify the application of related technologies, such as Global Positioning Systems (GPS), web-based geindexing and location-based services (LBS), and social media platforms. Hoskins may be correct to point out that there has been a "connective turn" (2018), and that it deserves more attention in the scholarship on collective and cultural

memory; yet, as Agnieszka Leszczynski (2015: 736) points out, “connectivity is brokered on the basis of location.” Proprietary platforms that depend on user-generated data have created an entirely different online experience than could have been imagined prior to the integration of geo-locative technologies. These platforms are particularly useful for illustrating that “our position, defined by latitude and longitude coordinates, becomes our entrance to the internet” (de Souza el Silva and Sheller, 2015: 4). In turn, the geospatial metrics embedded in web-based applications and mobile devices have become crucial to understanding our cultural heritage, identity, sense of belonging and relation to the past.

Not surprisingly, the term “spatial media” (Crampton, 2010; Kitchin, Lauriault and Wilson, 2017) has been controversial among geographers for different reasons. At bottom, it refers to the integration of spatial technologies and forms of spatial representation with networked, web-based services and mobile devices. As Leszczynski (2015) writes, spatial media encompasses “location-capable/enabled mobile devices; algorithms that underwrite the burgeoning complex of location-based advertising practices; proprietary interactive web-based mapping services and platforms for the crowdsourcing of spatial content” (730). It is therefore a sufficiently broad term with a host of different implications, and, in that sense, it faces many of the same practical and methodological problems as collective memory.

Spatial media undoubtedly provides a measure of freedom for people to behave differently in spaces (Licoppe, 2004), but, in a surreptitious way, they also mobilise geographical content – maps, coordinates, points, locations, addresses – to act as determinants of behaviour. As several geographers have pointed out (Crampton, 2010; Leszczynski, 2015; Kitchin, Perkins and Dodge, 2009), spatial media encourage users to participate both in using and creating geographical tools like maps. They give rise to new actors – political and non-political – who contest the authority of experts and expert knowledge, while at the same time amplifying cultural practices in ways that challenge experts to develop relevant methodologies. One notable aspect of this expanded participation is the way in which it is captured by proprietary platforms. For instance, Scott McQuire (2016) examines Google Street View not as a superfluous application, but rather as concealing a larger initiative to link web-based

activities to location-specific data generated by its users, and ultimately to become “Google *in maps*” (66-90). As the commercialisation and monetisation fostered by proprietary data-collectors is obviously motivated by profit and control, these actions have wide-ranging implications for the restructuring of global economies (see Srnicek, 2016). From an experiential perspective, Street View illustrates this restructuring but from the vantage of how we orient ourselves as individuals and collectives in space, such that proprietary platforms come to determine at least in part the actions we consider to be possible.

On the other hand, Jeremy W. Crampton (2009) argues that “free and open source software (FOSS) is a major component and indeed philosophy of the geoweb” (93). Equipped with open source software, amateur geographers gain the ability to participate in mashups (Crampton, 2010: 25-39) and artistic projects (Hemmet, 2006), and, in general, to foster “Dionysian” (Kingsbury and Jones, 2009) interpretations that trouble the cartographic distinctions between truth and fiction. This range might suggest that geospatial applications, regardless of whether they are proprietary, offer “possibilities for new readings of techno-culture that are far from the dystopic options of Apollonian control” (Kingsbury and Jones, 2009: 505). Spatial media may also otherwise be applied in a more disciplinary nature to the study of literature (Offen, 2012; Rossetto, 2014), and inspire different approaches to narrative (Caquard and Cartwright, 2014). There are several applications of spatial media, particularly GIS, involved in historical projects of various kinds. Finally, as a crowdsourcing technology, spatial media has the potential to introduce forms of community participation in the guise of “citizens as sensors” (Goodchild, 2007).

Although some have pointed out that spatial media like GIS are significantly limited in their potential to create new narratives (cf. Wilson, 2017: 35-38), the general consensus has been to challenge the received idea that recorded geographical content is knowable primarily through scientific practices which evaluate representations on the basis of whether they adhere to notions of accuracy or truth (for more, see Pickles, 2004; Harley, 1989). For Rob Kitchin (2010), geographers need to reject the idea that maps in particular be judged by the territories that precede them, to consider instead that “mapping is a process of constant re-territorialisation” (3). Whether “post-representational” (Kitchin, 2010; Caquard, 2014) or “non-

representational” (Thrift, 2007), practices involving elements of geography are now broadly conceived as dynamic as opposed to static, made and re-made as opposed to unchangeable, and perhaps defined by “performativity” in the Derridean sense of actively producing the world through iteration (1984: 309-330; see also Rose, 1999: 248, qtd. in Kitchin and Dodge, 2005: 172).

While the methodological issues over representation have been clearly established if not resolved, other issues continue to linger. Leszczynski (2015) points out, for instance, that the “media” of “spatial media” has aroused controversy within geography and GIS for a generation (cf. Sui and Goodchild, 2011). She writes that “spatial media are genealogically distinct from GIS developments” (Leszczynski, 2015: 730), and yet spatial media remain yoked in procedures and classifications that stem directly from GIS research. The contradiction is in the way that spatial media behave, the social practices in which it becomes embedded, the means by which they circulate information, and the particular forms of agency it creates – all of these, as Leszczynski writes, require a different critical perspective than GIS research has been able to offer:

There is a pressing need...for theoretical, empirical, and conceptual apparatuses for apprehending and evaluating the implications of and extent to which networked location-aware devices and spatial content have assumed pervasive presences in individuals’ daily lives, and of the material effects of associated spatial big data-based productions of living (Leszczynski, 2015: 731).

In effect, Leszczynski calls for a multidisciplinary effort to come to terms with the thornier problems spatial media has invariably raised. In this, I argue memory studies can add an important layer by introducing new forms of critique and interpretation. Ubiquitous spatial media dramatically alter the ways in which human communities function, grow, disappear and are remembered, and the implications of this change not only concern how memory content is transmitted over generations (although it does), but also how networked cultural artifacts are constituted. Memory is clearly an important factor in this stealth alteration.

On the other hand, by noting the danger involved in casting a wide net for spatial media, Leszczynski (2014) makes an argument that is oddly equivalent to Radstone's (2008) regarding the potential for memory studies, unmoored from particular academic disciplines, to deplete its critical potential. Leszczynski explores these questions by rejecting "neogeography" (cf. Turner, 2006), a field of study which positions spatial media practices beyond the conventions of critical GIS in particular, and which extolls the virtues of revising geography on terms that are not its own. Above all, neogeography (which Leszczynski retitles "neo, geography,") amounts to "a discursive tactic that works to preempt critique" (2014: 65). By elevating the value of the "new," proponents of neogeography depoliticise critical perspectives that originate both in geography and studies of GIS; they engage in pragmatic or "instrumentalist" (Leszczynski, 2014: 63) appropriations of technology; and they monetise the field by attempting to profit from developing and circulating location-based services (LBS) (63). In other words, it "reifies" (Leszczynski, 2015: 743) the enterprise of critical geography in general by reproducing the conditions of possibility of systems and knowledges that preexist it.

Leszczynski insists that geographers develop a theory of mediation to determine "what it is about these particular assemblages [of spatial media] that makes them 'knowable' as media" (2015: 732). Drawing from Peter-Paul Verbeek (2005) and Alexander R. Galloway (2012), she writes:

Mediation theory emphasizes how it is that we experience 'things' in the world (and indeed the world itself), and how those experiences are influenced, punctuated, affected, marked, and/or structured by our living-with technology, as well as our being-with each other in a social reality that is constituted as much by the technical as by the human (Leszczynski, 2015: 741).

In similar terms, Brendan Hookway (2014) describes mediation through the lens of fluid dynamics – that is, of patterned instabilities between inside, outside and in-between, of identities that are "fragmented" in one moment and "augmented" the next (17), of transitions that refuse to adhere to stabilisations of any kind, of actions mitigated by the openness of the system, and so on. Applying these different

perspectives to geomediation invites questions of an epistemological nature regarding the virtual layer as participating in material reality. For Leszczynski (2015), this results in her voicing strong opposition to theories that rely on assumptions of spatial hybridity, in which the “digital” is considered to be “a priori epistemologically distinct” (732). Leszczynski outlines a number of different approaches that amount to variations on this theme, whether in reference to direct mentions of “hybridity” (cf. de Souza e Silva and Frith, 2012), or spatial “doubling” (Leszczynski, 2015: 732), or to critical approaches that don’t necessarily arrive at a sufficient answer to the underlying question (cf. Hayles, 1999).

Beyond these variations on hybridity, in which the virtual is regarded as diminished, degraded or lacking reality, David Morley (2014), in some ways echoing Matthew Zook and Mark Graham’s (2007) hypotheses of “DigiPlace,” insists that the rise of so-called “virtual geographies” need not prevent us from acknowledging the ontological claims that should be made on their behalf, nor should they lead us to consider that “material geographies” are somehow less important than they were a generation ago. Morley (2014) draws from several examples to argue that the virtual and material are interlinked in a complex and corrugated fashion, suggesting that there exists a “co-presence of multiple worlds,” and that both layers push up against each other in such a way that they are constantly redefined and open to contestation. I argue that Morley’s characterisation of the tangle between “virtual” and “material” registers is reflected in Leszczynski’s (2015) demand that spatial mediations be understood as “ontogenetic” in character, that is, by means of “a material and social reality that is constantly brought into being through embodied socio-technical practices” (734). This description is at least partially informed by Henri Lefebvre’s (1992) rejection of the ever-present potential to fall back on notions of “absolute” space, and of imaginaries in which space is conceived as a container of objects. Lefebvre troubled these assumptions by insisting that space is actively produced through the engagement between social actors and through the staging of social encounters. However, in a critique of Lefebvre’s implicit formalism, Shields (2013) adds to this a Deleuzian assertion that space is itself imbued with “intangible relationships” (21), suggesting that virtualities are by necessity anchored in the real through a process of actualisation.

Rob Kitchin and Martin Dodge (2007) offer a unique and yet parallel interpretation of this debate through the notion of “code/space.” Evoking Gilbert Simondon and others to argue that “space *needs* to be theorized as ontogenetic,” Kitchin and Dodge propose that spatialisations of any kind follow a process of transduction, or “the constant making anew of a domain in reiterative and transformative practices” (162, emphasis added). Importantly, Kitchin and Dodge’s intervention places an explicit emphasis on code as a principle mobiliser of this process. In other words, code “conditions existence” (Kitchin and Dodge, 2005: 164) and it does so at the level of human experience but also at the various levels of different systems, or, as Kitchin and Dodge write, through “objects, infrastructures, processes [and] assemblages” (164). Moreover, code/space refers to situations of situated conflict that cannot be solved without drawing from the coded layer, whereas “coded space” can be mitigated by other factors (Kitchin and Dodge, 2005). The implications of this claim are obviously diverse, especially considering the power of algorithmic codes, automated technologies, and the proprietary nature in which a lot of coded activity is manifested. On this basis, I argue that Kitchin and Dodge’s articulation of these questions invites us to reinterpret particular modes of operation in which geospatial media is implicated, especially considering the ubiquity of code throughout each of them. In other words, geospatial media, like code/space, implicates how “people and things are located within complex networks of mobilities, interactions, and transactions that bind them together across scales” (Kitchin and Dodge, 2005: 174).

Planetary Memory

Given this, developing a geospatial memory of the planetary could be beneficial in terms of enabling us to reference the multi-dimensional, multi-scalar and multi-sensory aspects of geospatial media overall. In fact, some of the first encounters we have with geospatial media are aesthetic and marked by vertical planetary views, and we tend to react based on their capacity for abstraction (cf. Graham, 2016). For example, in the satellite views of Google Earth (GE), the magnitude of scale is put on display to encourage forms of vicarious witnessing (see, for example, Parks, 2005: 77-109), which requires a countervailing force to examine how incisive critiques are foreclosed in the process of the digital’s ever-receding horizon of planetary control. As Laura Kurgan (2013) writes, GE manifests a highly constructed space developed from a sophisticated composite of satellite images. Kurgan (2013) argues that

through our repeated engagement, and despite its irrefutable claims to accuracy, the interface becomes a factor in shifting our personal sense of spatial “disorientation” (36). Some of these issues are addressed in Jessica Becking’s “Records of Representation,” in which she briefly delves into Clement Valla’s exposure of errors in the GE archive through his project, *Postcards from Google Earth*. By observing the refracted images of a planetary memory landscape, Becking reflects on the limitations of photographic realism and artistic authorship as evidenced by the motifs of journeying, spectatorship and tourism. On a different register, in “Bergson’s GIS,” Rob Shields explores the limitations of Historical GIS in terms of its treatment of time. In particular, Shields returns to Bergsonian and Deleuzian interrogations of time-space in which memory is understood less through the contested criteria of recollection as through an experienced process of the flow of time in which memories are actualized or “worked up.” Beyond its Cartesian confines, Shields argues that our definition of temporality should be opened to the potential for infinite fabulations, and GIS to forms of kinaesthetic experience.

Both the aesthetic and ontological concerns provoked by the existence of planetary views have been interrogated at least since the Apollo missions of the 1960s and 1970s (see, for example, Cosgrove, 2001), and the contributions in this section of the SI reflect that work in different, if implicit, ways. The shift identified by Kurgan (2013), however, also implicates policy and state activity, as planetary data visualisations have been a crucial factor guiding territorial transformations of significant scale. In “Earth Constellations,” Abelardo Gil-Fournier offers a fascinating case study of Spanish inner colonisation, in which he emphasises the role of vertical imaging technologies in the distribution of agricultural techniques. By focusing on the 20th century-era cart module, in which agricultural production was magnified through a water distribution strategy, Gil-Fournier develops an alternative perspective on the ontogenesis of “infrastructure space” (Easterling, 2016). In “The Undergrounds and Overgrounds of Pure and Applied Science,” Jamie Allen continues this thread by examining the planetary view in terms of how it implicates commonly-held assumptions about the criteria of scientific practices from the earliest days to the present, arguing that some measure of mythology lies at the core of any rigorous or “pure” scientific knowledge. Referencing the diversity of ways in which

science has been “applied,” Allen focuses on a crucial parallel between geology and astronomy which he conceives as equivalent practices of extraction akin to scientific history and memory.

If a science of geospatial memory were to exist, it would have to be one that is “always much dirtier than their naming implies” (Allen, this issue). Indeed, the purpose of this SI is to bridge a gap between collective and cultural memory – both in its “pure” and “applied” iterations – together with critical perspectives in geography, mapping, GIS and mobile media. As Leszczynski and Wilson (2013) remind us, “scholarship about the geoweb has not...yet made the leap to coming into conversation with a much broader series of literatures and discussions about digital culture...this is not an option for geographers but rather an urgent necessity” (916). I argue that the same holds true for memory studies in its convergence with digital media and space. Given that, perhaps it’s time to acknowledge the ways in which memory research is co-implicated in a host of distinct and yet open knowledges, but that it’s also possible to shift the investments that created the field in the first place, and that the driving force behind such research will therefore never gain the kind of purity that has otherwise been cast as the ultimate value.

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Notes

- ¹ Hirsch's provocative approach is based on an earlier attempt by Aledia Assmann to bridge the "cultural" and "communicative" divide that was reinforced by her husband. For more, see Assmann (2006).
- ² See Sassen (2005).
- ³ See Lynch (1960).
- ⁴ For more information on the shifting priorities of national funding of open access formats in Canada, see http://www.sshrc-crsh.gc.ca/about-au_sujet/policies-politiques/open_access-libre_acces/index-eng.aspx

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Anthropocene Elegy and GeoSpatial Presence

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Abstract

Drawing from our collaboration on an AHRC funded research project, this essay will look at the production and reception of an artwork and offer an account of the tension in the work between the “authored” time line, the user’s temporal experience and the impact of mediated time on that experience. The artwork itself utilises a combination of pre-recorded audio, geo-locative technology and printed material to create an urban walking experience. The route is not pre-determined, but is created uniquely each time by a participating audience member in response to thematic and reflective provocations. Locations they are invited to choose while walking become part of their internal memory map of the city, while the GPS co-ordinates are stored by a mobile device. In the second half of the experience, the walker retraces their steps, layering their own experiential memory within media triggered by the stored locations. The audio and written material in the piece was collected from regions around the world at risk of disappearing. These include emptying Latvian villages, the sinking wetlands of Louisiana and the rising edge of the Tunisian Sahara. A particular affect of critical awareness of planetary presence is produced as an event at the interface of the spatial and temporal elements that compose it.

Keywords

Audio, Ambient, Time, Composition, Locative

Introduction

“When you do pause for a moment, you’re lifted off to a desert settlement or the bayou, you’re jaunting in and out of the space all the time” (audience comment).

This article argues for the importance of accounting for the different timescales produced in the mediated city, and offers an account of practice-led research that addresses questions surrounding the affordances of mixed reality artworks with an emphasis on temporality. Specifically, it offers an account of how an “anthropogenic affect” is produced through the design and management of time within a locative framework. The article observes the tension within fieldwork between the “authored” time line, the user’s temporal experience of the work, and the impact of mediated time on that experience. This work arises from a research collaboration which investigates situated reading and listening experiences as mediated through pervasive computing technologies. It discusses the production and reception of an audio walk and reading experience commissioned by a research council project. Above all, the aim of this article is to complement spatial analysis by introducing an analysis of the ways in which experiences of time can be productively and critically dislocated.

We argue that the forms of composition deployed in this work offer the opportunity for original ways to understand our experience of the Anthropocene. Rather than producing an encounter with the “eco sublime” (e.g. awesome chunks of iceberg crashing to the ocean), this work instead enacts, through its formal properties, a subjective experience of different timescales. We argue that this position could not be arrived at through theoretical analysis alone. An experimental practice-based process of manipulating time produces the argument that we can understand climate change through an experiential approach that affords the opportunity to enact modes of attention necessary to embracing ecological complexity.

The questions the work set out to investigate were:

How might artists compose temporal structures for geospatial work?

How can the manipulation of time in geospatial practices constitute an eco-critical experience?

Description of the work

It Must Have Been Dark by Then (Speakman, 2017) offers users the opportunity to shift between worlds through listening to audio, music and narration collected from three globally distant locations already living through the effects of climate change. It is an audio walk where the users choose the route, creating a map of change. It brings

stories and sounds collected on a journey through other places in the world, inviting you to place memories in the streets, finding where your world and those of others intersect. The experience asks the listener to seek out types of locations in their own environment, and once there it offers sounds and stories from remote but related situations. At each location, the listener/reader is invited to tie those memories to the place they are in, creating a map of both where they are right now and of places that may not exist in the future.



Figure 1: The printed book and software application running on a mobile device.

The final form of the work under analysis consists of a printed book, acoustically isolating headphones and a software application for geo-located mobile devices (running iOS or Android operating systems). The software contains a library of pre-recorded spoken word, music composition, field recordings and interviews. These are played back to the audience in response to either timed events, onscreen interactions or the triggers created by the geolocation of the device. The text in the printed book acts as a reflective travel diary, documenting journeys made by the artist. The spoken word heard by the audience contains instructions that guide them through the experience and prompts for conceptual consideration.

The underlying software system is a proprietary platform, whereas the compositional structure of the work is designed by the artist. The system continually monitors the GPS position of the participant; it records specific locations in response to onscreen interaction, and these are then used as geo-located triggers in different stages of the experience.

The text and audio content was created through three field studies across Latvia, eastern and central Tunisia, and southern Louisiana in the United States. On each expedition, a combination of ambient recordings and interviews were conducted. Music compositions were then created by the artist in collaboration with musicians that both used and responded to the field recordings. The narrative text of the work was written by the artist in collaboration with an author and the printed component was a bespoke design for the project. The sites themselves were initially chosen as being representative of changing or disappearing environments, exploring Latvia's rapidly shrinking population, the sinking wetlands of Louisiana and desertification in Tunisia. As the recorded material was compiled and reflected on through an iterative production process, the notion of disappearance moved us toward thinking of *It Must Have Been Dark by Then (IMHBDBT)* as a new kind of eco-critical artwork.

At the start of the piece, audience participants are given a book, a phone with the app loaded and a pair of headphones. The poetic narration prompts us to read individual chapters from the book at certain moments, we listen to music, read or listen to narration whilst sometimes walking, sometimes standing still, observing. We are invited to construct a journey where we are asked to locate dwellings, a tree, a rock, water. These sites are captured as markers on a map with no other features, which then generates further destinations for the walker. Each of these generated destinations may involve crossing roads or walls, and in identifying locations that cannot, with safety, be reached, the "walk" becomes a challenging process of navigating the environment. At the outermost point of the journey, the walker is invited to retrace their steps; this time, however, each of the marked locations automatically offers spoken documentary content from the inhabitants of the distant, climate threatened locations that the piece is based around.

Contextual review

The form of the work sits within the fields of sonic arts, mobile audio and locative media. This latter term, "locative media," coined by Karlis Kalnins (Zeffiro, 2012) came to represent a body of work created at the beginning of the 21st century that used geo-located technologies. In Andrea Zeffiro's genealogy of the term, she usefully rejects the idea that locative media is a single form, arguing instead that "it is a field of cultural production that is perpetually evolving and continuously

reproduced vis-à-vis struggles between technological interpretation and different visions of future use” (Zeffiro, 2012).

A very brief genealogy of the current work begins within the Situationist International (SI) and the *dérive*, signalling unplanned journeys “through a technique of rapid passage through varied ambiances” (Andreotti and Costa, 1996). The SI’s originary role in locative media is considered often merely a “wilful skimming of the surface of psychogeography taking it to mean an unconstrained movement in the streets, and apparently less of an alignment with the wider project of anti-urbanism” (Pope, 2005). Cornell and Varnelis (2011) have highlighted that until the release of the GPS enabled iPhone in 2008, locative media was “the stuff of demos and art-technology festivals,” suggesting that the “mass realisation of locative media seems to have taken the wind out of its sails as an art form”.

We would argue that the role of audio within the field is of greater relevance to the work. The earlier release of the Walkman by Sony in 1979 opened up a new cultural space that shifted not just consumer or public possibilities for mobile sound, but a range of artistic practice that connects directly to the current work (Thibaud, 2005; Bull, 2007; Tonkiss, 2005). Beginning in the early 1980s, Antenna Theatre, for instance, used Walkmans in participatory theatre work and audio walks, and later Janet Cardiff popularised the form in a fine art context. Teri Rueb’s “trace” (1999) was one of the first works to combine mobile audio with GPS technology, an approach that was continued and developed in the works of Blast Theory, Plan B, Coney, Circumstance *et al.* Today, new software platforms for creating locative audio experiences (Detour, Motive, Apptrails, etc.) continually appear.

If we position the work under discussion within the field of locative mobile sound art, we can then also describe it using Frauke Behrendt’s taxonomy. It is primarily a work of “placed sounds,” where artists “curate the distribution of sounds in (outdoor) spaces, often – but not exclusively – by using GPS,” but could also be considered a “sound platform,” where “typically the audience are also able to distribute their sounds in space” (Behrendt, 2015). For most audiences, the addition of audio soundtracks to our stream of information and mediation ensures that an

always available everyday mixed reality is already a very common experience for significant parts of the global population. By mixed reality here we refer to the *sensory* experience of inhabiting embodied and emplaced time, in the kitchen, the car or the street, simultaneously with an extended sense-making horizon defined by whatever pattern of information and mediation processes we are connected to at any given moment. Given these broad techno-cultural contexts, we can examine the actual auditory content and structure of the piece.

The listening of elsewhere

Aside from the spoken words that give the participants prompts and instructions on how to progress through the work, the remaining recorded audio consists of abstract sound (the music score) and field recordings. Jean Paul-Thibaud (2005) describes the experience of mobile audio as the listening of elsewhere, that it is a “manager of sensorial channels, it questions the relationship between the dweller and his environment and enables new modes of experiencing the city” (330). Isolating ourselves from the complexity of the sonic world engenders a different decoding of the visual space. When hearing music, or abstract concrete sounds devoid of space, any cochlear interpretation of our surroundings is greatly restricted. Presented to contemporary European audiences, the response is often to compare it to experiences of cinema, in so far as the audio walk “soundtracks” the site of the event, turning it into a *mise-en-scène* designed for probability (Dovey, 2016).

The music score here draws explicitly on a reference to cinema, becoming a soundtrack of the “present” and the “surrounding,” whereas the use of field recordings from Latvia, Tunisia and New Orleans represents the remote and the distant. When we stand in an urban context in London but hear the acoustic space of a sand dune in Tunisia, a different and complex kind of layering occurs. The field recording brings with it another acoustic space, but one that is different from that being experienced visually by the listener. It is not just the sound of somewhere else that is explicitly presented, but also the recording of someone else, another presence is introduced into the listeners’ perception. Bennett (2003) considers a field recording as being “an inscription tracing the engagement of the primary listener with the soundscape at that time, in that place” (103). It says loudly *you were not there*, but someone else was.

We associate recordings as being always historical, however when placed within a geo-located work the ability to hear the recordings is predicated on the listener having already been present in a specific location. The “you were not there” of the auditory experience of field recording confronts the “you are here” of the visual and embodied experience. The historical nature of the field recording becomes *present* through the audience agency of locating it. These temporal and spatial shifts are a tangible experience for the audience, and as such suggest how the work might offer a new eco-critical mode of attention.

This eco-critical mode of time and place suggests how *IMHBDBT* might be located as an artwork associated with the Anthropocene.

The idea of the Anthropocene is a justifiably contested one, one of the most common critiques being that in its consideration of humankind as a singular entity it subjugates the internal histories of exploitation, dominance and inequality. Despite its discontents it is a term that has permeated contemporary arts practice. Latour (2015) suggests its usefulness as a tool, partly for speeding things up, as, “you don’t have to show again that science and politics are related,” a connecting term that “brings together artists, scientists and philosophers” (49). The Anthropocene Project organised by Haus der Kulturen der Welt in Berlin over 2013/2014 brought together an international wealth of art and science practice under this framework, while the Dark Ecology Project by Sonic Acts (2014-2016) sought to create new works responding from within sites and spaces where the concept visibly and physically manifests itself. As highlighted by Davis and Turpin (2015), the Anthropocene is “primarily a sensorial phenomenon,” and yet our understanding of it is “frequently framed through modes of the visual” (3).

It is within this wider body of anthropocenic reflection that we place *IMHBDBT*, not as a theoretical critique, but as an embodied experience that offers an internal, lived perspective. In their introduction to *The Art of the Anthropocene* (2015), Davis & Turpin suggest, “the Anthropocene can be felt as a call to re-imagine the human through biology and geology” (6). Complementing this, Timothy Morton (2007)

advocates for literary and sonic art works that produce heightened awareness of self and environments, arguing that the “self and the world are intertwined” (69). Morton’s ambient poetics, which is developed at length in *Ecology Without Nature* (2007), whilst ambiguous, looks for experiences that produce a heightened awareness of all the entities, human, technological, animal and architectural that constitute our environments. This ambient poetics decentres the human subject in order to produce the conceptual conditions for ecological awareness and action.

Morton’s ambient poetics is at best a contradiction, a property to be valorised but one that may be impossible to achieve. “Ambience,” he asserts, “is what environmental writing is after, and ambience is its ultimate nemesis” (2007: 81). Ambience, from Morton’s perspective, is thus “an untenable concept but pervasive” (2007: 89). He sets up an “ambient rhetoric” in which ambience is understood as unstable and restless, a Janus like dialectical image that looks toward both oppression and liberation but may lapse at any point into a “resting place” that has “abandoned its liberating potential” (Morton, 2007, 142). Where ambience becomes a kind of easy immersive evocation of environment or landscape it loses its generative and critical power.

But Morton repeatedly suggests the potential for a particular kind of ambience to offer a more fruitful eco-critical practice.

Ecological writing wants to undo habitual distinctions between nature and ourselves. It is supposed not just to describe, but also to provide a working model for a dissolving of the difference between subject and object, a dualism seen as the fundamental philosophical reason for human beings’ destruction of the environment. If we could not merely figure out but *actually experience the fact that we were embedded in our world, then* we would be less likely to destroy it (Morton, 2007: 63-4).

We argue that we will not find the experience of “actually being embedded in the world” in front of a page of text. Experiential artworks that place subjects in the world, in this case using locative media techniques, might be a more useful starting position. Moreover, *IMHBDBT* does not seek the resolution of inside and outside,

figure and ground or page and margin that underpins Morton's critique of the ambient. It precisely requires the audience to shift between and through those positions, and it is this movement of attention between scales of time and places that produces a new eco-critical awareness of one's own time and place. In doing so we argue that this work usefully suggests a way of framing events that produce particular modes of attention constituted by a situated awareness of the complex entanglements and timescales of climate change.

Ursula Heise (2013) points out that some eco-criticism can be read as a call for particular *ways* of reading, a mode of attention to a text, rather than special topics such as landscape or environmental degradation. In the same piece, Heise goes on to argue for an eco-criticism founded in a "thoroughly transdisciplinary field of environmental humanities" that has "place" as a core focus (2013: 642). In another example of the need for different kinds of narrative experience, Donna Haraway (2016) discusses both Ursula La Guin and Bruno Latour as exemplars of the need to tell new kinds of "geostories" through which the forces of climate change and mass extinction can articulate themselves (40). These critical positions all argue for ways of telling and reading new kinds of stories. We want to argue that we might look to sonic art practices to find such ways of experiencing the new kinds of "geostories" produced by the climate crisis.

Eco-critical sound art

As we will be concentrating on the way the experienced is shaped and composed through its auditory content it is useful to look at it in the context of the wide-ranging body of sonic arts practice that works critically and aesthetically in dialogue with anthropocenic concepts.

As part of this contextual analysis we propose a working categorisation of the uses of sound in this field as *revelatory*, *responsive* and *documentary*. This allows us to identify the different sonic components of the work in question.

Revelatory works are those that seek to sonify aspects of the world that fall outside of our human range of hearing. Artists such as Toshiya Tsunoda tap directly into the

vibrations of objects using contact microphones, whereas others, such as Christina Kubisch, Martin Howse and Shintaro Miyazaki bring the electromagnetic spectrum into the audible range. “Air Pressure Fluctuations” by Felix Hess uses recordings of infrasound vibrations made over five days and nights then accelerates the recording 360 times. The resulting sound is full of whistles, clicks and beeps, but all underscored by a deep drone “formed by oscillations in the atmosphere—micro barons—caused by standing waves on the Atlantic Ocean, far away” (Toop, Detmer *et al.*, 2004: 192). Timothy Morton (2013) suggests that “a gigantic entity has been channelled into a sound recording audible to humans” (56). Jana Winderen (2010) and Max Eastley (2006) have both recorded glacial shifts in the arctic. The clicks and pops captured in the recordings are from air being released within the ice, such that, “what you are hearing is a 10,000-year compressed event being released in just tiny instant” (Buckland, 2006: 53). Ann Kanngieser (2015) has proposed five ways that sound might address the geo-politics of the Anthropocene. Our notion of the *revelatory* falls within her proposition for imperceptibility producing an awareness “of registers that are unfamiliar, inaccessible and maybe even monstrous, registers *that are wholly indifferent* to the play of human drama” (Kanngieser, 2015: 2 italics added).

These works raise a central problem for our argument: Are these time compressions inherently audible? Comprehensible even? The articulation of “geodata” without human interpretation and contextualisation is challenging. Without a contextual framing the sounds remain ambiguous, forced to reside in a conceptual materialism that stays inaccessible to human audiences. How might they directly connect to the listener’s present? Whilst such works frequently offer insight into “the monstrous” by the same token, like the anthropocenic itself, they leave no space for the human subject. The terror they produce is precisely the effect of the nightmare in which everything has gone too far and we face imminent extinction in the face of implacable forces.

Responsive works can be considered as those that do not use direct field recordings or captured material, but instead harness emotive, visceral and conceptual qualities of sound to represent and/or express their eco-critical perspective. There is a developing body of work that we identify as musical and sonic work made in dialogue with and in response to the crisis. Reviewing the album “Tar” by Iranian

composer Saivaish Amini, Karl Smith (2017) describes how the layers of noise and sonic detritus makes their impact “not by volume but by an omnipresence impossible to ignore...representative at once of the insatiable perpetual motion of contemporary life, its lasting impact on our environment, and the futility of all that sound and fury on a universal scale”. Richard Skelton’s compositions in “The Inward Circles” are derived from processes that literally dig into extinct plant life and exhumed bodies. The sound is dark, minimal and enveloping, rich with mixtures of processed acoustic instrumental texture that defy separation, album titles evoking a world that is bigger and older than we know. It is not eco-elegy, but rather brings “a more feral feeling of being stalked by ecosystemic memory” (Gibb, 2015). Such work has a sense of the overwhelming, of being within something bigger, activated by the pressure of sound waves themselves. It can be heard in the distant screams of Margaret Chardiet as Pharmakon, in the rushing noise of the “World Eater” (2017) album by Blanck Mass, in the dense landscapes of Lawrence English’s “Cruel Optimism” (2017) or the frantic pulsations of J.G. Bieberkopfs’ “Ecologies II” (2017).

The musical score and spoken text elements of the work at hand fall within this domain. They exist as sonic elements that are created through the filter of the author’s experience, and this freedom of authorship allows them to structure the temporality and emotional core of the work.

The field recordings within the work under discussion sit within our final category of *documentary* sound. Those works that record the already audible, but re-contextualise it temporally and spatially through editing and playback. As the microphone interface transforms the spatial and materialistic qualities of the sound, so editing affects its temporality. “The process begins with the decision to start and stop recording” (Lopez, 1998). These works might be presented in and of themselves as an audio recording, where the listening environment of the audience is anonymised, ignored within the work. Others may utilise the site of listening as an integral part of the work. Chris Watson’s installation “Whispering in the Leaves” (2010) at Kew Gardens brought sounds recorded in the locations the plants and trees came from, activating a sense of audible biodiversity. Voegelin (2014) argues that Watson’s layering of

soundscape “produces not a falsity but an augmentation, an expansion and extension of reality that is not unreal but more dense” (17).

It is important to note that the boundaries between these proposed categories are often blurred and merged by many sonic artists working around ecological themes who process their *documentary* field recordings in such a way that they move towards becoming *responsive*.

Anja Kanngieser (2015) suggests that sound not only connects its listeners, but displaces and changes them. By listening it may be “possible to discern obscured processes,” referencing recordings of increased biodiversity or noise pollution in India (Kanngieser, 2015: 2). The field recordings in the work under consideration are often laced with the sound of infrastructure, no matter where they were recorded. Motorbikes race across sand dunes, oil trucks thunder past as we listen to the last crab farmers living in sinking wetlands. It attempts to address how sound makes “apparent the world is not for humans, the world is rather with humans” (Kanngieser, 2015: 8).

Such works might be understood in the context of Teresa Dillon’s call for a critical sound exploration. Dillon writes:

The critical sound explorer works primarily with the medium of sound but also has a specific interest in exposing the interrelationships, contextual nuances and situated conditions that give rise to the sound. What this means is that the sound-per-se remains the initial and explicit focus of attention. The secondary elements which emerge through the exploration relate to wider socio-cultural, political or economic meanings, which in some cases become as important as the sound (Dillon, forthcoming 2018).

Production reflection I: Layering of timescales

Our work was produced in order to explore specifically how experiences of time can be managed for users. It is part of a wider investigation into composition and temporality for mixed reality audio-based artworks.

The use of remote sound recordings creates a level of temporal complexity. There is a shared singular timeframe during sections of the piece where the participant walks while listening to a musical score. While the recorded music was clearly made at a previous time and in a different place, it uses only instruments and abstract sounds which for the listener are unconnected to any other sequence of events. Helped using isolating headphones, it becomes the sound of their immediate surroundings, what happens around the participant often appears to synchronise with the music in moments of serendipity. If it can be said that “listening operates on the razor edge between the not yet here and the already gone” (Bennett, 2003), then external timeframes are introduced through explicit textual and acoustic cues in moments where the participant is reading while listening to field recordings.

Chapter Five of the printed text references a series of events taking place at different times over two days, in which the soundtrack of field recordings follows the same sequence. The listening experience for the participant becomes untethered from their immediate surroundings. Previously, temporal references for the music were created by the immediate environment, whereas now the concrete nature of the sounds and events described offers an experience of edited and compressed time. If we are considering the direct experience of the participant within the work as part of its temporal structure, it is necessary to consider this *described* time as parallel to their experienced time. Although it is a recounted narrative common to literary form and documentary film, here the use works differently, as it contributes to the effect of a parallel present. The listener/reader is called upon to shift their frame of attention from “music accompanying me right here right now” to “words on a page from a travel journal accompanied by atmospheric field recordings from a very distant place” – words that are, however, still delivered in his/her immediate present. The shifting frame of attention destabilises the immediacy of the present that the walker experiences.

In addition to these edited, event-based timelines it is important to consider the time presented in the thematic of the work. The effects of the climate change scenarios it presents are the result of expansive timelines, and while both immediate and prescient, they stretch far beyond human lifespans. The shifting of attentional framings demanded by the narrative structure of the work invites reflection on how these longform temporal events effect not only the remote locations, but also the participant's locale, attempting to create a temporal perspective on their experience that reaches beyond the framing arc of the composition.

Ada Smailbegovic specifically calls the Anthropocene a way of framing time, and that if we are to understand it, and to feel its temporality as more than just an abstract theory, then we require "a careful attunement to the variegated kind of change" (Smailbegovic, 2015: 97) that composes it. Smailbegovic identifies that our human *Umwelt* understands only a restricted range of rhythms, and that many of the timescales of the Anthropocene exist outside of these. From the hydraulic slowness of starfish migration to decaying nuclear fuel waste that must be managed far beyond our individual lifespans, this refers to what Morton (2013) would describe as "hyperobjects," things of massive scale beyond our temporal experience. It is this idea that the we will argue the work seeks to embody through its layered timescales, and, as we shall see below, its untethered spatiality. The technique of layering time in this way suggests an ontology that focuses on different timescales within the moment of encounter with the artwork.

Production reflection 2: Composing flexible temporalities

Due to its open nature, a pre-emptive visualisation of the timeline of the experience becomes impossible. The artist never knows how long participants will walk for, or how long they may pause in particular locations or how long it may take them to find the next point on their phone screen, yet all these events are scored. What remains is a structural sequencing akin to the graphic scores of an indeterminate composition by Morton Feldman, John Cage or Edgar Varese, where duration is left open to the performer. Viewing this form of score allows us to see shape but not specified duration of the entire piece (Figure 2). These sections of flux are interspersed with composed sections of fixed duration.

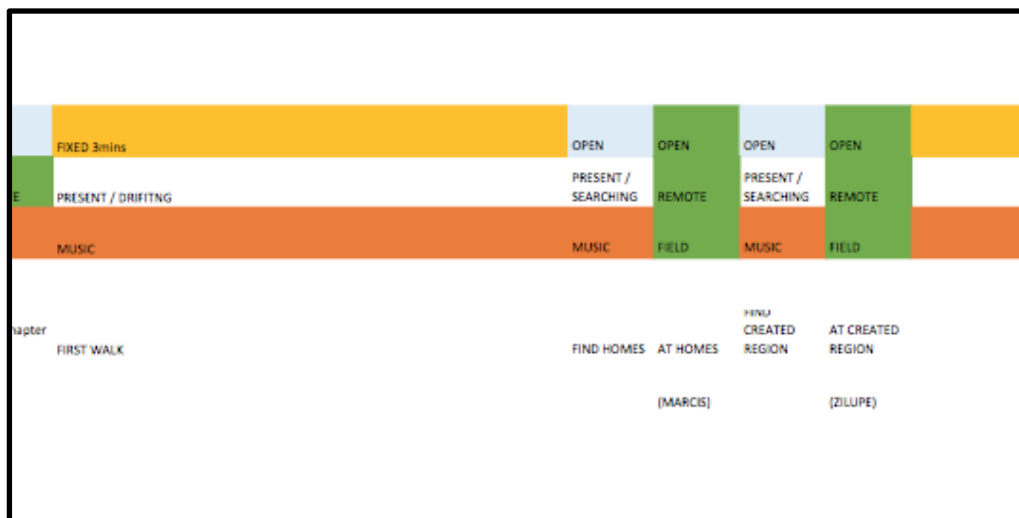


Figure 2: Extract from structural score, showing FIXED (yellow) time periods whose length is determined by audio files, and OPEN sections where participant controls time either walking (in blue) or reading (in green)

Alongside the field recordings, these sections of fixed duration make up two kinds of compositional arc that are used within the piece.

Scripted journeys (across page)

These sections use an edited sequence of field recordings to give an audio narrative to the fluid duration of reading. The *documentary* sound elements such as rainfall, or a prayer call, or shifts in ambience from the street to a café, are matched by descriptions on the page. As the reader becomes aware of their position in the textual timeline being ahead or behind that of the audio, their temporal control of the text is pushed and pulled by the sound. *“I became conscious when I was out of sync with it”* (audience comment).

Known journeys (time and space)

In these sections, the participant is invited to walk for a fixed duration, though they are not informed of the duration in advance. This uncertainty allows for a composition of recorded voice and music that uses repetition, shifting dynamics, tension and release to give the participants’ journey a musical arc with a sense of progression.

“It was setting the rhythm of my walking, it felt propulsive, it gave me a sense of purpose to my walking” (audience comment). It thus entails a period of attentiveness whose temporal structure is entirely framed by *responsive* sound.

Production reflection 3: Mapping and discovering

Although the piece depends on GIS, and, specifically the GPS capability of mobile phones, it actually draws from an aesthetic of spatial ambiguity. Ambiguity is not a mode of experience that one might normally associate or want from computing experiences. Clearly, computers present as rational machines, subject to the laws of maths and physics, and, in truth, we may not want an ambiguous experience when we fire up our email systems or spreadsheets in the morning. However, ambiguity plays a key role in the production of art works. The use of ambiguity in interface design has already been developed as a unique strand of HCI by one of the leading UK experts in mixed reality. For instance, in “Ambiguity as a Resource for Design,” methods are elaborated for producing the effects of ambiguity in order to:

...be intriguing, mysterious, and delightful. By impelling people to interpret situations for themselves, it encourages them to start grappling conceptually with systems and their contexts, and thus to establish deeper and more personal relations with the meanings offered by those systems (Gaver, Beaver and Benford, 2003).

The digital map presented to the participant on the screen of the device has no standard geographic markings, it rather displays a set of specific geo-located points, a representation of the relative distances between them. Each one of these points corresponds to a set of co-ordinates in the physical environment. Where this work differs in regard to many locative mobile audio works is in the methods the location of these “sites” are generated.

The first method is based upon the decision of the participant. Having been given a prompt to seek out a “type” of location, e.g. a residential building or some water, they confirm their choice using the software interface and this location of the “site” is stored. Through this process the audience engages in an analysis of their surroundings, sometimes drawing on their own memories or knowledge of a

location, sometimes exploring routes unknown to them and making decisions based on visual or tactile evidence.

“Does this junction suit my idea of what a junction should be...I had these preconceived notions of where I thought I should go, but the landscape ended up giving me the answer” (audience comment).

At other moments, a site is generated automatically at the current geo-location of the participant, and the audio instruction asks them to stop where they are. These sites are generated based on elapsed time from narrative or musical events in the soundtrack. Distance between points becomes shaped by duration. This method creates a shift for the participant from movement to stasis, and in turn forms an awareness of where they are “going” to where they “are.”

These sites are then used as geo-triggers later in the piece, so that when the participant returns to them audio is automatically triggered.

A third method is also used wherein the software automatically positions a site, its location extrapolated from the participants’ journey so far. For example, at one point a site is created 70m away from the participants’ current position at a bearing 45 degrees from the trajectory between the last two points they selected (Figure 3). The generated position of this site does not take into account the physical properties of the environment, and may as likely be inside a building or in the middle of a river. In these moments, the participants’ route becomes bounded by the material, social and legal barriers that exist in the place they choose they experience the work. The “idealised composite of Google Earth” (Burrington, 2017) is brought into sharp focus when a participant is unable to access digital content because of an actual wall.

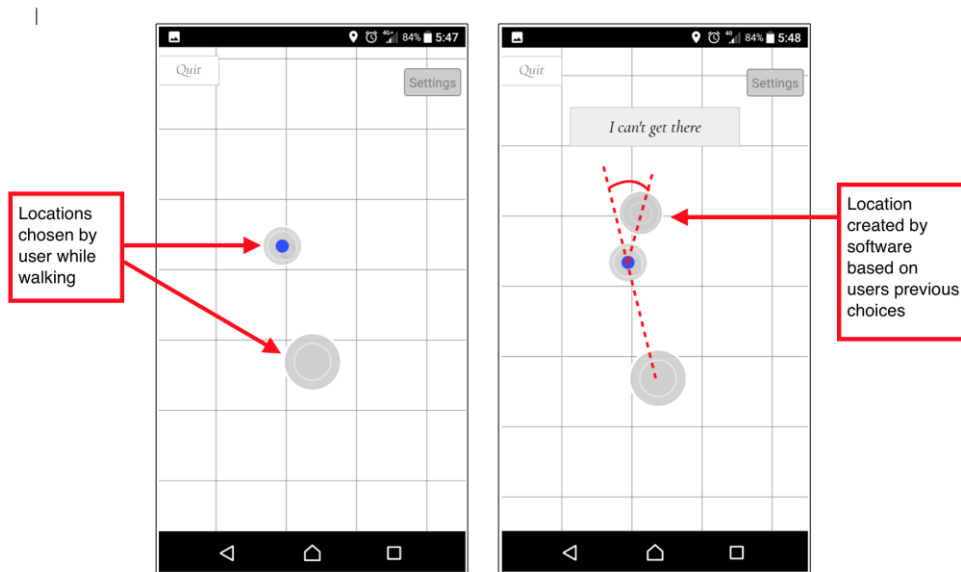


Figure 3: Software method for choosing geolocations based on participant's route.

The map of sites describes a singular route of walkable distance for the participant in their immediate location, but simultaneously it becomes a map of an imagined and impossible geography. Each stored site becomes not just a marker in that place, but the field recordings played at that location make it representative of a remote location. In the narrative, a 3,000-kilometer international journey becomes a 100-meter localised walk, but there is no direct mapping of the global onto the local, as each journey is transposed differently by each participant. To put it another way, the mapping of each site resonates through its materiality, not in accordance with a scaled distance.

As we have identified, the layered timescales of the work already are suggestive of Morton's anthropocenic hyperobject, and if, in addition to this, we consider the locative qualities of the work, a more isomorphic relationship reveals itself. As well as the temporal scale being an identifying feature of hyperobjects, Morton also proposes that hyperobjects are non-localised and distributed. There is no observable site where global warming is to be found; rather, it is phased, meaning that we come into contact with it through specific events such as hurricanes or floods, that it exists on different dimensions temporally and spatially. Can we not then say that the digital content within this work also exists in a dimension other than the one the participant walks through? For instance, when they place a marker and access the relevant layer

of audio content, or when they return to it, they come into contact with the sounds of another place, another timescale. Moreover, in between these moments where the participant comes into phase with the audio layers, we argue that those elements of the work do not cease to exist, but are rather on a different scale to that which the participant can physically experience.

The process through which the walker determines their own route, with their own sites of memory and association, produces not the intended certainty of navigational mapping, but uncertainty, ambiguity and a sense of discovery that in turn produces a strongly individuated experience. In addition, the disregard for relative scale or positioning transmutes the complexity and multiplicity of the other in the climate change crisis into a process for reflecting on the singular present.

Sculpting ephemerality

The structural imperative of the work was inspired by the method of loci proposed by Cicero in *De Oratore* (Yates, 1966). This mnemonic device involves the subject associating items that they wish to remember with discrete loci in a spatial environment they have memorised, such as a building or street. Recollection of items is then aided by visualising a journey through this environment.

The aim was to create a work that documented loss and change around the world by tasking the participant with memorialising stories using a physical version of the above technique described. This was achieved through the participants locating each story on different sites that they choose and then physically visit. What actually occurs over the arc of the piece is a much more entangled merging of site and memory.

In the process of choosing locations and listening to resonant material, the participant is only prompted to remember the physical site so they can return to it later. Though there is no explicit link made in the instructions between the present location and the remote field recordings and text, the presence of the participant is not isolated from any physiological impact of the site or their attempt to commit to memory for route finding. In the second half of the piece, the participant is invited

to retrace their steps, walking back through all the sites that were stored by the software.

“As I was going through each point I was aware of committing it to memory, making sure I knew where landmarks were, when I got to the end I was trying to do a mental journey back, but I couldn’t do it, I couldn’t picture it, that part of my memory wasn’t vivid enough I guess. But as soon as I started walking it’s like you’ve got this sort of bodily memory that just knows where to go” (audience comment).

As they pass the stored sites, the software triggers new audio recordings that often contain interviews with people that had been described in the written text but were previously unheard by the participant. At this stage, a complex layering begins to occur. They simultaneously experience, to varying degrees, a memory of their own presence at each site from a visual and tactile perspective, but sonically they are hearing things that relate to what they “read” at each location. The sound becomes a trigger not for a memory of the previous soundtrack or reading from that place, but for mental images or concepts that they experienced while reading in each location.

When the participant reaches the end of the experience, the stored location data is deleted from the software and they are explicitly notified of this. At this moment, the work shifts into an ephemeral state of existence. The printed material remains but their personal map of locations that connected the remote to the local, and all the related content within it, becomes held only within the memory of that participant.

Conclusion

This work began with a set of technical considerations around the creative handling of time in geospatial art walks together with a concern to address the theme of disappearing places. Whilst the work was produced within a research context, it was more of a commission than a practice-led piece of research in its own right. In other words, it began with a hunch akin to Robert McFarlane’s (2016) suggestion that “old forms of representation are experiencing drastic new pressures and being tasked with daunting new responsibilities.”

Haraway's call (2016: 40) for new kinds of "geostories" looks for post-human stories founded on the relationships between species, geology and chemistry. Whatever else such "geostories" might be, we can be sure that the "daunting new responsibilities" they must bear include producing particular experiences of interconnectedness. An eco-critical, anthropocenic art form calls on us to attend to the complexity of the systems we inhabit and influence. It can be expected to produce tangled tales of rocks, microbes and petro chemicals, of bleached coral survivors, algae blooms and spider extinctions, and of power and resistance.

What's been at stake for us in this discussion is the nature of the attention brought to bear by the work. We must "*attend to*" the complexity of our systemic ontologies. This necessitates a different mode of attending to the world from the traditional subject/object point of view. As Latour argues (2015), Gaia affords no single vantage point, and, as a result, we have been monstrously tricked by the comforting singularity of the point of view produced by NASA's image of our warm blue planet floating in the void. There is no overview for this moment in history, our Anthropocene subjectivities are formed in flights over and through the complex systems that produce us.

This work begins by asking the audience participant to be present in his or her moment, to attend closely to the banal surroundings of the everyday city, to look afresh. It then requires the discovery of particular sites, which in turn produces a kind of loosely framed agency. Each participant transposes the material into their own very particular experience. Stories from the climate crisis are then introduced and layered into the participant's present. These elements are framed and contained by a musical score that provides some more formal aesthetic framing of the experience in terms of rhythm and atmosphere.

In all this walking, reading, attending, listening, marking and locating, the audience participant is shifting through different frames of attention; from right here and now (the smoothness of the bark of this tree that I now touch with my hand) to a forest in Latvia or a bitter plant in Tunisia. The walking, discovery and agency of the interaction design of the piece produces a powerful sense of the present. Of being

present. Yet at the same time the layering and compositional techniques produce a constantly shifting frame of attention between the scales of the very local to the very global, from the instant of the present moment to the time of the sands' encroachment on a Tunisian village. At one point in the journey the narration asks us to imagine the place we are in without people, in a future where there are only plants, animals and broken windowed emptiness on islands of rising water. The scales of time and space that so often make it difficult to understand climate change are brought into sudden and startling focus.

It is precisely the tracing of these multi scalar modes of attention that produces what we might argue is a particular form of anthropocenic affect. If the geostory is one of entanglement of scale, from microbial to hyperobject (Morton, 2013), and from the immediate present to geological time, then to tell it, to understand it, we need to develop forms of attention that afford us the potential to trace networks of entanglements. This mode of attention is not the curiously static subject/object contemplation produced by encountering the scale of ecological disaster, but rather it is an agility to trace the inter connectedness of multi-scalar agents and entities.

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BATTERCTRAX:
Observations of Sensory
Dissonance, ‘Doubling’ and
other Residual Effects of
Geolocative Media

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Abstract

This paper will describe BATTERCTRAX, an experimental geolocative media project undertaken during 2014. It examines the possibility that cinematic media (in this case audio from films) can be repurposed within an immersive, mobile heritage guide. The paper will describe the project in broad terms but will focus on certain unexpected and unusual perceptual effects generated during the test phase of the project. BATTERCTRAX began as an adjunct to a larger academic initiative called *Cinematic Geographies of Battersea: Urban Interface and Site-Specific Spatial Knowledge*, a collaboration between Liverpool, Cambridge and Edinburgh Universities and English Heritage. Amongst many outcomes, *Cinematic Geographies* built a comprehensive database of films shot in the London district of Battersea, which created ways to mobilise historic moving images for the analysis of social and material change in cities. As a tangential outcome of this project, BATTERCTRAX was a mobile phone app that played audio content from feature films, documentaries and TV shows at the places where they were originally recorded. The user would walk through clusters of GPS-enabled geofences in the test zone of Battersea Park, triggering a succession of historic cinematic sounds from across the 20th century. However, by anchoring fictional audio content to the places of their origin, BATTERCTRAX appeared to create a sense of dissonance between sensory stimulants, destabilising a sense of perceptual cohesion in the user. These novel effects lead the researchers to speculate that such technology could not only be used to construct highly immersive, location-based urban experiences, but that it could also trigger psychoactive effects in ways that media developers and users had not anticipated. This paper will propose that geolocative media has the ability to tap into unexplored realms of “collective” cultural memory, but can also elicit unexpected psychological and perceptual responses.

Keywords

Cinematic, Database, Film, Geolocative, Urban

Introduction

The following article describes a geolocative research project undertaken in 2014, created to distribute audio media to mobile device users as they trigger GPS-enabled geofences placed within a test zone in central London.¹ BATTERCTRAX, as the research project became known, can be placed within the field of experimental locative media, but also within a nascent digital curatorial practice which exploits “the convergence of computer data and location using portable media” (Reiser, 2005: 2). It describes the genesis of the project, its production and its testing in the field, but focuses in particular on certain unexpected and unusual perceptual and cognitive effects generated by the technology. The article also situates the project within a speculative avenue of digital media studies, exploring the notion of *media archaeology* (see Huhtamo and Parikka, 2011; Parikka, 2016; Zielinski, 2008, amongst others) as a practical methodology, a praxis by which media is identified, archived, reformatted and redistributed for a new audience. It will also explore the emergence and practical application of *database cinema* (see for example, Alifragkis & Papakonstantinou, 2017; Keiller, 2007; Manovich 1999, 2001; Penz and Koeck, 2017) as a means by which moving images and associated audio media are analysed, edited into discreet packages and stored on a server, then organised according to a set of predetermined categories such as date, director, actors, filming locations and genre. The media can then be identified and retrieved by category.

Detailing what was intended as a proof-of-concept audio heritage guide, the article begins by contextualising the BATTERCTRAX smartphone app as an experimental adjunct to a larger academic pilot project called *Cinematic Geographies of Battersea: Urban interface and site specific spatial knowledge* (Liverpool, Cambridge, Edinburgh universities, and English Heritage, 2012-14).² The main objective of this 18-month pilot project was to find new ways of mobilising historic moving images (feature films, documentaries and TV shows) as evidence for research in urban studies. Here, I examine the notion of media archaeology and database cinema as a way to demonstrate the methods by which moving images and audio were remediated and redistributed by the *Cinematic Geographies* project. The article focuses on how BATTERCTRAX emerged from the *Cinematic Geographies* project as a way of exploring experimental methods of media distribution, particularly from the

extensive database of the mother project. Moving on to the development of BATTERCTRAX, the next section describes the technology used to “virtually” place audio media (in this case, audio extracts from feature films, documentaries and field recordings) around Battersea Park using overlapping geofences, and how the user’s experience is dependent on a smartphone app, a continuous GPS link, and connection to a mobile telecom network. While location-aware heritage guides are increasingly common in urban settings, BATTERCTRAX was developed to test new technologies that would help users explore the cinematic history of Battersea Park and the surrounding area, but was defined by experimental curatorial methods, extensive research of film locations, and the serendipitous potential of sonic collage. The resulting experience is a flow of overlapping audio tracks, triggered as the user enters a succession of geofences around the park, creating a collage of “spatialized fictions”. As such, this section of the article will position BATTERCTRAX within the field of sound geographies, soundscapes and digital sonic design. It then describes the observations and unexpected experiences of five test subjects as they use the app to explore the Battersea Park test area. The author’s own extensive testing and observations of using the app in situ will provide the basis for a speculative examination of locative technology and its indefinite influence on perception.

The section Media Memories of Place further explores media archaeology and database cinema as the operative principles for the practical dissemination of audio by BATTERCTRAX, and identifies “collage” as the method by which the app presents media to the user. This section will also seek to contextualize the app within the discourse of digital technology and its relationship to human memory. Here, collage can be understood as the mode by which “place-based memory” is accessed, accompanied by what can only be described as a sense of the *uncanny*. In the final section, Uncanny Media and Residual Effects, the recent resurgent interest in the concept of the uncanny becomes a useful point of departure for a speculative interpretation of unusual cognitive states and effects generated by locative digital media. Here, *hauntology* will be discussed as a recent permutation or extension of the uncanny in media discourse, and will also serve to elucidate BATTERCTRAX’s test subject responses to audio media. This section attempts to distinguish between the unusual perceptual and cognitive effects generated within the user experience of

BATTERCTRAX in relation to other location-based and virtual reality experiences. It will explore the possibility that such technologies can induce a variety of subtle altered states which may continue even after the user has stopped using the technology.

Before describing these effects in the following text, a clarification of the essay title may be useful: here the key term “dissonance” can be understood as the consequence of a momentary or prolonged de-synchronising of the senses, where the user’s visual reference points do not quite match the sounds they are hearing through their earphones. For example, the user might be using the app and watching a tennis match in the park but the sound of ball-hitting-racket is de-synchronized from the visible action. Another example might be hearing a bicycle pass very close by, but the nearest visible bicycles might, in fact, be some distance away. These unsettling effects, while not always repeatable, are also referred to as “doubling,” inferring a presence which is disconnected from its material source. However, the “residual effects” referred to in the title, are harder to classify: they include a continuation of the doubling effects even after the user has ceased using the app. While clearly the consequence of geolocative technology used in situ, the doubling effects nevertheless provoke questions regarding the future of such technologies and their potential to disrupt the senses in unpredictable and perhaps undesirable ways. In seeking to interpret these effects, the following text will, to borrow from Parikka (2016), explore “new technological, urban environments acting as conduits for altering structures of perception, experiences of temporality and memory” (7).

Because of the constraints of copyright law, BATTERCTRAX is not available for public distribution, and in situ testing of the app was limited to five volunteer subjects via the Test Flight beta testing app. However, their experiences of using the app (and indeed, the author’s own experiences during and after the development phase of the project), were so compelling that they warrant further analysis and interpretation. The purpose of this article then is to evaluate the test subjects’ observations, and the author’s experience of developing and testing the app. With this in mind, the article takes the opportunity to address the unexpected outcomes of

BATTERCTRAX, and in doing so aims to contribute to the emerging debates on immersive, geolocate media and social memory.

Cinematic Geographies

The story begins in 2012 during work on *Cinematic Geographies of Battersea: Urban interface and site specific spatial knowledge*, a pilot collaboration between Liverpool, Cambridge and Edinburgh universities, and English Heritage. The aim of the project was to find ways of mobilising films and moving images as evidence for researching social and material change in cities. We sought to find more effective ways of using film to study the changing “soft city” of communities and social relations, and the evolution of the architectural “hard city” (Raban, 1974). The *Cinematic Geographies* project can be placed within an emerging field which fuses urban and architectural studies, and film studies. It endeavours to interpret the structural composition of cities and the urban experience through the analysis of film. It also seeks to examine the distribution and impact of moving images within cities as ubiquitous advertising and screen surfaces become a defining feature of contemporary urban life. For a comprehensive genealogy of this emerging field, see Penz and Koeck (2017).

Most relevant for this article is work undertaken by Koeck (2012) and Koeck and Roberts (2011), which relates to the quantitative analysis of film and moving images.³ Significantly, it was through this work, and the work of Hallam and Roberts (2011), Misek (2012), and Caquard and Taylor (2009) amongst others, that the concept of “cinematic cartographies” emerged – the mapping of shooting locations to study the spatial dimensions of film. As Hallam and Roberts (2011) suggest,

The multilayered and dynamic model of urban space represented by GIS-based [Geographic Information Systems] cinematic cartography allows renewed reflections on the role and place of moving image cultures in the production of everyday social spaces (369).

From this foundation, the *Cinematic Geographies* project began with the assertion that film, because of its rapidly shifting content and lengthy duration, was a woefully underused resource in geographical and urban analyses. Instead, could the massive wealth of TV shows, feature films and documentaries languishing in archives around

the country, be unlocked and used as a tool to reveal social and structural changes in the city? We believed that if we could find ways of taking films apart and storing each scene by geographical location in a database, we could then more effectively compare visual evidence from different times over the course of the 20th century. Drawing on publicly accessible film archives (a number of which had already usefully tagged their entries with filming locations), *Cinematic Geographies* began by compiling a master database of films shot entirely, or in part, within the municipal district of Battersea in London. Expecting 40 or 50 films, the project actually uncovered nearly 600 films, TV shows, documentaries shot in the area, swamping the researchers with moving image material and metadata. Each film was then watched, and any relevant scenes of Battersea were then identified and extracted, tagged and located on a searchable online map. Then, by clicking on one of numerous place-markers, it was possible to retrieve film scenes which were shot on that particular location. In this way, an historical stratum of visual evidence could be accessed at the click of a button.

This method of organising a database of film scenes by their geographical location constituted a practical form of *media archaeology*. Here, seemingly disparate content on obsolete formats is retrieved from the deepening strata of cultural production and reordered using metadata attributed to each media file. It is a form of remediation in which images on recording formats such as nitrate film, cellulose acetate, magnetic tape and DVDs find “an afterlife in new contexts, new hands, new screens and machines” (Parikka, 2013: 3). However, here is a form of remediation which is defined by the geographical origins of the media’s subject – the place which the media represents and/or where it was recorded.

The *Cinematic Geographies* project demonstrated how digital technologies could develop new methods for identifying and mining lost media, and creating new channels for its redistribution. However, throughout the project, we knew that our publicly accessible outputs (apps, websites, conference papers, visualisations etc.) would be significantly constrained by copyright law, which requires permission to use certain media, and fees to be paid to the copyright holders (usually major studios or media corporations). We worked around copyright laws as best we could, using out-of-copyright material and very short scenes within the parameters of “fair use”, and

by transposing educational commentaries over moving image material. While these solutions solved our immediate issue with copyright and the public distribution of our outputs, they also highlighted how an effective remediation of moving images would be limited not by technology but by the laws protecting the distribution of images or the prohibitive costs of purchasing the rights to use such media.

By the end of the *Cinematic Geographies* project, a series of methods had been developed to make the database searchable, mobile and accessible to the general public and to academic researchers alike (Penz and Koeck, 2017). Amongst these methods, a mobile app called *Ghost Cinemas* was developed which allowed the user to view moving image content at the locations where they were originally filmed: once a geofence had been triggered, the user was presented with several film clips showing the location at different points in time. While the *Ghost Cinemas* app has been addressed at length elsewhere (Speed, Thomas and Barker, 2017), such technology seemed to promise new avenues of dissemination and pose some intriguing questions regarding geolocative technology and public access to media databases. To explore the full potential of these technologies, we decided to conduct an experimental project that would *not* be accessible to the public and would, therefore, be unconstrained by the laws prohibiting the use and distribution of media. This experimental project became the BATTERCTRAX mobile app.

BATTERCTRAX: Mobile Access to Urban Audio Archives

Buoyed by the potential of mobile geolocation software and the large media resource made accessible by the *Cinematic Geographies* database, we then gave ourselves license to experiment with emerging locative technologies and the expedience of the smartphone app. We wanted to see if it was possible to “curate” the distribution of media more precisely across a specific geographical area, and like the *Ghost Cinema* app described above, we wanted to re-establish the link between the media and the place where it was generated. Working with technologist and academic Alex Butterworth and his media company Amblr, we began to explore novel ways of engaging with place, ones mediated by cinematic *sound* rather than images, and *walking* as a mode of engagement. There were a number of reasons for focusing on sound from moving images rather than the images themselves. First, the *Cinematic*

Geographies project had concentrated almost exclusively on the visual dimensions of film and its relation to place and geographical locations, which also meant a concentrated, ongoing engagement with smartphone, tablet and PC screens. Therefore, the project team wanted to explore the possibility of engaging with filmic history and project data without constant reference to screens, and employ a locative technology “where the auditory can finally stand on an equal footing with the visual” (Rieser, 2005: 15). Second, the *Cinematic Geographies* project group wanted to address the importance of filmic *sound* and its link to place through location recordings – after all, sound recordings in films offer a unique body of evidence for research into urban change. We began testing mobile technologies that could “return” audio from feature films, TV shows and documentaries to their point of origin, to the place where they were recorded. Not only did this process seem like an innovative way of bringing historical evidence into the public domain, but it also seemed like a novel way of exploring the practical, real-world applications of our database, and perhaps advancing the concept of database cinema itself.

We were encouraged by recent developments in soundscape studies, geographies of sound, and arts practices concerning the “design” of urban soundscapes (Bijsterveld, 2013; Labelle, 2010; Sterne et al, 2012). Other contemporaneous projects which emphasised audio distribution and mobile technologies have since been summarised in *Audio Mobilities*, a special issue of *Wi: The Journal of Mobile Media* (2015).⁴ We were also encouraged by the notion of “placed sounds” and sonic interaction design within the context of emerging locative mobile technologies where “the distribution of sound in space is pre-curated, and users create their own version or remix of the service by choosing their path through the sounds” (Behrendt, 2012: 286).

Additionally, we were very conscious that our technology used computer code to actualise and define invisible parameters of spaces: like civilian and military airspaces which regulate the air traffic above us, geofences exist as paradoxical *code spaces* (Kitchin and Dodge, 2007; 2011), which do not, in any material sense of the word, exist at all. And yet, they define movement and mobility around the planet in ways that would have been inconceivable a century ago. The invisible parameters of

locative media are code spaces at the local scale, defining navigation, entertainment and commerce for individuals at street level.

Within this context, we asked the following questions: could the BATTERCTRAX app productively explore the cultural history of place through the creative application of sounds from films? Could the app deploy media from the *Cinematic Geographies* database to create a “cinematic soundscape” of Battersea? To answer these questions, we needed to methodically study the geographical distribution of film locations across the Battersea area. Filmic heritage invisibly saturates the district of Battersea, but to unlock these cultural artefacts first required us to return to the database outlined above and determine which areas of Battersea had high densities of historic filming locations. We identified Battersea Park as a suitable site for an experimental geolocative sound project.

Perhaps because of its proximity to the iconic Battersea Power Station – with its four distinct chimneys defining the south London skyline – Battersea Park has a rich cinematic history. The park has been used throughout the twentieth century as a location for films such as *The Day the Earth Caught Fire* (1961), *Brannigan* (1975), *All the Right Noises* (1971), *The Mutations* (1974), *The File of the Golden Goose* (1969), *Plenty* (1985), *Journey into the Unknown* (1969) and many other feature films, news reels and documentaries. Within each of these films, it was possible to isolate scenes shot in Battersea Park and identify their exact location. For instance, in *All the Right Noises*, the two principal characters briefly walk by the boating lake in the park, intimately discussing the future of their doomed love affair. Similarly, in the *Day the Earth Caught Fire*, the two main characters are stood in the park on the edge of the River Thames witnessing the sudden appearance of a thick bank of fog as it engulfs the river and parts of the city. After identifying dozens of such scenes set in the park and plotting the parameters of their locations, it was then possible to separate the audio (dialogue, music, background sounds etc.) from each media file. We then used authoring software provided by Butterworth and Amblr to fix radial geofences to the locations where each scene took place. Next, we attributed media sound files to each geofence, so that audio could be unlocked on the user’s smartphone app whenever a user walks into any of the invisible GPS trigger zones. After several days of iterative testing, we were able to position over one hundred geofences and audio files around

the park, refining their sizes and distribution as we worked. Even in these early stages of the research process, it became clear that something unusual was happening. A walk in the park while using the app became infused with fictional encounters: invisible characters whispered to each other as you pass where the scene originally took place, crowds of children cry in delight at the site of a funfair (since raised to the ground over four decades ago), and earnest British actors solemnly discuss the shifting of the earth's axis and the end of human civilisation. As the user traverses multiple, layered geofences, streams of dislocated sounds blend into each other, a collage of fictional fragments lingering at the sites of their derivation. In this way the author, Butterworth and Amblr developed a form of "sonic interaction design," creating an interactive loop between audio content, environment and user (Berendt, 2015). We believe we succeeded in creating a proof-of concept "cinematic soundscape" of Battersea Park triggered by the user's movement around the park, drawing on a location-centric database of moving image media. If the act of researching and identifying material for the database constituted a practical form of media archaeology, then the act of deploying that media could potentially reveal a unique cultural history of the area.

The priority for BATTERCTRAX was to create a proof-of-concept app which develops new methods for distributing media from a database to users in specific locations. While there was never any expectation to test a beta version with a larger group of test subjects, the early accomplishments of the projects and the occurrence of certain unexpected perceptual effects generated by the app, prompted the researchers to convene a test user group drawn from the extended *Cinematic Geographies* project. Five test subjects were given mobile phones pre-loaded with the BATTERCTRAX app and asked to simply walk around the park and return at a pre-arranged time. The test subjects were then interviewed in situ about their initial observations and experiences. While each subject took a different route around the park (and therefore triggered a different sequence of audio files), all reported that they were successfully hearing a mixture of audio from films, pre-recorded field recordings of the park, and ambient sound beds filling the gaps between "placed sounds." Some users expressed surprise and delight at hearing fictional scenarios from films and TV shows which somehow seemed to be linked to the place where

they were standing. While this apparent paradox can be understood by those with an understanding of the technology employed to create the effect, it did seem to provoke a startled response in some users. However, while these observations might constitute a successful outcome for the test, all test users described certain unusual and unexpected effects when using the app: some claimed at times to find it difficult to distinguish between real sounds and pre-recorded “placed” sounds. This led to some users momentarily removing their headphones to determine the authenticity or origin of particular sounds. This temporary inability to distinguish between real and pre-recorded sounds, or real and fictional scenarios, was a puzzling outcome, and one of a number of unexpected effects encountered during the development stage of the app. Encouraged and puzzled by the test user observations, the author continued to refine BATTERCTRAX in situ, using the authoring software to place new sounds and move others, and embarked on a further two days testing of the app. The remaining text is a collection of observations and analyses of testing alone “in the field.”

As characters, genres and meanings merge into one another, the effect is disarming – a *mélange* of cultural fragments linked to real places, and some that no longer exist. As with much smartphone activity, the user becomes a nexus of “socio-spatio-technical relations” (Leszczynski, 2015: 732), a point of convergence for geolocation satellite transmissions (GPS), developer software and mass-produced hardware (smartphone), within real world spaces. However, with BATTERCTRAX, the user re-establishes links between narrative audio fragments and real-world places, and is generating meanings from those connections. The collage effect is reinforced by the different genres of film audio, from detective and horror scenarios, to upbeat British newsreels and *kitchen sink* dramas. However, it became clear that the effectiveness of the experience was sometimes undermined by large gaps of silence between clusters of geofences. To preserve a sense of continuity, it was therefore necessary to create more beds of sound to bridge the short distances of silence. The content of the sound beds took two forms: ambient, subtly shifting tones which continue the audio experience without distracting the user; and field recordings of the park taken at various point where the users might be walking. In fact, the latter was necessary to preserve the everyday sounds of the park, which would otherwise be eliminated by the noise cancellation earbuds and headphones predominantly worn by smartphone

users. With these additional sounds in place, it was possible to walk seamlessly between clusters of film audio. However, the combined effect of audio from films, ambient sound beds and field recording of the park continued to create a series of unusual and disquieting effects which demand further examination. The following sections will attempt to interpret these and other “uncanny” side-effects of geolocate technology, as fragments of film culture and real places converge and coalesce within the user.

Media Memories of Place

Increasingly, individuals gather and store digital traces of their daily activities, as photos, training routes, recordings or purchase data. Indeed, according to Frith and Kalin, “[m]any individuals are using mobile media to mobilize place and memory together to create new forms of digital network memory from which they may begin to remember their pasts and to write their histories” (2015: 5). With this in mind, it seems clear that just as books and analogue recording devices were used to record “memories,” now digital platforms are being used to record, store and retrieve the traces of our everyday activities. However, at the risk of stating the obvious, these digital accounts of daily events (exteriorized as packets of digital media), are not in any true sense “memories” (which, as we know, are mental recollections generated by cognitive functions of the brain). And yet these digital processes mirror the functioning of the brain (record, store, retrieve) on a vastly larger scale, incorporating huge networks of individuals. Frith and Kalin’s study of “place-based memory” refers to personal digital archiving within the context of social media, automatic email and cloud-based data storage, and how such data can be recalled and reflexively “reconstruct [the user’s] ongoing present sense of identity” (44). By contrast, BATTERCTRAX was an attempt to mobilise cultural artefacts created by studios and film crews before the digital age, but which were subsequently digitised and stored by the *Cinematic Geographies* project. With BATTERCTRAX, the ambulant user experiences a park augmented by fragments of fictional conversations and cultural echoes from past films and TV shows; media retrieved from obscurity in public archives and activated by their proximity to a geographic coordinate, the place of their origin. These subtle interjections of sound into the spaces of everyday life, detached as they are from their moving image source, create an uncanny and

unnerving presence according to some test users, effects which belie the systematic methodology of the *Cinematic Geographies* project and its attempt to quantify moving images by geographical coordinates in a database. This discrepancy seems to suggest that database cinema could have unpredictable outcomes, as with recent examples of geolocative mobile software leading users into unexpected places and sometimes compromising their safety.⁵ The logic by which BATTERCTRAX summons and distributes audio packets across space is determined not by chance or aesthetics, but by the locational imperatives of the database: the sounds are simply placed where they were originally recorded. The effect of this logical distribution, in fact, resembles the technique of *collage*, where stylistically diverse components are brought together in a single assemblage. Collage, however, carries the subversive potential to slice and reorder meaning: as Manovich (2001) says of Vertov's "database imagination," it is an attempt to "discover the hidden order of the world...a struggle to reveal (social) structure among the multitude of observed phenomena" (207, 208).

Moving around the park, test users described feelings of recognition and uncertainty as they attempt to identify characters and sounds within the collage of audio fragments, and the eras in which they were set. However, some test users, including the author, recognised that some fictionalised dialogue and documentary sounds are uncannily and convincingly present in "real space," as if they were generated by events happening around them, in the present. To offer a hypothesis for this unusual effect, much of the historic audio shares the same spatio-acoustic presence of the actual places. This means that that more often than not, the audio was originally recorded live in situ, with the actors performing in roughly the same location as the app user, only years earlier. The actors have long gone but their performances somehow remain, perhaps only as memories of place.

While Frith and Kalin's (2015) notion of "place-based memory" reflects on the personal value of user-generated media and data, BATTERCTRAX draws from a database of pre-made historical media artefacts triggered and released by the user's mobility. The fact that these fictional interjections resemble memories is disquieting: there is an uncanny sense that the user is experiencing memories, *but not their own*. The place itself is triggering audio emissions, representations of events from its own past. This conceit is echoed by Ravetto-Biagioli, who suggests that,

Technology is now standing in for memory, consciousness and experience, feeding it back to us in the form of an uncanny effect. Technologies exteriorize our memories (in the form of a database or archive), offering us ‘tertiary memory’ (a secondary or non-lived memory) and image consciousness (a consciousness that does not derive from embodied perception) (Ravetto-Biagioli, 2016: 14).

However, while users felt able to distinguish between experiences augmented by technology and those generated by their own consciousness, the uncanny effects suggest an uncertainty which strips “the body of its positioning as a locus of sensation, perception and recollection, which in turn strips thought of its presuppositions” (Ravetto-Biagioli, 2016: 20). The following section will examine these and other destabilising effects in detail, including those which continue even when the user *stops* using the app.

Uncanny Media and Residual Effects

BATERCTRAX began as a project to explore new avenues of media distribution by attempting to attach audio from films, TV show and documentaries to the locations where they were originally recorded. In achieving this aim, albeit within the parameters of an experimental pilot project, the researchers became increasingly aware of certain unexpected effects generated during the user experience. This section will attempt to distinguish between these effects and interpret them within the context of other locative sound art projects, and research within audio geographies and sound studies.

As described in the previous section, while wearing earphones and using BATERCTRAX around Battersea Park, users sometimes found it difficult to distinguish between sounds triggered by geofences and those generated by real events taking place around the user. This is particularly true of field recordings made in situ by the author and Butterworth to bridge the gap between archival media files. Test users claim that they sometimes had to remove their earbuds in order to tell whether a conversation or voice was real or not, and in some cases users leapt out of

the way to avoid phantom bicycles and cars, when in fact they were hearing “placed sounds.” This effect has also been observed by Michael Gallagher during the testing of the sound work, *Kilmabew Audio Drift No. 1*, in which he describes a sense of “doubling”, in which:

we may hear, for example, what sounds like a woodland in springtime through the headphones, but other cues – both sounds from outside the headphones and other sensory perceptions – tell us that we are in a woodland in winter. This doubling creates an excess of meaning, less a representation of springtime than an uncanny sense of the two seasons merging (Gallagher, 2014: 479).

Kittler (1997) reminds us that the notion of “the double” is a recurring motif in romantic literature and film, and is a key characteristic of the uncanny. However, he also suggests that it emerges from the medium itself, as a writing-effect: “[T]he double turns up at the writing desk...it can hardly be more clearly stated that the Double of classical Romanticism essentially emerges from books” (88-89). By extension, the medium of film “is in its essence a world of doubles” (Royle, 2003: 78). If we accept that each new medium generated its own doubling motifs, its own uncanny effects, as unexpected vents for the unconscious, then it follows that audio locative technologies may similarly duplicate or re-present versions of the world, stimulating users in surprising and unpredictable ways. Gallagher is one of the few researchers to observe and engage with the psychological and potentially traumatic effect of locative sound art, where the possibilities for “dream-like, hallucinatory and uncanny affects” are very real and potentially dangerous, leading users into uncertain territories (2014: 480). Like *Kilmabew Audio Drift No. 1*, BATTERCTRAX has the semblance of certain other cultural projects gathered under the rubric of *hauntology* which repurposes media from the past or imitates the stylistic tropes of 1960s and ’70s culture to interrogate the apparent failures of the present. The collage of audio activated by BATTERCTRAX may well induce unexpected effects, including a nostalgia for “lost futures” (Fisher, 2014: 41), as sounds from the 1951 *Festival of Britain* collide with sci-fi films such as *Mutations* and *The Day the Earth Caught fire*, but such responses are entirely subjective. Indeed, Gallagher remarks that perhaps the value of such technology lies in its ability to resist such forms of evaluation, by

“loosening the grip of fixed representations, and counteracting the stultifying politics of detached objectivity that still surrounds much academic research” (2014: 480). In referencing doubling, the uncanny and hauntology, there is an attempt here to understand certain unusual effects through the lens of accepted cultural tropes. However, it would seem almost impossible to qualify the spectrum of uncanny, spectral and affective states generated by such new technologies without recourse to more rigorous testing and evaluation in the field. Observations of doubling and dissonance in BATTERCTRAX, between real and unreal events, support Rieser’s (2005) observation that the “active participant [of locative media and spatial narratives] appears in a liminal state between worlds, whose attention moves between absorption in diegesis, the intrusive ‘real’ and the ambient physicality of the environment” (2).

More curiously, when the users removed their earbuds and ended the BATTERCTRAX trial, some retained a residual sense of still being in the experience, where they continued to question what sounds were “real” and what were not. The experience had finished and yet there was a heightened sense of “unreality,” an altered state or a side effect in which real sounds and conversations seemed to be part of a synthetic or augmented experience. This curious and compelling effect was also observed by the author on multiple occasions during solo testing in Battersea Park. Snatches of everyday conversations heard in the bustle of the park, cries of circling gulls and distant traffic, all seemed to be part of a structured collage of sounds, juxtaposed in a premeditated way – a continuation of a curated experience that had since ended. Could such technology indirectly act as a form of psychoactive stimulation, altering the perception and cognitive state of the user?

Without further trials or tests, it is very difficult to assess the degree to which geolocate sonic experiences can affect the user’s ontological state or psychological disposition. However, manufacturers of virtual reality headsets such as Oculus VR, acknowledge that using their technology can produce a variety of alarming “post-use symptoms”, including nausea, seizures, loss of awareness and disorientation.⁶ While the numerous negative effects listed in the small print of the *Oculus Rift Health and Safety Manual* may be litigious base-covering, they do suggest that VR and augmented

reality could stimulate a myriad of subtle physiological conditions which may continue after use. The innumerable studies of so-called “cybersickness” and Virtual Reality-Induced Symptoms and Effects (VRISE) (see for example Rebenitsch and Owen, 2016; Lavelle, 2016), and the apparent benefits of such technologies in the clinical and therapeutic disciplines (Aiken and Berry, 2015; Riva and Raspelli et al, 2010), do not address geolocative media technologies which tend to be less immersive. Perhaps for this reason, there seems to be far less research on the physiological and psychoactive impact of location-responsive audio technologies.

The geolocative audio projects described above, including BATTERCTRAX, are not visually and physically immersive in the manner of VR, but they nevertheless influence and affect the individual user in subtle but unexpected ways. Only further testing of such technologies will determine if these post-use, residual effects are significant and if they do indeed compromise the user’s ability to distinguish between real and synthetic phenomena.

Conclusion

BATTERCTRAX was a small trial of locative media technology, where the smartphone user could walk amongst clusters of geofences in Battersea Park, activating audio files and hearing them through earbuds or headphones. In this way, the app had the ambition of distributing or returning audio from films, TV shows and documentaries to the places where they were originally recorded. It was an attempt to explore technologies that could establish links between people and the communities, and the cinematic heritage of their communities, and to understand the impact of place and space on film. Fictionalised dialogue, ambient tracks and field recordings blended into a collage of unrelated sounds (united only by their association with the location), which the user could activate by freely moving around the park. In this way, the project also acted as a way of activating a cultural *memory of place*, as a site of historic cultural production and dynamic social forces. However, the act of re-establishing the link between film and place led to unexpected and uncanny effects. At times, members of the test user group could not distinguish between real sounds and those that were generated by the app. Furthermore, for a few minutes after using the app, some users claimed to be experiencing a continued sense of unreality in which some real sounds presented themselves as auditory hallucinations.

While these kinds of unexpected residual effects are being observed in others forms of commercial media applications, the psychological implications are little understood. We may choose to interpret such dissonance or doubling effects through the lens of the *uncanny*, but we have yet to understand or anticipate how locative technologies will destabilise our sense of being in the world. We increasingly inhabit spaces augmented by location-responsive media, but we do so without acknowledging the ontological ambiguities that such spaces engender. Media that subtly appeals to our specific place in the world could undermine the integrity of that place, offering hallucinations, altered states and uncertainty in place of reality.

The invisible parameters of location-responsive media (and the unpredictable effects they may trigger) are still somewhere beyond our critical understanding. Without further independent empirical studies, we may become victims of ontological ambiguities and spatial paradoxes, where memories and sensory effects are instilled in us by places and products, and our sense of individual agency slowly slips away from us.

If the *Cinematic Geographies of Battersea* project developed new methods for mobilising films and moving images for future research, then BATTERCTRAX inadvertently posed a number of disquieting questions about our future interface with space and technology.

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Notes

- ¹ A geofence is a virtual boundary which defines a real-world geographical area. Such boundaries can either be radial - emanating from a single geographic coordinate, or polygonal - defined by multiple geographical coordinates. The limits of such boundaries can be programmed into an app on a mobile device with GPS capabilities, which then alerts the user when they enter the pre-defined zone. Geofencing is now commonplace in many location-aware mobile apps, alerting users to the presence of relevant services or activities nearby.
- ² *Cinematic Geographies of Battersea: Urban interface and site specific spatial knowledge*, was an 18 month-long (including 6 month follow-on funding) pilot project funded by the British Arts and Humanities Research Council (AHRC). It was led by Prof François Penz (Cambridge University, Department of Architecture and Moving Image), with co-investigators Prof Richard Koeck (Liverpool University, School of Architecture), Prof Chris Speed (Edinburgh University, Design Informatics), Aileen Reid (English Heritage, Survey of London), with Research Associates Chris Barker (Edinburgh University), Dr Matthew Flintham (Liverpool University, School of Architecture), and Maureen Thomas (Cambridge University, Department of Architecture). AHRC project reference: AH/I022252/1. See Research Council UK website for more information: <http://gtr.rcuk.ac.uk/projects?ref=AH%2FI022252%2F1>
- ³ As in the emerging field of *cinematics*, which measures and categorizes narrative or aesthetic elements of films into units of time, a *quantitative* analysis of film might include a statistical breakdown of narrative, aesthetic, chromatic or geographic elements of moving image media. Such analyses might require the diligent and time consuming measurement of shot lengths, (for example, Salt, 1976; 2016), and others propose computational or automated methods for extracting data from films (for example, Adams, Dorai and Venkatesh, 2000; Manovich, 2013; Tsivian, 2005).
- ⁴ See also Drew Hemment's essay *Locative Arts* for a comprehensive summary of 'early' locative and sonic arts projects: http://locative.articulate.net/wp-content/uploads/2013/06/Hemment_Locativearts.pdf
- ⁵ There are innumerable examples of SATNAV software leading drivers into impassable and dangerous locations, and many examples of *Pokémon Go* compromising public/user safety: <http://www.ibtimes.co.in/pokemon-go-release-date-india-ar-game-likely-be-banned-over-safety-concerns-693814>
- ⁶ Just as with the symptoms people can experience after they disembark a cruise ship, symptoms of virtual reality exposure can persist and become more apparent hours after use. These post-use symptoms can include the symptoms above [seizures; loss of awareness; eye strain; eye or muscle twitching; involuntary movements; altered, blurred, or double vision or other visual abnormalities; dizziness; disorientation; impaired balance; impaired hand-eye coordination; excessive sweating; increased salivation; nausea; lightheadedness; discomfort or pain in the head or eyes; drowsiness; fatigue; or any symptoms similar to motion sickness], as well as excessive drowsiness and decreased ability to multi-task. These symptoms may put you at an increased risk of injury when engaging in normal activities in the real world (Oculus Rift, *Health and Safety Warnings* booklet).

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Between Landscape and the Screen: Locative Media, Transitive Reading, and Environmental Storytelling

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Abstract

In what ways can the everyday citizen encourage sustainability and promote biodiversity in spaces that are as fragmented, industrial, and toxic as the city? This paper investigates how GPS-enabled platforms afford user experiences of what we call “embodied knowing” – learning through encounter, awareness through physicality – in urban wilds, which represent informal greenspaces on the edges of urban development. The locative mobile application that we have produced, *Global Urban Wilds*, complicates notions of time, space, and preservation in ruderal landscapes that survive in city spaces, demonstrating that they come into tension with layers of biodiversity, technological development, and settler culture in urban contexts such as Montréal, Canada. As such, we show how the app’s mediation of these layers through a method of transitive reading promotes a user’s critical negotiation and awareness of urban ecosystems in relation to today’s “smart” city.

Keywords

Locative media, urban wilds, environmental storytelling, transitive reading, smart cities

Introduction

This paper investigates the affordances of locative media platforms for engaging citizen publics in issues of urban biodiversity, climate change, and settler culture, and

theorizes the pedagogical possibilities of embodied knowing. We introduce the *Global Urban Wilds (GUW)* locative media application and explore its reliance on transitive-reading practices for engaging users in environmental place-making. We reflect on how our GPS-enabled locative platform leverages the tension between the material and embodied experience of a local urban wild – the Champ des Possibles – and the story of the emergence of this greenspace in the evolution of the neighbourhood.

We make the following observations of the *GUW*'s mode of encouraging site-specific transitive reading as it emerges between spaces: First, we reflect on how the platform can be used to foreground the character of urban wilds – abandoned spaces in cities where foreign and native plant species thrive in conditions characterized by disturbed and degraded soil, toxicity, and heat – and the way this can serve as a vital resource for studying urban ecology, resilience, sustainability, and urban-based responses to climate change. Second, we explain how the design of this site-specific locative narrative works to complicate romantic ideas of retreat associated with greenspaces in urban contexts, and highlight how they are instead living archives of both settler and Indigenous environmental history. Third, we consider how the mediation of the users' experience of the urban wild, via locative media with its origins in digital culture and post-industrial information society, highlights affinities and contractions between notions of media ecology and urban ecology in the place-making goals of the app.

Finally, we reflect on how the experience of interacting among layers of text and real space – what Andrew Piper calls “transitive” reading (2012: 123) – allows for the emergence of new forms of reading, and of a knowledge that we describe as embodied. The “transitive properties of urban experience” (Piper, 2012: 127), where spaces take on layers of meaning through their histories, communities, and uses, necessitates a kind of reading that can move among such stratum and foster a deeper understanding of place-making. By exploiting the transitive reading practices and “digital doubling of place” that locative media affords (Moores, 2012: 13), we argue that *GUW* encourages the user to “actively form complex narrative links” (Greenspan, 2011) between landscape and the screen, the environment and its historicity, and their own embodied implication in this story.

The Champ des Possibles as a space of translation

The Champ des Possibles is an ideal setting from which to explore the affordances of a site-specific locative narrative concerned with the complex interaction between nature and culture in the environment. Framed by sixties-era industrial buildings that once housed the city's garment industry, the Canadian Pacific (CP) Railway tracks, and the walled garden of le Monastère des Carmélites of the Plateau-Mont-Royal of Montréal, the Champ was designated as a protected parkland in 2009, the result of a community-led movement to retain it as an informal greenspace instead of repurposing it for "development." The abandoned Saint Louis Rail Yard – that had come to be known as "the Maguire meadow" in Montréal's Mile End district – became the focus of a neighbourhood-based response to a proposal by the city to "revitalize" the adjacent industrial zone on the site's western edge. In reaction to the city of Montréal's proposed plan to absorb the Maguire Meadow into this space, extend a cross street, and open up the site for a municipal truck depot, the Mile-End Citizens Committee argued instead for the establishment of an urban wild, an idea spearheaded by a land-art project by Emily Rose Michaud.

Having become familiar with "the Field," Michaud, an interdisciplinary artist and educator, explains how she investigated the cadaster number of the site,¹ with the idea of developing an urban land-art project, only to discover that the city planned to buy the land from CP Rail for a street extension and truck depot. As Michaud recalls in an interview conducted for the *GUW* project:

And I thought, "Okay so..." – I had been working with the Roerich symbol for at least three years prior [...] and the more I thought of it, the more it just needed to happen. Because it is a symbol of cultural preservation and it actually literally means "Don't bomb here," and it was used in WWII Europe to be seen from above, to say "this place has cultural significance and it needs to be protected" (Michaud).

Michaud's interest in the Roerich symbol in her environmental art practice deserves further attention. As Michaud explains, the Roerich symbol, otherwise known as the "banner of peace" (USCBS, 2017), is composed of three red dots in a circle that could easily be identified from the air. Conceived of by artist Nicholas Roerich in 1935, the

symbol has been used since that time to mark sites of cultural and historical significance for preservation in the midst of military conflicts that might lead to their destruction. While Michaud was initially inspired by Robert Smithson's *Spiral Jetty*, she describes how she imagined her own land-art project on different terms, and sought out an urban location and a collaborative process in its creation: "I wanted it to be in an urban setting where there was lots of urban traffic is happening [...] I wanted it to be a collective experience, and I wanted it to be a hands-on experience, I wanted it to be human powered" (Michaud). In November 2007, Michaud invited interested community members in Mile End to join her for a two-day event, where they worked to create a 312-square foot version of the Roerich symbol near the center of the Champ. She guided the group in a permaculture technique that recreated the Roerich symbol using layers of cardboard, hay, and leaves, producing what she describes as "a drawing on the land" (Figure 1).

Michaud's project caught the attention of neighbourhood stakeholders, local media, and ultimately, city officials. This land-art intervention, along with extensive networking and consultation by the Mile End Citizens Committee with the city, led to the designation of lot 2334609 as a friche urbaine, or urban wild, in 2009.² Since that time, the roughly 'L' shaped plot of land that had previously been an unrecognized greenspace located on the fringes of the CP Rail's transportation corridor, has emerged as a place that is celebrated for explorations of biodiversity, artistic expression, and community engagement. A place that has been a site for community mobilization since its inception, it has been guided by an assumption that "the knower is always implicated, geo-and body-politically, in the known" (Mignolo, 2009: 162).

There is much about the history of the neighbourhood of Mile End that created the conditions for the establishment of the Champ des Possibles to gain momentum. This community is known for its association with subsequent waves of working class Jewish, Greek, Italian, and Portuguese immigrants, affordable rents, a lively artistic community, and a culture that is open to ideas of difference and diversity. In *Translating Montreal*, Sherry Simon (2006) refers to the allophone Mile End district as both a practical and metaphorical "space of translation," a community characterized by "a diasporic consciousness," and "buffer zone that defines itself in opposition to the

polarized identities around it” (60). The idea of translation is also a particularly apt metaphor for describing the ecology of urban wilds.



Figure 1: Emily Rose Michaud Roerich Garden Project, November, 2007.

Photo: Emily Rose Michaud.

Urban wilds (also known in French as a *terrain vague*, *parc naturel*, or *espace naturel*) are described by plant scientists as abandoned ruderal landscapes made up of species of plants that are not necessarily indigenous to the landscape, and that have come to populate a “new location as a direct or indirect result of human action” (Hammond, 2014). As biologist Peter Del Tredici (2010) explains, an urban wild is defined as a “marginal or degraded urban land that receives little or no maintenance and is

dominated by spontaneous vegetation – a cosmopolitan mix of species that grows and reproduces without human care or intent” (300). “Ruderal landscapes,” elaborates Del Tredici, “are typically associated with the margins of transportation and infrastructure, abandoned or vacant residential, commercial, and industrial property, and the interstitial spaces that separate one land-use function from another” (2010: 300). Given the extent of environmental change urban wilds have experienced, going beyond the “restoration model” of urban ecosystem management holds significant advantages for research on urban ecology (303). Human and transportation-linked changes in urban environments (like those associated with the Champ des Possibles), Del Tredici argues, typically destabilize existing vegetation patterns and promote the formation of entirely new plant associations better adapted to “elevated levels of carbon dioxide, altered solar radiation regimens, altered wind patterns, decreased humidity, increased ozone levels, increased soil and air temperatures, and extended growing season length” (2010: 303-4). Rather than seek to restore these landscapes to some kind pre-industrial status, Del Tredici argues that they demand an approach adapted to the new climatic and ecological conditions.

The interstitial ecological character of urban wilds, with their mixed biological heritage and improvisational modes of adaptation, share much with the idea of translation that Simon invokes in relation to Mile End, and a more-than-human identity that resonates with the character of the neighbourhood’s human community. Mile End, argues Simon (2006), represents a “new in-between culture” that leaves behind “long-time tensions and polarized identities” (3). Cultural and linguistic translation in the context of Mile End, therefore, like the ecology that governs urban wilds, is engaged through “an ingathering of multiple influences” and “an awareness that *one’s own* culture begins and continues through translation” (Simon, 2006: 60, emphasis in the original).

The *Global Urban Wilds* platform

The *GUW* platform is multilayered interactive locative narrative designed to be experienced in the Champ des Possibles using a mobile phone with GSP enabled content. A landing page welcomes the user in either English or French, and features an empty bird’s nest (intended to underscore ideas of non-human agency in the space),

an image that will be slowly overlaid with trinkets (also called “found icons”) associated with the history of human and non-human activities in the Champ (Figure 2).



Figure 2: Nest and found icons unlocked by user's proximity to GPS coordinates.

Artist, Beverly Didur, designer, Emma Saboureau.

The recorded introduction begins with a territorial acknowledgement that notes that “the Champ is located on the unceded Indigenous lands of the Kanien’kehá:ka (Mohawk) Nation” (Indigenous Directions Leadership Group), followed by a brief explanation of how to use the app to navigate the Champ des Possibles. In the corner of the landing page, a user clicks to another layer: a contemporary artist’s hand-drawn map of the Champ that is whimsically illustrated to feature the field as the space of focus, but that also outlines the neighbouring railroad tracks, streets and key buildings that lie on the edges of the space (a monastery and early and mid-twentieth century factory buildings) (Figure 3).



Figure 3: Map interface, Champ de Possibles. Artist, Beverly Didur, designer, Emma Saboureau.

The familiar glowing blue dot (“you are here”) of locative devices appears on the interactive map, and gives users a rough estimation of where they are situated in relation to a series of nine GPS locations, indicated by transparent bubbles. As users approach these geolocations that are tagged by GPS coordinates in the Champ, one of nine thematic icons are “collected” into the nest. Is it a glowing golden key? Or perhaps a buzzing dragonfly has landed? The icons appear by surprise in the nest as the user approaches the GPS location. The icons include things such as plants, an animated butterfly, a ladybug, and lost objects such as a train ticket, a ring, a cross, a key and a button. When touched by the user, the icons reveal a series of related pullouts that

feature written, recorded, and visual material associated with the layers of history and local activities and tethered to the space, including those of the Carmelite monastery, the CP Railway, and the garment industry, as well as custodians of the Champ, Les Amis du Champ des Possibles³ (Figure 4).



Figure 4: Ladybug found icon with pullout content.
Artist Beverly Didur, designer Emma Saboureau.

Additionally, the icons unlock segments of interviews with different stakeholders: artists such as Michaud, experts in urban ecology and indigenous plants, members of Les Amis du Champ des Possibles, and residents and workers located in the surrounding area. Though the faint bubbles act as prompts for where a user may want

to roam, the *GUW* also includes many hidden GPS cues that unlock found sounds and videos that are tied to different seasons and moments of the day in the Champ, adding an element of surprise to the user's palimpsestic experience of the space. Multiple visits to GPS locations provide access to different layers in content, a feature that prioritizes interactivity and keeps the repeated use of the app fresh for frequent visitors. The *GUW*'s palimpsestic layers include, therefore, alternate models of time, different human histories and activities associated with the space and its edges, as well as what actually lives in the Champ's fields and beneath its very soil.



Figure 5 *Lignes des désir / Desire Lines--GUW prototype, April 2017 (photo by Lai-Tze Fan).*

As part of the app development process, in April 2017, the team behind the *GUW* project constructed an interactive digital installation called *Lignes des désir / Desire Lines*.⁴ This installation featured a miniaturized floor-map version of the Champ des Possibles, embedded with QR codes corresponding to the site's walking paths and locations. In particular, the digital installation outlined the Champ's desire lines – paths that are created by constant use by visitors who visit or traverse the Champ on an everyday basis, rather than pathways established by paved walkways that predetermine

movement in the space. As with the design of the *GUW* app to be used in the Champ, the model of the GPS interface in the lab allowed the user to choose randomly which QR codes to scan to unlock icons and content, and was by no means fixed in single, predetermined order (Figure 5). By reflecting on the way users interact with these various pathways and access layers of content anchored by GPS coordinates throughout the Champ using mobile platforms, we wish to evaluate the ways in which technologies and technological infrastructures affect users' approaches to reading and engaging with real spaces, and how they might intervene in the activity of place-making.

Rethinking “smart” and speed in the context of smart technology, cities, and users

The design of *Global Urban Wilds* has had from the onset an objective of *defamiliarization*, which we understand according to Jason Farman's (2014) definition in “Site-Specificity, Pervasive Computing, and the Reading Interface.” Noting that the effort of “getting people to reimagine a technology they are extremely familiar with (and the places transformed by these technologies) is similar to asking them to get lost in their own homes,” Farman nevertheless holds that locative narrative projects have the potential “to ‘defamiliarize’ people with their places and the technologies that mediate these places” (2014: 5). The imagined user of *GUW* is a distracted one; they live in an urban region that has a rich history and a fast future. For them, computing is ubiquitous, and they encounter spaces such as the Champ des Possibles not as a space for dwelling, but as a space of passage always on the way to something else. Spaces of passage and commuting could be called “familiar” in their unextraordinary quality; to the unassuming or the pedestrian *on their way*, the Champ presents itself as another lot, another field of grass and weeds, another place to walk their dog, another short-cut to the metro station. In “Deep Time of Media Infrastructure” (2015), Shannon Mattern reflects upon the ways in which residents of what are now called “smart” cities are set up to not pay attention in this way. She argues that, by design, smart cities:

often *design out* opportunities for unplanned (and un-modern) modes of communication: streets seem intended primarily to shuttle people from one telecommunication station to another, rather than to foster

face-to-face interactions; and building facades are constructed of anti-graffiti materials (Mattern, 2015: 102; emphasis added).

The objective of the *GUV* project has therefore been to draw attention to the unseen, in which the Champ, as a heterotopic site within the city, may be examined for how it foregrounds questions of ecological and environmental sustainability, community efforts to preserve local as well as historically significant sites, and the waves of history in Montréal, including colonialization, migration, and economic development.

The app may be critically situated in many avenues of discussion in locative media theory, including in relation to:

- i) notions of “smart” in smart cities and environments;
- ii) site-specificity and ways to mediate, read, and write *location* through mobile media;
- iii) the critical intention to defamiliarize, whether through technology or in order to defamiliarize a technology itself;
- iv) locative technologies and media infrastructure.

Where there are some tensions in these areas, they have been considered and negotiated in the design and research stages of developing *Global Urban Wilds*.

First, we consider these topics as they may be perceived by users in an era of technological savvy and speed that is framed by computational ubiquity, efficiency, and being “smart.” The undergirding thematic of speed in particular is described by Paul Virilio in *Speed and Politics* (1977) as characteristic of an accelerated culture, the drive of which he calls “dromology.” When speed urges people to pick up the pace without consideration for what is left behind (read: reflection or historical consciousness), the opposite appears to be *reading*, as, in Virilio’s mind, “reading implies time for reflection, a slowing down that destroys the mass’s dynamic efficiency” (1977: 31).

Critiquing the dromology of the “smart” city, we consider Shannon Mattern’s argument that “a media city that makes no provisions for a layering of communicative

infrastructures, that wipes away the deep time of urban mediation, is more stupefying than smart, more machine than metropolis” (2015: 102). The notion of the “smart” city reflects a politics of western urban development in the 21st Century, including the role of ubiquitous computing in how we think of our living spaces, our community engagements, and issues such as technological infrastructure and gentrification. Against dromological speed and the idea of what is and is not “smart,” mobile media and media scholars inquire into the definition of “smart” in relation to physical spaces. In particular, Jason Farman in *Mobile Interface Theory* (2012) ponders over the connection between place and information that “alter[s] the capabilities that information has over the city” and thus how we come to constitute a city as “smart” (6). He argues that “environments become ‘smart’ by having sensing and responsive abilities” (6), the capacity of which could be said to be intrinsically linked to mobile media and the walking subjects who carry them.

In our own approach to smart tech and smart cities, we keep in mind that Montréal is a major technological hub in Canadian and global contexts, and that it has seen in recent years several developments to establish itself this way – to establish itself as a leader in tech infrastructure as well as culturally advanced, organized, and “smart.”⁵

Site-specificity and reading via locative media

The smart city, layering information over physical space, begins to show its ontological complexities in how we think of it and move through it. By this, we refer to the simple (but wildly dynamic) negotiation of the user between material and digital spaces, selves, and representations. For instance, Lai-Tze Fan (2017) notes the ontological negotiation between what she calls the material *here* (a user’s physicality in a real location) and the virtual *here* (a user’s represented location upon a screen), both of which aim to establish a user’s presence in an imagined space. Site-specificity is therefore interesting for the ways in which a specific location “embraces the characteristics of the location, including its histories, cultural conflicts, communities, and architectures (to name only a few), [which make] these aspects foundational for the experience of space” (Farman, 2014: 3).

The complexities of interpreting site-specificity are drawn out by Adriana de Souza e Silva and Jordan Frith (2014) in their discussion of the “presentation of location,”

whereby places associated with location-specific information “acquire dynamic meanings depending on the types of site-specific information attached [to] them via location-aware mobile interfaces” (35). De Souza e Silva and Frith’s focus on the term *location* rather than place, “refer[ring] specifically to a particular geographical location (measurable by longitude and latitude coordinates) embedded with location-based information” (39). “*Locations* are places,” they argue, “and therefore composed of networked interactions, social interactions, and meaning” (39).

Farman adds that the locality and specificity of place constitutes a long-standing “tension between proximity and distance, as it is mirrored in tensions between intimacy and foreignness, has historically been a part of the ways we use our mobile media” (2012: 4). Beyond these spatial encounters, we are also deeply interested in physical encounters with the histories of a location, which deepen the ontological complexities of a mediated space through creating what we will describe as location depth, or, the layers of text in one location.

Our approach towards this depth or layers of location is in acknowledgement of the unique and intertwined histories and cultures that inform the Champ des Possibles. The greenspace exists in an urban context that creates dissonance for those nearby: the Ubisoft video game company, the Canadian Pacific Railway tracks, and a nunnery are only a few structures that literally and historio-culturally frame the Champ. On an ecological level, it had been chosen for preservation for the indigenous plants and wildlife that it holds. It is imperative in our site-specific research that we negotiate between these material circumstances and their virtual representation through a methodology that we call embodied knowledge or embodied knowing: learning through encounter, awareness through physicality. We are partial to the way Nanna Verhoeff and Clancy Willmott describe in “Curating the City: Urban Interfaces and Locative Media as Experimental Platforms for Cultural Data” (2016) that site-specific artworks can serve as platforms “for reflecting on the movements of people and the circulation of data and images across platforms, the urban context as living and layered archive, and the activity and gestures that are elicited by a variety of screen-based, cultural interfaces” (117). Indeed, the notion of a space as a living and layered archive

deeply informs our approach to the complex histories of a space such as the Champ, including settler politics and waves of immigration.

Locative media and imperial infrastructure

Much locative media theory engages with the affordances of different platforms with less reflection on the context and content of specific projects.⁶ The *GUW* locative media project, on the other hand, represents a form of research-creation that is “practice-led” and serves as “a methodological and epistemological challenge to the argumentative form(s) that have typified much academic scholarship” on mobile media (Chapman and Sawchuk, 2012: 23).⁷ As a research-creation project, the *GUW* app is tethered to a specific geography, audience, and platform that intervenes into more general scholarship about mobile media and locative narratives in particular, and plays with conventions associated with maps. An artist’s hand-drawn map used in the *GUW* platform to navigate the space of the Champ includes the image of a nest that accumulates the found icons associated with different layers of history and human/nonhuman activities in the space. By emphasizing that the user’s experience of the space is contingent on the tension between movement and content, the *GUW* project pushes back against dominant ways of thinking about cartography; the map interface positions space and time within a “mutually dependent dialogic relationship,” and begins with a fundamental question about “*whose* space we are talking about” when in the Champ (Sharma in Farman, 2014: 85). In “Map Interfaces and the Production of Locative Media Space” (2014), Farman comments on the “overemphasis” on spatial dynamics in locative media, drawing on Sarah Sharma’s observation that “[c]ivilizations that emphasize space over time tend to be imperial powers, involved in conquering space at the expense of the maintenance of culture over time” (2014: 84).

Though the *GUW* platform includes a map interface that serves as a guide to the limits and location of the locative experience, and helps users seek out the different layers of content tied to GPS coordinates throughout the urban wild, it places this map “under erasure” at the same time. The *GUW* project as a whole is geared toward *questioning* imperial attitudes toward space by disrupting settler attitudes toward wild landscapes as uninhabited (*terra nullius*) and outside time, and instead, emphasizes the fact the Champ des Possibles and the city of Montréal are located on unceded Mohawk territory. Similarly, where settler gardening can tend toward privileging the restoration

of indigenous plants while obscuring their relationship to Indigenous culture (past and present), the map is tied to layers of content that problematize this occlusion, highlighting the co-presence of indigenous plants and the involvement of the Indigenous community in the construction of the First Nations Garden at the Jardin botanique de Montréal. Finally, where “global capital depends on spatially biased culture” (Sharma in Farman, 2014: 84), the choice to anchor the app in a previously neglected industrial landscape, sometimes rendered as a white or blank space on city maps (because it is neither a curated park, residential area, or active center of commerce), the *GUW* app troubles the normalized spatial assumptions associated with urban mapping conventions by asking the user to recenter their self in a ruderal landscape as a part of their community.

The *GUW* project is also oriented toward Lefebvre’s notion that space “should be understood as produced co-stitutively with bodies” and that “space is always produced and practiced; it is not a given” (Farman, 2014: 85). Where pedestrian commuters who cross through the Champ des Possibles may have established a routine for how they pass through the space, the *GUW* app encourages them to move through the space in new ways – to linger in the space longer than usual, wander, and be surprised by found sounds and video along the way, and investigate the layers of text, audio, and visual content unlocked through their proximity to GPS coordinates tagged on the map at different points in the field. Where maps may be associated with “objective facts” about space, and the digital maps of smartphones are tied to a history of “surveillance and control, made possible by the spread of cutting-edge technologies” (Holmes, 2004), the *GUW*’s use of this imperial technology, overlaid by the artist-drawn map, is conscious of this history even while it also seeks to subvert it. The Montréalaises who enable “location services” on their iPhones to use the *GUW* app cannot, therefore, be simply reduced to figures in Althusser’s (1971) theory of “ideological state apparatuses,” users who are hailed by “computer coded radio waves” that Holmes (2004) describes as “an electromagnetic ‘hey you!’” – when the app acknowledges but also critiques the imperial origins of this infrastructure. The app does not, therefore, naively mobilize the cultural politics associated with Global Positioning Systems (and their imperial and military origins), but rather it anticipates them, and appropriates them within its own autocritique. While Holmes laments that “all too often in

contemporary society, aesthetics is politics as décor,” the *GUW* engages with the ideology of map interface, and works to make visible and subvert its cultural bias.

Critics such as Drew Hemment (2006) point to the irony that geo-annotation apps like the *GUW* privilege embodied experience in local contexts, but depend on satellite systems located far from the local contexts, and thus take for granted a “transcendent frame of reference and Cartesian space” (352). As Hemment explains, “[l]ocative art’s condition of possibility is a prior abstraction, and as a consequence its emphasis on location is accompanied by a distancing from embodiment, physicality and context, which – within such a reductive understanding of spatiality – becomes a mere residue of the coordinate system” (2006: 352). Hemment also points to the fact that locative experiences are often restricted to small groups and esoteric gallery contexts. “In place of the richness of embodied experience of the world,” Hemment fears that “many projects offer the challenge of roaming the environment while squinting at a tiny screen and clunky menu, separated by a barrier of bad usability” (2006: 351). The relation between the satellites that make up the grid that locative arts rely on is not, however, lost on the team that has worked on the *GUW* app, nor is attention to the usability of the interface, with much emphasis placed on the use of recorded sound and simple navigation tools to allow the user to balance their attention between the location and the mobile app.

Though it is true the embodied experience the app seeks to produce in relation to the Champ des Possibles relies on a satellite grid, the app content must be downloaded to the mobile phone, and it cannot be accessed unless unlocked on location through physical proximity to the GPS coordinates. In addition, where Hemment points to “the reliance in locative arts on the clinical precision of digital tracking and the emphasis on point-to-point correspondence” (2006: 352) as another unacknowledged contradiction in locative media practices, the *GUW* app acknowledges the fact that GPS accuracy is *not entirely reliable*, and is affected by receiver quality and atmospheric issues. Jill Didur’s previous locative project, *The Alpine Garden MisGuide* (2015), took advantage of this variability in GPS accuracy to enhance the sense of wandering and unpredictability in the app’s focus on the culture of colonial plant hunting and alpine garden aesthetics at the Jardin botanique de Montréal. Similarly, Teri Rueb’s locative experience, *Drift* (2004), amplifies the unpredictability of GPS signals, where the

Watten Sea (where the app is designed to be used), “becomes a metaphor for hertzian space as visitors are invited to wander among layered currents of sand, sea and interactive sounds that drift with the tides, and with the shifting satellites as they rise and set, introducing another kind of drift” (2004). Far from a reified gallery space, as described by Hemment as the usual space for locative experiences, the *GUW* app is situated in a previously abandoned industrial zone that is nevertheless a commuter corridor for a digitally literate audience, and the app intends to engage users around issues of sustainability, gentrification, settler colonialism, urban wilds, and climate change.⁸

Urban wilds as shadow places

While the diasporic character of the human and nonhuman community in and around the Champ des Possibles is something the *GUW* project highlights, the app also guards against the potential erasure of the precolonial role Indigenous communities have played in shaping the environment and landscape on the island of Montréal. This, however, requires a somewhat counter-intuitive resistance to efforts at re-indigenizing the biological agents in the Champ. As Susan Martin has argued about the trend toward “native gardens” in the Australian context, “[t]he planting of what ‘belongs’ in [different greenspaces], in some cases attempts to erase culture from that equation, and assert origin rather the originality – to return to untouched nature (notably an idea of untouched nature without people)” (Martin, 2015: 105). Writing about her own artistic intervention into the Champ in 2014, *The Possible*, Cynthia Hammond points out it is somewhat contradictory for members of the community to lament that “the ‘wildness’ of this space is being lost,” when groups such as Les Amis du Champ des Possibles intervene to promote biodiversity in the space (2014).⁹ “It is important to remember,” writes Hammond,

that the Champ would not be what it is if not for the railway track and oil-stained soil that were the unlikely basis for its current profusions, likewise, if not for the looming mega structures that rim the terrain which determines how much sun reaches the various species below, and equally if not for the human activities, near and far, which have reached or shaped the Champ (Hammond, 2014).

Moreover, Hammond notes that urban wilds are also a register of “the long history of imperialism and human colonization, which have brought many non-indigenous plants to Canada, Quebec, and thus the Champ” (2014). Meditating on why some community members might be unwilling to “release nature from the grip of the nature-culture binary,” Hammond speculates that “the desire for the Champ to be – to look? – ‘wild’ helps to mitigate postindustrial realities in Montréal, as in other formerly urban areas” (2014). To Hammond’s assessment, we add that the emphasis on the ‘wild’ in urban wilds, also potentially contributes to an erasure of the colonial past that has shaped land use throughout the island of Montréal, and acts as a potential balm to the unexamined colonial status of Quebec and Canadian settler culture.

The Champ in this respect is understood as a “shadow place” in Val Plumwood’s sense. As Sarah Besky (2017) points out, “affectively charged places that tend to spark ecological consciousness...are frequently sustained by shadow places” (19). Elsewhere in Montréal, some questioning of the *terra nullis* associated with the island’s wild or picturesque spaces has begun. The summer of 2017 saw the Belvédère Outremont, in nearby Parc Mont Royal (designed by Frederick Law Olmsted in 1876), renamed as Tiohtià:ke Otsira’kéhne (Mohawk for “the place of the big fire”), recalling the precolonial era when fires were lit on top of the mountain by First Nations to signal the village of Hochelaga as a gathering point. In September 2017, the city of Montréal also removed the name of British General Jeffery Amherst (who supported the idea of giving blankets infected with smallpox to exterminate Indigenous communities), from a downtown roadway, and launched new coat of arms for Montréal, featuring an icon of a white pine at its center, a symbol of the Haudenosaunee Confederacy, a reference to the founding peoples of the city. Though the Champ des Possibles represents a much-needed greenspace in a densely populated section of the city, it risks becoming a “shadow place” – a place created for the enjoyment of others at the expense of the island’s Indigenous communities. As Plumwood (2008) explains, “much contemporary environmental theory [...] focuses on place as a locus of continuity, identity, and ecological consciousness” while disregarding the “places of economic and ecological support” that underpin those same locations.

Ostensibly place-sensitive positions like bioregionalism evade rather than resolve the problem of the split [between idealized homeplace and the places delineated by our ecological footprint], by focusing exclusively on singular self-sufficient communities, thus substituting a simplistic ideal of atomic places for recognition of the multiple, complex network of places that supports our lives (Plumwood, 2008).

The *GUW* app's transitive reading practices discourage the creation of urban wilds as "singular self-sufficient communities" (Plumwood, 2008), and instead highlight the fact that the Champ des Possibles is located on unceded Indigenous territory. This critical layer of history underpins a complex network of narratives that make up the app's content and operation.

In its stewardship of the site, Les Amis du Champ des Possibles attempts to navigate the competing and interrelated issues connected with toxic remediation, promotion of biodiversity, accessibility, settler culture, gentrification, and social justice. In dialogue with this mandate, therefore, the *GUW* project avoids more traditional methods of public engagement, such as didactic signs or plaques, that fail to invoke multiple rather than singular ways of knowing the Champ. We curate the users' experience of the space through locative media (such as smartphones and tablets) that use GPS receivers to pull up layers of content on screen (images, sound, and text), specific to particular locations in the Champ. The app and its transitive reading practices play a pedagogical role in translating local attitudes toward the urban wild, and gardens, and greenspaces more generally, while also engaging visitors and new residents in the already established ways of looking at and moving through the Champ on a daily basis. The *GUW* locative platform allows visitors to theoretically, aesthetically and discursively explore the ways in which they are entangled in a space, and therefore to open up new questions about the status of urban wilds and their local and global influences.

Multiple layers and temporalities

In our theoretical approach to designing the *GUW* app, we were also inspired by the symbol of the Roerich for its rich thematic meanings in locative depth and layers of time, culture, and embodied experience or presence, and the circular shape of the nest

on the app interface recalls Michaud's project. In our attempt to represent the interconnected factors that shape and nurture such culturally and historically salient sites, we read into the Roerich's symbolism of three circles – representing the past, present and future – as well as their suggested unity in heritage sites and objects. How does the present inform our possible futures – including destructive ones, whether for cities or the environment? How is the present shaped by our pasts? As our age is one of “smart” cities, sustainability, and ecological death at once, it has never been more urgent to embrace these questions and to re-visit the kinds of narratives that we have constructed to represent time.

As a temporal model, the Roerich is a symbol of circuitous and simultaneous time and demands a reading for presence as well as for change and transition. Reading for presence and transition in turn means reading for historical depth (the minute, the forgotten, and the overlooked), and dynamicism (catalysts, obstacles, and processes). In the field of the Champ, plants and other species are themselves influenced by transitions to the environment around them, including pollution, pedestrian interaction, histories of communities, infrastructure, and, of course, the transitioning seasons. The liveliness of the Champ's inhabitants lends to them a simultaneity of past, present, and future that could itself be described as embodied presence.

Relative to the larger infrastructure in which locative media are situated, we are conscientious that the Champ provides access to a greenspace for a unique constituency of users. It also serves as a commuting corridor for workers who pass through the space from a local Metro station on their way to the Mile-End neighbourhood. As mentioned above, these are people who are already very literate in mobile media, recalling that *for* mobile media, as Rita Raley (2010) notes, there is a broader context of “ubiquitous computing, the incorporation of information and communication technologies (ICT) into nearly all aspects of our environment, the presence of computing devices ‘everywhere’” (301). In this sense, the meaning of the Roerich still holds: it was designed in 1935 in the midst of modernist ideals and structures that were regulated and standardized according to a model of Fordist industrial time. The Roerich symbol pushes back against notions of time that are saturated with “progress” and forward-moving linearity, which are shaped by systems of production and reproduction, instead suggesting an attention to multiple states of

time at once. Indeed, the Roerich prompts ways to think about historiocultural space – including about the environment and natural ecologies – that are arguably dysfunctional for capitalism, resisting a capitalism that insists on extracting histories, resources, and forced values from space. Multiplicities in layers and simultaneities reveal that real spaces have, and have always had, alternative meanings that linger as shadows. *GUW* intends to express that these spaces are now haunted, because we have not forgotten about their complicated networked histories, and precisely because they cannot be erased.

Locative media can leverage such layers of meaning. As scholars such as Shaun Moores have discussed, locative media allow for the user's more agential negotiation between digital screens and material spaces. The *GUW* platform is structured to leverage such a productive tension between reading and viewing critical, creative, and archival materials in the context of a site-specific installation. The pedagogical opportunities afforded by tying the experience of place to the experience of reading is one that has received much attention by scholars of locative media. For instance, Brian Greenspan (2011) argues that "locative media represents a productive hesitation between literary fiction, documentary, audio-visual installation, and site-specific theatrical performance" (1). The *GUW* app enhances this aspect of the digital interface by encouraging the user to engage in the practice of searching out GPS locations indicated on a hand-drawn map interface marked with small green bubbles. As users are pulled into different zones of the Champ in search of GPS locations where the environmental history and cultural value of the Champ are explored, they also unwittingly unlock unmarked "found sounds and videos" along the way – fragments of other seasons, weather events, as well as human and non-human activities (dog walkers, cyclists, skaters, singers, pollinators, migrators, commuters).

Transitive reading as embodied knowledge

Despite the performativity associated with locative media, the experience of reading, listening, and viewing visual and written media relies heavily on the idea, as Greenspan describes, of being "transported to fictional worlds" away from one's immediate context (2011: 3). However, it is this understanding of the experience of absorbing media content that the *GUW* capitalizes on, while at the same time tying the experience

of this content to a particular location in the Champ through the location of GPS codes. As Greenspan explains, locative media “mobilize printed literature’s traditional mode of decontextualized engagement within a spatial context in ways that often *interfere* with the performance of place, foregrounding the productive tension between the traditional experience of fictional transportation and new modalities of mobility that constitutes our present medial condition” (2011: 2). The *GUW* platform exploits the “spatial tension between conventionally sedentary modes of engagement with [media content] and more dynamic, continuous and complex models of spatial interaction” that locative technologies allow for in the urban wild (Greenspan, 2011: 4). In other words, while, on the one hand, digital media make it harder for us to get lost in the action of absorbing media when the screen is anchored to place through things such as GPS coordinates, on the other, the material the *GUW* ties to specific locations in the Champ pull us away from place or temporality. Moreover, while users can download the app to their iPhones from anywhere in the world, they cannot unlock the context tagged to the app icons without visiting the Champ des Possibles to explore different GPS locations. In this sense, locative media counters the disembodied, decontextualized experiencing of media online in stationary ways by forging what Andrew Piper describes as “corporeal connections [...] between what we’ve seen and where we’ve seen it” (2012, 121).

Piper also identifies a paradox in the relationship between reading space and experiences of text: whereas “in a world of locative media, it is increasingly hard to get lost,” at the same time, “we no longer lose ourselves in reading” as well (2012: 122). Again, the way that he describes transitive reading is as the negotiation of layers of meaning – again, what we are calling location depth – that exist in the space of a city, and they are “transitive” in the ways that we encounter and experience the “transitive properties of urban experience” (Piper, 2012: 127). These spaces are read – but not in the way we have seen before; the complexity, subjectivities, and life force tied to real space weave into them real histories, communities, memories, and politics. Through transitive reading, sites of reading and “material encounter” are also brought into the foreground, including, as Piper points out, libraries and bookstores (2012: 127), but also, we add, the greenspace associated with the Champ.

Transitive reading as we develop it from Piper's descriptions, therefore, is indeed the depth and simultaneity of multiple histories, spaces, identities, and ecological modes – and transitive reading occurs among these layers, as we can mediate through different kinds of experiences of reading. What is at stake here is the experience and value of being lost, which is not to say that one is hopelessly looking for a destination, but rather, that there is value in exploration as movement *without* direction. While city spaces are read, that we are not being lost in their “texturology,” as Michel de Certeau (1984: 198) describes it, is owing to the emergence of “smart” cities that are more functional than fun. These are spaces within which we may not know how to get lost, and therefore, indeed, how to lose ourselves.

Our methodology is therefore one of *being in* and *moving through*, or, embodied knowing. The transitive reading practices orchestrated by a locative narrative like *GUV* span the space between the urban wild and its polyphonic archive, and offer an electronic palimpsest that “layer[s] reading on top of real space in an interactive way” (Piper, 2012: 123). The time spent in a space such as the Champ des Possibles allows one to familiarize oneself with types of human and non-human experience, an embodied undertaking of knowledge that is twofold. First, embodied knowing encourages mediation of meaningful layers separately and together. Second, it can be leveraged through locative media to take embodied experiences in new directions. We encourage what Lai-Tze Fan calls a locative “wandering” – *dérive* in the psychogeographical tradition – as users explore different parts of the Champ des Possibles to engage with content, some of which can be anticipated and some of which is a surprise. Wandering in this sense pushes against the definitive path-making and path-taking of urban streets and industrial organization. Against the finality of commuter desire lines, users may find themselves participating in and performing disruption.

Through the app, one thing that may strike the user is the spatial and ideological contrast of the Champ from urbanity (which features speed, growth, industrialism, toxicity), as the urban wild exists as a counterpoint, exposing to users the need for further inquiry and consciousness of the precisely non-urban and non-human. Within embodied knowledge is the process of transitive reading, whereby productive hesitation is achieved through the user's negotiation of layers of meaning as they both

encounter embodied knowledge and are defamiliarized from ways of thinking “smart” or “green” in idealized or otherwise idyllic ways. In this sense, *GUW* encourages a pushback against ideas of “green” as a compensatory idea or space that offers a pastoral relationship to nature. The Champ becomes not just a place for citizens to go to distract themselves from climate change, or settler culture; through its spatial and critical differentiation from the city space, it puts pressure on users and urban spaces alike to take “green” more seriously. Whereas the regular visitor to the Champ crosses on their way to work or on a stroll with their dog, we are asking people to wander, linger longer than they normally would, akin to how graffiti unsettles the pedestrian by defamiliarizing otherwise authoritarian space and routine. Arguably, to pause and to wander are the opposite of commuting. Even where the desire lines in the grass of the Champ designate the physical markings of users’ movement towards an ultimate destination, the app’s design intends to add depth to this experience, and to foreground embodiment and multiple temporalities.

Through the varied and layered contexts that *GUW* includes, to be in spaces such as the Champ – and to be there doubly through a virtual trace – is to participate in its liveliness, an embodied knowing through the discovery of found sounds, rich histories, and echoed stories that we wish to represent as materially rooted to footprints left on grass, in ecologies, and over time. Embodied knowledge is in this way a method of resisting the abstraction and forgetting of environment (in the many senses of the word), including the material specificities of the Champ and its contexts. To be within such specific locations is to imbue onto them new meanings as well as to witness at once their pasts, presents, and futures.

Situating the citizen in an idea of the city as networked and as digital, performance and performative disruption emerge as transitive reading requires users to move through space, and to engage with material space, objects, and real sociocultural contexts and histories. We aim for the app to engage in, as Raley describes, “the production and support of an ‘actively creative’ critical consciousness, such that we who participate in the narrative learn to navigate and inhabit the city in a better way” (2010: 307). Towards an actively creative and critically conscious user, we also aim to encourage users to thus think about spaces such as the Champ in a different way: instead of treating them as commuters through ways akin to a paved walkway, a bus, or a subway extension, the

Champ can be reframed as a space of change and interaction, a space to return to and linger.

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Notes

- ¹ The Champ is located on lot 2334609.
- ² See also online details of Michaud's project such as <http://roerichproject.artefati.ca/roerich-garden/introduction/>
- ³ We are grateful to the Les Amis du Champ des Possibles for their ongoing collaboration with us as we develop the *GUV*. Information about Les Amis du Champ des Possibles can be found at <https://amisduchamp.com/>
- ⁴ The *Lignes des désir / Desire Lines* team included contributions from Jill Didur (principal investigator), Lai-Tze Fan, Emma Saboureau, Eric Powell, Beverley Didur, Pippin Barr, and Jess Marcotte.
- ⁵ For example, the immersive *Cité Mémoire* mobile app allows users to interact with projections in Old Montréal that tell the district's history. Also, Montréal holds an annual Digital Spring art festival.
- ⁶ Edited collections in this area include *Locative Media* (Wilken and Goggin 2015), *The Mobile Story* (Farman 2014), and *Mobility and Locative Media* (de Souza e Silva and Sheller 2015).
- ⁷ "As a form of cultural analysis," note Chapman and Sawchuk, "research-creation partakes of the spectacle of the work of art and its demonstration of alternative frameworks for understanding, communicating, and disseminating knowledge" (2012: 23).
- ⁸ The *Alpine Garden MisGuide* is available for download in the iTunes Apple Store. The *Global Urban Wilds* app is in its pilot stage, with more user tests planned for the spring of 2018 and launch in fall 2018.
- ⁹ Hammond undertook her project after CP Rail carried out unauthorized track maintenance in the Champ that destroyed the plants and insects in one section of the newly dedicated greenspace.

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Looking for “in-between” Places

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Abstract

This article develops the concept of “in-between” places in relation to the study of language, perceptions and memories within the broader mediation of cartography. We held an empirical qualitative study in the city of Lisbon, Portugal, where a group of participants (1) performed a web map-survey to identify the spatial dimensions of their sense of place, (2) had a joint discussion about the representations and memories associated with their chosen places, and, finally, (3) took a go-along walk to obtain a deeper definition and characterization of them. Results suggest that analog and digital maps generate different virtual images of space, while the navigational use of digital maps in particular generates multiple representations of the territory. The mediation of different narrations and the description of encounters within the Person-Place-Process triad helped us to establish the importance of in-between places for a complete conceptualization of place.

Keywords

Place, sense of place, cartography, mediation, in-between places, spatial memories

Introduction

Places are too often represented by cartographic technologies with excessive attention put on the Person-Place relation. We have therefore focused our work on studying how maps can further benefit from inquiry into the Process of place attachment.

Though Process has been scarcely studied (Lewicka, 2011), it has been taken up by Scannell and Gifford (2010), who proposed a model in which place attachment is organized in a Person–Process–Place (PPP) framework. Process refers to three main aspects of experience: Affect, Cognition and Behaviour. In the following, we use this framework to study daily life activities, noting that such activities unveil much of the meaning of places. Granted, it is known that daily activities are resistant to being represented by rational models, and indeed that 95% of our daily life behaviour is not allocated in our consciousness (Thrift et al., 2008). In this vein, we take a non-representational approach because it focuses on the procedural and performative aspects of life, with the potential to develop a speculative topography from embodied emergent experiences (McCormack, 2003).

As a conceptual departure for identifying spaces that emerge in embodied experience, we supplement our analysis with recent work from Downey et al. (2016), who emphasise the liminality of spaces, identified also as “in-between.” Borrowing from Eric Prieto’s version of the concept, they write that “in-between” spaces tend to run the risk of falling between categories, of being misunderstood, and of having their importance ignored. This is because:

[Their] spatial (physical and/or conceptual) position implies both integration of and resistance to whatever is either side of or outside of the in-between. [...] One cannot occupy an in-between space or exist (in-)between two binary states without a resultant tension and/or mobility between both elements of the binary, which resist but also merge with the middle in-between (Downey et al., 2016: 3).

Consequently, “in-between” spaces are at times difficult to define and describe, because the procedural attributes that those spaces present were key to our analysis.

We carried out an experiment based on three different methods oriented to capture in-between spaces with a special focus on the PPP triad. The diversity of methods allowed us to link lived experiences and enacted memories in order to understand multiple and overlapping experiences of places. Furthermore, collaborative discussions and walking activities helped to redefine both individual and shared experiences of

place. By doing so, the notion of the “in-between” helped us to understand the complexity of place as constituted, shared and represented, resulting in the acknowledgement of a sense of place as simultaneously enacted, performed and re-imagined.

This article is structured in four parts. First, we briefly review previous work related to the definition of place and the mediation of maps. Second, we describe the experiment, and the suitability of the proposed methods to capture and analyse *sense of place*. Third, we describe our findings to provide an understanding of “in-between” places. Fourth, we discuss the role of new media and technologies for cultivating, enhancing and engaging new places.

Understanding the definition of place

Place and space are intrinsic and complex components of any city, and have been studied from diverse disciplines such as Human Geography (November et al., 2010), Environmental Psychology (Manzo, 2005; Gifford, 2014), and Sociology (Law, 2008). Urban spaces can be configured by different social groups or individuals according to their lifestyle, common places, intentions and choreographies, leading to a continuous multiplicity of publics (Sheller, 2004; Jenkins et al., 2016). Place can be defined as “a particular space which is covered with meanings and values by the users” (Najafi et al., 2011: 187) and plays a significant role in human behaviour and mental health (McAndrew, 1993).

Norberg-Schulz refers to the *Genius Loci* as “the concrete reality man has to face and come to terms with in his daily life” (Norberg-Schulz, 1980:5). Placelessness, or the lack of sense of place, can lead to frustration and lack of character or monotony (Lynch, 1960; Relph, 2016; Casey, 2001). “Non-place” was famously described by Marc Augé (1995) as a space that “cannot be defined as relational, or historical, or concerned with identity” (77). Additionally, Edward Relph argued that a paradoxical relation exists in which places cannot be permanently designated along the spectrum between “place” and “non-place,” but are rather enacted and relational with respect to these terms (Relph, 2016).

Our attachment to place is another important factor, as something that is often framed in emotional terms (Najafi et al., 2011). According to Gifford (2014), for example, place attachment can provide us with a sense of security, belongingness, continuity, and it also fosters restoration and facilitates the successful pursuit of one’s goals.

A sense of place is psychological but also interactional and physical. It “influences attitudes and behaviour beyond itself” (Gifford, 2014: 562). As Najafi et al. (2011) point out, “sense of place as an emotional bonding between people and places is created after cognition” (189), which implies that there are social, cultural and personal motivations that exist both before and after our direct affection with it.

Places and the in-between

Lewicka (2011) found that there are only a few studies that correlate place attachment to the scale of a place, arguing that neighbourhood scale in particular is rarely related to place attachment. However, the notion of place has undoubtedly undergone many changes together with the transformation of cities.

Duff’s (2010) distinction of “place” as “thick” or “thin” only further enriches our argument. While these concepts appear to resemble the distinction between places and non-places, the former pair is unique in that it takes *affect* as a point of departure. This means that the construction of place does not reside in the place itself but in the relational force between places and bodies. For Duff, thick places can be cultivated by local appropriations. Thickness relates the importance of intimacy to practices and encounters that occur in a place to determine the construction of meaning and belonging to that place, and thus leads to diverse *affective atmospheres*. Affective atmospheres capture the “emotional feel of place, as well as the store of action-potential, the dispositions and agencies, potentially enactable in that place” (Duff, 2010: 881). To put it another way, the concept of *affective atmospheres* helps to enact the cultivation of thick places, and to induce sensations in our body. Taking Norberg-Schulz’s approach into consideration, affect emerges in the act of dwelling; it is what gathers people.

Mediations of the map

Maps are never static, objective or simply utilitarian. They rather dictate how we see the world, and, as such, they are epistemological and ontological devices (Dodge et al., 2009). A performative perspective on representations of the world would suggest that both the epistemological and ontological dimensions of the map are enacted simultaneously (Law, 2008: 13). Agnieszka Leszczynski (2015), for instance, suggests that space “is instead ontogenetic — a material and social reality that is constantly brought into being through embodied socio-technical practices, such as enrolments and deployments of spatial media in the practices and spaces of the every-day” (Leszczynski, 2015:6).

Bruno Latour (2011) observed that maps are not only mobile but also immutable, presentable, readable and combinable with one another. He writes that “mappings are rarely unfolded in isolation, but are embedded within wider discursive fields and forms of praxis” (Kitchin et. al., 2013:15). Consequently, as Gerlach (2014) points out, distinctions between ontology and epistemology disappear in the performativity of maps, because it is not that representations coincide with the territory, so much as it is the territory that fits onto the map (Paraskevopoulou et al., 2008).

However, maps are also spatial stories (De Certeau, 1984) and the very process of generating, translating and distributing these stories, destroys the past context, including its relation to other parts of the story, in which the foundation was made and only the narrative remains. Stories thus “carry out a labour that constantly transforms places into spaces, or spaces into places” (De Certeau, 2002:75). The act in which the narrative is taking part transforms the map in a tool for legitimated coercion and coercive actions.

The meanings of inscriptions are also created during the act of using them. Kenneth Liberman (2014b) argues that the interpretation of maps refers less to the act of reading them as it does to the way maps organize both knowledge and the senses, and therefore in how maps are made evident to those who are reading them. Recent works show similar results in the interaction mediated by digital and mobile maps (Laurier et al., 2016; Bouvin et al., 2006), with the understanding that walking is never “merely walking.”

Leszczynski (2015) considers spatial media, including digital maps, “as a basis from which to grapple with the socio-spatial effects and significance of these technological phenomena through opening up the possibilities for engaging them in terms of ontological conditions of mediation” (3). She therefore introduces the always-mediated reality and the necessity to discuss the articulation between the virtual and the physical in relative terms, and avoids treating them as divergent spaces. But in terms of emotions, feelings and affects, working with such liminality also entails working with that emergence (McCormack, 2003). Thus, the *virtual* is in the realm of potentiality. It is in this aspect that Gerlach (2014) introduces the idea of vernacular maps, in which legending is to consider affect, the virtual and the performative, and to introduce “reimaginings, affect, events and becomings” into the process (3).

In this paper, we demonstrate a multi-layered approach to understand the emergence of in-between places, and argue that the relation between ontological, utilitarian and navigational definitions of place are mutually tied together in the use of maps.

Description of the experiment

The capital of Portugal, Lisbon, is currently occupied by a swarm of tourists, students and inhabitants, and draws a fascinating place to conduct our experiment. In 2012, Lisbon suffered an important administrative restructuring, moving from 53 to 24 parishes. This adjustment led to a considerable transformation of Lisbon’s autonomous governments (*freguesias*) by changing their names, boundaries and political administrations. During the last two years, the city is also subject to a gentrification that is having a huge impact on its culture, economy and landscape. This conversion became another starting point for thinking about the sense of place of Lisbon’s inhabitants.

We carried out an experiment to grasp the emergence of the in-between by using different methods. We recruited 10 students from our University and divided them into two groups regarding their availability for the meetings. The first group was composed of three females and one male, while the second group was composed of three females and three males. All of them were between 20 and 33 years old. The experiment was designed in three stages (Figure 1), with each being conducted with

different settings, as described below. Both groups accomplished the entire experiment successfully.

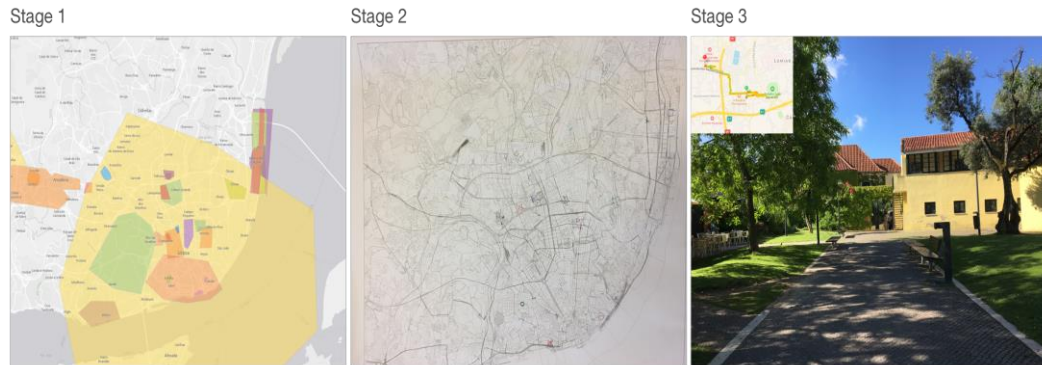


Figure 1. Representation of the three stages.

Online map-survey (stage I)

Participants were asked to fill in an online map-survey (Acedo et al., 2017a). The ad-hoc survey was meant to understand and spatialize participants' sense of place and social capital in the geographical region of Lisbon. Participants were asked to draw areas of interest regarding (A) the places they belong (i.e. where they fit in), and the relations that they have towards the geographical area, (B) the groups that they belong to, and the places where those relations between human collectives and interactions arise as fruits of trust, reciprocity and cooperation, and (C) the places where they are willing to participate in civic activities.

Everyday mapping activities of citizens through platforms such as Google Maps and OpenStreetMaps answer the need to define a route or mark a location that is related with a geometrical perception of space rather than an individual perception of a singular place (Roche, 2016). Sui and Goodchild (2011) already noted that Geographic Information Systems (GIS) can be considered as media, since they allow to interact between virtual and physical territories. Nevertheless, it should be noted that “spatial media intrinsically do not conform to systems metaphors that underwrote myriad definitions of GIS” (Leszczynski, 2015: 3). The goal of this web map-based survey was to situate citizens' significant places and to mark precisely where their meaningful relationships take place. By drawing these areas of interest and giving them a name,

the participants valued those places independently and, simultaneously, they reached a better understanding of urban spaces.

Workshop (stage 2)

After completing the online map-survey, we invited both groups to join and work with their feelings and emotions as triggers. The activity was set in a room with a shared map on top of a table, and a camera hanging from the ceiling to record the interactions and the use of the provided tools. Two of the authors took the role of facilitating the process in Stages 2 and 3, taking notes, providing guidance and taking part of the discussion. The duration was one hour, structured in five parts or phases:

(Part A) We gave participants a sheet where they could list important, meaningful or significant places (see Duff, 2010) along with their feelings and emotions regarding each place. The proposed questions were: Which places do you recognize that are yours in the daily life? Which activities do you carry and take place there? What are the feelings that you have got when you think of such places? What is the intensity of those feelings?

(Part B) After completing the list, they were asked to value them in the Affective Appraisal of Environment marker (Russell and Lanius, 1984). The affective appraisal theory assumes that people can judge the ability of a place to alter feelings, in that sense, the marker is a two-dimensional graph (pleasantness and arousal) that allows to categorize places. In our case, we wanted to use it, not to effectively judge the places, but as an exercise to promote deeper thinking about individual feelings related to a place, before explaining it to the group.

(Part C) Next, each participant was asked to mention (one at a time) the places that he/she had in the list, locate it on the map, and explain to other participants why he/she selected that place, what intensities and emotions brought to him/her, and how these distinguished from other emotions. After doing so, participants were required to rank the place before continuing with the next on the list. This constituted the main part of the workshop activity since meaningful discussions appeared on it.

(Part D) After the main part, participants were required to think whether they wanted to share another place that was not on their list, and might be related to familial relations, social relations, or would even represent to some extent the city.

(Part E) Finally, we asked participants if they wanted to change the ranking they have chosen for the places, if they wanted to change the appraisal of the place, and if they felt that they would change the geographical areas that they have marked in the Map-Survey (stage 1).

Go-along walk (stage 3)

A go-along walk is an in-depth qualitative interview method that is useful “for exploring – and subsequently improving understanding of – people’s experiences of their local residential context” (Carpiano, 2009: 3). It facilitates the analysis of everyday practices in place, the relations with other agents, and to keep sensitive to the affective dimension of place-making activities (Duff, 2010).

After selecting an arbitrary point of departure, some participants of each group performed a walking exercise. From each group, we selected three participants to be part of the activity, while two of them were the guides of the walking tour and the other one was who held an action camera with a head-mount. We asked participants to meet in a metro station as a point of departure, and the guides took the group to the places mentioned in the previous workshop session (stage 2). The main intention was to differentiate the places that they have pointed to in the map and how they relate them to vivid spaces, what comes up and how others relate their own experiences. Because we did not want to evaluate their map-reading skills, we did avoid the use of maps during the walking and let the guides choose the path to follow.

The walking activity was oriented to understand the affective dimension, but also to understand how places pointed out in the previous stages are enacted, omitted, mentioned and re-created in practice. For that reason, our guidance and interventions were focused on remarking and inquiring the group about such places. As outputs, we got GPS tracking points and paths, field notes and video recordings, which were analysed after, in comparison with the other materials.

The multi-layer approach

The experiment, which was made up of three different stages, led to a complex map of how places are built, and the virtualities and imaginaries that work between the qualitative, quantitative and performative methods.

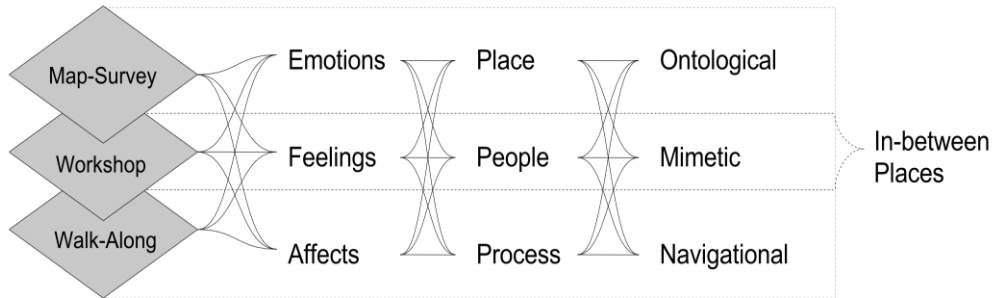


Figure 2. Layers to relate the three triads and methods helped to find In-between places.

Figure 2 shows three scopes (columns) of analysis for each of the stages; layers of analysis are seen per each row. For example, the first scope contains the emotions, feelings and affects layers. The combination of layers within scopes allowed us to observe the phenomenon differently. For clarity in the explanation, the division between scopes and layers is not so rigid as it may appear, because, in practice, we might have used all layers for any of the stages. Nevertheless, we found that specific combinations of scopes-layers eased the development of certain stages and clarified the search for in-between places. In that sense, we used a holistic approach to detect the best combination given the following empirical analysis. Working as filters, each combination of scope-layer led us to reconstruct our findings to identify and determine in-between places. It was a relational exercise of using different means and strategies to develop our experimental activities, involving different layers of knowledge, states and skills. We suggest that in-between places can be unveiled working in the interweaving of what is represented and what is not.

For the analysis, we transcribed the conversations from Stages 2 and 3 by using Jefferson’s transcription system (Jefferson, 2004). As Gene Lerner explained:

Understanding turn-taking for conversation and other forms of talk-in-interaction is key to understanding human conduct, because most actions

carried out through talking are shaped by the organization of that talk into speaking turns: it shapes how speakers compose their contributions, it shapes where they position those contributions in the ongoing interaction, and it shapes when they get to participate (Lerner, 2004: 4).

We then analysed the video recordings by means of the noticing method (Laurier, 2014). This allowed us to pay attention to gestures and negotiation of meaning, by repeating the recordings many times.

We used cartography as a complementary tool and as an excuse to participants to talk about their places. To analyse them, we overlapped the data resulting from the Stages onto an ArcGIS map to explore them together to find correlations between what was said in the meetings with what was effectively marked. Besides, to make sense of the entire process, we reviewed the resulting material several times, reading it through different scopes and layers, searching for clues of in-between places.

Findings

During the experiment, we noticed that the knowledge of the territory and its relation to the cartography was different between participants. One of them was very keen on finding places, and helped others on this activity. He expressed his interest in the city and easily related the space to the map. But strolling around the city alone does not suffice to fully develop such skills. Other participants who stated they liked walking around had more difficulties to determine where the places were, and used the relational method explained above. As such, we argue that there are different types of *spatial memories*, which are also enacted by different types of mediations.

In the following we use the three proposed scopes to analyse the results of the experiment to better understand how each method unveils different aspects of participants' *spatial memories*.

Ontological, mimetic and navigational results

The *mimetic* representation of the territory is not directly mapped to how it is reproduced in our virtual images of space (November et al., 2010), losing the correlation between what we experience and what we can say about places. This was

obvious in the experiment when people tried to mark, describe and orient others in the workshop. Moreover, more than once in the exercise, the provided maps generated confusion regarding the place they wanted to show. This situation forced participants to abandon the map as a representation and describe the place by its physical characteristics, activities and personal feelings.

Places are personal appropriations of spaces, and by sharing them to others, participants had to try to imagine what were the perceived characteristics of the place being shared. Having said that, when a participant shared a place, the starting point was always easily recognised by others, such a metro station, a shopping centre or a stadium. While the other participants recovered the virtual image of the place, the participant who was describing the place changed the description to focus on the place that he/she wanted to share. This misunderstanding or ambiguity is manifested in the following description where a participant mentions a station (Santa Apolonia) trying to orient others, but without success:

“Ohh! Actually, I don’t know much about this place but I’ve been visited through outside the station. There is some traditional market as well the street market. And I found it very interesting. I used to do photography over there. And Santa Apolonia is also one of my favourite places to visit, because there is differentiation. I’m the kind of person who always loves to travel, so I can be anywhere.”

The group, then, tried to recalibrate their thoughts to understand what the participant said, but not without producing moments of confusion during which some participants got lost:

“That market was a kind of street market in the traditional way. I mean street harbour like this, they have the cars and there are in the gardens on the road side. They are having new products, second hand, maybe, or some traditional. And then sometimes you find some very good articles over there”

There were moments of reflexivity when someone could name or generate a consensus about what people were talking about. In the following, “A” (one of the authors), tried to share with the group that he realized which place the participant was talking about.

However, the others took some time to catch it. We can notice that on the following transcription made in Jefferson's system:

A: [So did nobody knows other name
3: [I- i- think::
(0.1)
2: No, that is
3: [I don't know the name
A: [Feria de ladra
3: Sorry?
A: Feria da ladra
3: yes, that is
2: [Ah is that
1: [heh
4: [heh
A: I know and you don't know ()
2: Yes, feria de ladra
3: You know eh- >what is the problem with< this eh: I have seen
so many places here in Lisbon but I- I () pronounce the name
and I never do to call them=
A: [yeah]
3: =memorize em, but I just know brought () the area: this is=
4: [(h)m]
3: =why I just interpreted:
A: [Ok

Additionally, we observed in the transcriptions that not only the perception and values of place were represented, but also the participant's personality. Therefore, the ontological feature of maps is taken by each participant as he/she uses it to express his/her identity and vision, while others can access to that vision to understand the participant's vision.

Assistive or complement lectures

Such recalibrations and stabilizations are common in group discussions. However, maps mediate in the process in different ways. In one of the groups, after looking for specific places in the analog map, because it lacked street labels and other references, participants were lost. We decided to use a complementary digital map based on the

OpenStreetMaps service, which was projected on the wall of the room. Then, participants tried to match the digital reference to the analog one. While it took time to find the right places, it was necessary an intermediary reference to localize the area in which the place was related to, and then, look for the specific place.

Digital artefacts, media and information devices surrounding our daily life activities are interconnected both in terms of their functions and meanings creating physical and digital ecologies (Fuller, 2005; Jung et al., 2008). Platforms like Google Maps and OSM enable us to reimagine our location and to develop a relational perspective. They are publicly accessible mapping platforms that open new ways to locate information and wayfinding practices. For that reason, we forced participants to think outside their own practices of understanding the territory, making them amplify the scope of digital maps to solve their situation and to learn from it.

For historical or touristic purposes, only relevant places are marked to quickly find them, but usually these maps lack other common references or places, like fast food chains, banks, or buildings that foreigners can easily recognize. Once a tourist gets lost, he/she then tries to match the references on the map with the place where she is, and the absence of common references may make the navigational task difficult (Ishikawa and Takahashi, 2013). In our case, the multiple references to metro stations, fast food chains and other commonly known places, helped to mediate the locations. By doing so, participants unveiled also activities that they used to practice in these places but were not included in the list of places of preference.

The mediation of such places unveils in-between places, revealing a set of practices that are not conscious and, possibly hidden from the rationale of the group. This is where the intersection between the representational and non-representational is found useful.

Place, people and process

During the walking activity of the first group, one of the participants led the group to her special place. We found that she had difficulty to put a name and to give a concrete description of the place. For that reason, the participant complemented it by gestures

and specific descriptions, references and negotiations until the group realized what she was trying to communicate.

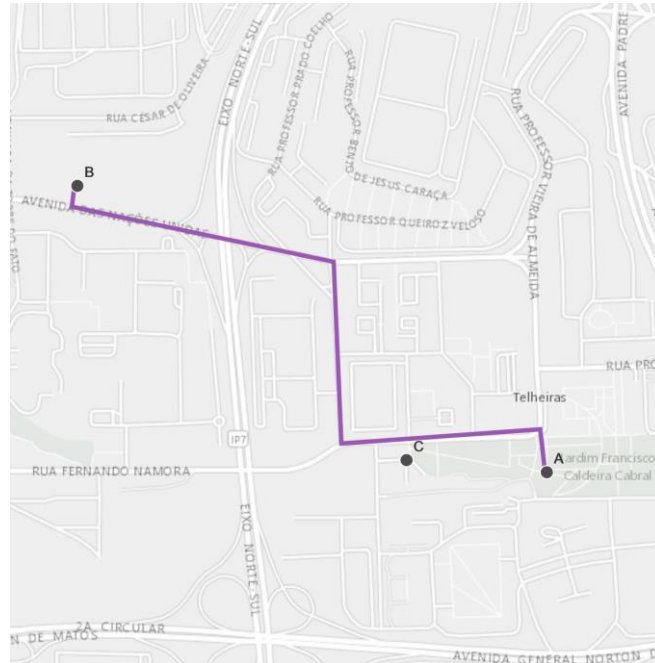


Figure 3. Path followed in the walking activity with the first group.

Because it was a common space for two of the participants, we decided to do the go-along walk around Telheiras station, the starting point of two of the mentioned places. When the participant started to guide us to the place, she explained that she found the place (Point C, in Figure 3) by chance, while she was heading to a meeting with her supervisor in the supermarket “Continente” (Point B). We reproduced that path to understand where and under which circumstances affects raised on that activity. The place that she found so special appeared in contrast between two crowded places, as an oasis, with the characteristics that she preferred (peaceful, relaxing).

We found that during the workshop, she only could mention the metro station (Telheiras) near the place, but since she could not describe it in more detail, she gave up on explaining more about that place. Neither could she point it on the map, she only realized where the place was when other participants named the station.

“And going out of metro, it was a new place for me [...] During my whole walk, I found it very pleasant. Very peaceful. Something positive. I mean, you are walking

towards the Continent from your metro station that there is a long walk. And I found it very peaceful and I was doing, I have a brainstorming during there so I have very positive thoughts. I found that. I mean, I've been going there after that two or three times, just for. Because of my thesis.”

Edensor (2012) argued that affects are always anticipated, having a social, cultural and personal background. In this case, the participant's intention to find a place that brought affect was clear. She prefers pleasant, quiet places, with natural elements, in which one can enjoy certain activities such as reading or studying. But the fact of sharing it with others turned to be a difficult task to accomplish. In the walking, she resorted some words such as magical place or by referring to fictional scenarios. The group accommodated their understanding of the meaning of what she was saying:

“I know that the place is very common, but the ambience, the entrance is... and, I sit on that desk and... that entrance, that entrance. The green one. The entrance of... Like a fairy tale, Alice in the wonderland, or Scotland.”

The participant also expressed the importance of repetition as an act of affirmation of her feelings: *“It really makes me happy. I have been there. Eh, I've been coming here for more than three times. So, whenever I came here I use to sit here. At least for thirty or forty minutes.”* She then reaffirms the feeling when explaining how it works, and in which situation she found it: *“But it appears that, if I would sit here, the magic will remain there.”*

Regarding this last case, we understand that the activity of mapping is not just a construction of symbolic reference, but that it is activated in time. As Liberman put in words, “a map does not provide for those practices prior to an occasion—instead, it is the occasion that affords the map its coherency, a coherency not of ideas but of a collection of practices” (Liberman, 2014a: 47). But at the same time, the different activities allowed us to complete the *virtual* aspect of the place, only by the mediation of several cartographies, verbal descriptions, physical gestures, negotiation between participants and our own ideas, feelings and emotions. What grouped all those mediations together was the contagion of affects (Thrift et al., 2008), which made us react in such a way that we felt the importance of such place. It was that specific moment of being in the place, after a sequence of synchronous and asynchronous activities and choreographies that permitted us to arrive a moment of reflexivity and

understanding. We can argue that in-between places are special, hard to communicate and represent, but often necessitating and/or leading to unique moments of common understanding within a group.

The process of reconstructing spatial memories

Activity groups are embedded in a negotiation of meaning and personal exposure. In a Wittgensteinian view, given the lack of necessary landmarks and contextual clues in conversations, Liberman (2012) affirms that “the meaning of a word is naturally unstable over the course of a conversation” (263), and, for that reason, “meanings do not reside in people’s heads but in the world” (266). Participants in both groups re-arranged their places to follow the conversation and the general meaning of the experiment. The importance of places, then, are entangled to the utterances of other participants.

During the workshop, the first group spotted publicly known places that may be of interest to tourists, including sites of natural or cultural heritage. Because of that, organizers had to force the conversation to go to personal places. However, in the second group, because most of them knew each other before, they mentioned places that are common to most of them. In both cases, personal places came in the second or third attempt of describing places. Lewicka (2011), by comparing other studies, found that participants tend to prefer places by environmental features and characteristics of place than by social ones (family/friends). In their personal lists of places, we can corroborate Lewicka’s findings, given that at least half of the participants put the University and Arco do Cego (the main square where they used to meet) in the top of their lists. Nevertheless, comparing to the maps from stage 1, with the exception for one participant, none of those places were marked as important regarding social capital or place attachment. Here, places like Belem (the most popular touristic place of the city) just came up in the group activity. Consequently, in-between places are also mediated by popular images, common assumptions and knowledge.

Feelings, emotions and affects

Looking at the words used by participants to describe their emotions in relation to places, we found that many of them did not describe emotions but activities or relationships with these places. For example, in the second group, one participant

pointed to a square where he socializes with his friends and university colleagues; when we asked him for emotions, he only answered “hangout.” What we understood is that multiple emotions came up at the same time, making the explanation confusing. Therefore, there is not a single rational aspect, emotion or feeling pertinent to a place, but multiple and mixed as participants remember them. Considering that emotions are “constituted categories in relation to which the felt intensity of experience is articulated” (McCormack, 2003: 495), we realized that some are not yet established, but are becoming in the course of the discussion.

In some cases, for representing what they feel about, participants decided to describe the place first, then what they used to do there, and why they liked it. Because of the difficulty to assign a word to emotions and feelings, a place is represented as a set of descriptions and gestures that altogether try to transmit the felt attunement (Edensor, 2012). Besides, we perceived the unsuitability of some tools, such as digital and analog maps to describe some emotions. In the analysis of what they have drawn, we observed that, in a first instance, participants avoided these places in favour of more common places, and only after a prudent time, they were able to communicate more personal places that were not on the list.

On the other hand, the places that were top-ranked sometimes fit with specific feelings or emotions. For example, one participant mentioned reiteratively pleasant and quiet places, as something that she was expected for her selected places, and in fact she thought it was a common expectation.

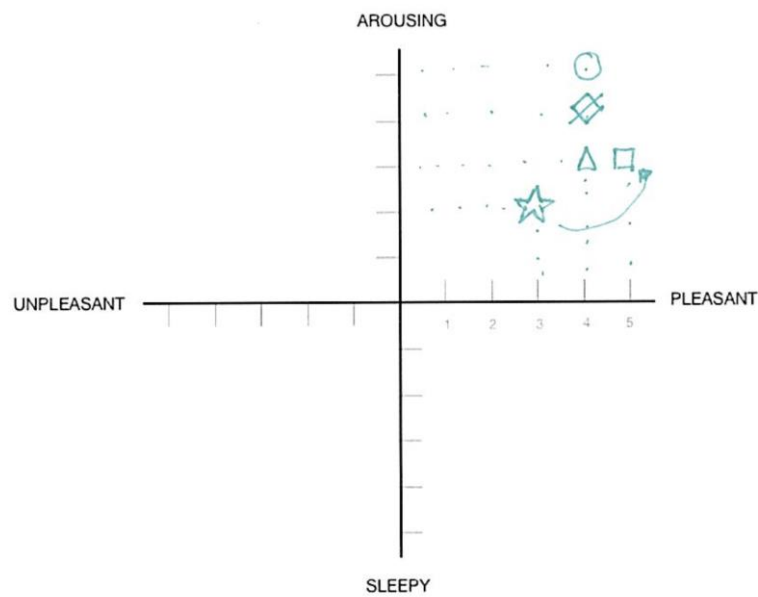


Figure 4. Appraisal Marker where the place in Chelas was changed by the participant.

For the use of the Appraisal Marker most participants chose merely pleasant places, and very few thought of unpleasant places. More interestingly, we asked later if they wanted to move one marker to another position. Despite the fact that few participants made changes, one case was paradigmatic. The chosen place was the childhood house of one of the participants. Since the neighbourhood (Chelas) has a bad reputation, the discussion shifted from his description of individual concern to a more public debate regarding insecurity and other social consequences. Though it was the participant who mentioned the bad reputation of the neighbourhood, he probably did so with the intention to differentiate its public reputation of that space from his own experience and appreciation: “*The area where my grandparents live was not problematic. It’s a fine place,*” he confessed. Then, another participant (who knew him) commented on her feeling of safety: “*Sometimes it can be a scary place but nothing bad happened to me there,*” she said. As a second witness, she helped to build a stronger argument, saving his negotiation between a personal and a public definition of the place. Consequently, the first participant decided to move the marker to a more pleasant position (Figure 4), most probably because of the negotiation that took place.

On the scale of places

Participants of both groups recognized Parque das Nações as a public space, but it was referenced to different activities. The place is a parish that was built for a World Fair in 1998 with a series of venues, such as a shopping mall, a riverside, restaurants and a

concert hall. It is well-known for leisure activities, tourism and shopping. There is also a set of residential buildings that were built after the fair, and one of the participants lived there since her childhood.

For her, the place has a different value than that of the rest of participants. Although the descriptions made during the walking were levelled down to a more historical narration, when we analysed the data we found that she has selected all the areas of the parish, while others only selected a specific sector of it. We can assume that she has more attachment to the entire parish area and knows many places that she can be related to, while others only referenced few places and, consequently, felt less attached to that place.

Exercises through distinct means and tools required participants to point to places differently. In the first stage, we asked them to define areas of influence, regarding sense of place or attachment, while the tool also forced them to do so in a specific manner. In the second stage, we gave them symbols to represent places, which allowed participants to point to a specific place, and not an entire area. For example, inside Parque das Nações, people placed marks at different venues, while they selected the entire area when using the digital tool. In some cases, participants, by freehand drawing, also used the symbols to fit an entire area. Therefore, they adapted the given tools to fit their intentions, and defined the scale to which they wanted to show their space appropriation. Without the practical opportunity to work remotely, the appropriateness of analog tools fits much better into the level and scale of representation of places.

Conclusion

In this paper, we put in perspective the development of representational systems for communicating what people consider a place. With the adoption of digital platforms, the meaning of what a private or public space changed, as well as individual and group relationships with space (de Waal, 2014). Our relationship with the urban space is also changing due to the use of software enabled devices (Kitchin and Dodge, 2011).

The notion of place, that has been discussed for decades is in constant transformation. As Duff pointed out, we should not try to force it and understand that levelled down

places are also opportunities to generate new personal, appropriated spaces. For that reason, we consider that, using new available technologies we can look at new ways of narrating and communicating those places. Thrift et al. (2008) said that new possibilities of visualizing maps by interactive means are an opportunity to also capture such changes on affect. And our call here was to critically face the use of media to represent what is harder to represent, rather than continuously to reproduce the same ambiguity between common spaces and places.

None of these developments are thought to raise, share and contribute any personal value of space. As we saw in our exercises, in-between places are commonly unknown spaces, which are only shared between participants when enough confidence among them exists. Beyond any place that has been pointed during the activity, it remains to be understood why some places that participants have put on the list were not mentioned during the group discussion. Omitted and absent places are also significant. As Gerlach (2014) writes in connection with Gilles Deleuze's manifold cartographies, it is in the multiple 'and, and, and...' (Gerlach, 2014) of descriptions, embodiments and processes that we can find these in-between places.

Much more understanding is needed on how in-between places can be part of everyday life, and what the difficulty of capture and discuss its meaning implies for future technological developments. In this paper, we have examined spatial mediation and spatial memories as part of the constitution of places, as a collective knowledge, and that this may help to delineate new methods to create, share and capture them with or without digital artefacts.

Given the proposed framework in Figure 2, we account that some methods were more suitable regarding specific layers. For example, the go-along walk provoked circulation of affect and, at the same time, the focus on the Process for the constitution of meaning. The workshop helped us to discuss emotions, while the circulation of affect was also spotted in the discussion. However, the use of the map as navigational device offered a focus on Places and Process. We encourage ourselves to continue researching on relating scopes and layers in further experiments. However, a situated reflexivity on

the discussions and mediations is hard to reproduce. Therefore, we expect that more studies will focus on the Process of creating places and the mediation of cartography.

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**Invisible and Instantaneous:
Geographies of Media
Infrastructure from Pneumatic
Tubes to Fiber Optics**

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Abstract

In the late-1890s, five cities in the United States set up miles of tubing that would send canisters filled with mail sailing from post office to post office, pushed through the length of tube by compressed air. These letters could arrive within the hour and were delivered throughout the day regardless of the constraints of weather or traffic on the streets above. Anticipating our contemporary uses of text messages, the pneumatic mail services offered people the ability to stay in touch throughout the day, coordinating plans or exchanging love notes through an infrastructure that was a key part of defining modern American society. The tubes and the pneumatic mail delivery went defunct in the 1950s; yet, years later, in the early-2000s, a New York entrepreneur came across the archives of these old tube systems and decided to run fiber optic cable from building to building through the now-obsolete tubes. Comparing how these two technologies – pneumatic tubes and fiber optic cables for the Internet – created an imagination of the instantaneous in their respective times, I explore the powerful allure of the instantaneous and how such ideas open up an exploration of the relationship between proximity and everyday temporality as the pace of communications are affected by the desire for ever-accelerating technologies for communication.

Keywords

Cultural geography, infrastructure, media archaeology, temporality

Introduction

At the height of the dot-com boom in the late-1990s, technology entrepreneur Randolph Stark was walking home through his Wall Street neighborhood and saw

crews digging up the street to lay fiber optic cables between the banks and the stock exchange. Stark was walking home from a tech meet-up in Manhattan. Earlier that evening, a colleague had mentioned to him that New York used to have miles of pneumatic tube lines that shot up to 20,000 letters a minute between Post Offices. On the walk home from the meet-up, as Stark was looking at the heavy machinery digging up the concrete and asphalt, it all seemed like an unnecessary amount of labor and cost – at about \$1000 a foot – when the infrastructures were already there just a few feet beneath the hole that was being dug anew (Figure 1). He then envisioned a new business venture: running fiber optic cables in the old pneumatic tubes that were laid in the 1890s. This would allow companies, apartments, and office buildings to get faster Internet connections since the data would have less distance to travel.



Figure 1: The ganglia of pneumatic tubes beneath the streets in New York City at the intersection of 17th Street and Sixth Avenue, 1906. Image courtesy of the National Archives, Washington, D.C.

There are significant parallels between the fiber optic age of the Internet and the era of the pneumatic tube mail system. Like our own moment, the age of pneumatic tubes created ways for people to send messages at unprecedented speeds. Starting in

1897, 27 miles of tube were laid underneath the streets of New York City in order to use compressed air to shoot canisters of mail around the city between post offices. The pneumatic tube mail system, which pushed brass canisters that could hold 600 letters each, were popular in Europe prior to their launch in the United States. But starting in the late-nineteenth century, pneumatic tube systems would be an important part of mail delivery in Philadelphia (the first city in the United States to start using pneumatic tubes), New York, Boston, St. Louis, and Chicago. The canisters, or “carriers” as they were called, would leave the Post Office every 10 minutes and would fly underneath the city streets, able to deliver a message from Times Square to the General Post office in three minutes even in a deep snowstorm. With these tubes running underground and connecting people in new and technologically advanced ways, the era felt as if the possibility of instant connection was now at hand. Noticing the parallels between the pneumatic era and the fiber optic one, Stark asked himself, “Why don’t we have pneumatic tubes running to every house? Why did that never happen?”

There are moments in history when technologies allowed us to connect with each other at unprecedented speeds. These moments gave people the ability to send messages at rates that seemed to eliminate waiting altogether. The rise of the pneumatic tube mail system was one such moment. Cities across the country were clamoring to install pneumatic tube mail systems. Sending mail in canisters pushed by compressed air under the streets of a city was seen as the essence of being cosmopolitan and modern. Pneumatic tube systems were not simply an efficient way to deliver mail and packages across cities with congested streets now packed with automobiles; instead, they were symbols of modern life. Pneumatic tubes represented a technological leap forward allowing us to connect instantly.

The geographic placement of the tubes, underground and out of sight in urban centers, helped fuel a cultural imaginary around the idea of “instant messaging.” The pneumatic tube geographies were central to their success and shaped the way that the medium was not only used from day to day, but also how the public imagined the role of this new medium in their identities at the turn of the twentieth century. The underground placement of the pneumatic tubes served two purposes. First, it was

practical, allowing the message canisters to be sent throughout the city without interrupting life above the surface. The ability to send messages without dealing with the crowded city streets or severe weather was one of the main selling points of the pneumatic tube system. It could deliver consistent speeds regardless of how congested or impassable the streets got above. Second, by being out of view, it allowed the imagination to create a mysticism around the system that could be totally disconnected from the physical reality of the pneumatic tubes. For example, in a newspaper cartoon from 1915 that advocated for extending the system, it shows a clunky mail car stuck at a bridge crossing while a missile-shaped canister filled with mail shoots through a tube under the river. The cartoon contrasts these by saying “What We Have” next to the mail car, and “What We Ought to Have” next to the mail-missile (Figure 2).

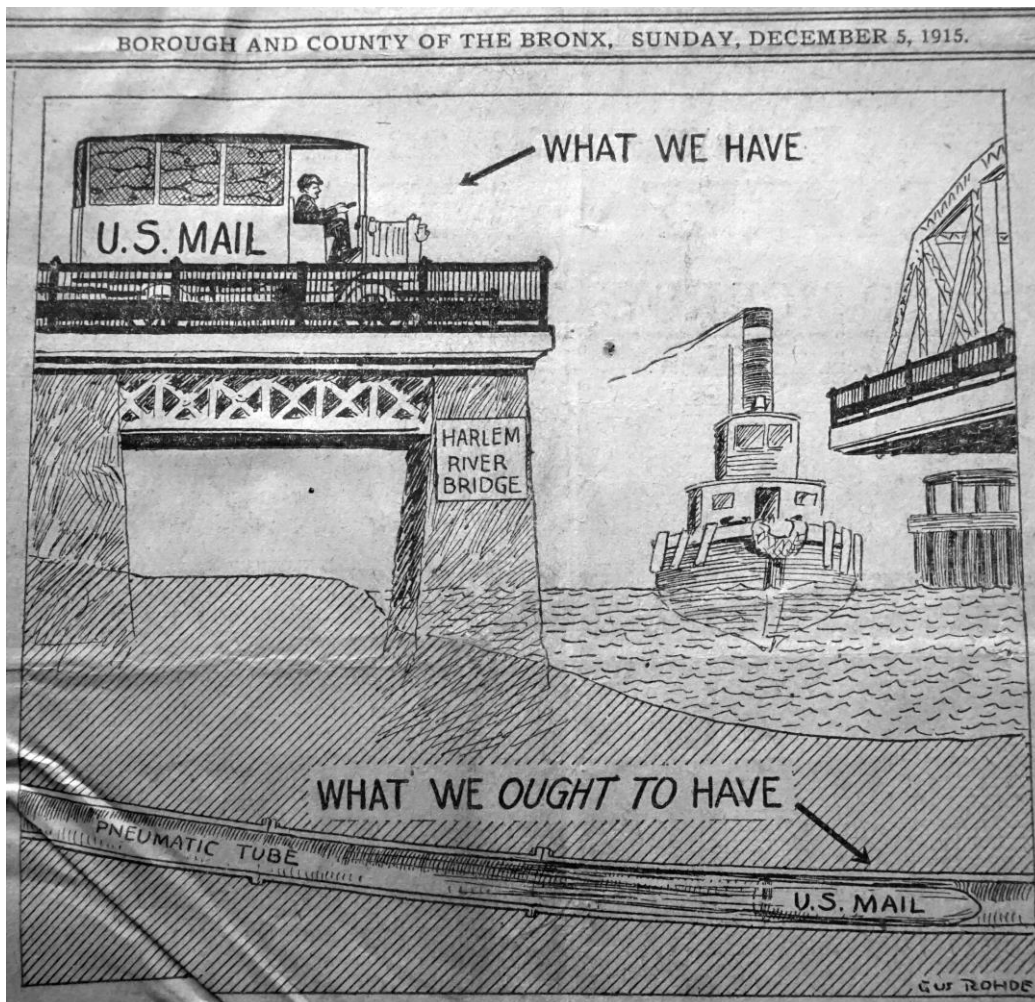


Figure 2: A drawing published in the *Bronx Home News* published on December 5, 1915 comparing the clunky automobile and its limitations with the futuristic (and militaristic) missile of the pneumatic tube canister being shot under the Harlem River. Sending mail in canisters pushed by compressed air under the streets of a city was seen as the essence of being cosmopolitan and modern. Image courtesy of the National Archives, Washington, D.C.

In this article, I explore the ways that “instant connection” through a messaging technology had a powerful cultural allure, regardless of whether or not the systems could actually connect people instantly. Instantaneous communication is still an enormously powerful concept in our own culture. It is the motivator behind that feeling that we are unable to leave the house without our phone for fear that we’ll be out of touch. Being able to reach out and connect instantly, without the need to wait, is a dominant touchstone for our era. The seeds of this enchantment of the instant were planted back in the mid- to late-nineteenth century with the launch of the telegraph and the pneumatic tube systems. Yet, this notion of instantaneous communication is a mythology that drives consumer attitudes more than it delivers a wait-free mode of communication. That is to say, the ways that this enchantment *changes how we think* are more powerful than the technological abilities of the system itself, whether that be text messages on a mobile phone or pneumatic tubes shooting messages around a city.

Archaeologies of Media Geography

This article employs a media archaeology methodology by identifying the genealogical link between contemporary media (Internet, mobile technologies) and media of the past (pneumatic tube mailing systems). By situating each technology discussed within their specific cultural and historical moment – noting the contours and infrastructures that contextualized these mediated connections – I utilize media-specific analyses (Hayles, 2004) while at the same time thinking “intercontextually” to make links between media of the past and our own technologies (Huhtamo and Parikka, 2011; Chun, Fisher, and Keenan, 2005; Gitelman, 2006; Kittler, 1999; Standage, 1998; Marvin, 1988). As such, I work to create genealogical traces from these media of the past to the digital age of mobile devices in order to understand the affect of their invisible infrastructure across geographies of everyday life. The impact of this invisibility reinforces mythologies of the instant that function outside the realms of material reality. This mode of deployment creates what Lisa Parks (2012: 66) has called a “infrastructural illiteracy” that, in effect, creates a public that “are socialised to know very little about the infrastructures that surround them in everyday life, whether electrical systems, sewer pipes or broadcast networks.” She continues, “Not only are people socialised to be unaware of such systems;

infrastructures are often designed purposefully to be invisible or transparent, integrated with the built environment, whether submerged underground, covered by ceilings and walls, or camouflaged as ‘nature’” (Parks, 2012: 64).

This approach draws from Shannon Mattern’s (2017: xx) methodological approach to what she terms “urban media archaeology.” By linking media of the contemporary city to the often-overlooked media or forgotten technologies of the past, Mattern calls for “urban media histories [that] are cyclical, entangled, a messy mix of discourses and dirt, imaginaries and I-beams, sketches and sensors” (2017: xx). Mattern’s work builds on the research of media historians like Carolyn Marvin (1988), Jay David Bolter and Richard Grusin (1999), and Lisa Gitelman (2006) who argue against a model of media built on moments of historical disruption. Instead, their research points to the ways that media exist in a material and conceptual genealogy. As Bolter and Grusin (1999: 15) write, “No medium today, and certainly no single media event, seems to do its cultural work in isolation from other media, any more than it works in isolation from other social and economic forces.” Gitelman (2006: 2) argues that such an approach is key because “If there is a prevailing mode in general circulation today, I think it is a tendency to naturalize or essentialize media – in short, to cede to them a history that is more powerfully theirs than ours.” These methods work against a technological determinist notion that these technologies are either 1) a natural progression from obsolete media to newer and better media, or 2) ruptures from the past that establish new, innovative technologies that solve the problems of the past. Thus, as new technologies are taken up in a culture, we can trace the ways these media “remediate” older forms while drawing on the conceptual and cultural imaginaries that afford such an uptake.

By tracing the topoi of invisibility and the instant across two technological eras, this article also builds on the “topoi studies” established by Erkki Huhtamo (1997: 222). Huhtamo’s methodology is to study concepts (or topoi) as they recur in different eras, pointing to the ways the concepts simultaneously elucidate a cultural imaginary and gesture to a genealogy of a concept. These topoi “can be considered formulas, from stylistic to allegorical, that make up the ‘building blocks’ of cultural traditions” (Huhtamo, 1997: 222). These “cultural, and thus ideological, constructs” shape the human experience with media (Huhtamo, 1997: 222). They inform not only the

embodied approach we take to these media, but also the value a society gives a medium as it takes prominence in that era.

One particularly apt topos that emerges is the ways that the instant compresses geographic distances. “New” media often replace their predecessors in the imaginaries they build around being able to reduce geographic distance and connect people quicker than previous technologies. As Marvin (1988: 194) writes, discussing nineteenth century technological inventions like the telephone, “The more any medium triumphed over distance, time, and embodied presence, the more exciting it was, and the more it seemed to tread the path of the future.”

The rise and fall of the pneumatic tube mail systems in the United States offers commentary on our own technological moment and our feelings about the relationship between time, messages, and technology. Technologies for instant communication don’t eliminate our wait times; instead, they function to give the public a sense of technological advancement. We are drawn to the myth of ever-accelerating connection speeds that will allow us to connect instantly. This myth reveals our desire for tools that bridge the gap between us and those who are geographically separated from us. These tools give us hope that we can stay intimately connected with those who are far away. As people move away from families and loved ones, as they switch neighborhoods or states or countries, they seek tools that will help bridge the intimacy gap. Even within a city like New York, these tools promise connection in a space that continually feels disconnected and isolating for people despite the size of its population. Such promises of wait-free communication and connection are powerful and help create an investment in these technologies.

Modernity Through the Tubes

Molly Wright Steenson (2011: 86), a media theorist who studies the Parisian pneumatic tubes, wrote, “If ‘history passes through the sewers,’ as Victor Hugo wrote in *Les Misérables*, then perhaps modernity passed through the pneumatic tubes.” The pneumatic tube mailing system in Paris, or the *Poste Pneumatique*, ran from 1866 until 1984 and was one of the most extensive in the world. One of the

ways that “modernity passes through the pneumatic tubes” is that the tubes present *an idea* more than they offer a solution to the problem of time and distance. In a technological culture that uses innovation and advancement as its fulcrum, the thing that is lifted up is the mythology that is thrust into the public’s imagination. As a technology speeds up our ability to connect with one another, as the pneumatic tube was able to do, the words being sent through the letters in the tubes aren’t the only content; as this article argues throughout, the content is also time. It is not simply that someone received a love letter; instead, they got a love letter sent through the pneumatic tubes. As Paul Virilio (2007: 51; see also Redhead, 2004: 50) has noted, the mark of an accelerated culture is content defined by its speed.

Pneumatic tubes began delivering mail for the first time in London in 1853 around the same time as the railroad began connecting distant parts of England and speeding up travel times. This was a noteworthy moment in communication history because it signaled a speeding up of the transmission of messages. As Tom Standage (1998: 2) notes in his book *The Victorian Internet*, up until this era, sending messages took the time required by a messenger on foot or on horseback. He writes, “This unavoidable delay had remained constant for thousands of years; it was as much a fact of life for George Washington as it was for Henry VIII, Charlemagne, and Julius Caesar. As a result, the pace of life was slow.” It wasn’t until the appearance of “something that moved faster than a horse or a ship” – i.e., the telegraph, railroad, and pneumatic tube – that communication media sped up the pace of life and peoples’ connections with one another (Standage, 1998: 3).

Other cities soon followed London to install their own pneumatic tube mail system, such as Berlin and Vienna. In New York, one of the first experiments with pneumatic tubes was a human-sized subway car that was propelled down the length of a city block by compressed air, perhaps the first ancestor of the Hyperloop currently being built in cities around the world. This experiment – which ran under Broadway between Warren and Murray Streets and was the city’s first attempt at underground transportation before the subway was built – sat immediately across the street from City Hall and vied to become the prominent mode of transportation in New York. In the end, it ended up being more of an amusement ride since the air

pressure required to propel the car couldn't send it too far. Regardless, the promise of pneumatic tubes was planted in the subconscious of New Yorkers.

Philadelphia, home of the Post Office Department and the foundations of the postal system in the United States, was the first city in the United States to launch their pneumatic tube mail system. The kickoff for the tubes was a memorable event. The inaugural items sent through tubes were a Bible wrapped in the American flag, a cat, a dog, and China cups, and concluded with everyone's lunch being delivered undisturbed. (Later events reported that there was a 13-year-old boy who was sent through the tubes in one of the large experimental canisters in Chicago.) The tubes in the United States were 8-inches in diameter, which set them apart from their European counterparts which mostly had 3-inch tubes. The bandwidth, as we would term it, available to the U.S. Post Office Department was more than seven-fold that of the Europeans. (That said, France had 217 miles of tubes in the country, compared to the 42 miles in the five cities that employed pneumatic tubes for mail in the United States.)

Once the system was in place, people began sending letters and small packages to one another at an extraordinary pace through this modern system. Each day, tens of thousands of notes, memos, receipts, love letters, and business deals were sent through the tubes. The system was enormously expensive to install and maintain. Each year, Congress established a commission to look into whether the pneumatic tubes were actually worth the cost. One report from 1910 noted that it cost \$120,000 per mile to install the tubes (equivalent to around \$3 million dollars today per mile) and that the government paid \$17,000 per mile each year to maintain the tubes (equal today to about \$423,000 per mile). At this rate, the Chairman of the Committee on Post Offices and Post Roads noted, the tubes would require an appropriation of about \$1 billion (equivalent today to \$25 trillion dollars) per year to keep this system afloat. To lay this infrastructure and maintain it was not dissimilar to the scene that Randolph Stark stumbled across in his Wall Street neighborhood – in the dot-com boom era of the late-1990s, digging those trenches for fiber optic cables cost around \$5.2 million per mile.

In each of these committee reports on the pneumatic tubes, tests were conducted to see if the tubes were actually faster than other modes of message conveyance. Each year, postal workers took part in a speed test of the delivery systems available. In these tests, workers would receive two letters at a particular station, postmark it, and then send one through the tubes at the same time one would be loaded onto a mail truck (Figure 3). They would be timed. The race would be on to see if the government could find justification for spending the amount they did every year on the tubes. In 1931, as a letter left the General Post Office, directly across the street from Penn Station, it would take 17 minutes for it to sail through the tubes across the Brooklyn Bridge and into the receiving room at the Brooklyn Post Office. As a postal vehicle left the General Post Office, it would arrive at the Brooklyn station 40 minutes after departure. To get to Wall Street from the General Post Office was about the same time for the pneumatic tubes, clocking in at 17 minutes; however, it took the mail truck 78 minutes through the slow crawl of Manhattan traffic.

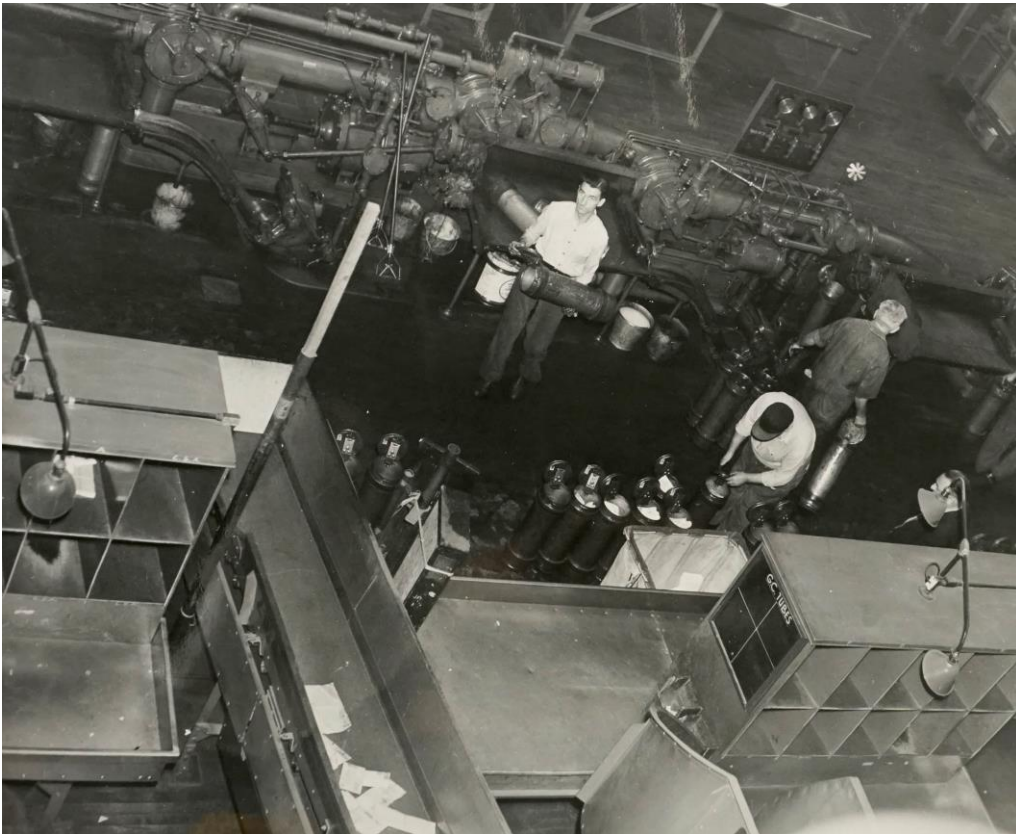


Figure 3: Workers at the Grand Central Station Post Office, loading the pneumatic tube carriers with mail, 1949. The open carriers are lined up ready to be filled with 600 letters each. These letters would leave the station and be timed to see if they were fast enough compared to automobiles to justify the cost of maintaining the tubes. Image courtesy of the National Archives, Washington, D.C.

Over the years, the delivery times for the pneumatic tubes didn't change at all; the automobiles, on the other hand, got slower and slower. In the 1931 and the 1949 test, it took a letter 12 minutes to travel through the tubes from the General Post Office to the Gracie Postal Station on 87th Street on the Upper East Side. To get there by automobile in the early-1930s took 38 minutes; 18 years later, it took an hour. Congress, who oversaw everything done by the Post Office Department, ran this test countless times over the years and produced the same results time after time. In each of the reports, experts, business owners, and everyday patrons would testify to the same thing: the tubes are fast, they are faster than other options, and they deliver the mail even in conditions that limit over-ground delivery such as intense snow storms.

The Fall of the Pneumatic Era

During its use in the United States from 1893-1953, the pneumatic tube mail system was incredibly successful. It did connect people in ways that were unprecedented. While it didn't remove the need to wait (waiting is always a part of sending and receiving messages, no matter how fast the technology is), it did provide a new way to send messages at speeds that made people feel like they were living in the future. But that feeling is always connected to the human experience of time rather than to any objective numbers about how quickly a pneumatic message could be delivered as compared to one delivered by car. The human perception of time shifts along with the technologies of an era and is often influenced by the cultural imaginaries about how the pace of life is being altered by new technologies.

In other words, what it means to wait for a message changes from era to era. Waiting is experienced in its context rather than in the actual hours, minutes, or even seconds someone is kept waiting. The delivery of mail by the pneumatic tubes didn't change in time from year to year. Each year, it took a message four minutes to sail through the tubes from the General Post Office to Grand Central Station. It remained that way for the 54 years that the system was in place. Regardless, the perception of time across those decades had shifted in incredible ways. Cars had been invented and adopted at a remarkable pace; planes had been invented and were delivering mail by the 1910s. World War I and II had taken place in this span and urbanization was on

the rise. The population of New York had grown around five-fold over these years, ballooning from around 1.5 million to 7.8 million by the time the tubes were decommissioned. Everyday life looked very different in New York when the tubes were shut down for good than when they first began. Though they remained constant in their ability to send messages at a certain pace, the human perception of time, along with the demands put on that system, transformed what it meant to wait for a message.

The initial failure of the pneumatic tube system came down to one man: the Postmaster General appointed by President Woodrow Wilson, Albert Sydney Burleson. If ever there were a nemesis of the pneumatic tubes, it was Burleson, who worked with Congress to produce report after report on the efficacy of the tubes only to ignore their findings and shut down the entire pneumatic mail system for the first time in 1918. There were near universal claims that the system was helping all those who used it. However, the system remained extraordinarily expensive and Burleson didn't want his department to front the costs.¹ In the end, Burleson requested that President Woodrow Wilson veto the congressional bill that would keep the system alive. The whoosh of the tubes across cities like New York went silent from 1918 to 1923.

The New York system was revived in the early-1920s after Burleson's tenure as Postmaster General had ended, and lasted until the 1950s. There were several official reasons given for the decommissioning of the pneumatic tubes. First, the ability for automobiles to carry massive amounts of mail around the city was noted as an advantage over the tubes, which could never increase their capacity unless they were replaced with larger tubes and larger power stations to create the necessary pressure. The system was also difficult to fix. With pipes four-to-eight feet underground, crews had to shut down streets as they dug down to open up pipes to do maintenance or repair. A *New York Herald* newspaper article from 1909 describes the arduous process for finding and fixing a stuck carrier in the tubes. Teams of two or three workers would be sent out along the pathway of the tubes. Every two blocks, a portion of pipe comes to the surface for these workers to be able to check the air pressure. They open each of these until they come across the one that's missing the air pressure. "They know they are 'getting warm,'" the article notes. Following this, they:

try to force the carrier either forward to the next station or back to the station whence it came by extra air pressure. If this means fails the chances are the street will have to be torn up. [. . .] One bad break occurred at the New York terminal of the Brooklyn Bridge by reason of some excavations. In this case it was found necessary to tear up the pipes and relay them.” (*New York Herald*, 1909)

Yet more than for any other reason, pneumatic tubes were probably decommissioned – as is true of many technologies – due to the shifting perceptions about how well the technologies align with our expectations of time and speed across the geographies they connect. Just as notions of waiting shifted across the years in a place like New York City, so too did expectations around the “instant”. Technological obsolescence is often driven by an increasing separation between notions of synchronicity (everyone being on the same clock, sharing the same information) and delay. “That is, the instant is often defined in contrast to the ways we define delay” (Lampert, 2012). What constituted instant communication in the era of the telegraph or in the era of the pneumatic tube was specific to those eras. Such notions did not hold true fifty years later, as people’s perception of the instant changed with the rise of new modes of transportation and new global connectivity across two world wars.

Part of the story of the abandonment of the pneumatic tubes is one that’s very familiar: technological obsolescence. Technologies get replaced by newer ones that are presented as solving the problems of the old. The tube system was set up in an era when postal workers were delivering mail by horse-drawn wagons (Figure 4).

Though railroads were a part of this delivery process, the “last mile” – which is the industry term for the very last portion of a communication infrastructure that delivers it to the home or business of the user – was fulfilled by a slow and soon-to-be-outdated mode of transportation. Once cars made horse-drawn mail wagons obsolete and became a prominent mode of mail delivery, they changed the speed at which the last mile was achieved. Pneumatic tubes were never a “last-mile

technology,” and they never could be on a practical level. Instead, they allowed the mail to be shipped from one hub to another. A person still had to hand-deliver the mail or walk to the postal station to pick up the message. Soon on the heels of the installation of the pneumatic tubes came the automobile, which brought its own notions of speed (though its rapid adoption would create gridlock across Manhattan).



Figure 4: A mail wagon at Grand Central Terminal, 1913. When the pneumatic tube system was first introduced, it delivered mail alongside these slow wagons. This comparison supported the idea that pneumatic tubes made instant connections possible. Image courtesy of the National Archives, Washington, D.C.

These definitions of speed are shaped by the ways that a technology transforms an individual’s sense of the instant and of delay. One rich example was recently shared by author and musician Damon Krukowski (2017). Growing up in Boston in the early-1980s, he distinctly remembers a phenomenon that would happen when the Red Sox would hit a home run or win a game. As soon as this would happen, a roar would permeate throughout the city. People in Wrigley Field would join in the chorus with those watching at home on their television sets. Everyone was in synchronicity. Yet, once television sets switched over to digital broadcast, there was a delay initiated by the translation from analogue systems to the digital receivers. This,

coupled with people watching at home now through online streaming services that had their own network latency to deal with, produced a Boston that would erupt into cheers at different moments. The home run or the winning out would be received by people at different intervals based on the technologies that they were using. Though people were using the latest technologies, notions of the instant had changed because of these technologies. What resulted were interesting delays that emphasized the individual's experience – instead of the collective experience – of a moment.

Thus, the pneumatic tubes created distinct experiences of the instant and of delay in their eras. These notions were shaped entirely by the context through which people experienced time. And, while the tubes themselves didn't change, part of their message content was time, and time was shifting year after year as people's perceptions changed. Waiting and delays were built into the very fabric of the instant that led to both the rise and the fall of the pneumatic tubes, which were replaced by slower but cheaper trucks that could haul a massive number of letters. In the following decades, email would take on the same myth of instantaneous connection that was the catalyst for the rise of the pneumatic tubes.

Reviving the Tubes for the Dot-Com Era

Once the pneumatic tube mail system was decommissioned in the 1950s, the pipes remained dormant under the city streets, out of view and a lost part of the history of message exchange in the United States. Randolph Stark was in his mid-20s when he first heard about the pneumatic tubes at the technology meet-up in Manhattan. Even though the tubes he was trying to resuscitate had been decommissioned for a half-century, there was still a living memory of the mail tubes. People used the tubes at the Post Office until the early-1950s, and tubes were a part of daily life in department stores, banks, and the New York Public Library throughout the 20th century. Americans growing up in the 1950s can draw on memories of standing at the counter at a department store, handing the clerk money for a purchase, which would get magically sucked away with a whoosh up a tube to a different floor of the store. Sailing back with a familiar clank, the clerk would retrieve the tube that contained the customer's receipt. The legacy of the pneumatic tubes is still thriving in certain sectors such as hospitals and banks.

At public libraries in Manhattan and Brooklyn, books were delivered through pneumatic tube systems, not only allowing customers access to closed book stacks in the back of the library, but also delivering the books with a speed that resonates with our own enchantment of information access. Accessing knowledge through the tubes at an unprecedented speed gave patrons the sense that ideas were available to them through technology that reduced the amount of time they had to hunt for it. This system at the Brooklyn Public Library remained in place until the early 2000s, when the system was decommissioned and removed after many books exploded from the pressure in the tubes. Stark saw the abandoned tubes as a tool to solve a major problem for the Internet. “Everyone was trying to solve the last-mile problem,” Stark told me during an interview, referring to the last leg of getting Internet to the everyday customer. Laying cable was one thing, but getting the cable distributed to the customers and having it be faster than the competition was a key challenge of the dot-com boom (and remains so today). The first web browsers had been introduced earlier in the decade and already people were unwilling to wait for content over their modems. The Internet gave people a similar feeling as those in the age of the pneumatic tube; the technology signaled that we were living in the future. That said, the slow crawl of data across the line disrupted this mystique of instant connectivity and became something that the telecommunication companies sought to remedy.

The move from dial-up Internet to DSL (digital subscriber line) demonstrated the last-mile challenge as users demanded faster speeds for their increasingly large websites and digital files. DSL allowed customers to be constantly connected to the Internet and have a dedicated line that wouldn’t fluctuate as much based on how many users were accessing the network; however, DSL degraded in speed to the point that it was unusable if the customer was more than three miles beyond the central hub run by the user’s Internet company. Stark’s project addressed this challenge by making people connected in geographically closer ways to these centers. “During the height of the dot-com boom, time was the most expensive thing,” he said. Any proposal that would speed up the digital age was attractive and Stark’s project was very alluring to companies like Goldman Sachs, which initially sought to work to help him launch his pneumatic tube dream.

Stark was surprised at how extensive the pneumatic tube system was under the streets of New York. These tubes connected nearly all of the Post Offices in the city during the early-1900s, and there was a Post Office station at least every 12 blocks to accommodate people having to walk to pick up their mail before it was delivered directly to people's homes. The tubes spanned beyond Manhattan through tubes that ran across the Brooklyn Bridge to connect Manhattan with the General Post Office in Brooklyn.

Stark's plan was to lay fiber optic cables in these tubes and make each Post Office a hub for the Internet in that specific neighborhood. Just as each Post Office served as a hub for the delivery of pneumatic tube messages, the fiber optic cables would shoot off from the Post Office station to the nearby apartment buildings and companies, allowing them to be closer to a main hub for the Internet. In each of these locations, Stark would work with telecommunication companies to set up servers that would allow users to connect with the Internet without needing to have their line run a distance that would slow down the transfer of data. Messages and data could then stream to people's computers with the speed expected of this new system.

Stark patented the idea. Yet, since their decommission in the 1950s, no one knew who owned the pneumatic tubes. After digging through the archives, Stark discovered that the company who owned the pneumatic tubes was sued by the city over a property tax lawsuit. The company then abandoned the tubes to the city, but this transfer was lost in the city's records and the city never did anything with this neglected infrastructure. Stark began to work with New York on the ability to control this right-of-way for laying fiber optic cable. The city owned the tubes, but Stark owned the idea for using the tubes for the fiber optic age. The city would have to work with him to revive this forgotten infrastructure.

Months later, the dot-com bubble burst and all financing for projects evaporated. Stark noted, "The dot-com crash started to happen in late-2000, starting in the telecom sector. So it didn't matter if I had gold-plated WiFi cables, no one had money to do anything. Financially it was a terrible time." Then, soon thereafter, the

World Trade Center towers came down on 9/11 and anything having to do with New York City infrastructure and innovation came to a halt. Entrepreneurs and tech innovators were no longer given access to details about the city and its buildings; all records, maps, and schematics were removed from public access as a security measure.

As the city slowly began to emerge from the trauma of 9/11, planners began to think about how to expand the infrastructure for the increasing demand for Internet access. The city maintained an exclusive contract with Verizon to oversee all fiber optic access to New York City residents. This contract dates back to the same era when the pneumatic tubes were laid, in the 1890s, when Empire City Subway (ECS) was given exclusive access to run the conduit system that held all of the telephone lines. ECS eventually became a subsidiary of Verizon and they've continued their control over the cables run throughout the city into the Internet era. The advantage of sticking with Verizon was that the city wouldn't pay for the laying of the new cables needed; Verizon would cover this cost. In exchange, Verizon had a lucrative monopoly. "I was about a year too late," Stark told me.

One site that ended up successfully redeploying the pneumatic tube system was at the old Western Union Building at 60 Hudson Street in New York. This site was the central location for their telegraph message service, much of which would be transferred in the building by pneumatic tube after it was put on paper. Tubes connected the multiple floors of the building, which was erected in 1928. As the telegraph faded in use and the telecommunications industry was deregulated in the 1960s, Western Union vacated the building, leaving in 1973. Soon after, MCI moved into the building followed by other telecommunications companies seeking to utilize the old tubes and infrastructures already in the building. As detailed in his book, *Tubes: A Journey to the Center of the Internet*, Andrew Blum (2012: 174) notes that the ability for these communication companies that would establish the Internet to be in the same place was of key importance to the rise of this new medium for sending messages. The "meet me" rooms of 60 Hudson Street, where the servers of one company connects directly with another company's servers, reduces latency because the data has a very short distance to travel. "Inevitably, those networks began to connect to one another inside the building, and 60 Hudson evolved into a hub. It's

the paradox of the Internet again: the elimination of distance only happens if the networks are in the same place,” he writes (Blum, 2012: 174). Now, 60 Hudson Street is one of the key sites for the Internet globally, as the undersea Internet cables that connect the United States with other countries around the world come ashore in Long Island and New Jersey, eventually meeting in this building. Here, the cables connect servers through the pneumatic tubes before sending out their data across this part of the country. As Blum notes, this building’s connection with London’s Telehouse Internet hub constitutes one of the busiest Internet connection linkages in the world.

Conclusion

Users of emerging technologies are continually told that new systems will speed up the ways they keep in touch with one another. There is no doubt that technologies since the telegraph and pneumatic tube system have indeed sped up human communication; however, users will always have a time lag that makes them wait. The notion of the “instant” that accompanies all of these emerging technologies is never fulfilled yet has an extraordinary impact on how users of these media think about social connection. Central to analyzing this impact is studying how users think about wait times for messages from one another.

While our technologies may be giving us a sense of an ever-accelerating pace of life, the time gap between our messages will continually be shaped by acts of waiting as messages are sent across geographic distances. How we wait for messages from each other will say more about our social lives in an increasingly urbanized landscape than the latest technologies we use to keep in touch.

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Notes

¹ This was happening at the same time that the Postmaster General was advocating for segregation of the mail workers — that blacks and whites should not work together at the Post Office Department. In this cultural moment, the mail was like all media delivery networks that had come before: it was

neither neutral nor free from the societal pressures that would shape how it got used. It would be useful for some and others would be excluded entirely whether by the inability to afford participation or the cultural exclusion from use due to race. See Deanna Boyd and Kendra Chen, “The History and Experience of African Americans in America’s Postal Service,” *National Postal Museum*, <https://postalmuseum.si.edu/AfricanAmericanhistory/p5.html>. For a full history of Albert S. Burleson, see Anderson, A. N (1967) “Albert Sidney Burleson: A Southern Politician in the Progressive Era,” doctoral dissertation, Texas Technological College, USA.

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**Modes of Address and
Ontologies of Disconnection:
Towards a Media Archaeology
of Mobile Networks**

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Abstract

In contemporary mobile networks, addresses are allotted by a host of different technologies. As a technical principle, motion itself makes possible the location of devices as elements of the network. With a short overview of media archaeological approaches to cellular networks, the paper explores the introduction of an ontology in which the position of every object is constantly registered. In such spaces of address, the politics of remembrance and forgetting have to be rethought, because only that which is not part of the network can be forgotten. The arbitrariness of addresses and the difference between bodies and devices offer a chance to stand still while not being forgotten.

Keywords

Mobile Media, Media Archaeology, Cellular Triangulation, Address, Localization

When we move through the world and the surrounding technical infrastructures with a smartphone in our hands, we are constantly on the call and reachable, wherever the device can be addressed. The coverage of networks is obviously limited by the finitude of infrastructures, but when devices move through surrounding spaces, they rarely lose connection. Contemporary spaces of address are continuous and reach as far as the infrastructure extends. The following short remarks offer a few preliminary perspectives for a media archaeology of such spaces of address. They attempt to describe the ontologies that define the constitution of these spaces and the existence or non-existence of actors within them. A historically and archaeologically grounded

theory of addressing is central for this discussion, because in the context of digital cultures, addresses foster the relation of positions and devices. At the same time, addresses emerge as the condition of the possibility of the movement of these devices through space without the loss of connection. Without the specific technologies of addressing described in this article, mobility in cellular mobile networks such as GSM (Global System for Communications), UMTS (Universal Mobile Telecommunications System), or LTE (Long Term Evolution) would be impossible. This, respectively, implies an ontology for which only addressable units exist.

The smartness of portable gadgets lies not only in their advanced computing capabilities or their intelligent interfaces, but also in the fact that they combine a multiplicity of addresses and process information about the places of these addresses in the respective networks, even if their geographical position constantly changes. In this context, availability means that a device is a point of receiving and sending data. Consequently, it becomes an address at which transmissions can be directed. Addressing is a function of transmission. Localization is a process in which addresses are correlated with positions and movements. Reception means that something is transmitted and travels from A to B. The address of A is where it feeds into the network. The address of B is where it is received. In a mobile network, A and B are bound to geographical space in a new way: they are addressable, have to be localizable, but can move. Whereas transmitting ships, satellite phones, or walkie-talkies likewise communicate while in motion, smartphones go beyond this by registering their location by their very motion.

By taking into account different technologies of addressing, it becomes possible to outline the conditions under which such devices gain access to networks in movements that are no longer bound to specific geographical locations. In cellular mobile networks, connection itself has become an effect of movement. In contrast to older network topologies that are bound to geographic locations, the movement of devices constitutes the topology of cellular mobile networks. In this sense, the following remarks opt for a media archaeology of the constant possibility of connectivity. In the current situation, we witness a becoming-mobile of addresses

that we should try to analyze in order to understand what is at stake when these environments become ubiquitous and endless. That devices are constantly addressable implies that mobile networks know no outside, even if all movement stands still.

Different modes of addressing are included in the multifaceted technologies of mobile networks. A regular smartphone has a whole register of addresses: the geographical coordinates on the surface of the earth (Global Positioning System), the assigned IP address (Internet Protocol), the device's individual MAC address (Media Access Control), the IMSI address (International Mobile Subscriber Identity) stored on its SIM card and needed to log in to the network, the device's unique IMEI address (International Mobile Equipment Identity), and finally the number with which it can be called (Mobile Subscriber Integrated Services Digital Network Number). As participants of mobile networks with the current standards GSM (Global System for Mobile Communications), UMTS (Universal Mobile Telecommunications System) and LTE (Long Term Evolution), devices require the last three addresses.¹ Information about these addresses and their relations localizes the device – and consequently its user, though the relation of body and device is arbitrary – in the networks of our time. These networks constitute a geospatial order that is different from the virtual registers of technical systems of addressing, because it constitutes an environment in which the positions of addresses relate to each other. In this context, the places of addresses are no longer bound to geographical places – rather, they are as mobile as the devices whose applications they define. But what does it mean for our understanding of the technological dimension of the constitution of space that addresses move with devices, that the positions of our addresses become mobile, and that the automated documentation of these procedures emerges as a condition of their execution?

In a mediahistorical change that has so far not elucidated the interest that it deserves, these technical procedures of mobility differ from the postal address arrangements that are still present in every smartphone's list of contacts. What distinguishes these *dispositifs* is (i) the coupling of the two acts of addressing and localizing with movements in space, (ii) the self-registration of this movement which captures data about the movement in the act of motion, and (iii) the communication between

moving objects that this enables. In the context of mobile media, addresses guarantee the correlation of devices and positions, while at the same time assuring that devices can move from one place to the other without losing connectivity. To engage with these developments, it is helpful to explore the media archaeology of addressing, although this short article can only hint at the topics and objects of such an investigation.

In this regard, addresses are basic operators of digital cultures. They are elemental technical components of a society whose coherence is constituted by transmissions: our social connections can no longer be distinguished from technical networks. If technical and social networks converge – if, that is, technical possibilities of connecting come to overtake existing social connections, and new social connections are created by means of technical connections, as we are able to observe all around us today – then it will hardly still be possible to think about social relations in the absence of technical networks of communication. The traditional division between the social and the technical becomes obsolete, and this makes a media archaeological approach to processes of addressing more and more pressing. Today, knowledge about our sociality depends on the networks of its distribution. Accordingly, we should ask under which technological conditions the possibility of being addressed everywhere and at any time (that means, constantly carrying a mobile device) has become a condition of participation in society. We witness and practice a transition from addressability into a mode of being addressed permanently.

From a media archaeological perspective, the coupling of addressing and localization is central to this development: in the networks described here, a device is only addressable insofar as its position is identified. The distinctive feature of cellular mobile networks is that the device's movement through space constitutes the network. To be addressable, that means to be part of the network; the device's position in the network must be monitored constantly. The technology of cellular triangulation, developed for this purpose since the 1950s at Bell Labs and Motorola, rests on the fact that the movement of the device through the space of the network assures its localization². To use the cellular networks of GSM-, UMTS-, or LTE-networks, a smartphone needs to be connected to at least three proximate antennae.

In this process, the distance of a device is constantly measured in relation to at least three radio towers in order to determine, by overlapping the three areas of transmission, its location within the honeycombed, hexagonal mobile network. In such a way, it is possible for the device to move in space and lose contact with individual towers without being separated from the network. As a technology without interruptions, the mobile network creates reachability by enabling a constant reception – even when no-one is on the phone. Reachability implies seamless connectivity.

In the words of Erhard Schüttpelz (2016), mobile telephone services imply that “interaction is a resource of telecommunication and vice versa; production is a resource of reception and vice versa; and bodily location and situatedness are part of the information and vice versa.”³ Because a mobile phone constantly monitors the signal strength of the surrounding towers and switches to the strongest – usually the closest – the network provider can locate a smartphone with an accuracy of two to five meters.⁴ Cellular mobile networks need this information in order to optimize reception and to define the tower that transmits data to the smartphone in question and to switch between towers if the device moves.

In this regard, present technologies of mobile addressing are characterized by the fact that localization is not just an additional feature of addressing, which can be integrated into applications, but a precondition of the participation in different communication networks. Additional to cellular triangulation, a commercial smartphone – the most common mobile device – integrates three further options of localization: first, the embedded gyroscope, compass and movement sensors determine the position of the device and are important for its touch-sensitive interface. Second, most of the devices feature an integrated GPS system, which is able to determine the geographic coordinates relative to satellites with an accuracy of a few meters. This service is limited by walls, canyons and high buildings in the surrounding area.

Third, location-based services such as those offered by Google’s Android or Apple’s iOS are based upon the datasets of worldwide wifi networks that Apple, Google or Microsoft built during their cartographic projects. While taking pictures for the Street

View service, Google's cars registered the position of all available networks. Combined with maps, a cartography of wifi-networks was available. Consequently, these datasets include information about the location of local wifi networks, which makes it possible to determine the position of a device that is in reach of such a network, even if it is not connected.⁵ Wifi-mapping, as this procedure is called, is much more efficient and energy-saving than GPS. It does not refer to the individual provider. Instead, it uses the information provided by the manufacturers of operating systems or apps. Especially in urban surroundings, mobile devices constantly receive signals from multiple wifi networks that belong to private parties, businesses or institutions. By collecting this information, Apple, Google and lesser-known companies such as Combain Positioning Solutions constantly enlarge their databases. Google, for example, routinely collects updated, anonymized data about wifi networks from Android devices in order to improve the Google Location Service with user-generated data – even if the user explicitly turned off location-based services⁶. Until 2010, Apple used a similar system by the company, Skyhook Wireless, but since then has built up its own database.⁷ Combain Positioning Solutions stated on their homepage in 2016 that their database contains more than 79 million cell towers and 1.1 billion wifi networks.⁸ In a similar way, the NSA uses the location data of mobile devices to register the movement of suspects or populations.⁹

Mobile communication networks exist because our devices constantly document their position and carry addresses that move with them to capture their movement. The mobility that is the consequence of these technologies can be seen as an element of usability, a continuation of global logistics, and a self-fulfilling condition of location services. In this context, mobile addressing is deeply embedded in the technical, political, epistemological, and economic tensions of the present. The unambiguous addressing by means of capture allows for spatial and temporal tracking, a balanced index of traversed paths, and thus the ability to collect data that can be used to optimize processes or to create profiles.¹⁰ Additionally, this addressing of all mobile devices gives birth to an ontology for which existence is a matter of being addressable and connected. The environments in which mobile networked devices have since been able to move around (to various extents) have all been calculated and calculating spaces in which every object has an unambiguous address

with which it can be located. Every moving object that is networked in this way has to be monitored on an ongoing basis or at least at regular intervals in order to maintain the functionality of this calculating space. The resulting question is if objects can be lost in this space in which nothing exists without connection.

In the last decade, logistical technologies have seen drastic changes; the daily use of mobile media has transformed the diffusion of private and public, leading to a multidimensional politics of space. Our understanding of media environments is challenged by the constant renegotiation of the borders between inside and outside. This development leads to a redefinition of spaces of address and, in consequence, of positioning. In these spaces, objects are not only constantly awarded with addresses, but are localized in a network of positions of other objects, which themselves act as actors of mediation. To be addressable, consequently, is a technical mode of existence – what cannot be addressed does not exist in the networks of transmission, because it does not have a place and cannot move. In this sense, we should ask what it means to disconnect and to disappear. If this network has no outside, then quitting and getting off the grid is not an option of resistance against the network. Rather, we should take advantage of the arbitrariness of addresses and the difference between bodies and devices. The objects of capture are always addressed devices but not the bodies of users. The movement of bodies does not necessarily coincide with the movement of devices. Perhaps to stand still while not being forgotten is the only possible movement in mobile networks and their memories.

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Notes

- ¹ For an overview of these technologies see Michael & Clarke (2013a)
- ² Chaphuis & Joel (2005)
- ³ Schüttpelz (2016: 10)
- ⁴ See Varshavsky et al. (2006)
- ⁵ See Michael & Clarke (2013b) For Googles data collection see Barreneche & Wilken (2015) For the juristical situation see Burdon & McKillop (2014)
- ⁶ See Frith (2015: S. 30)
- ⁷ <http://www.skyhookwireless.com>
- ⁸ <http://www.combain.com>
- ⁹ See Gellman & Soltani (2013)
- ¹⁰ Referring to Googles *Location Based Services*, Carlos Barreneche (2012) has shown how user participate in the production of data about space by moving through space.

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Tracing Tempor(e)alities in the Age of Media Mobility¹

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Abstract

New forms of tempor(e)alities coemerge with the geospatial aspect in media mobility. Though mobile devices predominantly communicate by the visual interface, on its technologically operative level it is rather akin to radio in terms of the electro-magnetic spectrum, and to the binary alphabet of algorithmicized codes. The media-archaeological approach to geospatial “memory” therefore analyzes data transfer from distributed storage agencies and interactive “online”-citizenship. Geospatial media analysis (navigation, mobility, orientation) is necessarily accompanied by micro-temporal analytics. Digital communication of cultural memory transforms from the traditionally space-based archives (its “tectonics”) into dynamic up-dating in high frequency steps; site-specific memory is substituted by media-specific storage, recall and transfer. Symbolic urban cityscapes become a phenomenal function of underlying media infrastructures which take place at the emptiness left by former cultural and collective memory.

Keywords

media temporalities, memory vs. storage, Media Archaeology vs. Media Phenomenology, infrastructure, topological graphs, smart online-citizenship, chronosphere

Introduction

When visitors to Italy in the late 18th century, during their educational Grand Tour, finally arrived in Rome, the capital of their classicist dreams, they were frequently faced with a disappointment. The ancient ruins were much less sublime than the previously known reproductions (such as Piranesi’s notorious engravings) had suggested, and it took several days of rereading the texts of ancient authors to readjust the optical perception, restoring the symbolic order within the real city by the philological filter. Nowadays, mobile communication devices with their dominant interface, the screen,

immediately adjust locations to predominantly visual or textual (rarely auditive) information from the Web data repositories. Within such globally extended urbanity, memory is not derived from individual or social recollection any more (bodily and psychically “interiorized” – *Erinnerung* – in G. W. F. Hegel’s term), but from storage located in distributed computer farms. Geospatial memory for the user is predominantly mediated to the eye by the dominant interface of the micro-computational “smart device” which, in the field of perception, becomes almost identical with the visual terminal itself. Memory forms and enters geospatial perception primarily through this technical format.² As pointed out in Marshall McLuhan’s media theory, this privileging of the visual information channel is only superficially image-driven and an effect of the ancient Greek phonetic alphabet which directed information transfer from mouth and ears (oral speech) to the eyes: reading alphabetic texts. The essential alphabetic information, though, cannot easily be read any more by most users in urban mobile computing, since it is hidden within the “smart” devices as alphanumeric code. Critical media-philological analysis must now recede into the operative level below the miniature mobile “phone” screens, which is codes and protocols. “Geospatial media has saturated cityscapes”³. But the hidden geospatiality, operative within such media, is not about geographical spaces any more, but about geometries of processual ICs (Integrated Circuits) and storage chips, and spaces in Internet traffic are organized as topological graphs. Any “digital” communication results from a rigorous encoding of analog signals into the data matrix. Such data do not migrate any more but are copied, compressed, decompressed, and identically reproduced. Geography becomes a phenomenological metaphor.⁴

Spatio-temporal media analytics

Geospatial media, understood in its technological sense, relates to both the physical positioning of mobile communication devices and the large scale computational analytics of data emanating from such micro-processor based tools. Different from passive immobile communication media, such as home television sets, personal computers (or servers at institutional locations) for the processing of Web-based information, or early “mobile” communication technologies like the analog transistor radios (except bi-directional ham radio communication⁵), digital mobile media become senders themselves – thereby vulnerable to analysis as well as interception. Making use

of the Global Positioning Service (GPS) means being positioned (geospatially monitored) at the same time. Portable communication devices can capture and process geospatial information in both the geographic and electromagnetic “fields”. In GPS, which is based upon a network of satellites to provide precise coordinate locations, the effective computation is not only space-based, but also time-based, calculating spatial location from the ratio of micro-temporal distances in signal transfer. Geospace has become time-critical itself, interlacing the conventional separation of perceptual “time” and “space” into a spatio-temporal data tissue.

Software environments like Google Earth, which have become available to users of mobile communication devices, result in new kinds of “spheres”. After Teilhard de Chardin had introduced the neologism “Noosphere” in his *Cosmogogenesis* as the “thinking envelope of the biosphere” – that is, the human sphere of reflection and consciousness⁶ – Marshall McLuhan adapted this concept to the “acoustic space” of electronic communication media environments. But the Turing machine (*alias* “computer”) from 1937 operates within a sphere of computability which is different from de Chardin’s human mind-based “noosphere”, or the electromagnetic “acoustic space” in McLuhan’s sense, defining everything that could possibly be executed by digital machines. The algorithmic technification of the calculating human mind extends to a geospatial and multitemporal scale.⁸

Geospatial technologies map both human and nonhuman mobility (weather, for example) into computational topologies. Computational tools for mapping and analyzing georeferenced data, based on the GPS, detect geospatial patterns on the ecological level just like mighty search engines in the Internet detect clusters of communication behavior by humans. All of a sudden, the obscuring metaphor of “cloud computing” becomes very concrete. What used to be called cultural or social memory turns into distributed data storage. This non-human “memory” is obscured by the metaphor of “Cloud computing”, which relies on *sharing computing resources* rather than having local servers or personal “smart” devices to handle software (abbreviated to “Apps”). In “cloud computing”, *the cloud* “is used as a metaphor for ‘*the Internet*’” as such, with its different nonhuman agencies such as server farms for data storage.⁹ Cloud-based geospatial computing already practices this different kind of “memory”;

data can be collected in the field using mobile devices and then transmitted to cloud-based servers for further processing and ultimate storage; geospatial information can be made available to connected mobile devices via the “cloud” architecture, allowing access to vast databases of geospatial information “anywhere where a wireless data connection is available”¹⁰.

While the art of cartography, even when augmented by photography and trigonometric measuring, has primarily remained a cultural technique – that is, bound to operations of the human hand – computer- and satellite-based geospatial mapping is not simply a new dimension but a new media-epistemic quality. Apart from collecting and storing geospatial data, it is their algorithmic processing which endows them with mathematical intelligence, culminating in the geographic information systems (GIS) which process data based on their precise location on earth and beyond (hence already becoming “cosmospatial”).¹¹

Geospatial analysis is applying statistical analysis and predictive analytics to data which has a geographical or spatial aspect, operated by software capable of rendering maps to such datasets (geomatics).¹² The GIS has become “intelligent” by “deep learning” – that is, in terms of radical (instead of nostalgic) media archaeology, grounded in genuinely mathematical operations, such as vector-based map overlay (combining two or more maps or map layers according to predefined rules); or in terms of raster-based GIS, widely used in the environmental sciences and remote sensing, involving algebraic operations.¹³ Spatial analytics is based on statistical operations, but distinct from traditional mathematics, it becomes dynamic by being incorporated into the electronic circuitry of micro-processors. Thereby geospatial media, both as subject and as application, apply to spatial data that vary *over time*, with the time series being at the core of cybernetic analysis.¹⁴

While the user interface content of geospatial analysis still looks as if integrated into the conventions of screen culture, its real media message goes beyond the traditional image, and becomes diagrammatic iconicity instead. 2D and 3D mapping operations and spatial statistics analyze the properties of physical surfaces, such as gradient, aspect and visibility, and surface-like data fields. Geovisualization turns analysis into imaging synthesis, making sublime data sensible to human perception again on the phenomenal

level: maps, diagrams, charts, 3D static or rotating views – providing animations and fly-throughs – and spatio-temporal visualizations.¹⁵

Dis-locations: Diagram and topology instead of “mobility”

When the act of communication transfer becomes a cluster of technically calculable numbers, mobility itself dissolves from Newtonian physical spaces into geometric Cartesian space – that is, data configurations which are closer to Iannis Xenakis' stochastic music in its temporality than to conventional space in visual culture. Norbert Wiener's *Cybernetics* (1948) analyzed how the goal- and target-orientated trajectory (mobility) is replaced by statistical probabilities. With digitally coded transmission, the trajectory (*telos*) of “tele”communication is being effaced in favor of a mathematical (chrono-topological) immediacy – which makes all the difference between “live” transmission and “realtime” calculation, leading to a techno-logical proximity instead of mobility as energetic movement. The structural essence of mobile digital communication and the World Wide Web is not primarily the transmission of documents (the “mobility”) but its hypertextual and hypermedia link structure – a dynamic topology rather than a static cartographic topography. What is essentially transmitted and installed are symbolical machines – algorithmic “Apps”. The physical location of texts or books at a certain place (such as the traditional library) is replaced by topological space and a grid of computer servers to host them. Such a location is both geophysical (in terms of hardware) and conceptual (in terms of logical units). Instead of imposing library-orientated terminology, a media theoretical analysis of the World Wide Web adapts to the dynamism of the medium. Within that dynamic context, algorithmic orientation (such as performed by search engines) is not about mobility but about statistics, vectors and graphs.

Media-phenomenological vs. media-archaeological analysis of geospatial media memory

City streets are no longer simply physically and bodily conquered but navigated along metadata, shaped by web infrastructures. The cybernetic (that is, system theoretical) assumption persists: users, once their physical/bodily spatial environment is actually

coupled to virtual (that is, calculated) environments by computational interfaces in the real-time “online” mode, get (post-)human at the same time – with the prefix “post” literally referring to data transfer which technologically preconditions such a double-bind *situation*. Implicitly, Claude Shannons’ *Mathematical Theory of Communication* (1948) still has more to say to “what actually happens” here than most media sociologies. While the media-phenomenological approach primarily investigates the affects and effects of such mobile communication media on individual and collective memory, it requires a complementary analysis which concentrates on the very geospatial infrastructures – the “conditions of possibility”, in the Kantian sense. The cognitive *a priori* of “time” and “space” itself is replaced by the *temporeal*, a cluster of differentiated spatio-temporal infrastructures in data traffic. What necessarily gets into focus for critical analysis is the grid composed of both topological (rather than geographical) and micro-processing agencies: the storage lattice for data and its micro-delays in signal processing.

Media Archaeology, which is both a field of study and a method of inquiry, aims at striking sparks of critical insight *from within* such technological knowledge, against which so-called “social media” effects turn out rather epiphenomenal. As research method, it is less a discourse analysis of media phenomena, but rather concentrates on their grounding in material and/or logical artefacts. As a method of media analysis, it addresses the structural (material *and* logical) preconditions of media practice, which corresponds with what Michel Foucault’s *Archaeology of Knowledge* once named as *l’archive* (in the French original from 1969), such as Internet protocols¹⁶ or the von-Neumann-architecture of digital computers. In that sense, Media Archaeology is technocentric – that is: machine- and code-centered indeed. Against the opaqueness of micro-technology hiding behind the flat screen of “smart phones” in communication, Media Archaeology intends media-awareness by making transparent its proverbial Black Box. While media phenomenologists rather analyze how various media appear to the human cognitive apparatus – that is, to the mind and senses – media archaeologists “describe the non-discursive practices of the globalized techno-cultural archive”¹⁷. Imagery and data collected from satellite or airborne camera and sensor platforms has already resulted in nonhuman Remote Sensing.

The “mediated experience of cities”¹⁸ by humans is the focus of media phenomenology, but below all this, the practices of “geospatial memory” are time-critically (“post”-)structured by high frequency-clocked media technologies. While human users are developing new perceptual and conceptual modes of geo- and chrono-location, they are geo- and chrono-located by the devices they use themselves, resulting in large data banks and predictive data fields hosted by the computing server farms or providers like Google, Facebook, and the NSA. Geospatial individual and collective “meaning-making” becomes a function of the digital communication devices and “apps”; its underlying episteme is utterly techno-mathematic.

“Radiocity”

There is a media-epistemological ground behind the surface figures of mobility. This first of all concerns the physical nature of “motion”¹⁹ and its secondary re-entry in techno-cultural emanations. Marshall McLuhan, around 1960, remarked that electricity and electronic devices create rooms without walls²⁰ and a “media field”²¹. Looking through the media-archaeological magnifying glass, under the surface effects of social mobility, we detect the migration of electrons in cables and in micro-chips. Electronic speed in wireless communication does not rely on mechanical vehicles anymore; it moves even within the vacuum – be it the Thermionic Tube or the empty space of the universe. Electro-magnetic waves (the literal meaning of “radio”) are being propagated almost unbound to matter or energy.²² Inspired by this media-epistemological insight, the notion of a temporal “field” (“Zeitfeld”, as expressed by Edmund Husserl’s phenomenology) has replaced the mechanical idea of linear time by cloud-like temporal figurations.

The traditionally more or less spatial notion of the “city” is increasingly accompanied by parallel manifestations of dissipated net-citizenship, which is infrastructurally based on radioCITY in terms of ubiquitous, pulse-modulated radio waves for mobile communication devices in wireless data transfer processed by individual micro-processors like smartphones. After the recent or imminent death of analog AM and FM radio, there actually is more “radio” than ever: the pulse-modulated, digital rhythms of impulses, processed by algorithms. The extension of the radio “empire”

has always-already transcended the geospatially-fixed location (“region”). With digitally coded radio transmission, waves are being replaced by impulses (samples) which can then mathematically be pre-calculated. In Pulse Code Modulation, the spaces in between pulses can then be filled by delayed bit streams. Thus, interpolation replaces mobility. In “tele”communication, all of a sudden, spatial distance (the *a priori* of mobility as transfer) does not count any more, since it is being replaced by the temporal act of calculation. Analog frequency multiplexing and digital time multiplexing, as forms of multiple use of communication channels, are based on the time-critical interlacing of signals.²³

In so-called *cognitive radio*, “time hopping” means the intelligent use of short-time vacancies and time slots.²⁴ Time-discrete operations increasingly replace the traditional electronic signal transfer in the broadcasting world. Analog radio signal reception differs from the dis-locational positioning in data-based “mobile” communication, which is logical addressing (“URL”) instead of analog broadcasting. Classical radio mobility once culminated in the technoculture of so-called “World Receivers”; at almost any point on the earth, a German citizen could receive the German-speaking program of Deutsche Welle. Now this access is being replaced by the *online* service of Deutsche Welle which is no wave (“Welle”) anymore but streaming data *via* Internet access by cable or by wireless LAN.²⁵ Advertising for that dramatic change in radio culture, the Deutsche Welle service claims that on the Internet radio information can be multi-medially coupled. Behind that phenomenological, user-interface-based aesthetics, the hypertextual link reigns – a structure completely different from classical electro-magnetic broadcasting. The director of Deutsche Welle, in his farewell-speech to the analog German-speaking program on October 29th 2011, advertised for the “radio” portal www.dw-world.de: “Stay tuned, search for new ways of access”.²⁶ This is already the language of nonlinear connectivity, implying that radio already has gone. Radio “on demand” and as download by Podcasting is not tuning (mobility) between radio frequency channels anymore (bandwidths), but rather between temporal channels even if declared “live stream”; the physically and temporally authentic analog “live” signal is being replaced by realtime calculation) – deconstructing linear time. Digitalization (that is: mathematization) indeed introduces a discrete time-hopping, discontinuous mobility, moments instead of trajectories. Algorithmically precalculated transmission actually swallows the time of transmission itself, just like in the macro-

temporal sphere the culturally emphatic notion of “tradition” is currently being replaced by a synchronous, even historicist “immediate” (Leopold von Ranke) access to the archived past(s). The elementary scheme of communication is not transmission from point A to point B anymore, but rather the modification of a temporal (momentary) configuration.²⁷

Decades ago, the Sony “Walkman” was a symbol of mobility in carrying around recorded sound individually, as a kind of *temporally mobile* independence from music reception by transistor radio. The cassette has been succeeded by the mp3 player (the iPod), but the current shift towards cloud computing replaces this mobility by dynamic access to the (media) archive itself; smart devices access sound files stored in local networks (moving and navigating *within* the archive).

Local memory? A techno-archival retro-effect

Memory literally gets in motion.²⁸ Instead of going to local archives for research as in previous times, scholars can now move *online* within digitized archival records not only at home (without moving) but at any place. The Internet is not an archive but a protean dynamism, characterized by change rather than endurance. Permanent updating (or updating in permanence) has been the temporal aesthetics of modernism already. This corresponds with the shift of emphasis from the final archive to temporary, literally intermediary storage. In museums, the institutional keepers of material cultural memory, the traditional permanent exhibition is increasingly being replaced by temporary exhibitions; Bergsonian *durée* turns out as a function of frequencies. Memory has become a function of immediate access to data storage centers, while, in turn, the present becomes radically temporalized (even micro-archived) in dynamic, realtime data processing. Human perception of the present city is immediately linked to data storage and processing, shrinking individual or collective memory to a surface effect. Identities, by technically mediated environments (whether through writing, cinema or digital media), become ephemeral in times of immediate transfer of coded information. Formerly place-bound local memory sites are superseded by new media environments, like the fashionable projection of images or texts on architectural surfaces during “enlightened” city night shows. Immobile matter itself becomes a

function of the mobile screen. In a psychic counterreaction, the global reach of web-based and mobile communication devices is accompanied by a nostalgic desire for local roots. In times of ubiquitous mobility, both for bodies and for communication devices, a retro-active longing for “citizenship” or community-building arises on the symbolic (computational) and imaginary (media user) level.

Ubiquitous computing leads to what Ray Hammond predicts in his vision of *The World in 2030* – “always on, always connected, everyone to everyone, everything to everything, always and everywhere”²⁹ – which has not only a spatial but also a temporal dimension. The user is connected to a chrono-sphere defined by the (meta-)medium and is allowed to jump in temporal layers provided by the *online* archive. To be suspended from ubiquitous mobility is the true luxury in today’s temporal economy – the katechontic impulse of pausing, of deferral. Instead of setting geospatial memory in motion, moments and locations of resisting permanent change is retro-effectively gaining momentum.

Media-archaeological foundations of mobile communication: From the electro-magnetic field to the techno-mathematical matrix

Movement is predominantly associated with linear migrations and nonlinear dislocations in space. In cultural analysis, it is frequently taken in its discursive meanings, in the sense of “cultures of mobility”.³⁰ Even the most exact analysis of mobility seems bound to discursive metaphors. Literally, *metaphora* itself is the Greek term for transport vehicles, and so-called “buses” communicate data between processing and register units within a micro-chip.

In H. G. Wells’ scientific fiction, *The Time Machine*, travelling between past and future still takes place in terms of mobility, with a chrono-mobile vehicle moving *within* (endophysical) time. Nowadays, time itself is being moved within the mediasphere. This new way of being-in-time started with the invention of photography, fixing and preserving a unique moment in time, and continued with phonography which can replay voices of the dead, escalating with cinematography, which allows for the reversal

of the entropically, thermodynamically defined arrow of time and for slow respectively fast motion. Time became electronically manipulable by the STOP/PLAY and REWIND/FASTFORWARD keys in audio and video recording on magnetic tape; phase-shifting of oscillations in electronic synthesizers is known from electronic music.³¹

The video artist Bill Viola, in his essay on the “sound” of electronic images, pointed out the techno-mathematical spatialization of former time-signals, “the current shift from analog’s sequential waves to digital’s recombinant codes” in technology.³² The equivalent in computing is the concept of *time sharing*, the geometrization of the present itself. Significantly, in digital technology, the term “field”, which derived from the analogous, steady movements within electro-magnetism itself, transforms into the description of a discrete configuration, as expressed in the “Field Programmable Gate Array” (FPGA) for re-configurable hardware in micro-processors. The dynamic field becomes a digital matrix, transforming “mobility” into addressability.

Today, the idea of the central computer with remote shared access is turned upside down by the concept of “cloud computing”. The Internet is not restricted to being an extension of interconnected central computers (“servers”) which are being accessed from immobile homes, but mobile communication devices themselves have become small computers to be connected to network access points and areas. The “Internet of things” and ubiquitous computing result in a re-entry of mobility as a secondary effect of a topologically “immobile” grid. Data navigation within topological space (or rather networks) might still be called “mobility”, but its nature has transformed completely from physical location to geometrical graphs and logical relations (in mathematical terms), from analog tele-communication to computational mobility (even if wireless communication, technically, is still “radio”-based).

Computational devices generate new temporal figures – a true technopoetical chronomobility based on nonhuman agencies of delayed memories and dynamic intermediary storage. Computational mobility ultimately results in ephemeral tempor(e)ality which is characteristic in current high-frequency e-trading; the financial

market is defined by radical time-critical indexicality; even nano-second delays induced by fiberglass cables literally counts.

“Mobility” – a term of modernism

The notion of “mobility” rather belongs to the discourse of modernity; in a famous analysis on occasion of a new railway line connecting Paris to another French city, Heinrich Heine once remarked (just like Paul Virilio’s dromology later) that space is killed by speed. Mobility has been a paradigmatic feature of 20th century modernism. With the mobilization of formerly symbolically ordered time, a temporal horizon called historicity opened where the forthcoming future could be anticipated as “future in the past” already. Martin Heidegger in 1934 identified the temporalization of time itself “Zeitigung der Zeit” instead of reducing it to the parametrical “Faktor tempus”³³. Within that frame of perception, two temporal figures dominate the scheme of movement: the trajectory and the discontinuous jump.

From a sociological perspective, the mobilization of collective energy (such as migration) corresponds with the technical mobilization (physical transport with the appropriately named auto-mobile) and the mobilization of communication by almost immaterial signals on the electronic level. Material mobility starts with the steam-engine based railway, and immaterial mobility with telegraphy as recently presented in the exhibition *Car Culture*, appropriately sub-titled, *Medien der Mobilität (Media of Mobility)*, at ZKM Medienmuseum Karlsruhe (June 2011-January 2012). The network of material cables for “landline” telephone communication has been replaced by radio communication networks.³⁴ Physical mobilization like railway traffic has been accompanied by the parallel mobilization of symbolic communication embodied in electronic “tele”communication media – Samuel Morse’s telegraphy in 1844, killing distance both in space (“tele”) and in time (“live”); telecommunication: “live” transmission. But in the age of digitized broadcasting and digital communication engineering, the term for the current end-user device, the literal “mobile” phone, itself becomes a nostalgic metaphor.

Synchronization has been the technical essence of success in modernist communication between sender and receiver. But today, reception is anticipated by the sender. The immediacy of “live” transmission is being replaced by “streaming media”, which is based on asynchronous transmission, buffering data signals in micro-

memories, thus causing minimal delays (due to calculation) even if they are not noticeable by slow human senses any more. What Jacques Derrida once claimed as *différance* for sequential writing, here turns techno-mathematical. Coded time itself becomes an “artefact”.³⁵ The so-called delay time (caused by the inertia of matter) and run time (*alias* “dead time”) is the temporal interval between a system input and its response at the output. As transport time, this refers to micromobility on the media-archaeological ground level of electronic circuitry. “The time it takes for material to travel from one point to another can add dead time to a loop. [...] The distance may only be an arm’s length, but a low enough flow velocity can translate into a meaningful delay.”³⁶ This form of a temporal *inbetween* is central to the notion of media itself. Aristotle once discovered in the echo phenomenon the resistance of the transmission channel air to sound, which he coined *to metaxy* – a term whose Latin translation by scholastics in medieval times turned into the *medium*. Time in communication itself is “medium” in Claude Shannon’s functional definition of the channel of transmission.

Time hopping. Time “travelling” (in) the World Wide Web

Tracing mobility, understood literally, recalls the methods of technical observation and mathematical calculation of movements. On a micro-level, such mobility has been traced with the detection of the “Brownian Motion” in the 19th century. But this tracing is not cartographic any more (which still adheres to iconic perception), adhering instead to mathematically averaging myriads of elementary movements of particles (like the electrons in the Thermionic tube). Norbert Wiener described such motion as “ergodic” – which is invariant across a temporal trajectory in its statistical behaviors. Within such stochastic analysis, the single individual particle does not count anymore – just like in information/communication/entertainment spheres the mobile subject is surveilled as nonlocated address. A bio-cognitive gap opens: while human bodies undoubtedly still move in space and time in mobile ways (the everyday experience), connected to digital media humans are coupled with another, media-inherent time and space. Techno-logical addressability replaces physical or biological identity. Technical media record such movements, while mathematics (statistical and/or stochastic analysis) tries to make sense of apparently random movements. Technical tools of time axis and memory manipulation have been known since phonography, cinematography

and video art, in technical engineering and aesthetics, performing micro-temporal operations of signal migration. Such figures of analog time-shifting are now challenged by nonlinearity. Metaphorical data “flow” and “streaming media” replace the static monument. Knowledge has always been in motion, but now it becomes time-critical. Chronology becomes ephemeral; short-time finality is taken into account from the beginning. Para-textual temporal remarks like “last modified” and “accessed” in the online encyclopedia Wikipedia indicate the replacement of traditional long-time assumptions of knowledge spaces by time-critical updates of the present – which results in con-temporary time layers, as long as older and newer versions are not erased but stored. The Wayback Machine for obsolete web pages from the Internet (operated by archive.org) is a heroic manifestation of such options of techno-memory mobility.

Liberating reality from “time”: *Eigenzeit* takes over

The classical definition of time (by Aristotle) is explicitly bound to the perception of movement (mobility). Speed has been calculated since antiquity; acceleration and dynamics become analyzable by the Leibnizian differential calculus. Here, time is still understood in its scientific sense as an external physical parameter. Today, the traditional notion of vehicular transfer is being replaced by the mathematically calculated tunneling of the channel (Claude Shannon), short-cutting distance – more teleportation than telecommunication.

Nonlinear time is part of the mathematical geometrization of temporality, different from the one-directional “time arrow” provided by physical entropy. Mobile communication in the “digital” present is rather confronted with heterochronotopies (in allusion to Mikhail Bakhtin’s term “chronotope” and Michel Foucault’s notion of “other spaces”). Networked locations which can be addressed with the speed of electricity replace the still energetically biased spatial notion of “mobile” transfer. Harold Innis once directed academic attention in analyzing cultural and imperial power to the media-induced “bias” of communication, which is either space- or time-enhancing; thus, spatial mobility is matched by chrono-mobility. This mobility within time has now transformed into chrono-logical mobility itself. Mobility has traditionally been understood as happening *within* the grid (or frame, or Cartesian coordinates) of

time and space. But from a different, micro-temporal perspective, a variety of *Eigenzeit* figures appear – times endogenic to subsystems, to media as well as to organisms.

The experience of modernity has been an acceleration of delay or speed as explosions of temporal experience. But this experience is still conveniently framed by the parameter time (*t*), which is experienced phenomenologically (Husserl, Bergson) and related to media such as the phonograph and the kinematograph. Being measured by clocks (Martin Heidegger's "vulgar time"); this is "mathematical" time (Henri Bergson). But in the age of active digital calculation, this mathematical time itself becomes operative, resulting in a de-coupling of tempor(e)alities from the despotic signifier "time". This requires different terms to nominate these temporal kaleidoscopes (requiring "chronopoetics"³⁷). Jean Baudrillard identified the current *implosion* of history as discourse; Bernard Stiegler names it the *ekstasis* of time.³⁸

Notes

- ¹ Parts of this text relate to a former keynote lecture on occasion of the symposium *Tracing Mobility – Cartography and Migration in Networked Space*, November 26, 2011, Haus der Kulturen der Welt, Berlin
- ² See Nanna Verhoeff, *Mobile Screens. The Visual Regime of Navigation*, Amsterdam (Amsterdam University Press) 2012 (with thanks to Jon Inge Faldalen, scholar of "imagenesis", at Oslo University, Norway, for that reference)
- ³ <http://mediatheoryjournal.org/calls-for-papers/cfp-geospatial-memory-and-the-city>
- ⁴ See Hartmut Winkler, *Geometry of Time. Media, Spatialization, and Reversibility*, lecture given at conference *Media Theory on the Move*, Potsdam, 21 - 23 May, 2009, URL: http://homepages.uni-paderborn.de/winkler/hase_e.pdf (accessed October 10, 2017)
- ⁵ Amateur radio (*alias* ham radio) "describes the use of radio frequency spectrum for purposes of non-commercial exchange of messages, wireless experimentation, [...] and emergency communication", different from commercial broadcasting, or professional two-way radio services: https://en.wikipedia.org/wiki/Amateur_radio, accessed October 17, 2017
- ⁶ See Georgy S. Levit: "The Biosphere and the Noosphere Theories of V. I. Vernadsky and P. Teilhard de Chardin: A Methodological Essay". *International Archives on the History of Science/Archives Internationales D'Histoire des Sciences*, 50 (144), 2000: p. 160–176
- ⁷ Alan Turing, "On Computable Numbers, with an Application to the Entscheidungsproblem", in: *Proceedings of the London Mathematical Society* (2), vol. 42 (1936), 230-265
- ⁸ An argument developed in the Master thesis by Thomas Nüchel, *Berechenbarkeit als Sphäre digitaler Medien [Computability as the Sphere of Digital Media]*, submitted Winter term 2016/17, Humboldt-University, Berlin, Institute of Musicology and Media Studies (now online at e-doc server of Humboldt University)
- ⁹ https://www.webopedia.com/TERM/C/cloud_computing.html, accessed October 17, 2017
- ¹⁰ https://ipfs.io/ipfs/QmXoypijzW3WknFijnKLwHCnL72vedxjQkDDP1mXW06uco/wiki/Geospatial_analysis.html, accessed October 17, 2017
- ¹¹ See <https://www.aaas.org/content/what-are-geospatial-technologies>, accessed October 16, 2017
- ¹² https://en.wikipedia.org/wiki/Geospatial_analysis, accessed October 16, 2017
- ¹³ Ibid.

¹⁴Ibid.

¹⁵Ibid.

¹⁶ See Alexander Galloway, *Protocol. How Control Exits after Decentralization*, Cambridge, Mass. / London (MIT) 2004

¹⁷Kjetil Jakobsen, “Anarchival Society”, in: Eivind Røssaak (ed.), *The Archive in Motion. New Conceptions of the Archive in Contemporary Thought and New Media Practices*, Oslo (Novus) 2010, 127-154 (141)

¹⁸ <http://mediatheoryjournal.org/calls-for-papers/cfp-geospatial-memory-and-the-city>

¹⁹“Bewegung ist Aenderung der räumlichen Verhältnisse <...> wenigstens zweier materieller Körper gegeneinander”: Hermann Helmholtz, *Abhandlungen zur Thermodynamik*, edited by Max Planck, Ostwalds Klassiker der exakten Wissenschaften, vol. 124, Leipzig 1902, 6

²⁰Marshall McLuhan, manuscript entitled “Grammars of Media”, NAEB Papers (University of Wisconsin), Box 66, Folder 9, as quoted in: Josh Shepperd, “Medien Miss-Verstehen. Marshall McLuhan und die National Association of Educational Proadcasters, 1958-1960”, in: *Zeitschrift für Medienwissenschaft* vol. 5, no. 2 / 2011, 25-43 (40)

²¹ Marshall McLuhan in a letter to the NAEB director Harry Skornia, December 16, 1958, quoted *ibid.* (41)

²² W. T. Runge, “Elektronische Geschwindigkeit ist keine Hexerei”, in: *radio-tv-service* Nr. 77/78 (1967), 2895-2899 (2895)

²³ See H. Raabe, “Untersuchungen an der wechselzeitigen Mehrfachübertragung (Multiplexübertragung)”, in: *Elektrische Nachrichtentechnik* vol. 16, no. 8 (1939), 213-228 (213)

²⁴ http://de.wikipedia.org/wiki/Time_Hopping

²⁵ The regular German-speaking program of the German world-wide radio Deutsche Welle ended as linear broadcasting (analog short wave) on the night from 29 to 30 October 2011.

²⁶ Bettermann: “Bitte bleiben Sie uns verbunden, suchen Sie neue Zugangswege”

²⁷ Pierre Lévy, “Die Metapher des Hypertextes”, in: Claus Pias / Joseph Vogl / Lorenz Engell et al. (eds.), *Kunrbuch Medienkultur*, Stuttgart (DVA) 1999, 529 [*Les Technologies de l'intelligence. L'avenir de la pensée à l'ère informatique*, Paris 1990, 78-82]

²⁸ See Eivind Røssaak (ed.), *The Archive in Motion. New Conceptions of the Archive in Contemporary Thought and New Media Practices*, Oslo (Novus) 2010

²⁹ Ray Hammond, *The World in 2030*, Paris (Editions Yago) 2007, 66

³⁰See *Berliner Atlas paradoxaler Mobilität*, edited by Friedrich von Borries in cooperation with the initiative ÜBER LEBENSKUNST, a project of Kulturstiftung des Bundes in cooperation with Haus der Kulturen der Welt, Berlin (Merve) 2011

³¹ See Karlheinz Stockhausen, “... wie die Zeit vergeht ...”, in: *Die Reihe. Information über serielle Musik*, Heft 3, Universal Edition, Wien / Zürich / London (1957), 13-42

³² Bill Viola, “The Sound of One Line Scanning”, in: Dan Lander / Micah Lexier (eds.), *Sound by Artists*, Toronto / Banff (Art Metropole & Walter Phillips Gallery), 1990, 39-54 (47)

³³ Martin Heidegger, “Logik als die Frage nach dem Wesen der Sprache” (lecture summer term 1934), ed. Günter Seibold, (vol. 38 of *Gesamtausgabe*) Frankfurt / Main (Vittorio Klostermann) 1998, 101

³⁴Franz Pichler, *Mobile Kommunikation per Funk. Von Heinrich Hertz zum handy Netz des Mobilfunks*, Linz (Universitätsverlag Rudolf Trauner) 2011, 1

³⁵ Jacques Derrida / Bernard Stiegler, *Echographien. Fernsehgespräche*, edited by Peter Engelmann, Vienna (Passagen) 2006, 13

³⁶ Doug Cooper, “Dead Time Is The "How Much Delay" Variable”; *online* <http://www.controlguru.com/wp/p51.html>

³⁷See Wolfgang Ernst, *Chronopoetics. The Temporal Being and Operativity of Technological Media*, transl. by Anthony Enns, London / New York (Rowman & Littlefield) 2016

³⁸ Bernard Stiegler, *Denken bis an die Grenzen der Maschine*, edited by Erich Hörl, Berlin / Zürich (diaphanes) 2009, 69

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Memory Expurgation? Cairo: A Comment on Photographs

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Abstract

This short piece is a commentary on photographs taken in Cairo between 2011 and 2013. The country is currently experiencing a pervasive moment of erasure on the collective level, going hand in hand with a hard counter-revolutionary momentum. In this context, gazing at photographs might be an exercise in an ‘inner exilic’ form of remembrance. This article attempts to evoke snapshots of the performative street, while trying to reflect on the nostalgic sentiment that is omnipresent among various opposing camps to a degree that has not been seen before.

Keywords

photography, *lieu de mémoire*, nostalgia, inner exile, the performative street

Opening

If someone were to ask me how it feels to experience a counter-revolutionary moment on a daily basis, I would say, perhaps, that it is all about countering the herculean efforts from the powers-that-be, and committing intensively to resisting the powerful, dominant collective amnesia. Then, if someone asked me what it really means to live under a military dictatorship, I would say that we obviously knew that we had to renounce political rights and dreams of changing the world for a better future, in exchange for an illusory so-called stability.

Syria, Iraq, Yemen, and Libya have already fallen into an abysmal state, which is why the argument that there is no alternative to either the military or the Islamists – those paradigmatic mirror images – worked so well for Egypt; it has been repeatedly

embraced by the powers-that-be. Apparently, through the constant repetition of this statement and turning it into a kind of indoctrination, the state propaganda has succeeded in training the subservient ‘honorable citizen’¹ to be prepared for any forthcoming draconian ‘shock’, as Naomi Klein puts it (Klein, 2007), from the same powers-that-be. This is because we are constantly told through the state propaganda and its controlled media that the future can certainly be much worse than the present. This belief generates a constant fear of the uncertain future, encouraging people to silently endure the present. Another factor may be the collective state of precariousness in all spheres; it has never been easier to fire employees and workers than it is today.

Neoliberal policies, already at work for several decades, have succeeded triumphantly in dismantling the few social welfare benefits instituted during the Nasserite period for the middle classes. The flotation of the Egyptian pound in October 2016 under the orders of the World Bank nearly led to its collapse, and was followed by vertiginously soaring prices. The massive evictions and attempted clearing of the slums by the state, under the excuse that they are an encroachment on state land, are taking place primarily in the popular quarters, such as the islands of Qursaya and al-Warraq in July 2017, causing one death.² These actions have instigated not only an immediate panic, but a mounting and alarming popular resentment, leading many to wonder what will happen when – not if – the coming explosion is triggered. Corruption was never as widespread and visible as it is today. It is as if the government is deliberately amplifying the very policies and pitfalls that led to the collapse of the Mubarak regime.

Nostalgias: Toolkit for the Tough Present

Still, the present is tough enough, which explains why there is such a pervasive, collective nostalgic mood about an imagined beautified past. This is a logical consequence of the dreams of utopias instigated by the revolutionary momentum. Svetlana Boym (2007: 7-8) reminds us that the twentieth century began with utopia and terminated with nostalgia. She furthermore asserts that nostalgia in the seventeenth century was perceived as a disease that could be cured with opium and

wandering in the Alps. Her fascinating reading of nostalgia conveys the idea that the desire for the lost place can be translated into a longing for a slower past time; i.e., the time of childhood. As she says:

The nostalgic desires to turn history into private or collective mythology, to revisit time like space, refusing to surrender to the irreversibility of time that plagues the human condition. Hence the past of nostalgia, to paraphrase William Faulkner, is not even past. It could be merely better time, or slower time – time out of time, not encumbered by appointment books (Boym, 2007: 8).

This brings Boym to her next point, that the imaginaries of the past time, fostered by nostalgia, can be decisive with respect to the desires of the present. I find Boym's explication of nostalgia quite timely in deciphering the current, overwhelming, post-traumatic, counter-revolutionary momentum in Egypt that seeks to cope with an unbearable present. It equally explains why various competing, if not clashing, camps are resurfacing with diverse nostalgic visions. The first of these visions is the fresh and extreme nostalgia of those supporting the 2011 revolution, who experienced the unique moment of the 18 magical days and the two years of turbulent, effervescent, performative street politics that followed, triggering dreams of the possibility for improving life – dreams which were then harshly crushed. The second vision is maintained by the pervasive counter-revolutionary forces. Paradoxically, I would include here the supporters of the Sisi regime together with the opposing camp, the Muslim Brotherhood, who were victims of military killings in Rabe'a al-'Adawiyya Square in summer 2013. Over the past three years, Sisi's military regime has adopted a nationalist tone,³ while borrowing symbols of socialist realism that contradict the obvious state of the globalized region. Meanwhile, the Islamist camp seems to be fixated on a golden period of the early years of Islam. The complex ideology of the counter-revolutionary camp encompasses both of these *doppelgänger*s, as the two share the elective affinity towards authoritarianism. Both camps have worked hard against the forces of civil society, which advocates the reinstating of human rights, workers' rights, social justice, and a renewed sense of citizenship. Ironically, the two forces are entrapped as mirror images of each other in perpetrating authoritarian and anti-democratic practices, as well as in their obsession with public morality.

The third vision is that of the Nasserite camp, which glorifies the past post-colonial military regime of Nasser at the expense of a complete denial of its non-democratic rule. Nostalgia is spilled on the golden times of Nasser with the celebration of independence movements, nationalism, the times of the Bandung conference and the non-aligned movement, the era of socialism with its grandiose projects like the High Dam, and the democratization of education that opened opportunities to millions.

The fourth vision, in direct opposition to the third, is held by the supporters of an imagined, over-glorified, pre-1952 colonial-royal elite, which denied the flagrant social inequalities existing at the time and the economic deprivation for the majority that led to yet another revolution. A nostalgic trend persists among those who continue to lament the disappearance of colonial times in Egypt, together with the glorious times of the former, ousted royal family. All four visions, however, express multiple understandings of nostalgia, through a prevailing, overwhelming sentiment of defeat.

‘The Beautiful Times’, *‘al-Zaman al-gamiil’*, is a Facebook page that posts symbols of the lost and glorious past: images from Egyptian films of the forties, fifties, and sixties; concerts of diva singers like Om Kalthum, Fairuz, and Warda; performances by Abdel Halim Hafez and other famous Middle Eastern oldies stars; and other vintage artifacts and photographs. These are displayed in opposition to our supposedly miserable and tasteless present. ‘The Beautiful Times’ has also become a popular expression in Egypt that refers to a specific image of past relics and landmarks that have now disappeared. For the minds in this camp, these ‘beautiful times’ represent an idealized, simplistic, imaginary Cairo, when stunning, European-dressed Egyptian women could wear bikinis without being harassed by the ‘vulgar’ masses; when the streets of Cairo and Alexandria were clean (free of beggars and street children) and underpopulated; and when the center of Downtown Cairo looked like a replica of a European city. More precisely, it is a way to mourn the lost “Paris along the Nile”⁴ city. No bearded Islamists or women wearing hijabs existed (at least in the photographs). No poor street vendors were seen in the European part of the city – although that certainly does not mean that they did not exist.

In today's discourses of denial about the 'beautiful old times', the fact is often overlooked that the Belle Époque city, including its prominent Jewish-owned *grands magasins*, its apartment buildings, and its residents, who consisted mostly of the foreign communities, was strongly associated with the so-called 'ordered', colonial, European-dominant space, in contradistinction to the 'disordered', 'oriental' part of the city with its mushrooming minarets, chaotic bazaars, and labyrinths. Timothy Mitchell provides a Foucauldian reading of the colonial mechanisms of power that were in effect at that time (Mitchell, 1991).

Further blurring the meaning of the term, Egyptian architects have equated 'Belle Époque', as a label for the modern European architecture of nineteenth-century Downtown Cairo, with '*al-Zaman al-gamiil*'. This leads to further overlap between a nostalgic vision of the glorious past that produced such flourishing arts – albeit under colonial rule – with an obvious denial of the rigid and unequal spatial and class structure that led to the 1952 revolution/military coup (depending on one's political affiliations).

The imagined old (and 'beautiful' yet colonial) Cairo cannot conceal the fact that in our present times, vulgarity and greed prevail. In fact, this nostalgic feeling coexists with a form of conscious destruction on the part of the powers-that-be. Although they cannot annihilate the histories of the major cities like Alexandria, Mansura, and Cairo, they do nothing to stop the organized mafias who have gotten hold of large amounts of real estate and monopolize the construction sector. In Alexandria, for instance, and all along the Mediterranean coast, no one is concerned about the aesthetics of the ugly, crowded, nightmarish towers. Instead, the worry is that these towers have started to collapse like houses of cards, and thousands may die under the rubble in the decades to come. Indeed, it needs little intelligence to conclude that these buildings defy any logical architectural laws.

In the current case, the unbridled nostalgia for Tahrir has been submerged in a traumatic sentiment of depression after the ephemeral, euphoric moment of the military takeover. Has the revolution failed when the country has never witnessed such violations of human rights, and such clampdowns on activists, journalists, and intellectuals, as under the Sisi regime?

Strangely enough, it can be argued that accepting the state of collective amnesia might not be the worst part of the situation. Many Egyptians have turned into apolitical beings after the last six years of turmoil. Many have already withdrawn into an ‘inner migration’, a kind of forced ‘internal exile’ that has transformed us into obedient but self-absorbed beings. On the other hand, a sense of desolation and angst has grown among many of us, as colleagues leave the country with no intention of returning and friends seize any opportunity to find a job overseas and disappear for good. If they can’t make it to the US or Europe, then hopefully Dubai, Bahrain, or Qatar will turn out to be their next lifebuoy.

But above all, it is the feeling of absolute exhaustion, accompanied by a perpetual ‘*mal de vivre*’, that overwhelms our daily lives. Simply walking out of one’s apartment door sets off a ‘war of all against all’. This coincides with the constant erasure of the memory as an involuntary self-defense against the targeted and conscious erasures of landscapes, of public expressions, of the art, the music, the graffiti, the signs and symbols experienced since 2011, of the nature we moved in for decades, of the trees and the architecture that surrounded us. Simply stated, greed, corruption, and money, working superbly in concert, have consciously managed to destroy the urban texture of Cairo, and even more so of Alexandria. One might think that the counter-revolutionary forces blame the 2011 revolution for causing a massive eradication of the city’s landmarks, of its rich Coptic, Islamic, and European patrimony, of its wonderful old villas and colonial buildings that continue to disappear at a dizzying speed. This has been accompanied by the explosion of informal construction on agrarian land all over the countryside. Soon the entire country will look like a huge conglomerate of ugly, frightening, red cement-brick towers sticking to each other. The population explosion, together with the degradation of the agricultural sector, leaves no option for the rural poor but to convert agrarian land into dwellings that keep on growing vertically. The sole exception will be the isolated gated communities and compounds that have so little to do with the reality of the old center of Cairo.

It is true that the erasure of the city’s landmarks has been going on for decades, since well before 2011. However, it is as if the powers-that-be now excel in destroying the

little beauty that remained, as if anything that might look ancient has to be erased. The cities of Cairo and Alexandria have broken aesthetic records in ugliness and incoherence. It is no coincidence that the rich heritage in Mamluk Cairo threatens to disappear due to organized, collective theft since 2011, as architects have been warning.⁵ The pillage of antiquities has reached an unprecedented scale, prompting alarmed Egyptian architects and historians to lead relentless campaigns to track down the countless valuable pieces that too often turn up in Sotheby's and Christie's auctions.

The unstated main issue is the bargaining over reality. Official sources seek to erase what has really happened during the past six years: the fact that numerous protesters were killed, others tortured, many disappearing, blinded, or disfigured, while no official has been held accountable for these crimes. The denial of commemorating the martyrs of the revolution, the regime's denial that the violation of human rights is what triggered the events of 2011, and that injustices continue in an even harsher mode, is what makes obsessive urban dystopias so pervasive. The erasure can take many shapes.

Cairo experienced unique turbulent and euphoric moments, violent and frightening moments, for three consecutive years (2011–2013). These were paired with highly sardonic reversals and perplexing public performances, together with a mesmerizing explosion of artistic expressions, which millions will always remember. The uniqueness of these magical but ephemeral Bakhtinian moments evokes Richard Sennett's observations on the cities of Paris and London during the eighteenth century, when street life was experienced as a theatre, where stage and real life intermixed and the body was transformed into a 'mannequin' in public (Sennett, 1992: 64). In Sennett's work, we can find analogies with the protesters displaying themselves on the streets, slogans drawn with markers on their bodies, wearing masks, walking with signs, or drawing on walls. This moment, in which the 'believable on stage and the believable in street life' (Sennett, 1992: 65) meet, produced new kinds of sociability and interaction in the streets. These interactions took the forms of solidarity, of spontaneous conversations among strangers, of new friendships and alliances. Zygmunt Bauman recently tagged the "square people" (Tabet, 2017: 140) as leaderless movements, lacking a hierarchical structure. The fact

that these movements could function without the leadership of parties, might, according to him again, have offered further maneuvering possibilities. However, the act of taking to the streets without the presence of parties, above all, shouting and manifesting strong anti-establishment emotions in public have, according to Bauman, been instrumental in triggering a collective sentiment, which he defines as taking the form of “explosive carnival solidarity” (Tabet, 2017: 144). But then again, this ephemeral sentiment of togetherness, if not of oneness, has failed to challenge the harsh daily life, the alienating more than ever working conditions, the escalating ruthless competitiveness on a global scale and, mostly, the pervasive present-day condition of a general solitude, which all support Bauman’s much celebrated fluid modernity. My disagreement with Bauman is precisely about his relenting criticism of the whole movement of the ‘Square people’, as if these were a monolithic phenomenon. Bauman concludes that these people who go to the squares, shout slogans and express themselves emotively through taking to the streets as a short-term, appeasing psychological outlet as well as a form of solidarity, are the same people who end up to being subservient to the system, since they have only let out their fury in the particular carnivalesque moment. These ephemeral but intensive moments remain unconnected from the routine of their daily lives. However, these modern manifestations of the carnival, according to once again Bauman, differ from the traditional ones because solidarity seems to precede freedom.

If one were to compare the aftermath of the Occupy movements in the US and Europe with the rebellions of the numerous Arab Squares, one would quickly conclude that this is an absurd exercise. First, the level of street violence resulting in killings and the violation of freedoms, the civil wars and state collapse that followed in numerous Arab countries, the displacement of entire populations resulting in the most dramatic refugee crisis in the modern history of humanity, all of which followed the 2011 Arab revolutions, testify to an incomparable parallel. A common denominator in the Middle East has been the further militarization of urban and political life, the “war on terror” and the rise of Islamic terrorism, which were instrumental in terminating the Arab insurrections.

Today we are left with an endlessly growing sense of loss and desolation. Tahrir has been reduced to a nostalgic and utopian memory among those who experienced it. Seven years have elapsed since the memorable spark on 25 January 2011. No-one could have predicted the pervasiveness, continuity, and strength of the counter-revolutionary forces, in the form of both the Islamists and the subsequent Sisi government.

Similarly, the public, performative, emancipatory, and artistic manifestations that followed the occupation of Tahrir Square in 2011 seem to be over too – perhaps only momentarily, since the consequences of the revolution are far from finished. The overwhelming counter-revolutionary forces, which never really departed from the political and public domain, have increasingly curtailed freedoms. The further clampdown on activists, feminists, and human rights workers, and the massive jailing of opponents of the regime, is evidence of that. In this counter-revolutionary moment, one is confronted with the burning necessity of recording the history of the past seven years, challenged by a pervasive official discourse that is mostly obsessed with the erasure of memory, or rather with the lived memory and past experiences of Tahrir Square and the continuing political protests. This leads us to reconsider the question of the *longue durée* processes that revolutions bring into being, and which imply fluctuations and volatile emotions.

This nostalgic moment translates naturally into a constant struggle to retain, if not freeze, memory, even if it is painful and sad, since it is coupled with an eagerness to record and archive the unfolding events of the past seven years, as many have been hopelessly attempting to do. That might also explain why there is an urge to recall, invent, and reinvent the *lieux de mémoire* (Nora, 1989: 7-24) of the past six years' turmoil. This effort is coming to be seen almost as a calling, with the goal of stopping the withering away of a vivid memory.

Such is the fate of counter-revolutionary moments. Once again, we have been royally overpowered. This translates into depressive and pessimistic, if not bleak, sentiments. But the present consists of a hard, counter-revolutionary, ruthless moment. The *ancien régime*, with its octopus-like, corrupt mechanisms, seems to be impossible to undo. The wounded counter-revolutionary powers-that-be have learned the lesson:

Tahrir is not repeatable and our present is not quite exactly identical to time. It is certainly much worse.

This effort at erasure explains why there is a relentless urge among many to consolidate memories in archives. Ariella Azoulay (2016) points to the crucial significance of constructing ‘alternative’ archives, which privilege the voices of the oppressed, the colonized, and the invisible; archives which are in tension in struggling with the dialectics of deletions and additions; archives that counter the deletions and omissions of the formal, dominant, state ideology as a tool to allow us to maintain the ‘past incomplete’ (Azoulay, 2016). The process of selecting and reflecting upon photography becomes one way of negotiating the abysmal reality one is confronted with.

It is in this state of mind that I wish to comment on some photos that I have taken during the past six years as a modest personal way of recording certain moments. These could be read today as snapshots of ephemeral moments, perhaps as an exercise in retaining memory. Having said that, I am well aware that if there is a success story to be drawn from the Arab revolutions, it is precisely that it triggered a vital interest in photography and the arts,⁶ as well the mesmerizing impact of endlessly circulating photographs on a global scale. The memorable pictures of the violent confrontations between the protesters and the police forces, of young men throwing gas canisters back at the police forces, the millions filling the Square, the kilometer-long flags extending from the top floor of a building to the Square, the photograph of a lower-class woman kissing a soldier behind an army tank, the aerial view of the masses of protesters on the first day of the revolution on the Kasr al-Nil bridge confronting the water sprays of the police forces, the protesters praying in the Square, the Coptic priests and Muslim sheikhs in Tahrir holding hands. For example, see the website egyptianstreets.com. It goes without saying that all these by now iconic photographs gained international recognition. They will remain anchored in the memory of millions for a long time. If there is a positive consequence to be attributed to the January revolution, it is that it elevated the status of photography, democratized it, and gave an international public visibility to a new generation of gifted young Egyptian photographers.⁷ This resulted in a myriad of traveling photo

exhibitions that won recognition locally and overseas. In the same way, the ease of use of mobile phones opened new perspectives and fields for research and investigation into the endless possibilities of uploading short films to YouTube via mobiles. More recently, the heroic endeavors of the Syrian activists have raised worldwide consciousness on the atrocities of the Assad regime by instantly filming in the streets.

However, as Angela Harutyunyan has argued, the paradoxical effect of the representation of Tahrir as “an image, as symbol, and an icon” from its early days led to a much-contested visual saturation of images that quickly turned into a cliché, and accordingly drained the signifiers of their meaning (Harutyunyan, 2012: 11). Numerous observers commented on the fact that the Egyptian revolution, with the central focus on Tahrir Square, was one of the most covered revolutions by international media in history, raising questions about the effect of the continuous overflow of images on memory. That said, of all these images, the best-remembered remains the panorama of the square filled with masses of people; an image which reduced the complexity of the story.

And yet, one more reversal in the role of photography can be identified. The effect of the overabundant flow of the millions of photographs and videos, producing what W. J. T. Mitchell called a ‘tsunami of material’ (Mitchell, 2012: 14), has evidently enhanced the further commodification and iconizing of ‘revolution photographs’. This phenomenon is quite similar to the invasion of paraphernalia, in concert with the disproportionate proliferation of the icon of the Egyptian flag and its pervasive commercialization, resulting in a banalization of its symbolism. The circulation of the bird’s-eye shot of the Square,⁸ the most emblematic photograph of the revolution, produced this reversal, which served the counter-revolution more than anyone else. In 2013, vertical filming was appropriated by the military to good effect, using highly sophisticated aerial shots from helicopters of the mass demonstrations on 30 June 2013, just before the ousting of former president, Morsi.⁹ Certainly, the diffusion of these professional videos and photographs worldwide, displaying a much larger number of protesters in the street than in January 2011, were crucial in speeding Morsi’s departure, enhancing at that moment the popularity of the military.

I realize that the photographs in this text are neither iconic, nor emblematic, nor subversive, nor were they taken during direct violent confrontations. Instead, they could be classified in the genre of the ‘vernacular videos’ described by Mark Westmoreland (2016) that gained prominence in the Arab revolutions. ‘Vernacular videos’ were shots from mobile phones, either by protesting citizens or from balconies, taken by ‘vernacular revolutionaries’. Most importantly, these videos and photographs were taken from non-professional citizens and participants in the streets (Westmoreland, 2017: 245).

In contradistinction to Westmoreland, I will stress the ‘vernacular’ while perhaps leaving aside the expression ‘revolutionary’. I would tag myself as neither a revolutionary nor an activist, but I was caught up to some extent in the fever of recording, as a participant/watcher of the Cairo street between 2011 and 2013.¹⁰ The spontaneous photographs taken in the streets, becoming an addiction for millions of marchers, triggered in many, including me, an interest in certain aspects of mundane daily life in Tahrir, such as street vendors, including children. Particular moments of the power of the collectivity and the performative in marches were evidently mesmerizing. Reflecting upon these photos of the performative street some four years after the event might suggest alternative types of political action (Azoulay, 2008: 22). The short moment of 2011–2013 proved effective, with powerful visual impressions, yet it remained precarious, as performativity always is.

However, these photographs might highlight certain details that can convey the particularity of exceptional moments, the wit and resistance and specificity of the performative theatrical street. Even though I have written a long diatribe on the function of nostalgia, the desire to record and evoke the past is certainly bound up with a sense of loss. Nostalgia remains unavoidable, but if writing and evoking history can assist in appeasing the bitterness of the present, then let it be.

Remembrance [or] The Performative Street

1. Taken Friday 23 November 2012 in the neighborhood of Mohandessin. This is a march that started from the Mustafa Mahmud

Mosque in Mohandessin and ended in Tahrir Square. This itinerary took on a repetitive character. The protesters decided in the early days of the revolution to launch marches starting from the Mustafa Mahmud Mosque and reaching the Square, following a specific itinerary. These continued until June 2013. Throughout 2011–2013, as the ‘million-person marches’ multiplied, the protesters excelled in transforming them into a fascinating performative spectacle that drew increasing attention from the residents watching from balconies, as well as from the international media.



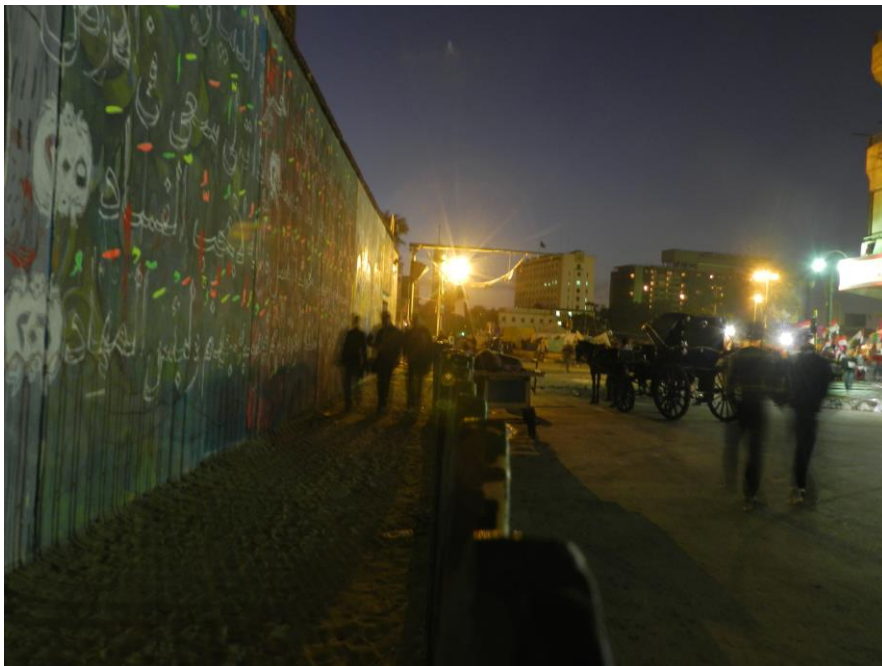
All along the itinerary there would be meeting points, where incoming groups of protesters would gather to enlarge the march. The walk from Mohandessin to the Square normally takes one hour, but as a protest march, it could last up to two or three hours, as it moved slowly with chanted slogans and drumming. Some marchers would be carrying huge flags, streamers, posters, and signs, while others held loudspeakers to repeat the slogans. Often, too, cars were positioned at the front and the rear of the march, where they could easily be covered by the media. The first march, in January 2011, turned violent and confrontational with the security forces; it became a well-documented historic moment. The march in this photograph took place after Morsi had become president. It was specifically an anti-Muslim Brotherhood demonstration. The

protesters are carrying a heavy red armchair, a symbol of rule, mocking the Muslim Brotherhood's replication of Mubarakist policies and greed for power. (In Arabic slang, *al-kursi* ('chair') refers to holding political supremacy.) On the two sides of the chair were placed photographs of iconic martyrs: Ahmed Bassiouny, killed in the first days of the revolution in January 2011; Sheikh Emad Effat, killed on 15 December 2011 during the Mohammed Mahmud violence; and Mina Daniel, killed in the Maspero massacre in October 2011, when army tanks crushed protesters. On top of the portraits of the martyrs is written: 'You have taken (or 'reached') the chair through spilling blood [...]' (the rest of the sentence is illegible). The message on the sign at the upper right says 'No to the *fuluul*', referring to the old pro-Mubarakist class. The lower sign reads: 'In the name of the holy book, we ceased to be afraid.' Notice too, the Guy Fawkes mask, which turned out to be one of the most popular items sold by street vendors during these marches. In another march that, following the identical itinerary, took place in spring 2013, I witnessed the *Tamarud* (Rebel) campaign movement, which managed to gather some 22 million signatures for a petition demanding that President Morsi step down. All along the march, the marchers could be seen distributing the petition to the passersby, and the people standing in the street added their signatures and their ID card numbers. I recall that one member of the *Tamarud* campaign gave me a pack of petitions at al-Batal Ahmed Abdel Aziz street, so that I could gather more signatures while they were marching; these were picked up later.

2. Taken 12 December 2012 on Mohammed Mahmud Street, which witnessed the bloodiest incidents in November and December 2011 and in November and December 2012.

Beginning in January 2011, the nation experienced escalating street protests leading to successive violent massacres, such as in Maspero Street (October 2011), Mohammed Mahmud Street (November–December 2011, then again in November–December 2012), and the Port

Said stadium massacre (February 2012). Mohammed Mahmud Street was nicknamed 'Street of the Eyes of Freedom' after many protesters lost their eyes to a sniper who deliberately and efficiently targeted them. On the wall of the American University entrance can be seen the work of graffiti artist Ammar Abu Bakr, consisting of Arabic calligraphy of verses of the Quran. Sand covered the ground instead of the uprooted pavement after the violent confrontations. Most striking is the horse carriage to be seen in the back, a slowly disappearing trade, mostly enjoyed by tourists, who had ceased to come to Egypt during that year.



3. Taken 4 December 2012. This photograph shows a march from the residential island of Zamalek into Tahrir Square. Anti-Morsi and anti-Muslim Brotherhood slogans were chanted. The Zamalek residents belong to the better-off middle and upper classes.



The year 2012 witnessed growing participation by the so-called ‘bourgeoisie’, even among former Mubarak supporters, who had often been mocked as the ‘armchair party’ but who now took to the streets in marches, public performances, and stands. The flags and signs carried the slogan ‘NO to the Constitution’, referring to the semblance of a constitution proposed by the Morsi government and the Muslim Brotherhood. This constitution gave unlimited powers to the president, overlooking the role of the judiciary. It was interpreted as an opening to a theocracy. As violations of human rights continued and violence was perpetrated against peaceful protesters during the rule of the Brotherhood, their rule was considered as a variation on the rule of the SCAF (Supreme Council of the Armed Forces) that took over immediately after Mubarak’s ousting.

4. Taken 4 December 2012 on Kasr al-Nil bridge heading toward Tahrir. Close-up of the same march that departed from Zamalek island.



5. Taken on 5 June 2012 in Tahrir Square, just three weeks before Morsi's ousting. This photograph might be the least exciting, but it is most illustrative of the Square as an attraction for spectators. Chairs were set up around the Square from the entrance of Kasr al-Nil Street, so that people could watch the center of the square and the demonstrators coming in and out, as if Tahrir were the central stage of a theatre. A spontaneously opened café offered drinks, thanks to the roaming street vendors and the existing cafés around the square.



6. Taken in Tahrir Square on 25 January 2012, the first anniversary of the 25 January Revolution.



A child street vendor of sweet potatoes struggles with a cart. In the background, one more sweet potato street vendor and vendors of paraphernalia commodities – particularly flags – are visible. A year later, in February 2013, an itinerant seller of sweet potatoes in Tahrir, a 12- to 14-year old boy, was murdered with two bullets. The media reported that he had been shot by mistake, but it was discovered later that he was shot by a soldier who deliberately targeted him. The official media failed to mention that the victim was a destitute, 12-year-old street kid.

7., 8., 9. Taken on 12 December 2012.



The open-air Museum of the Revolution in Tahrir, which consisted of photographs of the martyrs and a memorial space for depositing flowers. The creators of the museum invited passersby to freely express their opinions in commentaries, wishes, criticism, poetry, or any other means.

The museum was erected during the rule of the Muslim Brotherhood under the presidency of Morsi. The countless commentaries, not all displayed on the wall, include insults, jokes, and requests for Morsi to step down and leave. The text message near the bottom of photograph 8 reads: “Down with the one who betrayed and sold [...] and left the Square.’



10. Mohamed Mahmud Clinic, taken 24 November 2011.



This clinic was created during the first violent Mohamed Mahmud incidents. Donations of medicine, bandages, anti-tear gas solutions, and first-aid material were displayed near the Omar Makram Mosque in Tahrir. No further comment is necessary.

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Notes

- ¹ The 'honorable citizen' was a slogan invented during a propaganda campaign under the rule of the armed forces after 2011. It was deployed as a way of denouncing the so-called 'troublemakers', such as the protesters. Neighbors who showed any suspicious behavior could be denounced, suggesting analogies with the German Nazi period.
- ² However, due to the residents' resistance, the police forces retreated from the island after the state declared that it would postpone the evictions (*Al Jazeera*, 2017).
- ³ While still remaining the second-largest recipient of US aid, after Israel.
- ⁴ This is the title of Cynthia Myntti's book on Cairo's Belle Époque architecture (Myntti 1999).
- ⁵ See the presentation of Omniya Abdel Barr on the panel 'Le patrimoine des villes arabes à l'épreuve du présent', in 'La ville' (Abdel Barr, 2015). Abdel Barr is a member of the 'Save Cairo' campaign in Egypt.
- ⁶ The fields of music, film and documentary, graffiti, and public street art witnessed a remarkable, flowering explosion of fantastic, young, gifted female and male artists. Graffiti obtained the lion's

share of attention from the international media – unfortunately, at the expense of highly commercializing the field. Regarding the commercialization of graffiti, see Abaza (2017).

⁷ However, the status of photographers was reversed by the military after the Rabe'a al-'Adawiyya massacre in July 2013 and the jailing of journalists. When the military took over, photographing in the street was criminalized, leading to numerous cases of harassment and jailing.

⁸ On the point of the iconic image of the bird's-eye shot of the millions filling the Square becoming, so to speak, the most representative photograph of the revolution, globally going viral and producing the effect of a 'faceless' revolution, see Westmoreland (2016).

⁹ The Islamist Mohammed Morsi was elected as president on 30 June 2012 and served until 3 July 2013. He was removed from office as a result of spectacular demonstrations against his regime, which gave the army the golden opportunity to interfere and oust him.

¹⁰ Perhaps there is also an analog here with Azoulay's argument of reading photography as a 'civil act and a rehabilitation of the political' (Azoulay, 2008: 27).

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The Psychogeographies of Site-Specific Art

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Abstract

Contemporary efforts at urban revitalization have encouraged an increased production of site-specific public art events that temporarily inhabit popular city hubs. These “pop up” interventions range from loosely assembled happenings to the more institutionally supported all-night art festivals like *Nuit Blanche*. This paper examines the types of geospatial memory produced and inscribed through small-scale, participatory, site-specific urban art events. It considers how this work participates in forms of placemaking which both enact provisional and iterative forms of assembly while also marking the psychogeographic remains of space. Taking up examples from *SensoriumM* lab (Montreal) and *Mobile Art Studio* (Kitchener), the paper suggests how public art may be used to elicit performance-based and participatory geospatial media that maps residents’ embodied and historied relationship to urban space.

Keywords

Installation, Performance, Public art, Psychogeography, Site-specificity

Introduction

Contemporary efforts at urban revitalization in North America and Europe often use public art as a branding exercise to signal the presence of a creative class. These efforts reflect a desire for newness, a transformation away from the bleak late twentieth-century image of urban decay, toward a consumer-friendly space easily circulated across social media. The promotion of cities through public art events take many forms. These include small-scale, grassroots activities performed by artist collectives and city inhabitants,¹ local business-run pop-up shows in underutilized industrial spaces, and nationally-funded annual art festivals that take over entire

downtown cores for a night or a weekend.² A broad, interdisciplinary conversation exists on the role of urban public art within the discourse promoting a creative class, especially within municipal strategic plans (MacGregor, 2012; McKim, 2012; Zebracki, 2012; Peck, 2005; Evans, 2003; Klingman, 2007). A shortcoming of Richard Florida's original use of the term "creative class" (2002), however, is that it focuses on creativity as an index of future economic prosperity, and therefore reduces any sense of art's critical functionality (MacGregor, 2012: 104). This shortcoming suggests there is a need to better understand "the emergence and formation of creative processes in [the] local ecologies of knowledge" in so-called creative cities (Cohendet, Grandadam & Simon, 2010: 92).

Beyond their role as markers of a city's creative class, public art informs the local ecologies of knowledge they operate within. In order to understand public art's impact on local ecologies we need to assess how they map spaces as meaningful for those who inhabit them. This understanding helps make a critical distinction between different strands of new genre public art (Lacy, 2008; Lippard, 1984). For Miwon Kwon (2002), new genre public art emerged in the 1960s and 1970s as a creative process that challenged the modernist aesthetics of monument-building by focusing on "ephemeral processes or events...temporary installations...[and] participatory collaborations." However, despite new genre public art's original development in the form of "politically-conscious community events" for public audiences, Kwon (2002) cautions that this type of work "may, at the same time, capitulate to the changing modes of capitalist expansion." This is the case for many instances of contemporary public art events that are tied to corporate sponsorship. While promoting access and exposure to art is an important mandate for sponsored festivals, the oftentimes competing priorities of municipalities, sponsors and audience expectations can overdetermine the art on display as indistinguishable from the spectacle that enframes it (MacGregor, 2012: 111; Zebracki et al., 2010; Zebracki, 2012: 119; O'Flynn, 2012; Sandals, 2015; Hampton, 2016). Increasingly, these events provide spectacular aesthetic spaces for optimal social media sharing, and exist alongside extended access to consumer spaces like bars, restaurants, and cafes.³ Larger public art events, like *Nuit Blanche*, have raised concerns over making creative expression a mere vehicle for economic interests (McKim, 2012: 133; MacGregor, 2012: 109). Regardless of their scale, urban public art events produce forms of creative mapping

that serve to index the entanglements between people and their lived environments (Zebracki et al., 2010). Such mappings are found in the social media documentation of art events and how they circulate in the event's afterlife. However, they can also exist as a formal strategy within public art that elicits participation as part of the work itself.

While much has been written on corporate-sponsored, large-scale public exhibitions, I am interested in exploring this second mode of mapping as a formal strategy in smaller public art events which share a focus on site-specific, socially-oriented content situated in direct collaboration with audiences. As Gwen MacGregor notes, smaller-scale public art pieces offer a more intimate space for the engagement of diverse audiences – a counterpoint to the larger, more heavily funded projects within large-scale festivals like *Nuit Blanche* (2012: 113). The intimate nature of small-scale public art often moves away from spectacle and underscores the multi-layered relationships that audiences may hold to a place. By recognizing this complexity, the work opens audiences up to provisional and contingent sites of community formation (MacDonald, 2014). This re-inscription of the art space as a site of community adds additional associations to that place for participants. This mode of participatory mapping offers a counterpoint to the spectacle enabled by larger-scale public art festival culture.

This article examines two smaller-scale examples of contemporary public art in Canada. The first, *Midsummer Mile End Tour* (2013), was developed by Natalie Doonan for her research-creation lab SensoriumM in Montreal.⁴ SensoriumM offers participatory art performances, often in the form of public tours throughout various Montreal neighbourhoods. Founded in 2011 by Doonan, the collective has run over twenty different performance tours in that time. These performances make space for “unsettling staid narratives” and create dialogue among participants and artists (SensoriumM, 2011). The *Midsummer* tour included: several stops on local streets to identify edible plants and their non-edible counterparts; visits to areas that are good for foraging food from dumpsters; tips on how to get free roasted sesame seeds from local bagel bakeries; and areas full of cherry and Saskatoon berry trees. The tour was constructed through a series of informal research walks by Doonan and her

collaborators. Each walk was paired with a theoretical text as a way of moving through the text and space concomitantly, mapping the meanings of both together. The tour was accompanied by a free publication distributed to participants, which included a map of where to forage in the area and notations on the potential plants to be found and their uses. The intention of the map, like the tour itself, was to enable participants to add to the knowledge it contained and to additionally create their own map, inscribing the space with their own lived knowledge of how to forage in a largely gentrified and commercial urban space. As curator and dramaturge, Doonan orchestrates the performative urban tours in collaboration with local artists, activists and scholars, situating “the city and its environs” as “the field for peripatetic and culinary investigations” (Sensorium, 2011). The tours are constructed as “unscripted, exploratory research” that “evolves into a fluid script” which artists and audiences ‘co-author as [they] walk’ (Doonan, 2015:58). *Midsummer Tour* opened up a variety of conversations around the pros and cons of eating foraged weeds in urban spaces, the concern for ingesting unintended toxins in such areas, the rules of harvesting that avoid stripping the local eco-structure, and where to find the fields being unofficially occupied by neighbourhood gardens within the Mile End area.

The second example, *Reconstruction* (2016), was produced by the creative research lab Mobile Art Studio (MAS) that I founded in 2014. MAS is a transitory lab that brings contemporary art into public space in order to foster community engagement with issues of social justice. MAS creates ad hoc, pop-up mobile art events that place projection-based performances in dialogue with city-sponsored festivals, events, and public institutional spaces. MAS looks at how spaces contain layers of affective and discursive meaning that are sometimes overwritten by dominant spatial narratives. It thus invites audiences to participate as “makers” and to imagine new renditions of their lived spaces. The pop-up format opens institutional spaces up to performances that serve to challenge the consumer-driven activities of many art festivals. It elicits audience to document moments of tension and ambivalence toward urban gentrification.

Reconstruction was exhibited at *Night\Shift* in November 2016.⁵ It comprised a site-specific performance that encouraged public audiences to build a mixed-media replica of the well-trod city blocks connecting the cities of Kitchener and Waterloo,

Ontario. The physical structure of the work recreated a construction zone in reference to the ongoing construction of a light-rapid transit system. It invited audiences to re-make the city landscape into a playful choreography of live animation, projection and sound centered around twenty-four 4x4ft cardboard screens held up by wooden frames. The city-blocks being re-created were made up of collaged photographic images of popular city street sections. These collaged images were enlarged and projected by overhead transparency projectors onto the cardboard screens. Viewers were prompted to pick up black Sharpie markers and trace the projected images onto the blank cardboard screens. Once the city block was traced onto the screen, it was turned away from the overhead projector and toward a space where viewers could use multiple colours of markers to intervene on the recently traced city images. Participants in this “graffiti” section populated the traced city blocks with various characters and slogans, renamed street signs and repurposed landmark buildings, collaboratively reimagining their lived, everyday spaces in creative and personally meaningful ways. Once screens were completed with graffiti they were moved into a geographically accurate ordering of the corridor from downtown Kitchener to Uptown Waterloo. The movement of the city image from photograph and projector, to graffiti, to reconstructed corridor unfolded in a tightly choreographed performance led by MAS artist-facilitators who wore generic construction costumes (hard hats and reflector vests) and adopted the roles of architect, builder, graffiti artist, construction crew, and foreman. A soundscape of city construction sounds added a backdrop to the choreography and gave the entire event a sense of fluidity and motion that propelled audience participation.

Midsummer Tour and *Reconstruction* both pay attention to rapid urban development and the ambivalence this produces in city residents. *Midsummer Tour* operates around the Mile End neighbourhood of Montreal. Defined by official Montreal tourism promotions as a “famed” and “quintessential” Montreal enclave that is “hip, trendy, and artsy” (Tourisme Montreal), the area has seen rapid gentrification over the last ten to fifteen years. Historically, it was a starting point for many successive waves of immigration it more recently became home to Ubisoft’s Canadian headquarters (Dejardins, 2014). Similarly, the region of Kitchener-Waterloo, where *Reconstruction* was installed, is currently undergoing rapid development transforming from a failing

factory economy to a central start-up hub within Canada, a distinction cemented with the opening of Google Canada headquarters in 2016. Collectively, the city's growing pains and uncertainties around the rapid gentrification of formerly working-class neighbourhoods are palpable within conversations in public space.

As two examples of small-scale, contemporary urban public art, *Midsummer Tour* and *Reconstruction* speak to tensions between municipal messaging about growing neighbourhoods – which are often constructed in-line with urban designers and marketing campaigns – and the role of public art within such transformational spaces. These are sites where, as Joel McKim suggests, “tangible infrastructure and immaterial media collide,” opening up questions as to the role of art in such space, and more specifically, “what constitutes meaningful spatial intervention and what, in the end, is merely spectacle” (2012: 131). While Mile End and Kitchener-Waterloo do not share significant overlap in their histories of gentrification, they do both house the headquarters of two major technology hubs within Canada. My interest is in the similar methods employed by SensoriM and MAS within these specific spaces. Both collectives share a conceptual interest in the work of Henri Lefebvre, Guy Debord, and Michel de Certeau, and employ situationist tactics, including walking, as formal methods for mapping the psychic lives of city space (Lefebvre, 1974; Debord, 1957; de Certeau, 1984). In addition, both collectives use performance-based, research-creation practices, relying heavily on notions of iterative, performative gestures as sites of meaning making while advancing affect and embodiment as central operating principles for the collective remapping of space. Through these overlaps, SensoriM and MAS incite conversations of gentrification at the level of everyday life, while formally providing a valuable link between new materialism and more long-standing theorizations of space.

Tactical Interventions and the Psychogeography of Urban Public Art

Reading Lefebvre's, Debord's, and de Certeau's theories of urban space, the city comes into view as a collection of loosely assembled sites contingent upon the temporal, iterative flow of residents shaping their environments. Important to my study of site-specific public art is the fact that each author situates creative action as a potentially resistant and recuperative site of spatial production within the dialectic

between people and built environments. For de Certeau, the quotidian actions of urban inhabitants, such as walking, resist the “gigantic rhetoric of excess” of the disembodied concept city (1984: 91). This view of both bodies moving through, and undoing built spaces is both phenomenological and performative. These everyday acts of bodily “doing” are iterative gestures through which residents alter their understanding and use of city space repeatedly over time.⁶ A new materialist frame suggests that our bodily acts as artists, audiences and critics are in an ontological interrelationship with built environments and spaces (Barad 2003: 802, 814). Similarly, de Certeau and his peers recognizes how the performativity of bodily movements shapes city space, suggesting there is an inextricable link between human action and built environments; they are not separate, but rather mutually informing.

New materialist theorists usefully expand on notions of spatiality found in the earlier work of de Certeau, Lefebvre, and Debord, by situating the matter that makes up our lived spaces with a vibrancy and agency that helps explain our affective and embodied connections, attachments, and responses to space. What this combined dialogue on the interrelationships between art, audiences, and space opens up is a view of urban public art’s potential to “express the complexity and the limitless simultaneity of cities” (Hudson, 2013: 256). Public art often gets at the resonances of this complexity by hailing audiences as witnesses to the layered temporalities and political and affective significations contained within a specific space (MacDonald, 2015). It offers an understanding of the space as being full of multiple possible narrative and intimate practices that allow us to move through our lived spaces in more agential, relational, and convivial ways.

The link Sensorium and MAS establish between the work of earlier theories of space and more recent discussions within new materialism is found in the attention the collectives pay to the matter of the site-specific spaces they inhabit. This link can also be seen explicitly in Doonan’s characterization of her public art performances as “assemblages of human and non-human bodies” (2015: 53-54). Elsewhere I have characterized the creative process undertaken by MAS as a “multi-mangle” of relations between bodies, art materials, representation, and environments (MacDonald and Wiens, forthcoming). In both instances, a variety of actants

converge to mark spaces with provisional meanings that expand understandings of what the space is or can be. They situate site-specific public art as a web of “deeply connected” elements including “collective memories, social relations, and built structures” as they are “expressed in material culture” (Darroch and Marchessault, 2014: 3). As spatialized aesthetic assemblages, public art events respond to our desire for intimacy amid our increasingly urbanized and globalized city cultures (Schmid, 2008: 27). This application of performativity to body-space relations points to the value of participatory creative practices within the context of urban public art. The new materialist principles found in the work of Sensorium and MAS align in particular with discussions of lived space (cf. Lefebvre), tactics (cf. de Certeau), and psychogeographic mappings (cf. Debord).

In *The Production of Space* (1974), Lefebvre shifts conceptually away from studying things in space to consider instead the practices that produce space. He categorizes these material, psychic, affective, and temporally layered practices in a three-dimensional dialectic between the perceived, conceived, and lived. These elements are separate but connected “in interaction, in conflict or in alliance with each other” (Schmid, 2008: 33). Similar to de Certeau’s emphasis on quotidian practices and new materialist principles outlined above, lived space indexes the interrelatedness of people, the social, and the built environment and for Lefebvre has value insofar as it is “expressed...through artistic means” (Schmid, 2008: 40). This valuing of creative practice in spatial production complicates the more static binary established between bodies and cities (Grosz, 1994). Foregrounding the significance of the creative act, Lefebvre speaks to Certeau’s notion of the tactics within city space. Tactics construct city space not as an “object of a (reified) knowledge,” but rather “*the place of a recognition*” (De Certeau, 1998: 13, emphasis in original). This emphasis on creative practice situates art or aesthetics, in their relationship to the everyday body, as central in recognizing lived spaces as more than containers of capitalist exchange.

The intimate public art events of Sensorium and MAS employ tactical practices to identify the affective meanings within city space. They offer creative actions that divert spaces away from the reifying practices that produce conformity and abstraction (de Certeau, 1984: 29). Doonan’s work resists the concept city as her tasting tours build on everyday practices of walking, consuming, and dwelling in city

space. These practices are turned, through her curation, into creative action. They are performative in the sense that they change the conditions of how those spaces being toured are understood. Walking tactics were also part of *Reconstruction's* conclusion, where the screens of city images were reassembled into the familiar main street corridor encouraging audiences could moves up and down the restructured blocks. What they revealed was a reimagined narrative of the city that resonated with the desires and frustrations of residents. While the installation corridor looked different from the actual city layout due to the participant's graffiti interventions, it was intimately recognizable to city inhabitants, suggesting how spaces reflect our lived experiences beyond their institutional functioning.

Sensorium's and MAS's use of tactics can be read as psychogeographic mappings that delimit spaces for audiences, artists, and researchers to collaboratively consider how their everyday lives are informed by the materiality of institutional structures, built environment, and ephemera that connect them (Smith, 2010: 103). Psychogeography, an overarching concept for the creative practices devised by the Situationist International (including *dérives*), examine the material, physical, and psychic realities of space that draw us in, invite certain affects and associations, and inform our memories. Psychogeography, as a form of mapping, frames and inscribes the tensions and potentials of a space through 'images of play, eccentricity, secret rebellion, creativity, and negation' (Marcus, 2002: 4). These principles of psychogeography clearly align with the public art practices of Sensorium and MAS. The specific ways in which Sensorium and MAS work across different media (performance, projection, print, illustration) to engage public participation emphasizes the types of dialogic relations at play within site-specific art. I therefore situate these events as forms of psychogeography, in a way similar to how it was imagined by the Situationists. For instance, both Sensorium's food tours and MAS's pop-up interventions are performances that also produce "situations," which are defined by Debord as "playful creations of an active life prefigurative of a utopian remaking of social relations" (Smith, 2010: 104). In the work of the Sensorium, the making of a situation is achieved through tasting tours of Montreal neighbourhoods. In MAS, the lure of pop-up events is foregrounded as a means of drawing public audiences to participate as "makers" of their environment, reimagining the spaces

they move within through accessible forms of low-tech mediation. The urban aesthetic practices both collectives employ provide residents and artists the means to transcribe memories, impressions, concerns, and attachments to their everyday spaces. The outcomes of the public art events become a living archive, situating the spaces as both historically layered and fluid, contingent sites of shifting and evolving meaning.

Both collectives employ tactics in their psychogeographic mappings of space that formally elicit a sense of affect and embodiment within participants and audiences in order to performatively frame space as a point of collective gathering. Indeed, one function of Sensorium's and MAS's tactical placemaking is that they harness space for modes of performative assembly (Butler, 2015). In these public art events, bodies gather in spaces for the purpose of oftentimes participatory aesthetic experiences that illustrate affective interrelationships between bodies, art, and space. Such acts of assembly reveal the conditionality of participation, and thereby gesture toward the potential transformation of space through the immersion of materials, structures, and bodies (Lefebvre, 1984). For instance, in *Reconstruction*, the practice of remaking the city together enabled the public to share a collective coming to terms with residents' memories and attachments to the city space during a crucial moment of transformation. Setting up a flexible space for the public to creatively express their lived experience of this time period encouraged an alternative means of dialogue between residents on the redevelopment directly impacting their lives. The work of Sensorium and MAS are closely related to urban interventions by Toronto-based groups like Mamalian Driving Reflex, as both produce performance interventions that critically explore social relations within site-specific spaces. Methodologically, work done by Mamalian Driving Reflex also exemplifies a psychogeographic impulse centered around walking tours as a mode of contemporary urban public art.⁷

The dialogue between materials, spaces, and participants in both *Midsummer Tour* and *Reconstruction* open up a better understanding of how public participatory art practice transforms 'our perceptions of – and relationships with - urban space' in order to reveal and critique the dominant structuring forces of our lived environments (Toft, 2016: 50). The projects performatively investigate the inter-animating layers of history, culture, and matter that make up the spaces we live in through

phenomenological and performative inquiries. As public art, they produce situations (and resulting archives) on how our lived experience of spaces inflect our sense of self, our migrations and mobilities, our encounters with development and gentrification, and our civic responsibilities to one another.

Conclusion

If, as de Certeau and Lefebvre suggest, space holds multiple forms of spatial production, it is useful to further consider the impact of our everyday practices and aesthetic constructions as urban inhabitants. How are cities and inhabitants shaped by these forms of intra-relatedness? And what role do aesthetics play in highlighting this relational production of space? The work of Sensorium and MAS outline how public art can usefully negotiate different modes of meaning-making in the city, specifically as encouraged through collaborative and creative practice tied to bodily experience. Importantly, the mobilities and flows of urban inhabitants contained within them an ability to exceed the official views of what constitutes urban landscape. Expanding on de Certeau's interest in the tactical role played by ordinary practitioners, both collectives reveal the valuable role of aesthetic practices in building provisional modes of creative assembly. What creative practice offers in these instances is a specific space and a concrete practice for reading, assessing, and revising the text of the city space in ways that allow citizen-practitioners to remain embodied, embedded makers of the city. Smaller-scale forms of public art in urban spaces create modes of placemaking that mediate between the concept city and the flow of everyday life practices. It takes both relations out of their usual context, and defamiliarizes the spaces in particular ways that force a certain kind of reading and participation on the part of the audience/urban resident. It further becomes a valuable site for analyzing the psychic and affective resonances of space and offers an opportunity to think further about the interrelatedness of people, space, and the meanings they ascribe to one another.

Katve-Kaisa Konturri suggests we situate art *not* “as an object of knowledge” but rather as “something that challenges one’s way of being in the world by suggesting new kinds of becomings” (2014: 47). Such a position, informed as it is by new materialism, asserts that aesthetic form is “filled with incipient potential for

movement” that includes art’s “two-way bodily capacities...of being affected and...to affect” (2014: 52). This two-way capacity to engage audiences affectively is formally tied to a “*micropolitics*” within the affective properties of the work (Konturri, 2014: 52, emphasis in original). These micropolitics are present in Sensorium’s and MAS’s shared interest in “making public,” or in how they create intimate spaces of exchange for public audiences and enact critical dialogues around the spaces they operate, encouraging participants to imagine those spaces differently (Doonan, 2015: 52). This micropolitics of making place offers a re-inscription of the concept city that challenges and contests it from the ground level of corporeal beings in creative action.

Within this analysis of both collectives, I am mindful of Martin Zebracki’s (2012) cautioning that an assessment of public art’s accountability to its public is required beyond the view of artists and their institutional supports. His concern being that both parties have an interest in defining public art as wholly accessible and “socially inclusive” for their own benefit (Zebracki, 2012: 118). As such it is worth assessing, as Zebracki puts it, “how ‘public’ is public art?” (2012: 119). Taking into consideration, the specific audiences and supports of these two projects, these are reasonable concerns. Despite their intentions, these works index a particular audience within their formal structure. Based on documented conversations within *Midsummer Mile-End Tour* video archives, participants seem to have joined the tour based on their well-versed interest in issues of food scarcity, gentrification and alternative modes of urban consumption. While certainly passers-by could join the tour in progress, they were made up of people who, first, responded to the outreach materials (thus self-selecting their alignment with the tour’s interests), and who, second, held a certain amount of economic and job security to participate in a daytime event during working hours. In the case of *Reconstruction*, the fact that it was housed within a larger, municipally supported urban art festival means that while it aimed to attract a diverse population, the reality was the majority of audiences actively identified as “art-goers” drawn to the lure of the all-night art festival in their mid-sized city. They again elected to make their way to the downtown core in search of art experiences and thus felt comfortable traversing art world spaces that may be inaccessible to others. Further, the participatory nature of both projects, while

engaging some audiences, would be potentially alienating for other spectators and residents.

My position as director of a public art research lab risks reading both collectives' work from a "bird's-eye doctrine" that may fail to critically address "the everyday social realities" surrounding public art and how it affects audiences of differing social positions (Zebracki, 2012: 121). One response to Zebracki's concerns is to place questions of accountability and inclusiveness in public art at the forefront, asking artists to center such questions of inclusiveness as a defining mandate of the artwork's form. It is worth exploring what it would mean to devise public art events that take the social positions of their audiences as central to the work itself in ways that meaningfully open up productive conversations within its publics. My forthcoming research on intersectional feminist modes of creative placemaking aims to address just this. Doonan's more recent work on nursing, parenting, and publicness also seems to move away from more broad-based engagements with space to thinking through the specificity of different subjects and their lived experiences.

What *Mile End Tour* and *Reconstruction* offer are examples of an urban public performance art that employs a bricolage aesthetic that manipulates and diverts spaces, using existing official space for creative and interventionist uses, diverting spaces reified by official planning – a reusing of the space for creative ends (de Certeau, 1984: 35). Tactics use official resources within space for personal use, thus producing "a degree of *plurality* and creativity" and by extension, new forms of agency (de Certeau, 1984: 30). The creative element of tactical practices situates them within the realm of aesthetics as a way of life, an ethics tied to a politics of *practice* as living. We can see the presence of such tactics in the work of Sensorium and MAS. Both center on the everyday practices of walking. In *Midsummer Tour*, through the guided walk around Mile End, and in *Reconstruction*, through the walks participants take down the cardboard screen corridor that they have helped to reconstruct through their own interpretations and desires. If we take seriously the performative strain within de Certeau, these actions mimic the everyday, but through their aesthetic form they write, or perhaps more accurately rewrite, the urban text by

opening up a reflective and reflexive component to the action. The performances frame these everyday tactics *as* critical reflections and collaborative dialogues about the dominant narratives of each space.

There is in both *Midsummer Tour*'s and *Reconstruction*'s enactments of tactical walking a sense of what Jill Dolan calls the utopian performative, an element of performance that "provides a place where people come together, embodied and passionate, to share experiences of meaning making and imagination that can describe or capture fleeting intimations of a better world," thus offering a "broader, more capacious sense of a public, in which social discourse articulates the possible rather than the insurmountable obstacles to human potential" (2005: 2). What these moments offer then is a "hopeful feeling of what the world might be like if every moment of our lives was as emotionally voluminous, generous, aesthetically striking, and intersubjectively intense" (Dolan, 2005: 5). If, as Dave Colangelo (2016) notes, "[w]e are beginning to expect the same things from public art that we expect from almost anything in our world: that we can have a conversation with it," we may further wonder what the desire for such dialogue is, and where it stems from. The draw that pulls us to urban public art is its status as a creative action that disrupts the flow of our everyday life as urban inhabitants as well as the dominant narratives inscribed within our city spaces. Urban public art often invites us in, bodily, to be witness to the spectacle, or to be a co-creator of the practice or event. Either way, we find ourselves drawn to a public assembled around the art, drawn to the promise of an experience that may alter and remap our corporeal-affective relationships to the spaces we inhabit, grapple with, and mutually shape day to day.

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Notes

- ¹ See: City Leaks <https://twitter.com/cityleaksmelb>; Partizaning <http://eng.partizaning.org/>; Playground <https://impromptuplayground.wordpress.com/projects/>; Candy Chang <http://candychang.com/work/>;
- ² See for example: Nuit Blanche (Paris, Toronto, Tel Aviv, Edmonton, Chicago, Melbourne, San Antonio, Lima, to name a few); *En Lumiere* (Montreal); White Nights Festival (St. Petersburg); Stockholm Urban Art Festival; Vivid Sydney; Open Walls Baltimore.
- ³ One recent example, the 2016 in/future Festival of Art and Music was held at the unused grounds of Ontario Place, a former entertainment complex, concert ground and amusement part on Toronto's waterfront. The two-week festival included musical acts, live performance, film screenings and curated art installations alongside craft beer and food tents, and DJ nights, with corporate sponsorship from AirFrance and Staropramen Beer. The festival had a successful social media presence, the hashtag #infutureto has generate over three thousand posts on Instagram to date with a large majority featuring the iconic Cinesphere dome that is a centerpiece of Ontario Place. <http://www.infuture.ca/>
- ⁴ See: Midsummer Mile End Foraging Tour <http://www.lesensorium.com/2013/08/midsummer-mile-end-foraging-tour.html> ; Reconstruction <http://nightshiftwr.ca/reconstruction-mas/>
- ⁵ For more information about *Night\Shift* see <http://nightshiftwr.ca>; for documentation of *Reconstruction* see <https://www.instagram.com/mobileartstudio/>
- ⁶ The concept of 'doing' here refers to performance theory's foundational assertion that words, or performative utterances, 'do things' (Austin, 1962). This initial assertion has been extended greatly in the performative turn to include the performativity of gestures, identities, objects, creative acts (Derrida 1972, 325-327; Parker and Sedgwick, 1995).
- ⁷ See for instance their touring project *Nightwalks with Teenagers* <http://mammalian.ca/projects/#nightwalks-with-teenagers>.

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Socially Engaged Archive: Art, Media and Public Memory in East Asia

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Abstract

Since the 2000s, visual archives related to social movements, activism, community activities, and alternative cultural practices in East Asia have rapidly emerged. This “archival turn” reveals a search for new ways of defining social and communal forms and images beyond official narratives and mass media. In this paper, I use three cases of socially engaged art archival practices – namely, Archive for Human Activities (AHA!), “The Day After” and “Socially Engaged Art (SEA) CHINA” – to illustrate how artists in East Asia utilize archives as a means of social and individual articulation and conversation. The three cases of archiving practices illustrate new trends in the way archives engage in producing new knowledge and narratives for art and social/cultural practices in East Asia.

Keywords

Digital archive, East Asia, Memory, Socially engaged art, Sound art

Introduction: Ordinary Archives as a Way of Doing

In *Archive Fever*, Jacques Derrida (1995) draws two layers of meaning from the Greek *Arche*: *commencement* refers to a physical, historical, or ontological beginning, whereas *commandment* refers to an act by an asymmetrical power, whether god or the law. As Derrida goes on to explain, these two distinct meanings combined constitute an archival practice which is comprised of gathering signs and symbols to determine a singular cultural or historical meaning. We usually understand “archive” in reference to a topology of memory for keeping, classifying, and unifying traces of the past as through a public institution. For Derrida, however, the archive has a supplementary

power to decide the limits of our public memory in its capacity as a stable, comprehensive, and authoritative regime of knowing, and yet this power is equally susceptible to erasure.

In line with Derrida's pronouncements, I argue that the rapid privatization of archiving today now makes the "archive" completely ephemeral. Using digital media, one feels that the perception of historical time is largely accelerated because of the quick and convenient process of documenting and archiving, as well as the easy disposal and destruction of recorded sound, image, and text. But, in fact, there are at least two additional aspects of the digital that directly challenge the old notion of archival history. First, it must be acknowledged that everyone has become an archivist, especially if we consider the decentralized world of online social media. Second, and partially as a consequence of the first point, ordinary, and therefore unvalorized, images tend to prevail in the archive in ways they hadn't before. Public memory is therefore rendered precarious as we increasingly depend upon externalizing our memory through the digital. As Derrida himself asserted, "the technical structure of the archiving archive also determines the structure of the archivable content even in its very coming into existence and in its relationship to the future. The archivization produces as much as it records the event" (1995: 17).

The transience associated with archiving digital media has fundamentally changed the nature of the archive as a centralized authority of public (and private) memory. Archiving is fast becoming a popular means of constructing a collective memory of the ordinary. The archive no longer merely represents an exclusive sovereign power of the socially privileged, but is rather increasingly related to a particular kind of public memory – a living memory (Clarke & Warren, 2009). In her "10 Theses on the Archive," Shaina Anand writes that unlike the prevailing wisdom informed by Walter Benjamin, archives must not be seen as a form of redemptive impulse against a state of emergency (2016). She writes that Benjamin's "desire to document that which is absent, missing or forgotten stages a domain of politics which often privileges the experience of violence and trauma in a manner in which the experience of violence is that which destroys the realm of the ordinary and the everyday" (Anand, 2016: 83). Beyond this tendency, Anand encourages us to develop a space in which an imaginative archival practice can allow for the "radical contingency of the ordinary"

(2016: 83). She argues that “radical contingency recognizes the possibilities of surprise in the archive and in the possibility that a descent into the ordinary suspends the urgent claims of emergencies” (Anand, 2016: 83). Archives, in other words, do not take the state of emergency as a rule but rather sustain the ordinary. Anand thus encourages us to normalize archives as sites of intervention into public culture. Indeed, the current situation is that we no longer need to search the archive for what we imagine or want, because archiving itself has become a way of doing – and, often, a form of activism. The publicness and ordinariness of the archive and archiving are central to understanding the changing nature of the lives of subjects and their active interplay with social identity and public culture.

This viewpoint opens my discussion on East Asian visual archives that function as an inventory of still and moving images and sounds, as well as texts related to social movement, activism, communal activities, and socially engaged art. While existing literature on the concept of the archive and archival activism, such as Andrew Flinn’s work (2007, 2009, 2011) has focused mainly on Western cases, significantly less attention has been drawn to the developments of archival art and visual practices in contemporary Asian societies. In East Asia, as in many other places in the world, shifting patterns in storing collective memory originate from the changing materiality of mnemonic media and the democratization of the archiving process. In East Asia, ideas surrounding the archive imply nuanced meanings that are specific to local contexts. One example is how the translation of the Western concept of “archive” into Chinese impacted upon the broader significance of historical documents within ancient Chinese historiography.¹ Another example is that in Hong Kong, a former British Colony, the absence of archival laws can be regarded as a colonial design that aimed at depriving the city of its basis for building its own collective memory. In Japan, frequent natural disasters constantly threaten the material existence of large-scale archives. In a region where the number of Internet users also tops the world (Asia had half of the world’s Internet users in 2017), the demand for other “ordinary” forms of archiving redefines it as a socially engaged action rather than simply a practice dominated and initiated by the state or by institutions.

Since the 2000s, visual archives related to social movements, activism, community activities, and alternative cultural practices in East Asia have rapidly emerged. This “archival turn” can be characterized by a search for new ways of defining social and communal forms and images beyond official narratives and mass media. In contrast to historical archives, visual archives do not aim only at documentation and conservation but also at creating agencies and provoking critical reflections. The “archive” is increasingly becoming a very common and important motif for artistic practice and exhibition. Along with this advancement, an increasingly complicated and diverse relationship is developing between the concept and the material being of archives, as well as between public memory and urban space.

In this paper, I use three cases combining socially engaged art and archival practices to illustrate how artists in East Asia utilize the archive as an autonomous means of communication between the social and the individual. The first case is the Archive for Human Activities (AHA!), which was initiated by the Japanese media research/art group “remo” in 2005. AHA! is a project that has been holding communal gatherings for people to share, screen, and discuss obsolete 8mm films from their household to (re)invoke the impulse of storytelling of social history among ordinary citizens. The next project, entitled “The Day After,” was authored by a group of sound artists in Hong Kong after the Umbrella Movement in 2015 to create an acoustic archive depicting a state of exception. Finally, “Socially Engaged Art (SEA) China” is a digital archive for public education and an online resource base for socially engaged art in Mainland China. Together, these cases speak to three kinds of archival urgencies in the face of the memory crisis of our age: the decay of “old” media, the ephemeral soundscape of urban movement, and the absence of easily accessible resources for learning about time-based art projects in China. Interestingly, in both Chinese and Japanese, the word “crisis” dialectically combines two characters: 危 *wei/ki* means crisis, and 機 *ji/ki* means opportunity. The three cases of archiving practices in this paper thus illustrate the ways in which archives currently engage in producing new opportunities, knowledge and narratives for artistic, social and cultural practices out of memory crisis. Despite their ordinariness, these archives stand, as in Mikhail Bakhtin’s chronotopes, “as monuments to the community itself, as symbols of it, as forces operating to shape its members’ images of themselves” (1981: 7).

AHA!: Intersubjective Media

AHA! is a long-term community art project initiated in 2003 by a Japanese non-profit organization named “[remo](#),” which stands for “record, expression and medium-organization.” With media used as a way of “knowing,” “representing,” and “discussing,” the starting point of remo’s various activities is to give media back to the people as a kind of stationery – a pen and paper – to articulate and communicate rather than to encourage the passive acceptance of information from mass media. Mass media actually becomes a tool for centralized control in political and commercial purposes with the help of various advanced communications technologies. To revive the one-to-one relation between the individual and the media, the main goal of the organization is to encourage the creation of individual expression through videos and sounds and offer the public new spaces for film screening. These expressions, therefore, often do not take the form of specific messages and narratives and are difficult for dissemination through mass media and for business purposes. However, the members of remo believe that these are worthwhile expressions for different reasons.² Its current projects, all of which have been running for more than 10 years, are what remo calls “expressive activities” with the individual as the central player.³ The organization’s activities and projects organically mix research, experiment, viewing, and practice, providing the community with chances to reconsider their method and content of expression via the tool of mass media.

AHA! (人類の営みのためのアーカイブ) focuses in particular on 8mm film, which was the first personal documentary media that was popularized among ordinary households in postwar Japan between the 1960s and 1980s. However, since the rise of digital media in the 1990s, 8mm films rapidly became obsolescent and eventually disappeared from the market and the daily life of Japanese society. For remo, the disappearance of 8mm film accompanied the disappearance of a particular form of life and collective memory. AHA! thus attempts to recreate an archive that excavates these long-forgotten films from Japanese households. Through opportunities for public viewing, this archive contravenes the perception of being a static storage unit of old materials for an outdated media, although AHA! does take a

role in digitizing the films. This particular utilization of the films breathes new life into the materiality of media and into the memories of participants. I present the two recent projects of AHA! below to show how archiving can serve as a way first to reestablish people's relation with the medium, and ultimately, to reconnect people with each other.

Archive between Medium (媒介) and “Mediumability” (媒体)

In 2015, AHA! launched a project named “穴アーカイブ: An-Archive” in Tokyo's Setagaya-ku (Setagaya ward). Setagaya-ku was among the fastest growing urban areas in the capital city in the 1960s, when the Japanese economy began to boom. According to remo, the images captured by ordinary citizens who had just begun to use their own viewpoint to observe and document the rapidly changing environment provide viewers with a perspective from which to see the “people,” “life,” and “townscape” from a given time period.⁴ The project consisted of three stages. First, after soliciting 8mm films from district citizens, a communal public viewing session was held.



Figure 1: remo's community screening of 8mm films. Courtesy of Matsumoto Atsushi @remo.

Most of the acquired films depicted family rituals in public spaces, such as a child's first day of school, zoo visits, campus sports games, shrine visits, summer festivals, and street views. Given the ordinariness and familiarity of the images, viewers, particularly those who belonged to the neighborhood, easily participated in them as remnants of collective memory. In the public viewing, 15 scenes selected from the films were displayed. Participants then wrote down anything they could think of from the images and the objects seen in the images. The results were unexpected. A 30-second moving image of a tram, for instance, could invoke a forgotten memory of a hot water bottle as it reminded one participant of the days he brought a hot water bottle to work by tram. In the second stage, participants were asked to look for objects in or related to the scene. Finally, participants brought the objects they found back to the communal gathering and explained why they chose the object and any stories behind the scene. Thus, in a circuit from the image to one's memory and to the object related to that memory, all the various elements become interconnected through the process of viewing, finding, and explaining, forming a living archive consisting of medium, mind, and material.



Figure 2: “Conversation Piece” Catalogue p. 41: The destructed Factories of Fighters’ engines after the air raids, September 7., 1949, photography by the US Army. Source: Geospatial Information Authority of Japan. Courtesy of Matsumoto Atsushi @remo.

Applying a similar methodology, another AHA! project also utilizes public forms of sensual exchange through media. “Conversation Piece: Documentation of An Indefinite Form” (カンバセーション_ピース : かたちを (た) もたない記録) is a collaborative art exhibition launched in 2016 between AHA! and the Musashino Shiritsu Kichijoji Museum in Tokyo in 2016. During World War II, the Musashino area was one of the largest centers for manufacturing engines of fighter aircraft.

Thus, the area became one of the earliest objects of US army air raids. As in “穴アーカイブ: An-Archive,” five sets of 8mm films from the residents of the Musashino area were collected in advance of public viewing sessions. In the screenings and the ensuing discussions, the film providers showed how they perceived the “peaceful Showa (era),” that is, the postwar years in the 1950s and the 1960s, including what they personally experienced during that time, and their memory of how the war was experienced by the older generation (Matsumoto, 2017). In addition to the submitted films, short interviews with the film providers were conducted about their families’ stories of living in the area. The interviews were recorded as soundtracks and also transcribed into print texts. The five interview texts, together with AHA!’s field work records, photos from local residents, consolation letters, and everyday life happenings, were collected and organized into a booklet entitled “Play a Record” for visitors to read at the exhibition site or back at home.

Another part of the exhibition consists of drawings and paintings by Konishi Noriyuki (小西紀行) that were inspired by his family photo albums. Abstract and blurred strokes constitute human figures and undefined behaviors in his works, which are mostly untitled.

“Play a record,” or its Japanese name “あとを追う” meaning searching for the traces, is not merely a booklet for visitors to obtain more information about the context of the show. It also serves as one nodal point of a trace-searching chain of museum visitors, film providers/interviewees, and even curators. Four kinds of trace-searching processes take place in the public viewing, the museum space, and

beyond. First, the film providers recall their memory of when the films were recorded during the viewing session; second, feedback was collected from the providers after viewing their films; third, texts on previously stated thoughts and feedbacks are recorded in print form; and fourth, visitors read the texts in the museum (Matsumoto, 2017). At this moment of reading, the trace-searching experience of film makers and museum visitors merge into one, evoking new memories in visitors and in those who saw other visitors' trace-searching process in the museum space. The chain of memory and visual impressions thus float from the film medium to the subjectivity of the filmmakers, then to the print booklet, and finally to each individual museum visitor as both subjective and objective nodes in the chain. When one views someone else's document or listens to someone else's voice, a look into this "I" who is appropriating someone else's "I" emerges, producing a common image.

From this perspective, "Play a record" is relayed by "record a play." This element of repetition and passing-over generates a new memory experience between the self and the other. According to Matsumoto (2017), the exhibition is an experiment in which: "Through the readers, someone's documentation became some other kind of documentation. At that moment, book and reader, object and human, documentation and memory, became a kind of image-recorder for documentation, as well as a kind of image-player for reproduction. The most important thing is not the difference between object and human, but the difference between medium (baitai 媒体) and mediumability (baikai 媒介)."^[5]

For AHA!, in other words, media consists of two dimensions: the visible material medium (媒体), on the one hand, and the invisible "mediumability" (媒介), or the capacity of a medium to initiate communication, on the other (Matsumoto, 2017). Ultimately, the participant is asked to contemplate and dissect medium-ness (メディア性) within the self, and therefore to traverse both the mediumability that transmits the image, and the medium inscribed in the image. Importantly, this individual exploration has to find its way out of the narcissistic gaze back to oneself, and then exit to the public, collective, and intersubjective experience.

もどんどん建ち始めていました。4人の子ともたちも大きくなってきて、市ヶ谷の家がすこし手狭になってきたんです。だから、昭和41年、うちの下の子どもが小学校に上がる時に、それぞれの家族に分かれて住むことになったんです。姉の家族は三鷹市に、私たちは武蔵野市に引っ越したんです。今年が戦後70年。昭和に直すと昭和90年だから、この武蔵野の家引っ越してきてから50年くらい経つことになります。

正二 今から観る映像は、市ヶ谷にいた頃の中でも、昭和30年から35年に撮影したものです。今から50年以上前のこと。そんな頃の記録なんです。

『八王子行』 昭和33年 | 八王子市浅川 | 5分

さち …今映っているのは、八王子の浅川です。川の近くに極楽寺という大きいお寺があつて、そこに父の墓があつたので、お参りしたんだと思います。父は学校の教師をしていたんですが、早くに亡くなりましてね。あたしども姉妹を父の代わりに育ててくれたのは、叔父です。大きな機屋はたせをやっていました。…これが浅川橋。



Figure 3: Booklet “PLAY A RECORD,” pp.22-23. Searching for the traces of the five groups of film providers’ traces after several decades. Courtesy of Matsumoto Atsushi @remo.



Figure 4: “Conversation Piece” Catalogue, p.26: in a simulated domestic space, with Konishi Noriyuki’s painting and AHA!’s reading corner. Photo by Arisa Yuki. Courtesy of Matsumoto Atsushi @remo.

Communicating through Unreliable Archives

The main focus of AHA!’s archives, in the same vein, is not only the 8mm films per se. Instead, the absent, the undocumented, and the unseen constitute the most significant part of the archive. Referring back to the title “穴アーカイブ: An-Archive,” “ana” is not only an indefinite article, which does not really exist in Japanese, but also means “hole” (穴). In this case, the holes are referring in particular to perforations on the margins of 8mm films. To put it another way, the participants in public discussions are not only those who have experienced the era that is depicted in the images, but also the younger generations who have no living memory of such past. Rather than only providing an opportunity for nostalgia, the archive, which represents a combination of both human memory and media object, thus plays a role in transforming, expanding, and handing over the memories of participants who do not share the experience by filling in the gaps between them.

One key question for AHA! is how those with certain memories can exchange their experiences with people who did not themselves have the same experience. Talking about the “ana” is one way of finding new potentials for this intersubjective dialogue between individuals. This approach reveals a process of producing a kind of “postmemory,” which, according to Marianne Hirsch,

describes the relationship that the “generation after” bears to the personal, collective, and cultural trauma of those who came before-to experiences they “remember” only by means of the stories, images, and behaviors among which they grew up. But these experiences were transmitted to them so deeply and affectively as to *seem* to constitute memories in their own right (Hirsch, 2008: 106-107).

However, the “ana” may never be fully filled, and the “archival information” does not represent any authority over the past experience. On the contrary, the ana-s are filled with the mis-memory, misunderstanding, and illusions of the people. However, An-Archive is not an archive controlled and organized by an “archivist,” but an archive by and for everyone to practice self-exploration through the revitalization of one’s own and others’ memories. Film as medium is no longer only an agency for documenting, but an installation for evoking imaginative memory power as well.

Documentation from both events – regardless if it is from the living memory of a human being or from archival representations inscribed in media, can always be modified subjectively or objectively. In this sense, documentation always possesses a simultaneous dual legacy. Practically speaking, the beginning of documentation paradoxically entails its ending. Archiving, likewise, is not only for creating a “true” version of the past but a tool for making possible encounters, where connection, disconnection, and misconnection happen all the time between objects and subjects. In documentation, archive, as well as the multi-visualized exhibition, may become a playground of “quasi-objects” and “quasi-subjects” floating around the relational networks of our collective and individual experience (Latour, 1993, cited in Ingold, 2009: 95).

The Day After: Archiving Sounds against the Suspension of Everyday Life

Between September and December 2014, Hong Kong's public space was significantly transformed by a rare, long-term physical occupation by the public. On 31st August 2014, the Standing Committee of the National People's Congress denied "true universal suffrage" for the selection of the Chief Executive of Hong Kong in 2017. The selection requires that every individual citizen, rather than the pro-China representatives, vote directly for his or her political leader. The decision led to a week-long class boycott by student associations and high school students that started on 22nd September. On Sunday 28th September, after an increasing number of citizens joined the student protest in front of the Legislative Council Complex in Admiralty, the Hong Kong police force finally decided to use tear gas. The "Occupy Central Movement" (later known as the "Umbrella Movement" because protestors used umbrellas to defend themselves from pepper spray and tear gas) immediately followed and then evolved into a nearly three-month-long civic occupation of three major public spaces: Admiralty, the political center; Causeway Bay, a shopping area on Hong Kong Island; and Mong Kok, a commercial center on the Kowloon side (Pan, 2015).

The Umbrella Movement ignited an avalanche of images, icons, and visual objects in the occupied urban areas. As the occupation went on, an unprecedented boom of street visuals emerged, which even led to the idea of setting up an Umbrella Movement Visual Archive by a group of artists and activists (Pan, 2015). As I discuss the visual archive elsewhere, I focus here on another endeavor of collecting sensory memory and traces of states of exception in the city. "[The Day After](#)" is a CD album that includes 23 pieces of field recordings on the sites of the occupation between 29th September and 12th December 2014, covering the entire period of the movement.

Produced by 10 Hong Kong-based visual and sound artists and sponsored by a local sound art initiative by Soundpocket, entitled "The Library,"⁶ the project archives a less "noticeable" sensory dimension of the movement. The occupation not only suspended normal traffic flow and movement of people who use the public space in

visual terms, but it also fundamentally changed the soundscape of the everyday space both with new and absent sounds.



Figure 5: Cover image of “The Day After”. Courtesy of Soundpocket.

Archiving Noise against “Police”

According to one of the participating artists, Law Yuk-mui (2016), the initial idea of the project stemmed from the hope of diversifying forms of documentation and artistic expression that emerged with the movement, particularly when the majority of such expressions were in visual and print form. Music and songs did not strike participating artists as being particularly interesting. Yet sound is unique because of its innate capacity to produce spatial and atmospheric materiality, and indeed sound depends upon the environment to bounce acoustics from one place to another. With the disappearance of major urban sounds from traffic, other sounds that were covered over suddenly emerge or change in the field of perception. In reflecting on the project, Law (2016) reexamined the strength of such hidden sounds at particular historical moments:

In the movement, sound did not seem as strong a mobilizing power as a visual image because it is not a strong emotion mobilizer. That explanation may also justify why few people recorded sound and only took pictures. People did not seem to have felt much urgency to record sound as to visually capture something. However, sound is more time-based and will, therefore, disappear. This fact actually makes recording more urgent, and it became the main motivation for us to push the button to record sound (Law, 2016).

The artists connected to this project used their own way of approaching and capturing sound through field recording, that is, through a basic methodology that is nevertheless associated with “guerilla tactics” used by sound artists or producers “who position microphones in our everyday places” (Mullane, 2010: 7). Law noticed the signal sounds from traffic lights that worked in vain as there were no longer any cars. Wong Fuk-kuen paid extra attention to the sound of people’s footsteps on a wooden board that was temporarily set up for passing between the isolation zone and the street. Samson Cheung Choi-sang was experimenting on both a journalistic style of field recording of accidental happenings and his own creation of sounds, such as stones thrown into empty tunnels. Steve Hui inserted scene 11 of his cinematic opera, “1984,” which was performed on the street as a part of the project. Wai-lam recorded voice messages that she left on WhatsApp through her smart phone and found many of her friends saying “be careful.” Fiona Lee Wing-shan conducted her field recording between the Civic Square and the City Hall. During her field recording, she seized a group of contrasting sounds from the solitude of morning with birds singing to the police’s swift pulling of iron barricades. “DJ Sniff” (Mizuta Takuro), a Japanese sound artist, hardly edited his raw recordings but moved around to allow encounters between his body (as a device) and sound to happen.

The nature of field recording, which does not exclude “meaningless” noise and “irrelevant” information, is precisely what challenges stable sensory “police” where everything is fixed well in its position. According to Jacques Rancière,

the police is thus first an order of bodies that defines the allocation of the ways of doing, ways of being, and ways of saying, and sees that those bodies are assigned by name to a particular place and task; it is an order of the visible and the sayable that sees that particular activity is visible and another is not, that this speech is understood as discourse and another as noise... (Rancière, 1999: 29)

For Jacques Rancière, the process in which noise becomes sound is a highly political moment when the formerly omitted other is recognized and heard; the sensible harmony/hegemony is disturbed as politics arises. In Rancière, noise is a kind of “excess of words” (1994) that produces predicament by speaking too much and cannot stop speaking. The process where noise turns into sound, in other words, when abstraction becomes representation, also determines the political nature of human animal (Chambers, 2013: 114). Similar to the way in which the visual creates its regime of *police*, in which, for Law, the “visual artist will not shoot people’s footsteps only” (interview with Law, 2016), a sound project like “The Day After” also “makes heard a discourse where once there was only place for noise; it makes understood as discourse that which was only heard as noise” (Rancière, 1999: 30).

The archiving of sound “images,” which are not the main body of memory carriers during the movement, speaks to what Rancière has observed to be one of the major forms of contemporary critical art, namely, the *inventory*, by which he means “traces of history: i.e. objects, photographs or a simple list of names testifying to a history and a world in common” (2009: 54-55). To form this inventory, he writes, “The encounter of heterogeneous elements no longer aims to provoke a critical shock or to play on that shock’s undecidability [but instead to] repopulate the world of things, seize back their potential for the shared history that critical art dissolved into manipulable signs” (Rancière, 2009: 55). The repetition and reenactment collected and invented in this case allow the artists to become “at once the archivist of collective life and the collector/witness of a shared capacity” (Rancière, 2009: 55). In the case of “The Day After”, the special media materiality and the non-representational nature of sound form a dynamic body where the ephemeral sensibly finds its topos for reappropriating and reevaluating nonsense and sensibility in an unfamiliar situation of the urban space since the occupation started.

SEACHINA Project: Making a Digitally Auratic Archive

Officially starting in 2014, the [SEACHINA Project](#) was initiated by Chinese artist and scholar Zheng Bo and his team. Back in 2012, Zheng was teaching a course related to socially engaged art in the China Academy of Art. Soon, he found that accessing case studies or relevant materials for reference was very difficult for him and his students. Discussions on socially engaged art in China and their influence are disseminated across academia, media, and social media both within China and beyond. However, existing information is extremely scattered and limited. The lack of basic teaching materials for students interested in learning about past experiences in making socially engaged art urged Zheng to create a “database” for the convenience of reference.

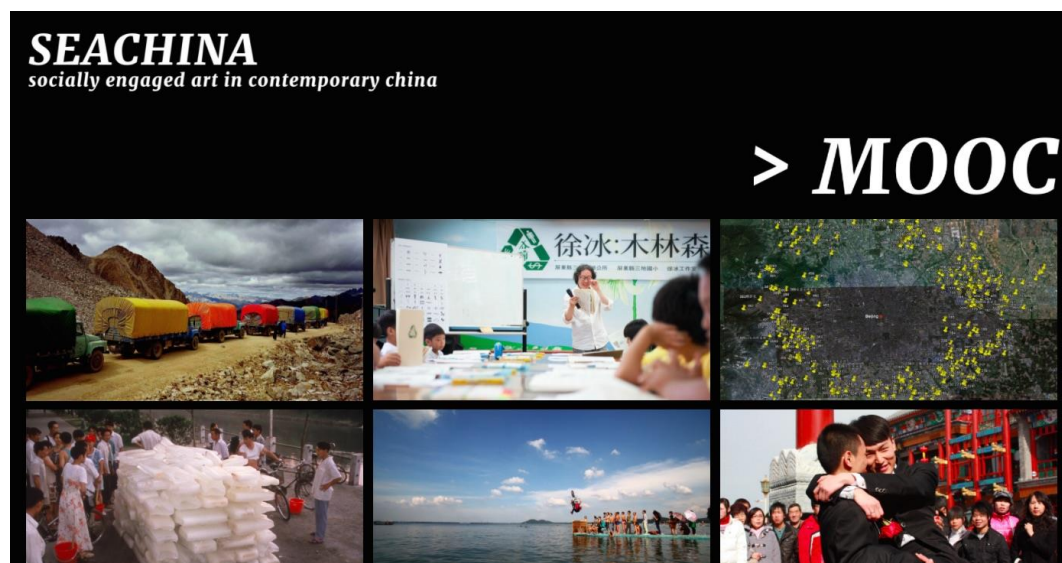


Figure 6: SEACHINA Project Overview Interface. Courtesy of Zheng Bo.

Initial funding for the creation of a digital art project was obtained from a foundation in the UK, and research funding was obtained from the Hong Kong Government’s Grant and the City University of Hong Kong, where Zheng began teaching in 2014. The online project currently collects and displays 16 samples of socially engaged art realized by Chinese artists in post-1989 Mainland China, with the initial goal of having 30 samples in the future. According to Zheng (2017), one key criterion in selecting projects is seeing if the project has reached a point of maturity, that is, if the topic has been thoroughly explored in terms of length of time, number of

participants, scale of influence, and so on. Various forms of socially engaged art are included in the archive. These include artworks concerned with nature preservation and environmental issues in China, with human rights and the working class, and with the resurrection of community-based art interventions against the backdrop of China's rapid economic development and urbanization. The archive also includes one case entitled "Yiyouxiangli" (New Public Art Journeys, 藝遊鄉里). This was a public educational collaboration between Zhejiang Art Museum, a state-owned art institution, and university student groups to promote traditional art forms in rural China. The cases demonstrate the major motivations of socially engaged art in present-day China. As summarized by Wang Meiqin, "the social practices of artists have closely responded to the Chinese context while also demonstrating many commonalities with the socially engaged art circulated in the Euro-American settings as well as in neighboring Asian regions" (2017: 15-38).

Temporality of Archive

I now want to consider two aspects of time, and to demonstrate their importance for understanding the SEACHINA Project. First, the simultaneous visibility of these projects, which are delivered through a digital format, makes the archive a contextual space rather than merely a storage space. In an interview, Zheng acknowledged that his original plan was to build a database that exclusively collects documentations of cases. The idea of an archive, which he considered to be more of a closed system, only occurred to him as being important much later. The essential difference between archive and database lies in the different temporalities to which they are associated: databasing is linear and focuses more on the completeness of data, whereas archiving is more like a curating practice of nonlinear constellations of images and text. On this definition, the "archive" can become an artwork (literally so, as Zheng mentioned that funding from the UK was originally for completing a digital art project) that disrupts the temporal and logical order of a database. Aesthetically, the resulting archive that Zheng produced, which was originally named "A Wall Project," resembles an exhibition space where various texts and images are "hung" on a wall for display.



Figure 7: The “Exhibition Wall”: Vertical Browsing. Courtesy of Zheng Bo.

Unlike the fine arts, socially engaged art is anchored in time. The examples in question take the form of events and happenings that may be repeated. In long-term community-based projects, the boundary between life and art is also porous. Boris Groys (2008) has described both art documentation and exhibition as a process of making the artificial become alive. Given that the living time of an event is unrepeatable, the documentation of art, in other words, the artificial repetition of the living time, is made natural through a narrative replayed by technical re-presentation (Groys, 2008: 53-54).⁷ The archive creates such a narrative for socially engaged art in China in a virtual exhibition space, and therefore in a space marked by juxtaposition. In fact, some cases in the archive do not fall into the category of being “art,” including the community-based project “Dinghaiqiao Mutual Aid Society,” which refers to a long-term experiment with new ways of engaging young activists, artists and their knowledge with the needs of the local community. Another example in this regard is “Qianmen Wedding Photo Shoot,” an event mainly organized by LGBT activist groups in Beijing to raise the visibility of sexual minorities in China, and provides an opportunity for self-organization, reflection, and communication. The process of “archiving” itself becomes a rehearsal for telling the story, in which networks are established through contingencies and everyday practices. If the production of artistic aura is more of a topological matter than a material matter, the SEACHINA Project creates a context that endows a new aura to events, practices, and life happenings with new meanings and significance.

The Passiveness of the Archive

Zheng (2017) has expressed that the major characteristic of his archive is that it collects only first-hand materials and cases for studies, rather than interviews and documentaries *about* such cases. However, I believe it also serves as a platform where projects and artists can see and influence each other. Recently, an interactive platform further strengthened the possibility for an archive to become a point of ongoing collective and cultural negotiation. In 2017, the archive incorporated a MOOC (Massive Open Online Course) component, a free online course about socially engaged art in China. MOOC serves not only as a public education project, currently being popularized among many higher education institutions around the world, but also as an introductory note to the archive itself.

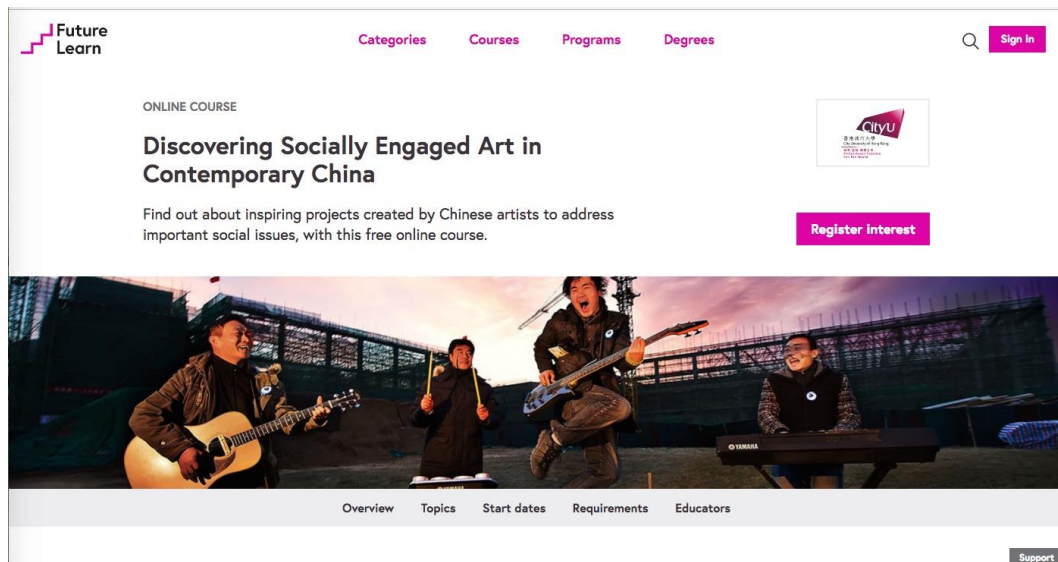


Figure 8: The MOOC Component. Courtesy of Zheng Bo.

The archive and MOOC mutually enhance their visibility for users of either. In fact, according to Zheng, MOOC's passiveness compensates for active efforts in searching for information required by the archive. Zheng thus argues that the strength of MOOC lies in the fact that it encourages passive rather than active participation from the viewer/user. This passiveness is also integrated into the archive's visual design. That is, the horizontal wall-like interface creates a visual simulation of an exhibition space and, as Zheng hopes, allows for more accessible human viewing and mnemonical habits than a vertical layout. On this basis, the passiveness of the archive speaks of a Benjaminian distraction in which users are free

to absorb the content of the archive (that is, the technical reproduction of an event, be it art or not), leading to further contemplation on the visitors' side. To put it another way, the publicness of the archive is not solely realized by a law-making archivist, but also by users through their passive participation.

Conclusion

Archives combining socially engaged activities and artistic creation do not merely try to monumentalize or centralize the past as a static inventory of unchangeable collections and recollections monopolized by those with power, but also to become a mediator between the individual and the public. In all three cases I elaborated above, the non-linear temporality of the digital archive provides individuals, institutions and communities with new tools for self-organization, reflection and communication.

In their own specific contexts and with their distinctive archiving methods, the three archives urge us to rethink how an archive can be animated and enriched by the participation of producers and visitors alike. As demonstrated by all the projects described in this paper, the archive is no longer merely a storage house of consignations, but comprised of living memories of families and cities, contingent sensory observations of a social movement, and virtual platforms of public education that open up new possibilities in art history writing. With their diverse forms of media presentation and representation, the archives thus no longer deal with visual inscriptions and written texts only, but also with moving images and sounds, which may even be produced by the user themselves. Quoting Wolfgang Ernst, the new temporality of the archive, based on immediacy and ephemerality, allows the archive to become “an exile from history,” and thus removes “a kind of archival resistance against complete mobility which is the signature of modernist discourse” (2016: 15). The archive in motion, finally, also eliminates a major power of the traditional archive, including “its secrecy, its informative temporal difference to the immediate usage and consumption in the presence” (Derrida, 1995: 10).

Socially engaged art/visual archives create new possibilities for defining the public through visual and artistic tools of disruptions and redistribution of time and space of practices of people who were previously invisible to one another. All three archives form a context that endows new aura to events, practices, and life

happenings with new meanings and significance, weaving among sites of art, media, life, and exhibition space.

Notes

- ¹ My own interpretation on the translation of archive in the Chinese language applies a similar methodology of etymological exploration. Two major Chinese terms are interchangeably used in contemporary Chinese society and art world in referring to the Western concept of archive: “wenxian,” a term used in Confucius’ “The Analects,” means documents and the interpreters’ hermeneutic side of archive; “dang’an” is a relatively young word coined after the Manchurian takeover of Ming China in the 17th century. The word combines the Manchurian “dangse,” wooden chips to record Manchurian tribal memories, and the Chinese “wen’an,” meaning official documents and files (Pan, 2017).
- ² See “Record, Expression and Medium Organization”: <http://www.remo.or.jp/ja/2008/0101-6.html>
- ³ “Artist pick up” (2006--) features new media artists’ works from Japan and abroad. “Alternative Media Gathering” (2004--) gathers ordinary citizens to discuss the status quo of using media as a new way of learning and expressing. “remoscope” (2004--), a collaboration with local communities such as schools, zoos and museums, organizes workshops for beginners of all ages to shoot 1-minute haiku-style videos with fixed cameras. The participants must follow certain rules when they are shooting and contemplating on their image-making process, which is followed by viewing and discussion sessions.
- ⁴ See “Setagaya Lifestyle Design Center”: <http://setagaya-ldc.net/program/308/>
- ⁵ I use the neologism “mediumability” as no appropriate direct translation of this Japanese term exists.
- ⁶ For details on “Soundpocket,” see <http://www.soundpocket.org.hk/v2/>
- ⁷ See more in Groys 2008, p.54. “Art documentation, by contrast, marks the attempt to use artistic media within art spaces to refer to life itself, that is, to a pure activity, to pure practice, to an artistic life, as it were, without presenting it directly. Art becomes a life form, whereas the artwork becomes non-art, a mere documentation of this life form.”

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**Memory, Movement, Mobility:
Affect-full Encounters with
Memory in Singapore**

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Abstract

Memory, movement and mobility characterise our everyday being. Our bodies are in constant processes of motion: our body remembers movement. Memory of movement, of and in the body, is key to our capacity to move, even if we are not aware that we are remembering movement. Mobility with, from, and in the body is (re)produced and performed by a repertoire of movements, orchestrated (for the most part) synchronously. While studies of mobility have received much recent scholarly attention, the interlinkages between memory, movement and mobility have received far less attention (see Anderson, 2004 and Casey, 2000 for notable exceptions). In redressing this omission, this paper delves into the relationship between memory, movement and mobility by directing its lens on two themes: body memory, that is memory of and in the body felt through movement, *and* movement and mobility, that is how mobility influences our capacities to remember, what we remember while mobile, and how specific sites of memory are designed with mobility in mind.

I consider intersections of mobility and memory in the context of empirical work undertaken at sites of Singaporean World War II commemoration. I used my body as a tool for this research; I felt and read memory at the memorial sites. I also used movement through the sites. Being mobile prompted consideration of how movement, spontaneous and along designed pathways, at/through/with these memory sites, influenced memory, its (re)production, transmission and/or performance.

Keywords

Affect, Body memory, Mobility, Singaporean commemoration

Introduction

Memory, movement and mobility characterise our everyday being. Our bodies are in constant processes of motion. Macro scale movements such as walking, running and dancing propel us through spaces and places; even without these macro level mobilities, or in instances of physical constraint, we move. Our body remembers movement. Our chests rise and fall, our eyes flicker, our mouths pucker and grimace. Mobility with, from, and in the body is (re)produced and performed by a repertoire of movements, orchestrated synchronously (for the most part) often without our conscious thinking of the operation of those movements. Connerton (1989: 72) has reasoned that such bodily practices are “sedimented in the body.” The composite attunement of movements that enabled our mobility out of bed this morning, to drink our morning cup of coffee, or to type on our computers are possible because our body remembers how to perform them. Memory of movement, of and in the body, is key to our capacity to move, even if we are not aware that we are remembering. While studies of mobility have received much recent scholarly attention, the interlinkages between memory, movement and mobility have received far less attention (see Anderson, 2004, and Casey, 2000 for notable exceptions). In redressing this omission, this paper delves into the relationship between memory, movement and mobility by focusing on two themes: body memory, that is, memory of and in the body felt through movement; and movement and mobility, that is, how mobility influences our capacities to remember, what we remember while mobile, and how specific sites of memory are designed with mobility in mind.

To take this direction, I focus first on movement and body memory as the base elements for understanding how we move in and through space. This discussion also lays the foundations for connecting how those movements are conditioned by socio-cultural contexts and come to be characterised by mobility. Cresswell (2006: 2) defines mobility as being made up of movements between locations; these locations can be geographically disparate or intimately neighbouring each other; mobility is “socially produced motion” (Cresswell, 2006: 3). Further, he reasoned that “movement can be thought of as abstracted mobility (mobility abstracted from contexts of power),” so that movement is “contentless, apparently natural” in contrast with mobility that is conceptualised as having deeper (social) meaning

(Cresswell, 2006: 2-3). Yet, Koch *et al* (2014: 273) have argued that movement within the body, something they consider as body memory, “is anatomically tied to the shape and possibilities of our bodies, and to their embeddedness in the environment.” While the movement of our fingers on the keyboard, may, for example, be implicit and indeed abstracted from contexts of power, it can also be “culturally mediated” and reflective of our positions in a “natural cultural and inter-subjective life-world” (Koch *et al*, 2014: 273). Think, for example, how we learnt to type, what opportunities we were afforded to learn how to make these movements between keys, how our positions require us to perform these movements at a pace where we no longer consciously think about them. Further, Casey has described body memory as “intrinsic to the body, to its own ways of remembering: how we remember in and by and through the body” (2000: 147). Casey distinguishes between body memory and memory of the body; he asserted that body memory is “being in the situation itself again and *feeling* it through *our* body” while memory of the body is characterised by “recollecting our body as in a given situation” (2000: 147, original emphasis). Returning to the example of typing on the keyboard, our body also remembers the action required and how it is required in/through different media. We know how to type on a keyboard but typing on a keyboard that is not our own can mean we lose our familiarity with that action and are “unable to perform [as] efficiently” (Casey, 2000: 146). That is because we sense and feel the surface of the keyboard, the quality of movement linked to the intensity of pressure needed for each keystroke. In, and between those movements, there is affect; Massumi (2002: 1) posits that in this “simple conceptual displacement” the body performs both movement and feeling, sensing the “qualitative difference” of movement. Drawing from Deleuze, Bissell *et al* (2017: 798) have reasoned that “quantifiable understanding[s] of intensity miss the *qualitative* nature of an intensity in terms of how it produces difference in relation to itself.” Our perception of changes between different states of movement, of displacement that movement can provoke, or between movement and relative stillness are as important as our *feeling* of that movement. Thus, when we move, our body not only senses changes in location – which is how we normatively consider the outcome of mobility – but it can also feel the intensity of those movements in terms of sensation in the body, including a sense of where the movements might take us. Ingold (2011: 154) has argued that we “know as we go,” meaning that our perceptions and understandings of our surroundings are

made in movement, and by way of the decisions we make, conscious or not, as we trace our way through those surroundings.

By thinking through movement within and of the body as socially and culturally mediated by the body, I move towards seeing the potential for body memory to be “affect-full.” Sensations, feelings, and perceptual memories of our routine movements position our bodies in place and space. Moreover, they affect our encounters and experiences of being in those places and spaces. Thus, we may feel a place, or react/enact movement in/within our bodies without any external propulsion of our body. Think, for example, about sensing fear and being frozen, or how we feel repulsion as a creep up our esophageal passages. Waterton (2014: 823) articulates these inner bodily movements at Auschwitz, as being “frozen on the outside, that is, on the inside ... being pummelled by a thickening wave of sensations is feeling.” Furthermore, Massumi (in his conversation with Loctev) explains that “there is no fright, or any affect for that matter, without an accompanying movement in or of the body” (2009: 5). Attunement to the minutiae of movements, to our embodied affect, is critical to this article’s consideration of memory, movement and mobility because it shapes our encounters with material representations of memory *and* places/spaces characterised by commemorative atmospheres (cf. Sumartojo, 2016) and ghosts of place (Pinder, 2001). Yet, accounts of encounter with memory sites and spaces often have a normative narrative focus where explanation of the textual representation of the memory reproduction takes centre stage; in such readings the dominant discourse is often free of/from movement and mobility (Sheller and Urry, 2006). In what follows, I attend to the specific qualitative detail of movement and mobility, and how they intersect through body memory and mobility at sites of memory. I acknowledge that much of my positional work in this paper draws from non-representational thinking, especially in work in human geography that situates the “non-or precognitive practices as primary” (Cadman 2009: 459). Like Waterton, I seek to foreground “explorations of feeling, emotion and affect and place emphasis on how these are negotiated and experienced through a recentred imagining of the body” (2014: 824). By harnessing an attentiveness to movement and mobility in and through the body, I hope to show how our encounters with/at sites, spaces and places of memory can explore the intricacies of that qualitative difference.

Methodological Considerations

Thus far I have drawn attention to the conceptual threads that underlie the paper's framework. In this section, I consider the methods enlisted to attune to the affective and the mobile. As the body is central to considerations of memory and movement, the (researcher's) body is frequently used as an "instrument of research" (Longhurst *et al*, 2008: 208; Sumartojo, 2016). In conducting research concerning memory, mobility and affect, I have used a combination of methods to attend to the "sensoriality of my own experience" (Sumartojo, 2016: 543). In this sensory ethnography, I explored the way my body felt, how human and non-human agents in/at the site of memory facilitated my body memory and its movement. Within a sensory ethnography, positionality and situated knowledge have bearing on how the researcher uses their body and interprets the sites around them. I filter my experiences and encounters through my positionality as an Australian with migrant heritage, with linkages to post-war landscapes through the migration of grandparents post-WWII, but also through more than a decade of research focusing on memory, place and identity in post-war and post-conflict landscapes. The experiences of being in place during fieldwork, the stories of family and research participants, the artefacts and material commemorations amass as knowledge. They are part of body memory: "body memory is in turn the natural center of any sensitive account of remembering" (Casey, 2000: 148).

I attuned my own senses to how I felt in these memory sites. I used my body "for thinking the relationship between bodies and spaces in ways that attend[ed] to the often-taken-for-granted and implicit effects that encounters between human and non-human bodies can generate" (Anderson and Ash, 2015: 34). I have combined other methods in this ethnography, including: participant observation, making visual materials (still photographs and video recording), sound walking and mobile methods. The combination of methods was chosen to suit different case study locations and contexts because fieldwork at sites of memory requires sensitivity, discretion, and an understanding of multiple, competing and contested contexts of the site(s) – together these facets lend themselves to an appreciation and orchestration of/to the senses. In exploring what Thrift (2007: 2) has called the "geography of what happens" in/at sites of memory, sometimes I have sat, observed, walked, listened, photographed and/or videoed, sometimes as sole practices,

sometimes in combination. An overriding methodological consideration has been a focus on encounter, observing how people, including myself, interact (or not) with memory and how the non/more-than-human actants in the space create affect. Similarly, in their process of sensory attunement, Sumartojo *et al* (2017:95) “worked, observed, listened, adjusted and slowly got to know the space with our bodies and through our movements.”

Often, sites of memory deploy multiple media, which are visual, aural, textural and narrative, sometimes simultaneously. Marshall has also contended that “embedded in the material form of most memorials are implicit assumptions about the onlooker’s level of historical knowledge” (2004: 39). Further, when visiting sites of memory, text-based inscriptions may be in languages other than the researcher’s own, thus one cannot rely on reading text at such sites. To circumvent a reliance on text and in alignment with the affective turn, my choices of ethnographic methods attempt to harness insight into how the body is affected in/at sites of memory, and the how movement characterises encounters with memory, in place. At memory sites designed with mobility in mind, my own mobility through sites of memory and an attentiveness to participants’ mobilities has drawn attention to movement “place-making practice” (de Certeau, 1984: 97). Indeed, walking is “itself a way of thinking and of feeling, through which, in the practice of pedestrian movement...cultural forms [and understandings] are continually generated” (Ingold and Vergunst, 2016: 2). For example, Waterton focused on feeling for the “affective and emotive values that shape the possibilities for our bodily movements and capacities” (2014: 824) while conducting a museum ethnography. While my attentiveness hones in on the non-representational, the representational intersects especially in terms of written material on memory installations. Depending on the type of memory site, I also read information provided. Dittmer and Waterton have contended that while trying to sense how a site *feels*, “sometimes, there is a power to *move* and we are drawn into a display, connected” (2016: 176, original emphasis). Thus “data” usually includes field notes, visual images (photos and videos), sound recordings, narrative material from museums, and observation notes. In the section that follows, I discuss the application of these conceptual and methodological threads about memory,

movement and mobility, through worked examples from fieldwork undertaken in Singapore.

Affect-full Experiences at Sites of Memory in Singapore

In Singapore, I undertook a sensory ethnography at several sites on the Singapore National Heritage Board's WWII Trail (hereafter referred to as the trail). The trail is organised into six regions that broadly align with different wartime themes (National Heritage Board, 2013). For example, in the "East" region, I visited three sites of memory including: The Changi Museum, Changi Beach Massacre Site and Johore Battery. The Eastern region contains sites of memory that accord with the "The Guns of Singapore and Captivity" theme. In the "City" (theme: Remembering the Occupation Years), I visited the Civilian War Memorial and the Fort Canning Command Centre (the Battlebox). And, in the South (theme: Final Battles and the Consequences), I visited Reflections at Bukit Chandu, and, the Fort Siloso Battery. The trail was launched to commemorate the 70th anniversary of the fall of Singapore; it includes 50 sites over the island but the official brochure notes that "the information, while interesting, has been kept succinct. It is intended purely as an introductory guide highlighting significant war sites" (National Heritage Board, 2013: 1). Using this entry point, I chose seven sites of memory based on their representations of different aspects of the war, such as actual sites of battle and or imprisonment, sites of commemoration, remnants (material or immaterial) of war and official museum spaces. Muzaini and Yeoh (2005a; 2005b; 2005c; 2007; 2016), as well as Yeoh and Kong (1996), have a significant corpus of scholarship on the (re)production and politics of memory in postwar Singapore and detailed historical analysis of WWII there; I choose not to replay this scholarship here but only provide significant temporal time frames. WWII started in Singapore on 8 December 1941, Singapore fell to the Japanese on 15 February 1942, and from that time until 12 September 1945, Singapore was under Japanese occupation (for three years and seven months). As Anderson noted in his research on practices of remembering recorded music, the focus of this paper is not "the content of the 'thing' remembered or on a remembering 'subject'" (2004: 5). Rather, drawing from de Certeau, the focus here is the "modes of operation or schemata of action" (1984: xi) of the sites of memory. In what follows, then, I assemble data generated from different stops on the trail towards two worked examples focused on "body memory" and "designed

movement and mobility.” In writing with these examples, I weave my analytical narrative around empirical material I have drawn from field notes, recorded video, and photographs.

Body Memory

I arrived at Changi Beach direct from The Changi Museum. The cool air of the climate-controlled taxi scurried back into the vehicle as I exited towards the foreshore. At Changi Beach my fieldwork involved initial mobility around the site, then longer periods of sitting, sensing, observing, followed again by mobility. When sitting, I placed my GoPro camera on the ground next to me, it recorded sound and image. Prior to my trip to Singapore I had spent six weeks in mainland Europe and the first record in my field diary related to the sandy beach: “The first thing I notice is the sand, that familiar feeling of sand rustling between toes and the soles of my feet and the shoes” (Field notes, 30 May, 2014). The Australian in me relished the contact with the beach; that I am Australian provided me with a contact point to this location. Changi is a toponym sacred in Australian WWII memory¹ (Muziani and Yeoh, 2005b). Yet, as I have argued elsewhere, my migrant heritage leaves me feeling unconnected to the overtly nationalistic narratives of Australian war memory that form much of its official Anglo and White commemorative discourse – Changi included (Drozdowski, 2016). I visited to explore that official discourse, but the discourse does not personally draw me to place, because these battles and memories of them are not in my body’s memory. Yet the slightly scratching feeling of the sand between my toes did resonate in a sensorial capacity, as did other aspects of the landscape that connected to my senses. I heard the lapping of the waves onto shore, a rhythmic beat of water intruding and receding from the water’s edge. The constancy of this sound was familiar, it settled my anticipation in that place; I sat and watched the water. My “habitual body memories serve[d] as [my] *familiaris* in dealing with [my] surroundings” (Casey, 200: 149). Occasionally, bird song pierced a louder frequency. Much louder still was the steady progression of planes approaching the peninsula to land at the nearby Changi Airport. The dark tropical storm clouds threw shadows over the water. I noted that: “I feel flies and bugs landing on my skin, walking around on my skin, sensing my legs as I sense them” (Field notes, 30 May, 2014). I was sitting still but the moist, thick tropical air enveloped me. Things were

moving on me; my body moved ever so slightly to recoil from the latest insect attack. I moved away from the sand (and sand flies) and recorded that “it is much hotter now off the beach and on the concrete path. Moist heavy air, tropical heaviness, the breeze when it comes is soothing” (Field notes, 30 May, 2014). These movements, feelings, senses are the “geography of what happens” (Thrift, 2007: 2); cumulatively, the waves, sand and the humidity provide important connection points to place – they all also involve sensing place. Without sighting the monument to the Changi Beach massacre, these felt experiences place me in familiar beachside setting, they spur consideration of “how that same environment was encountered in the past” (Degen and Rose, 2012: 3279). “They are continuously at work in our experience and are constitutive of its very fabric” (Casey, 2000: 149). They configure into atmosphere.



Figure 1: Memorial plinth for Changi Beach massacre. Photography by the author.

At Changi Beach, I needed to walk to find the material marker of memory. It is a small stone plinth, knee height, with an inscription about the massacre at Changi Beach (Figure 1). On first pass, I walked past its discreet positioning in the landscape. The text on the plinth provides the historical narrative but also an overlay to the experience of my being in that place, of sitting and feeling the site, of experiencing the same landscape. As Edensor and Sumartojo have pointed out, both the representational and non-representational elements of memorial spaces intersect to “reiterate, affects, sensations, materialities, emotions and meanings...enrolled within the force-field of an atmosphere” (2015: 251). The narrative description of the massacre on the plinth is what Anderson termed an “identificatory practice of thinking/talk,” the text worked “to amplify or heighten the intensity” of the sensory affect (2004: 12). It cements the “already felt state” (Massumi, 2002: 25) of “recollecting an absent place or recognising a past emotion” (Anderson, 2004: 12). Being in place is a way of knowing the landscape and forging spatial connections that traverse temporal impossibilities. I sat, walked and stood in the place(s) of the Changi Beach massacre. There was an absent presence there. Maddrell eloquently expresses that:

Absence is not merely a “presence” in and of itself, but rather the absent is evoked, made present, in and through enfolded blendings of the visual, material, haptic, aural, olfactory, emotional-affective and spiritual plans, prompting memories and invoking a literal sense of continued “presence,” despite bodily and cognitive absence (Maddrell, 2013: 505).

On arriving at Changi Beach, I felt a familiar anticipation of being in a place of absent presence. As a cultural geographer researching memory, identity and post-war landscapes, my body had a heightened sense of expectation; thoughts of grief for other’s trauma, of senseless violence, of national pride and identity circled my mind. My situated knowledge from multiple visits to postwar memory sites amassed such that this “bodily anticipation [wa]s almost too habitual” (Bissell et al, 2017: 801). “Habitual body memories are also deeply *orienting*” (Casey, 2000: 151, original emphasis) – the beach placed me, the sensation of absent presence placed me. Kobayashi et have contended that affective experiences are “a cumulative, and

therefore historical, process of interaction between human beings and place” (2011: 873). Thus, the politics of anticipation are “temporal and affective”; they have the capacity to draw from our histories of place (our situated knowledges) *and* what may be there (investigating into the future), *to* what was there in the past (what happened) *and* how I am feeling in the present (the affect-fullness of encounter) (Adams et al, 2009: 247). Such temporal linking of past, present and future is foundational to understanding a nexus of memory and identity in place (Drozdzewski *et al*, 2016). Being in sites of memory, sites that have grave and traumatic pasts, creates movement in the form of anticipation in my body. “As an affective state, anticipation is not just a reaction, but a way of actively orienting oneself temporally” (Adams et al, 2009: 247). This “mute attunement to place” (Edensor, 2012: 1103) was perceptible only to me, as movement in my body. Sumartojo has argued that individual anticipation and “sensory perception mix with memorial landscapes...to co-constitute atmospheres” (2016: 1). Building on her argument, I argue that anticipation at sites of memory constitutes a form of body memory, which in itself entails movement(s) in the body. Whether this movement is characterised by a tightness of breath, a moist brow and/or the tingling trickle of pinpricks through our arms, this movement, through anticipation, is that qualitative difference (cf. Massumi, 2002) that carries an affective charge. At Changi Beach, anticipation – through a familiarity of movement cues in my body – disrupted the integrity of what might otherwise be a visit to a beach or a guided tour of Singapore’s wartime memory. “The memory trace acts as a displacement or movement” (Anderson, 2004: 11); the capacity for my body to recall this memory of anticipatory movement set the course for my encounters in that space. It showed as Connerton (1996: 72) has stated, the sedimentation of habitual memory in the body. Body memory shows “just *how* we are in the world – much as place memory determines *where* we are in it” (Casey, 2000: 149). An attentiveness to the sensory capacity of place and to how we feel a place – and not just what we think or know about it – reveals the capacity for movement as anticipation to be remembered in the body. At sites of memory, my body memory has an orientating function activated by the collision of sensory and textual cues therein. At Changi Beach, the paucity of material reminders of memory, corporeal intersections with the beach setting and the anticipatory recognition of the absent present heightened that activation. But in/at different sites of memory purposeful design can be a forceful constituent of the memory narrative. Building on

this discussion of body memory, I now turn to discussing memory encountered while mobile, and memory designed for mobility.

Designed Movement and Mobility

Upon entering the taxi, I asked to go to the Civilian War Memorial. The taxi driver was unsure where I actually wanted to go, which memorial he asked? He asked whether this was the memorial about the Japanese, I nodded and replied that it is the large memorial commemorating the loss of civilian life during the Japanese occupation. Finally, he knew where to go, but his sense of puzzlement at my chosen destination lingered. I explained that I was a researcher looking at war memory; when comfortable with that explanation he proceeded to tell me stories about Japanese occupation and that the skulls of some of the Singaporean victims are buried at that memorial. I made a note to fact check that piece of information. En route, I received a mobile history lesson, framing my initial considerations of that place before my encounter, and adding layers of information. These layers extended an anticipatory mode of remembrance beyond the site itself.



Figure 2: Civilian War Memorial, Singapore. Photograph by the author.



Figure 3: Civilian War Memorial as viewed from one of the site's entry points. Photography by the author.

My post-fieldtrip fact check confirmed my taxi driver's assertion – buried in a chamber below the memorial are the ashes from civilian victims exhumed from mass graves in Singapore. While the site itself was not the location of one of these mass graves, as a repository for the remains of civilians it marks that central city space as sacred. The memorial comprises four 65 metre pillars; each pillar represents four

major ethnicities in Singaporean culture – Malay, Chinese, Indian and Eurasian (Figures 2 and 3). The pillars are positioned on a raised central platform accessible by steps through the middle of the square. The pillars are joined by a square support frame approximately halfway up the structure and again by a beam that connects the summit points of each pillar. The pillars taper towards each other as their elevation increases. The inscriptions on each pillar are provided in Malay, Mandarin, English and Tamil. The central pillar structure is surrounded by foliage, four pools, light beams and a paved area around the perimeter with seating facing inwards towards the pillars. Behind those seats another row of hedges demarcates the memorial space from the rest of the park. Access into the memorial space is at the four corner points of the square. In the account of the Civilian War Memorial that follows, I draw attention to movement and mobility in and around the site (mine and others), *and* to how the purposeful design of the monument encourages certain types of mobility that facilitate selected readings of the politics of war memory and identity commemorated therein. To begin, I draw from my field notes:

I walk around and through the memorial reading the signs in English first and then walk around to the left and notice two people asleep under the trees on the bank. A couple, tourists, walk through the memorial from the Swissotel side, they too read the inscriptions on the plinths and the urn and then walk through to the side...[they] sit, embrace, kiss, and walk on out of the park.

Certain public memorial spaces are purposefully designed to encourage certain choreographies; these choreographies are “characterised by purposive, directed movements which follow a limited number of strongly demarcated paths” (Edensor, 1998: 50). Reeves parallels Edensor’s assertion, stating that choreographies are scripted, pre-defined and “externally imposed combinations of movement that a performer then repeats one or several times” (2017: 3). While Jenson has suggested that the embodied acts of self-choreography – for example, the way I chose to walk around and then through the middle of the memorial – “create mobilities *in-situ*” (2013: 7, original emphasis). I walked the perimeter of the space, then entered and walked up the steps to the central space between the pillars. I read the material and passed through the central passageway to the other side before finding a place to sit

and continue my ethnography. In thinking through my movements through the memorial, I watched others move through this space while contemplating why the memorial's design compels us to move in certain ways. While seated, I observed the following mobilities:

One man walks around the memorial reading the main inscriptions. A young couple using an iPad take a panoramic of the memorial and walk out of the area without going through the centre of it. Another man comes from my right-hand side, straight through to the other side;

Two more visitors stare up at the height of the memorial, one is carrying an umbrella to block out the sun. Four people on bikes arrive as part of an English-speaking tour, the guide is explaining that this is the memorial for the civilians killed during the war...The people from the bikes are taking pictures in the centre of the memorial and reading the inscriptions. One woman who has passed me already appears to be doing exercise, she is making laps around the monument; and,

Another man comes up and reads the larger inscriptions...the man walks slowly up to the stairs of the memorial...the man does not go in the centre of the columns to read the plaques, but he exits via the same set of stairs and walks towards one of the four park exit points but stops and sits on the bench two benches to my left and looks at the pool of water directly opposite him.

The pathways around the memorial space are design features, they encourage visitors to walk the perimeter of the memorial. Each base plinth, adjoining the pools, has the text "Memorial to the civilian victims of the Japanese Occupation, 1942-1945," inscribed in one of the four aforementioned languages. The use of the different language provokes the visitor to discover each text by walking around the memorial but it also imparts a message of inclusivity; that the four quarters of the square form a whole, which can also be read as the four major ethnicities combining under one Singaporean identity. In my field notes I wrote: "there are four columns here each with a plaque in another language they rise up and are joined by a supportive cross at the top as if they are being held together here" (Field notes, 31 May, 2014). This message of togetherness is reinforced with the use of the same text-based strategy on

the four pillars in the central part of the memorial. The steps up to the bronze urn beckon visitors into the centre of the memorial. The urn is symbolic of the 606 urns of ashes buried beneath the structure. Moreover, the urn as a vessel commonly associated with death distinguishes the area as sacred space. The fact that there is one urn represents the common suffering of Singaporeans, regardless of ethnicity. Being positioned in the centre of this space means that the visitor can walk around it, they can encircle it as they look at the four inscriptions on each pillar. This circularity strengthens the theme of common suffering, under a common enemy – placing it as the central purpose of the memorial.

This central purpose is at its *most affective* when a visitor is mobile around and through the memorial. Memory is enacted here in and through movement, it is inextricable from both the representation and the act of remembering. That the memorial design compels certain movement patterns speaks to how mobility is co-opted as a design feature to invoke constructed remembrance. Miceli-Voutsinas calls this the affective heritage of the memorial space, and she has questioned the “mobilization of affective heritage at sites of collective trauma, particularly when the procurement of public feeling is a design priority” (2017: 94). While loss and suffering are key themes of the memorial, a wider political message of commonality of grief and suffering is present. Perhaps stronger still are the assertions of collective memory and (national) identity. This collectivity has been an important feature of a post-war politics of identity in Singapore, which as Muzaini and Yeoh (2005a; 2005b; 2005c) have explicated, involves a contested politics of memory where “the different races in Singapore may remember and interpret the war differently” (2005c: 474). The memorial’s narrative, then, represents an attempt to fuse “the otherwise divergent and unsynchronised life trajectories of individual participants into a unified tale of belonging to this place” (Ingold and Vergunst, 2008: 9). Of course, my reading of the built-in political intent of Civilian War Memorial’s design is but one reading of the affective heritage of the site. My reading is unavoidably subjective and filtered through my positionality. While I did not have a preconceived plan of how I would move through the memorial, the route I walked was my body’s way of feeling and knowing the memorial site. The fact that our encounters with memorial spaces are highly personalised means that knowing a memorial site is contingent on different visitor

subjectivities. For example, whether we are visiting on specific days of remembrance when certain mobility pathways are restricted, whether visitors have genealogical links to victims, or perhaps whether the space itself is being used to an end to traverse the wider site itself. Moreover, non-human constituents of the memorial space can influence and inflect upon our mobilities. For instance, in my field notes I recorded finding a shaded bench to escape the direct sunlight and how enticing the pools surrounding the memorial were – I noted that “I want[ed] to dip my feet in and cool them off” (Field notes, 31 May, 2014). What I am keen to stress here is how my mobility around and through the memorial narrates a certain – and chosen – story about memory. It provided a frame for how I thought about the memory of this site, which while narrated through the text-based inscriptions, is intensified by the pathways and directions of mobility laid out for the visitor to move around the memorial. “The movement of walking is itself a way of knowing” the memorial site (Ingold and Vergunst, 2008: 5).

Affect-full Encounters

This paper reveals two very different encounters with memory, movement and mobility, characterised by how my body remembered, moved *and* felt in these spaces. An alertness to movement – experienced as internal and external to the body – shaped how I understood and felt memory at both sites. Exploring body memory at Changi Beach, I felt movement as anticipation of being in a place of absent presence. The small scale of material commemoration at the beach, which could easily have gone unremarked, meant that I felt for other qualities of movement and memory. I connected with the site through familiar sounds of waves breaking, the touch of the sandy beach and the anticipation of the absent presence there – combined, these movements and feelings were “culturally mediated” memory within my body (Koch *et al*, 2014: 273). Degen and Rose have contended that “sensory engagements with place are often mediated by memories of that environment as it used to be” (2012: 3280). At Changi Beach, such mediation drew from that absent presence of what had happened there, something that I could not see, but that I knew happened in that same place – but also the memory of similar environments – beaches, memorials, tropical places that I had been in. At the Civilian War Memorial, pathways for mobility were built into the memorial design. I, like other visitors, moved between different locations through the space. In moving through such designed memorial

spaces, we often do not think about how our movements have been mapped by designers to encourage certain readings of memory. In this example, movement linked with memory through the purposeful orientation and selection of text-based information that provoked rumination on the memory of the event of occupation, but also provided the socio-cultural framework for this memory's recollection. Cumulatively, these brief insights show how movement and mobility facilitate different experiential encounters with sites of memory – 'there are potentially as many forms of remembrance as there are rememberers' (Marshall, 2004: 38). Furthermore, they show in researching memory we must adopt flexible methods that are open to sensory engagement and diverse forms of movement.

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Notes

- ¹ In the surrender of Singapore to the Japanese, 15,000 Australians, in Singapore as part of the Commonwealth military strategy, became prisoners-of-war.

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**CityCenter, Las Vegas:
'De-Theming' in the
Neoliberal City**

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Abstract

The opening of CityCenter, Las Vegas in 2009 marked the single largest privately funded development in American history. The sprawling resort campus signalled a departure from all-encompassing themes of kitsch that had long defined the Las Vegas Strip, obfuscating the threshold between public and private. It is indicative of the broader push for deregulation and monopolization that are characteristic of neoliberal processes. This raises pertinent questions around the implications of the apparent 'de-theming' of these leisure environments and the wider normalization of neoliberal principles in architecture and urbanism. The seminal *Learning from Las Vegas* identified the merging of sign and building alongside the widespread adoption of neoliberal ideology, where the roadside sign advanced from "decorated shed" to "duck" to atmospheres and, eventually, urbanism. Employing Gilles Deleuze and Félix Guattari's concepts of "de-territorialization" and "re-territorialization," this process of de-theming can be theorized as the reconfiguration of leisure as the totalizing image of gentrification and urban renewal.

Through an examination of the overlapping histories of organized crime, federal funding, migration, class struggle, and an entrenched regional military presence, Las Vegas can be understood as a city undergoing constant flux. The Las Vegas Neon Museum has become an important indexological catalogue of signage from lost buildings, attempting to preserve the collective memory of Las Vegas while reinforcing the prominence of the image within the American commercial vernacular.

Keywords

Deleuze, Gentrification and urban renewal, Las Vegas urbanism, Memory and historical erasure, Neoliberalism

Introduction

In 2009, the CityCenter resort on the Las Vegas Strip by MGM Resorts became the single largest privately funded development in American history. The \$9.2-billion, seven building resort campus includes several luxury hotels, a Daniel Libeskind-designed high-end retail mall, an extensive public art collection and two condominium towers, each set askew to offer prime views of the Strip. Its opening also marks a departure from all-encompassing themes of kitsch that had long defined the casino resorts of the Las Vegas Strip, instead employing signifiers of gentrification and a “sophisticated urban metropolis.” Promotional material for the project claimed that the development was “the world’s largest environmentally sustainable urban community” (Smith et al., 2014: 41). However, as Aseem Inam notes, the development fails to deliver on its touted claims of a “pedestrian focused urban plan” or “mixed-use programming” (Marshall, 2015). The project masquerades as a thriving metropolis while devoid of the basic programmatic mix of public and private spaces that comprise a self-sustaining city. With absentee condo owners and a dearth of basic services like schools or grocery stores, CityCenter is just another casino resort campus that caters solely to the leisure economy. In addition to other Las Vegas resorts like the pirate-themed Treasure Island resort, which rebranded itself to “T.I.,” and the Linq and Cosmopolitan, it is clear that ambiguous themes of generic urban sophistication and luxury are prevailing.

This analysis will begin with the proposal of “de-theming” as a term to trace this shift in themed spaces and highlight the mechanisms of neoliberal restructuring that operate through architecture and urbanism. To understand the genesis of the latest collection of sprawling resort campuses, it is crucial to review the progression of themed spaces in Las Vegas and the overlapping histories of organized crime, federal funding, class struggle, and an entrenched regional military presence. The process of monopolization that resulted would become recognized as a form of neoliberal restructuring. We will theorize and identify the continued normalization of neoliberal processes in Las Vegas and globalized cities that project the image of generic neoliberal urban centres. In particular, the de-theming of Las Vegas blatantly serves to further obfuscate the threshold between public and private and is indicative of the continued push for further deregulation and consolidation of ownership.

In *Anti-Oedipus: Capitalism and Schizophrenia*, Gilles Deleuze and Félix Guattari position capitalism as the “radical decoding and deterritorialization of the material flows” that had previously been attributed to the earth (Smith, 2015). This deterritorialization of material flows is “immediately ‘reterritorialized’ onto the body of the despot, who assumes credit for all production” (Smith, 2015). Furthermore, deterritorialization describes the process where the “very basis of one’s identity...is eroded,” becoming-imperceptible, “ceasing to be perceived as different” (Buchanan 2005, 23). Ian Buchanan (2005) likens this to the process of “becoming” that one expects to encounter upon visiting a place with a pre-established identity. For instance, he considers the city of Paris where one is “deterritorialized” the more they “become” Parisian in their likeness for such clichés as croissants or berets. Deterritorialization conditions the subject to become imperceptible, just as in Las Vegas where the CityCenter development is an attempt to code a leisure resort as a “sophisticated urban metropolis,” signifying a departure from themes of kitsch that had long defined the region.

Acting in tandem with deterritorialization, Deleuze and Guattari also define “reterritorialization” as is anything that can “stand for’ the lost territory; one can reterritorialize on a being, an object, an apparatus or system...” (1987: 508, ellipsis in original). It is emphasized that reterritorialization should not be confused with “a return to a primitive or older territoriality: it necessarily implies a set of artifices by which one element, itself deterritorialized serves as a new territoriality for another, which has lost its territoriality as well” (Deleuze and Guattari, 1987: 174). Deleuze and Guattari also emphasize that de- and re-territorialization are not binary, reciprocal or sequential. Several of the signifiers that CityCenter employs conjures images of a self-sufficient cosmopolitan city, reterritorializing the Strip property with a synthetic urbanity. The proposed “de-theming” encapsulates the simultaneous processes of de- and re-territorialization in relationship to the recognizable acts of gentrification and the minimization of discernable themed environments.

Historical Erasure through the Acceleration of Passage

The progression of themed spaces in Las Vegas has been linked to the acceleration of passage permitted by advances in modes of travel. From the railroad to the automobile and the jet plane, each installment would significantly alter the built environment. In his essay entitled *Space in the Age of Non-Place*, Ian Buchanan (2005) notes that the capacity to facilitate increased passage requires a smoothing of space, a uniquely postmodern phenomenon:

If it is finally true that space has transcended our capacity to get our bearings in it then that is because we have taken the logic of passing through to its logical extreme and created smooth, frictionless spaces that hurry the postmodern subject onward like a slippery slope (Buchanan, 2005: 19).

A space of continuous passage beginning with the seasonal movements of early Indigenous Paiutes to accelerated modes of travel, the Las Vegas region has relied on various “tabula rasa” conditions to achieve a state of constant destruction and deterritorialization. With its incorporation in 1905, the municipality of Las Vegas developed themed spaces in a bid to attract railway tourists. The railway station was the area’s first grand civic structure, constructed in an exaggerated Western Frontier style by the Fred Harvey Company which appealed to the fantasies of East Coast travellers en route to California (Hess, 1993). By establishing a presence on the railroad, the city began to provide a rest stop for weary travellers in the form of hotels, bars, and casinos. The thematized nature of these establishments defined the region and reterritorialized upon the displacement of Indigenous peoples with naïve references to its desert locale including fantastical portrayals of cowboys, Navajo thunderbirds, and Saharan sultans. These pre-established associations affirmed the expectations of visitors who encountered the place directly, eroding the embedded history and sense of place in the region.

The early development of Las Vegas was also heavily influenced by organized crime syndicates, a group that operated largely outside of governmental control in a self-regulated “free market,” a precursor to the widespread adoption of neoliberal

principles. Organized crime affiliates had assumed control of a significant number of businesses in downtown Las Vegas during the 1930s. When gambling and alcohol were outlawed during the Prohibition, the continued operation of bars and casinos were reconfigured into an underground economy. Existing outside of the rule of law, the mob operated bars, casinos and brothels, advanced the commodification of leisure and perfected the provision of services. A relaxed approach toward law enforcement also permitted the presence of the mob to prosper under a veil of business fronts and dazzling themed spaces (Moehring & Green, 2005: 152).

By 1940, however, the city of Las Vegas sought to expand its tourist offerings by reaching out to Thomas Hull, an established developer of a successful California hotel franchise, the El Rancho. Despite the offer of prime real estate in the downtown area on Fremont Street, Hull purchased property in the desert just outside city limits. He established a precedent by recognizing the opportunity to develop an all-inclusive resort on a cheap swath of land while evading the municipal slot machine and ad valorem taxes in downtown Las Vegas (Moehring & Green 2005, 11). Although not a known mob affiliate, Hull's presence increased competition amongst casino owners fighting to maintain mob control of the region. An irreversible shift of new developments along the Strip outside of Las Vegas city limits began and the growth of a new all-inclusive building typology emerged as a result of plentiful space and low property taxes. Hull also saw the opportunity to attract visitors arriving from Los Angeles along the highway as well as increased control over the provision of key services such as water and security. This control over services generated cost advantages later attributed to the process of vertical integration.

Business owners gained increased control as the Strip was eventually designated as the unincorporated community of Paradise in 1951 in response to several annexation efforts by the city of Las Vegas. Unincorporated townships were "originally authorized to assist in the conveyance of land and are commonly thought of as a rural form of government with limited power" (Clark & Sharp, 2008). In other words, this designation is typically reserved for rural areas where a governing body cannot adequately provide municipal services like garbage collection, sewage and electricity. With an unincorporated designation, municipal responsibilities were shifted to Clark County, which appoints a Town Advisory Board to oversee the needs of Paradise including recommendations on zoning bylaw changes and land-use designations. This move protected the Strip from municipal annexation and formulated a unique set of conditions that encouraged further development of the Strip, formally signaling its divergence from the interests of casino resorts located in downtown Las Vegas.

Paradise, Nevada has since grown to become the most populated unincorporated township in the United States, further challenging its continued status as an informal city (US Census, 2010). As documented by Jill Clark and Jeff Sharp in *City & Community*, "unincorporated townships have grown so large that they are functional equivalents of cities, providing a broad range of services beyond their original 'rural' responsibilities" (2008). The unincorporated township, once a state of economic and political exception has since morphed into an accepted form of city building with essential services offloaded to the county level. The securing of the Strip as an unincorporated township facilitated a relaxed approach to urbanism and city

planning, one that fails to provide adequate public amenities for a growing city in favour of maintaining conditions more suitable for expansive private development.

By the end of the 1950s, additional casino resorts were constructed under mafia-controlled operations, including the Sahara, Sands, Dunes, Riviera, Tropicana and Stardust (German, 2014). The Teamsters Central States Pension Fund, a labour union representing truck drivers that was also affiliated with prominent mafia figures, provided millions of dollars in loans for new casino construction, becoming fully integrated into the growth of the leisure economy in the region (Moehring & Green, 2005: 211; Gottdiener et al., 1999: 24).

The Totalizing Image of Themed Spaces

With the opening of Jay Sarno's Caesars Palace in 1966, a new building typology was introduced in the form of a sprawling campus resort dressed in an all-encompassing theme. The campus of buildings expanded as a result of the accumulative process of monopolization, where programmatic elements could be added or swapped out in favour of newer, more profitable options. The deterritorialized space of the casino resort introduced a form of architecture, one that is designed to reduce stagnation – "its ground is not to be territorialized by fixed patterns of occupation" (Sanders, 2016: 137). This further secured capital accumulation as new elements could be incorporated under a totalizing image while refreshing the programmatic mix without compromising the operation as a whole. Casino resorts could maintain a high-level of consumer interest while offering an illusion of choice, a pre-planned selection of activities aimed at driving consumption.

In *Learning from Las Vegas*, Denise Scott Brown, Steven Izenour and Robert Venturi describe the complex intermixing of programs at Caesars Palace under a single theme as "one of the grandest" (Brown, Izenour & Venturi, 1972: 50). A frenetic clash of references, reconstructed in postmodern decadence:

It is also a combination of styles. The front colonnade is San Pietro-Bernini in plan but Yamasaki in vocabulary and scale; the blue and gold mosaic work is Early Christian tomb of Galla Placidia. (The Baroque symmetry of its prototype precludes an inflection toward the right in this facade.) Beyond and above is a slab in Gio Ponti Pirelli-Baroque, and beyond that, in turn, a low wing in Neo-classical Motel Moderne. Economics has vanquished symmetry in a recent addition. But the new slab and the various styles are integrated by a ubiquity of Ed Stone screens. The landscaping is also eclectic. Within the Piazza San Pietro is the token parking lot. Among the parked cars rise five fountains rather than the two of Carlo Maderno; Villa d'Este cypresses further punctuate the parking environment. Gian de Bologna's *Rape of the Sabine Women* and statues of Venus and David with slight anatomical exaggerations, grace the area around the porte cochere. Almost bisecting a Venus in an Avis, a sign identifying No. 2's offices on the premises (Brown, Izenour & Venturi, 1972: 51).

Similar techniques involving the illusion of choice have also been adopted by totalitarian regimes, where “shifting stories and multiple masquerades” are required to continually refresh the “original myth or brand” (Easterling, 2005: 27). Hal Foster (2013) identifies the totalitarian illusion implicit in the campus typology in his critique of Koolhaas’ *Junkspace*, describing the absurd juxtapositions of program and space contained within. Just as campus resorts appear to accommodate everyone in its aggressive sprawl, consumption is framed as a great equalizer. Foster also notes that this fantasy is the “contemporary complement to the foundational myth of the United States: that such [class] divisions never existed here in the first place. It is this delusion that allows millions of Americans to vote against their interests at least every four years” (Foster, 2013: 59-60).

With advancements in travel technology and the growth of the leisure economy, the automobile had replaced the railroad as the primary means of transport into the region, significantly altering the relationship between architecture and movement. Documented in *Learning from Las Vegas*, the automobile influenced the formation of an emerging American commercial vernacular that relied on bold communication visible at high-speeds over vast distances. This relegated buildings to serve more pragmatic functions like shelter and program while the façade and roadside sign grew in prominence (Brown, Izenour & Venturi, 1972: 9). Two building typologies were defined with the first designated “the decorated shed,” a building “where systems of space and structure are directly at the service of program, and ornament is applied independently of them” (Brown, Izenour & Venturi, 1972: 87). The second typology was defined as “the duck,” a building “where the architectural systems of space, structure, and program are submerged and distorted by an overall symbolic form” (Brown, Izenour & Venturi, 1972: 87). These two terms identified the growing prominence of the sign, and by extension the image, within commercial architecture.

Rem Koolhaas credits *Learning from Las Vegas* as “a manifesto for the shift from substance to sign...decipher[ing] the impact of substance on culture” (Obirst & Koolhaas 2001, 593). Guy Debord similarly observed the subsequent downgrading of *having* into merely *appearing* within contemporary capitalist society in the 1960s, warning that social relationships between people had unwittingly become mediated by images. Published in 1967, Debord’s *The Society of the Spectacle* was written at the time when this prolific survey of the Las Vegas Strip was being conducted, highlighting similar developments and a growing emphasis on image. Debord drew from Marxist theory to define the spectacle as “capital accumulated to the point where it becomes image”, exerting increased control over people’s lives to further consumption (Debord, 1994: 34). However, unlike *Learning from Las Vegas* and Koolhaas’ subsequent work, Debord remained highly skeptical of the growing influence of the image, denouncing its reinforcement of class divisions and the exploitation of the working-class proletariat.

The widespread proliferation of images via the introduction of the television was instrumental in driving consumerism in the United States following the Great Depression, a time when families had become accustomed to saving. In a push to make people more comfortable with accumulating debt and restoring faith in the American capitalist system, television program plot lines in the 1950s were “often centred around formerly frugal immigrant families learning that it was acceptable, and even desirable, to buy on credit or to replace home-made domestic products with appliances bought in shops” (Simpson, 2011: 198). The television industry was

intent on overcoming consumer resistance as a medium dependent on advertisers, by reframing prosperity and giving people the “sanction and justification to enjoy it and to demonstrate that the hedonistic approach to life is a moral one, not an immoral one” (Dichter, 1960: 209-210). This would resonate particularly with such illicit activities that had long been associated with Las Vegas, including gambling, liquor consumption and quick divorce proceedings. As a purveyor of hedonism, the region gained increased attention and further acceptance within the American mainstream.

The release of *Learning from Las Vegas* and the simultaneous acquisition of several casino properties by prominent billionaire Howard Hughes Jr., also served to legitimize a much-maligned gambling economy still dominated by organized crime. Investment in casino development also provided quick returns and the Las Vegas Strip demonstrated the lucrative potential of the industry on a large scale, attracting speculation and driving profits. The underground economy that had established development on the Las Vegas Strip functioned as an early precursor to “roll-back” neoliberalism in which companies or businesses operate in an unregulated marketplace, negotiating transactions through private contracts (Peck & Tickell, 2002: 384). In this phase, binding contracts are drafted to the benefit of business owners while granting increased control over suppliers, employees, and distributors.

Following this phase is a “roll-out” phase of neoliberalism, which Jamie Peck and Adam Tickell describe as the processes under which regulation is reintroduced into a system that has undergone deregulation in an attempt to incorporate those groups who had previously been marginalized or dispossessed by the free market. Measures to incorporate these groups included the criminalization of poverty and widespread incarceration under the premise of boosting “productivity” (Peck & Tickell, 2002: 389). Since the mob operated largely outside of governmental control through tax evasion, profit-skimming schemes, money laundering and intimidation of law enforcement, the government itself grew increasingly weary of such blatant violations of the law. In 1969, the Corporate Gaming Act was introduced, effectively allowing publicly traded corporations to own casinos for the first time in Nevada, attracting immediate interest from such hotel chains as the Ramada Inn, Hilton, and the Hyatt (Moehring & Green, 2005: 120). In conjunction with the Racketeer Influenced and Corrupt Organizations Act (RICO), which gave the justice department increased agency to prosecute suspected members of the mafia, the government further attempted to seize control away from the mafia and capitalize off of the increasingly profitable Las Vegas Strip. Control of these businesses transitioned to corporate ownership models, as they were generally deemed to be less corrupt by government officials.

As the expansion of the Las Vegas Strip was sustained by corporate investment, theming became an increasingly crucial aspect of a resort’s brand in an increasingly cluttered commercial environment. The opening of Steve Wynn’s The Mirage in 1989 was an update to the prevailing resort model, becoming the Strip’s first new construction project in nearly 15 years. The sprawling 3 million square foot, \$700 million “megaresort” was an attempt to reinvigorate the Las Vegas Strip and attract new tourists. Built adjacent to Caesars Palace, The Mirage was constructed after Wynn had accumulated substantial capital through the sale of junk bonds and sold his Atlantic City Golden Nugget casino (Gottdiener et al., 1999: 33). The Mirage had nearly doubled the number of rooms of competitor Caesars Palace, generating an

estimated \$2 million dollars a day in revenue, far surpassing the \$1 million baseline required to service its interest payments and cover operating costs (Gottdiener et al., 1999: 34).

In the span of ten years, a slew of new resorts was constructed on the Strip, including the Luxor, Treasure Island, a new MGM Grand Hotel, Stratosphere, Monte Carlo, New York/New York, Bellagio, Mandalay Bay, the Venetian, and Paris. By the end of the 1990s, ersatz replicas of global cities had replaced the tropical or “exotic” themes of its predecessors, indicating a shift toward synthesizing a more familiar urban identity. Gambling would be overtaken as the sole revenue generator for Strip resorts, also indicating the growth of an array of other market sectors like entertainment, dining, and retail (Schwartz, 2015). This substantial transformation of the Strip was matched by a dramatic regional expansion becoming “the fastest-growing metropolitan area in the nation” by the year 2000, with the population expanding from 270,000 in 1970 to 1.3 million (Moehring & Green, 2005: 205). This accelerated growth further compromised an already strained public infrastructure with the transference of municipal responsibilities to private homeowner associations and gated communities.

De-theming and the Obfuscation of Power

Global cities are the convergence of capital and market speculation, where the urban centre is infinitesimally split into smaller and smaller portions, relying on images or ‘lifestyles’ to increase exchange-values. The prominence of the image initially identified as the “decorated shed” and the “duck,” totalized to the point of immersive ‘atmospheres’ and now, urban design. Urban rejuvenation and gentrification rely on a select set of images, reproducing the same urbanism for the expressed purpose of accelerating consumption and speculative value.

In our consideration of de-theming, we must acknowledge the systems of power and difference that are embodied in architecture and urbanism. Ruth Wilson Gilmore notes that racism is a product of the “fatally dynamic coupling of power and difference,” highlighting the potential for capitalist crises to be exploited by radical activism for “liberatory ends” (2002: 15, 22). This moment in the normalization of neoliberalism holds the potential to be exploited to yield social traction for disenfranchised and often racialized bodies. Throughout the history of Las Vegas, architecture has largely perpetuated systems of power and difference through tools such as segregation, restricted access, and the enclosure of public space. This has diminished the potential for labour to effectively congregate, particularly with the seemingly innocuous removal of thematic elements that have long indicated the threshold between public and private. The entrenched history of the modernist “tabula rasa” or the literal clearing of the slate, is instrumental in the constant removal, implosion and subtraction integral to the perpetual renewal of the Las Vegas Strip.

The most aggressive display of de-theming on the Las Vegas Strip occurred with the wholesale transformation of the Arabian-themed, Aladdin Hotel and Casino into Planet Hollywood. Opening in 1966, the original Aladdin Hotel and Casino featured a 15-storey Aladdin’s lamp sign alongside other elements inspired by Arabian Nights

imagery. The aging casino property was imploded in 1998 for the construction of a new resort, becoming the New Aladdin Resort and Casino which opened in 2000 with 2,500 rooms and sprawling retail mall. The resort resembled neighbouring properties in its meticulous recreation of a foreign urban environment, complete with references to Middle Eastern cities, mosque-style domed ceilings and a Baghdad themed food court. The terrorist attacks of September 11th occurred a year after its opening, casting the New Aladdin in an unfavourable light amongst Western tourists. After declaring bankruptcy in 2003, the property was sold to Planet Hollywood and Starwood Hotels & Resorts Worldwide. It was subsequently rebranded as an unequivocally American entertainment themed resort with “The Desert Passage” retail mall renamed the “Miracle Mile Shops.” This process of de-theming left several traces of its previous incarnation intact with the mosque-style interiors painted over in grey and the central Baghdad food court layered with glowing neon signs affixed to its facade. The intention is unmistakable – these references to the Middle East have since been totalized by a reinvigorated imperialist American nationalism.

The de-theming of the New Aladdin Hotel and Casino also resonates with the renewed role of the American military located just outside the Las Vegas region. The Federation of American Scientists (FAS) estimates that the federal government, through its various agencies, owns a majority 81.1% of the land within the state of Nevada, forming the largest proportion of federal land ownership of any state within the United States (Congressional Research Office, 2012: 11). In addition to federal land ownership, the Department of Defense wields enormous power as the Nellis Air Force Range controls approximately 3.1 million acres of land in order to support “mission-related activities” with the base airfield situated a mere 20 km from the casino resorts of the Las Vegas Strip (Congressional Research Service, 2012: 4). Furthermore, the state-wide military presence has risen to increased prominence in recent years with the designation of the Joint Unmanned Aerial Vehicle (JUAV) Center of Excellence (COE) at nearby Creech Air Force base in 2005. This positions it as the primary base for the operation of Predator and Reaper drones in conflict zones, particularly those in the Middle East which include Afghanistan, Pakistan, and Iraq (Axe, 2015). The proximity of the Creech Air Force base and the long history of regional military personnel frequenting the Strip reinforces the correlation of the military industrial-complex and the leisure economy.

The work of Controlled Demolition Incorporated (CDI) further emphasizes the alignment of state-sanctioned violence with displays of capitalist advancement. A series of implosions would precede the building boom of the Strip in the 1990s in order to accommodate increasingly elaborate megaresorts. Keller Easterling (2005) points the involvement of CDI in the US Department of State as well in its campaign to dismantle foreign regimes as an output of this dual notion of freedom. CDI president, Mark Loizeaux, has declared with some certainty that Las Vegas is “the implosion capital of the world” at the behest of their services (Anderson, 2015). Their work with the US Department of State has also ranged “from the design of and modification to missile fabrication facilities in South Africa to the elimination of weapons of mass destruction in Central European countries” (Easterling, 2005: 174). The interconnecting demolition services that CDI provides is yet another indication of the forces of the destructive deployment of neoliberal processes and the constant state of renewal commanded by de-theming.

Easterling also observes that the “shock and awe” strategy employed by the military in Iraq was “visually very similar to the mock battles that destroyed the Dunes Hotel in Las Vegas,” the levelling of two landscapes for capitalist expansion (2005: 175). Such historically significant buildings as the Dunes, the Aladdin, El Rancho, and the Stardust were all imploded within a 15-year span, signalling a clear break from the past. A prevailing condition of deterritorialization emerges, which declares that ““on this spot nothing will ever happen – and nothing ever has”” with which “...the forces of historical absence have set about designing their own exclusive landscape there” (Debord, 1994: 177). The erasure of historic buildings continues the accelerated passage of capital through the region, relinquishing ties to the past while intensifying the generic condition of the city.

The Neon Museum as Preservation of Collective Memory

While the Strip underwent its dramatic transformation in the 1990s, the Neon Museum partnered with the Allied Arts Council of Southern Nevada and the City of Las Vegas to begin acquiring and restoring discarded signs from shuttered Las Vegas businesses. In a city undergoing constant renewal, the Neon Museum has become an important indexological cataloguing of significant historic buildings. Befittingly, these artefacts are the only traces of buildings in a region defined by the roadside sign, reinforcing the prominence of signage within the American commercial vernacular. By 2012, the independent non-profit museum opened the Neon Boneyard, an outdoor exhibition space in downtown Las Vegas to showcase its growing collection of signs for guided tours and private events. Its entrance and gift shop are housed in the former La Concha hotel lobby, a notable curved concrete shell designed by prominent African-American architect Paul Williams. The signs on display in the Neon Boneyard are curated to convey a sense of place in a city without a built history; an index of disconnected artefacts punctuated by short anecdotes from enthusiastic young tour guides. In fact, the frenetic display of signs is distinctively Las Vegas in its composition, recalling the post-modern decadence ushered in with the opening of the Caesars Palace casino resort. Signifiers of demolished resorts are arranged by aesthetic, distorting scale, historical significance and time. For instance, the salvaged letters of the Moulin Rouge sign are strung together to spell “In Love” mere steps away from the colourful Lido de Paris sign. These two signs represent two different histories and are tossed together in new and absurd ways that prompt the rewriting of history.

Locating the Neon Museum in downtown Las Vegas situates it within an ongoing effort to repopulate a downtown beset by a seedy reputation that had long deterred tourists and locals from visiting. A renewal campaign would be led by developer couple, Jennifer and Michael Cornthwaite, who negotiated with city administrators over zoning changes and slowly acquired empty storefronts to renovate and populate with small businesses for minimal profit. Under the direction of then-Mayor Oscar Goodman, the groundwork was laid for sweeping changes in the area, freeing up many properties for unrestricted access to private sector development interests. These efforts caught the attention of Tony Hsieh, an eccentric multi-millionaire internet entrepreneur and acting CEO of online shoe retailer, Zappos.com.

After meeting with the Cornthwaites, Hsieh relocated 1000+ employees to downtown Las Vegas and leveraged the potential to enact dramatic change in the area under his overarching vision. His revitalization proposal was introduced and eventually branded as the Downtown Project in 2012, at the same time as the opening of the Neon Museum. The privately funded development project invested \$350-million over 5 years and focused on the creation of spaces for small businesses that could potentially transform the core into a thriving technology hub (Marshall, 2014). The key principles of the Downtown Project were derived from the *Triumph of the City*, a book by Edward Glaeser which touts the benefits of urban, high-density living and the movement away from suburban modes of living.

Additionally, the project mission statement echoes the ethos of Richard Florida's *The Rise of the Creative Class* (2002). It prescribes a technique that reduces ambiguous urban renewal strategies into flashy buzzwords in an attempt to lure potential investors and entrepreneurs. Since its release, *The Rise of the Creative Class* has been adopted by city administrators across the U.S. in an effort to attract new residents to quell stagnating populations at a time when urban centres had essentially hollowed out as a result of suburban flight and the loss of manufacturing sector jobs. Jamie Peck writes largely about the problems associated with the widespread adoption of Florida's strategies around urban rejuvenation, gentrification and the development of a neoliberal city, all in an effort to attract those who comprise the "creative economy." These strategies are focused on creating spaces for a specific class of individuals whose talents thrive in "urban environments that are open, diverse, dynamic, and cool" (Peck, 2005: 740). Furthermore, he suggests that while such marketing strategies may at first appear to be radical in redefining less favourable market-driven modes of development, they are actually reinforcing these established economic models while only thinly disguised by marketing jargon (Peck, 2005: 761).

At its core, the Downtown Project replicates the consolidation of the Las Vegas Strip; what was once comprised of many individual owners is now owned by a few key stakeholders. This process of monopolization is obscured under the guise of the image of global cities, with shipping container storefronts and boutique hotels replacing the local vernacular. Whether it is MGM Resorts operating multiple casino properties along the Strip or Tony Hsieh owning or providing loans to numerous downtown small businesses, the resulting urban form is one of a singular vision yielding highly manicured, prescriptive experiences. In both instances the needs of local residents are disregarded in favour of appealing to outsiders whether they are tourists or members of the extended 'creative economy'.

The obfuscation of labour and the local populace has been a direct consequence of de-theming wrought by constant renewal and destruction. Labour union contracts are subject to constant renegotiation, as demonstrated with the opening of several Strip megaresorts, compromising the effective bargaining power of labour unions amidst widespread prosperity. With the liberalization of labour laws introduced under the 1947 Taft-Hartley Act "right-to-work" legislation, the opening of the MGM Grand Hotel in 1993 further compromised the influence of labour unions in Las Vegas. Anticipating a strike over its decision to transition to an entirely non-unionized labour force, MGM persuaded the Clark County commission to designate the sidewalks surrounding its new hotel as private property. As a result, several protesters were arrested for trespassing on private property, establishing a precedent

for several other resorts to privatize sidewalks around their properties (Gottdiener et al., 1999: 117).

De-theming operates at a more sinister level than implosion or demolition however; its subtraction is subliminal, the absence almost imperceptible. As Easterling notes, “In some cases, building and subtraction are indistinguishable, and either may be equally aggressive, submissive, or constructive” (Easterling, 2005: 162). To this end, the apparent subtraction of themes of kitsch in Las Vegas is indistinguishable from meticulously orchestrated interior landscapes.

More broadly, Saskia Sassen notes that the spread of “mega-projects with vast footprints” like condominium towers, consequently kill “urban tissue,” “little streets and squares, density of street-level shops and modest offices, and so on” (2015). She describes this interiorization and privatization of cities as “de-urbanization,” noting that the loss of urban complexity diminishes the potential for disenfranchised groups to leverage social traction. Sassen concludes that:

Large cities have long been complex and incomplete. This has enabled the incorporation of diverse people, logics, politics. A large, mixed city is a frontier zone where actors from different worlds can have an encounter for which there are no established rules of engagement, and where the powerless and the powerful can actually meet (Sassen, 2015).

When cities are deterritorialized by expanding building footprints and subsequently de-urbanised, they are reterritorialized with a synthetic urbanism, a totalized themed environment that stands for what has been lost and is meticulously masterplanned to eradicate financial risk. This smoothing of spontaneity is evident with carefully planned city streets replicated from other cities, a formula to maximize income for private developers and minimize disruptors. De-theming describes the progression of themed spaces to the point where it becomes the image of contemporary globalised urban development; where the processes of designing places of consumption become synonymous with spaces of public gathering. An implicit violence is obscured by the allure of novelty and “fascination” operating on an “externally structured compulsion (enchantment)” which beckons the internal desire for gratification and seduction (Schmid et al., 2011: 6). The bright twinkling lights, the reassuring sounds and the comforting aromas synonymous with these scripted spaces, all serve to compel the consumer to seek further gratification. Again, “power is omnipresent and inherent to fascination” as it carefully orchestrates the consumer experience through the structures of an illusory urban environment to sustain its appeal (Schmid et al., 2011: 7).

Douglas Spencer also highlights the influence of such Deleuzian notions of affect in the architecture of neoliberalism, emphasizing that “the turn to affect is supposed, in immediacy of its expression, to have rendered interpretation redundant...Affect circulates between one thing and another. There is neither subject nor object of interpretation” (Spencer, 2017: 142). The push for gratification is generated by a familiar global urbanism, a smoothing of space intent on accelerating consumption through unrestricted flows. Global capital promotes an architecture that can be perceived in a multitude of ways, an architecture not defined by context and which is “adequate to a post linguistic, mutable and pluralistic social reality...” (Spencer, 2017:

142). The de-themed casino resort is no longer bound by a singular overarching theme and can instead accommodate a range of thematized slot machines. Casinos now offer gamblers an array of thematized options that appeal to various demographics, each with its own glowing interface broadcasting hours of entertainment in exchange for funds. A myriad of themes can be endlessly swapped out while the machine's underlying mechanisms remain essentially the same; constant renewal at minimal cost.

Conclusion

The rise of gambling as a legitimate leisure activity has encouraged patrons to spend freely, diminish concerns of risk, and boost speculation. In his analysis of emerging gambling city Macau, China, Tim Simpson notes that casinos have come to play an important role in conditioning society for the adoption of neoliberal principles. In particular, these principles include the “‘free’ movements of people and capital, increased individualism, market speculation, consumerism, [and] information technology” (Simpson, 2011: 198). His observation of Macau as an emerging capitalist centre in China resembles the rise to prominence of Las Vegas in the 1950s when capitalism was being reintroduced to a weary American public. Casinos act as factories that “produce no tangible product but the manipulation of consumer affect, principally directed towards excitement and fascination,” leading to further consumption (Simpson, 2011: 194).

Furthermore, the themed casino functions as a “normalizing apparatus” in which subjects are familiarized with the free flow of capital and a higher tolerance for debt (Barnett, 2001: 11). Gambling underwrote the rise of the leisure economy in Las Vegas, capitalizing off of liberalized social/economic/political philosophies while financing increasingly expansive resorts to propagate further consumption. The transition from table games to single-player slot machines in casinos is an indicator of a much larger trend toward social alienation promoted by the spectacular society. In the *Society of the Spectacle*, Debord emphasizes that “only an individual ‘isolated’ amidst ‘atomized masses’ could feel any need for the spectacle, and consequently the spectacle must bend every effort to reinforce the individual’s isolation” (Jappe, 1999: 7). Mass customization and individualism are provided under the guise of thematized slot machines, distilling themes of kitsch from the walls to the slot machines.

From downtown urban renewal projects to the rebranding of all-inclusive resorts as urban metropolis, de-theming utilizes the image of gentrification to obscure the threshold between public and private. What began as a deterritorialization of the desert has reterritorialized upon it an aggregate collection of ersatz cities. The interiorization of the city stretches beyond Las Vegas to other globalized urban cores, where condominium towers, office buildings and retail concourses consume the public realm. With the acceleration of travel through the region and constant renewal, the roadside sign remains as the marker of time. De-theming also operates as a normalizing apparatus for neoliberal principles, obscuring the consolidation of ownership that has resulted from market deregulation, emphasizing consumption and leisure activities, all while implying a self-sustaining urban form.

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**Ruts of Gentrification:
Breaking the Surface of
Vienna's Changing
Cityscape**

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Abstract

Last year, the city of Vienna celebrated the 150-year anniversary of the opening of the Ringstrasse, the central ring road that stands as symbol of the huge structural renewal that accompanied the transformation of the Habsburg empire's capital into a rapidly growing modern city. The anniversary acquired poignancy on account of the way Vienna's population is once again growing rapidly, with an estimated ¼ million people to be added to the city's population over the next decade. While accommodating urban migrants was not a priority in Ringstrasse Vienna, and working class districts are not part of iconic mapped mediations, the current city council, a coalition of Social Democrats and the Green Party, studiously tries to avoid 19th-century urban modernity's "mistakes" in their efforts to accommodate the growing population, and they let the Viennese, and the world, know. This time, GIS and digital mapping are mobilized for planning, mediating and communicating large-scale development and renewal projects.

This paper looks at the mediations of three crucial sites of contemporary urban transformation in Vienna that mobilize the affordances of new technologies: "Loftcity," a loft development cum cultural centre on the site of one of Vienna's largest factories, the Ankerbrotfabrik; the transformation of the district surrounding Vienna's new Hauptbahnhof; and Aspern, "Vienna's Urban Lakeside," a new satellite town promoted as a city of the future. By comparing the historical traces that remain in the mediations of these sites with their 19th-century counterparts, a geocritical reading of Vienna's gentrification emerges that situates spatial practices in historically grown lines of connectivity, presaging and transcending traditional forms of classification, such as national divides or urban/suburban dichotomies.

Keywords

Faciality, gentrification, geomediation, holey space, Vienna

Introduction

In 2015, the city of Vienna celebrated the 150th anniversary of the opening of the Ringstrasse, a central ring road that has served as the dominant symbol for the huge structural transformation of the Habsburg empire's capital into a rapidly growing modern city during the second half of the nineteenth century. The anniversary acquired particular poignancy at a time when Vienna's population is once again growing rapidly, with an estimated ¼ million people to be added to the city's population over the next decade. Accommodating urban migrants had not been a priority in the industrializing capital of a multinational empire during the nineteenth century, and working-class districts were not part of iconic mapped mediations (Figure 1).



Figure 1: Allerhöchst genehmigter Plan der Stadterweiterung kolorierter Holzstich. By K. k. Hof- und Staatsdruckerei in Wien [Public domain], via Wikimedia Commons

150 years later, the attitude towards urban growth and migration has changed considerably. The current city council, a coalition of Social Democrats and the Green Party in power since 2010 (when the absolute majority the Social Democrats had held since 2001 was broken), has studiously tried to avoid nineteenth-century urban modernity's social blinkers in their efforts to accommodate the growing population,

and they let the Viennese, and the world, know. A wide array of geomediations, such as digital maps, CAD-based architectural mock-ups and publications for communicating current urban planning initiatives, is being mobilized for disseminating these processes to the public.

This paper takes what is happening in 21st-century Vienna as a starting point to reflect on a specific historical and spatial conjuncture of geomediated discourse, in which digitally generated, visually mediated urban imaginaries are being deployed to foster a discourse that encourages investment in locality, affectively as well as financially. I am particularly interested in the surfaces that are being generated through the affordances of digital tools used for place mediation, surfaces that I argue flatten and smooth the historically constituted dynamics and affects of urban habitats into clearly delineated areas of neighbourhood, community and belonging, thereby establishing, materially as well as imaginatively, an agile and investment-friendly time-space continuum. I will juxtapose this process to the counter-hegemonic tenacity of ruts, unintended remnants of overlooked or deliberately concealed habitual movement and directionality from the past that are part of urbanity's memoryscapes. My aim is to establish, in this preliminary probe into the empirical context of a specific place with historical depth, how such an approach can interrogate contemporary urban spatial practices and develop tools for an urban critique of place-making that does justice to negotiations and assertions of complex urban histories and memories and recuperates the vectors of mobility and directionality that move imaginaries beyond the confines of identitarian spatiality. As one will see, my approach is influenced by Deleuzian approaches to surfaces and 'surficiality', refracted through the lens of Meaghan Morris's readings of neoliberal urbanism, which point towards the affordances of critique that an engagement with spatial practices can open up.

My probe is focussed on the second decade of the 21st century, the period in Vienna's urban planning during which the 2015 masterplan (STEP 2015) was completed and the 2025 plan (STEP 2025) emerged (Rosenberger, 2014; see also Huitner, 2015: 131). Three sites serve as case studies: the Ankerbrot factory lofts ("Loft City"), a loft development cum cultural centre on the site of one of Vienna's largest factories; the transformation of the district around the Central Train Station

(“Hauptbahnhof”); and the new satellite town of Aspern (“Seestadt” (Vienna’s Urban Lakeside)), promoted as a city of the future (Figure 2).



Figure 2: Vienna’s Urban Lakeside Aspern promotional image (source: aspern-seestadt.at)

I deliberately discuss three urban renewal projects of dramatically different scale. Loft City is just one apartment block in a predominantly working-class and immigrant district; the train station straddles large swathes of two districts and conjoins historically very distinct urban environments into a focussed zone of entrepreneurship, investment and global connectivity; and Vienna’s Urban Lakeside is currently “one of the largest urban development projects in Europe” (Ballhausen et al., 2013: 7). While of very different scales, each of these developments plays a crucial role in the wider strategy of Vienna’s urban planning to re-centre population density in a structured way, corresponding to what has been identified as a guiding principle in contemporary planning discourse:

[C]ity-regional cooperation in planning and the international context to urban development become central to the debate. Besides this up-scaling to a trans-national level, a more differentiated involvement

with neighborhood development appears at the same time. Social fragmentation becomes a pivotal element ... [Planning] constructs two scales of intervention independent from one another – the neighborhood level and the European level (Huitner, 2015: 133).

Huitner identifies a conjuncture in which previous planning principles guided by the tenets of a social welfare state have been superseded by a concern with investment opportunities while maintaining an interest in social inclusivity and socially mixed housing, which results in efforts to blur historically established boundaries of districts that have also demarcated boundaries between social classes. Each of the redevelopment projects thus triggers a re-constitution of urban memory, mediated by representations that emphasize a European business context that is seen as the enabling factor of the city's prosperity. At the same time these mediations articulate that context to the imaginaries of local community and neighbourhood into which investments flow. In order to understand this two-pronged approach, we need to look at the specific circumstances of the city's planning and development of these three sites. Proceeding from these circumstances, I will discuss the geomedia framework into which these developments are inscribed and look at perspectives on my example sites that might provide alternative geomedia approaches to the sites by mobilizing vernacular temporalities that are not part of hegemonic spatial representations.

Geomediating a Masterplan in Vienna

Quite exceptionally for a European city, Vienna reached its highest population numbers (over 2 million) already before World War I, when it was still the capital of the Habsburg's Dual Monarchy. Significantly reduced in population after the first World War, population growth throughout the 20th century, but especially after the fall of the Iron Curtain in 1989, was accommodated by infill of areas that were not densely populated by European standards, rather than by expansion into suburban zones beyond the city limits. This growth was guided by a relatively powerful city council with a tradition of taking the lead in master-planning urban development since the inter-war years. Infill has targeted mostly working-class areas of the city, which have generally been less densely populated since 1918. The three sites I focus on can thus all be seen as part of a wider strategy of re-distributing population

density in a structured way. They also blur historically established boundaries between the bourgeoisie and the proletariat (Maderthaner and Musner, 2008), boundaries that were established by an outer circumference road around the city as well as by the Danube river. As such, these developments involve forms of remembering that make the boundaries established by previous urban interventions – especially the huge reconstruction efforts of the late nineteenth century – more porous while establishing and promoting newly defined and demarcated neighbourhoods.

Central Station (*Hauptbahnhof*)

This process of crossing, shifting and trying to obliterate traditional lines of demarcation in the urban environment is noticeable in all three projects I am discussing here, but perhaps most clearly advanced in and around the Central Train Station, which serves as the centre for the development of c. 146 acres of urban space, with the aim to develop by 2020 5,500 new apartments and office space for 20,000 people, as well as new hotels and infrastructure (Bönsch, 2015: 28). Mediated by lavish publicity that includes stunning visuals, the powerful metaphor of “bridging” the railway tracks that separated two very distinct parts of Vienna with a development that is driven by high-rise office developments as well as condos and shops has not eluded the planners. Futuristic architectural mock-ups, carefully airbrushed panoramic shots and long-exposure photography that implies a fast-moving crowd of smartly dressed people rushing to their next business deal are conspicuously juxtaposed to historical photographs (in sepia-toned black-and-white) of derelict warehouses on the wrong side of the tracks, firmly relegated to the past — an ideological construction readily exposed as utopian or at least highly aspirational by a stroll around the area (Figure 3), but effective in training the eye for the computer-generated cookie-cutter architecture that invariably accompanies urban transformation at this scale (Figure 4).

Vectors of directionality are powerfully mapped onto the new development by one of the historically most potent symbols of connectivity in the city of modernity, the railway lines, which are shown to link Vienna to recognizable business destinations in Europe, such as Paris, as well as Eastern European destinations, such as Budapest,

that have been highly valued targets of investment since 1989, constituting metaphorical lines of ideally uninterrupted capital flows rather than the markers of social separation that neatly divided the workers in the 10th district from the genteel areas north of the tracks.



Figure 3: Central Train Station District (photo: M. Reisenleitner)



Figure 4: Central Train Station District office architecture (photo: M. Reisenleitner)

Loft City



Figure 5: Loft City development (photos: M. Reisenleitner)

Ten blocks to the south of the Central Train Station, even further on the wrong side of the tracks, Loft City is targeting a much smaller area. The loft development is located in a bread factory established in the nineteenth century, the “Ankerbrotfabrik”, that used to be a powerful stronghold of the trade unions (Kristan and Rapp, 2011). The factory’s owners, a Jewish family, were expropriated during the Third Reich but got the property back after the war in a district that was then under the control of the USSR. After some financial turmoil, the factory was thoroughly modernized in 2003 (Kristan and Rapp, 2011: 140), reducing the necessary space. The disused parts, about $\frac{1}{4}$ of the 68,000 square metres of the factory (Kristan and Rapp, 2011: 141) were acquired by a development company in 2009 and turned into a mixed-use complex that includes art institutions, event spaces, restaurants, condos and office space, mostly utilized by creative industries in a mix that has become typical for gentrification projects, the “conversion of socially marginal and working-class areas of the central city to middle-class residential use [which] reflects a movement, that began in the 1960s, of private-market investment capital into downtown districts of major urban centers” (Zukin, 1987: 129). The Loft

City development promises to establish a spatial axis to the developments around the Central Train Station (even though those are not within walking distance, and there is not yet an easy public transport option). Interestingly, the factory's history is acknowledged in promotional material as the development's "authentic" working-class history and sustained by the fact that one wing of the restored building still operates as a bakery. The material presence of the project's history is thus maintained in order to facilitate place-making and emphasize a certain artisanal, craft legacy that appeals to the creative class's hipster tastes. In how far this strategy will be successful in establishing a sense of locale and add a creative clientele to the very multicultural surroundings remains to be seen.



Figure 6: "Always the same people at these parties." (Instagram)

While the development (Figure 5) seems to have attracted a fair number of media and creative companies, and the number of German license plates seems to indicate a certain international reach, the impact on creating a socially mixed neighbourhood

remains to be determined. Gentrification stormtroopers' instagrammed take on the situation includes posts such as "always the same people at these parties" (Figure 6); presumably the people who can afford to live in the lofts and their friends. It is unclear what kind of place-making the deliberate evocation of such a history will induce.

Urban Lakeside ("Seestadt")

Equally illustrative is the case of Vienna's Urban Lakeside development, and how its mediations are trying to create a sense of place. Extending over an area of almost 600 acres in an area located in the far north of the city, the development promises to provide affordable housing for more than 20,000 people by 2028, in an environment that is walkable and offers infrastructure such as a school, a dental clinic and a shopping street that in the promotional material is made to sound like more like a Disneyesque Main Street, USA, than a mall (Stadt Wien). The promotional discourse is heavily reliant on a vocabulary that mixes metaphors of small-town community, the staple of the neo-traditional movement that calls itself "New Urbanism" (Katz: 1994), with visions of the affordances of digital technologies for urban planning, creating "smart cities"; an only seemingly paradoxical suture in view of the fact that they are based on parallel structures of desire. As I have argued elsewhere:

Visions of smart cities are built on the powerful imaginary of (and desire for) algorithms that can make sense of data distilled from the complexities of urban life [...] The rhetorical invocations of smart cities, in conjunction with the new urbanist principles of walkability, neighborliness, and Main Street theming, provide a seductive template for city politicians, urban planners, and middle-class families. By merit of its limited reach and "do-ability," this palatable and hegemonic consensus agenda does not need to address the underlying issues that result from global capital hitting the ground in a world city and creating or reinforcing economic, ethnic, and legal status divides" (Reisenleitner, 2016: 286).

Mediations of Vienna's Urban Lakeside unsurprisingly include staples of urban utopias such as pop-up dorms (Czaja, 2017), self-driving busses ("Pilotprojekt ohne Pilot", 2017), etc. Again, a sense of place has not materialized so far, despite PR and branding machines operating in high gear (and a subway that now runs more frequently). This development is a first major attempt to extend the city outwards, rather than through infill, and thus a "city of the future" discourse, accompanied by a strong undercurrent of avoiding planning mistakes of the past, translates into a breathless tsunami of geomediating the area through a consensus visuality of streamline moderne that literally has no time for the area's many pasts.

Breaking the Surface

What my three examples demonstrate is a mediation of Vienna's contemporary urban geography that articulates investment in locality to transnational flows, an articulation that establishes a particular vision of economic, i.e. immaterial and abstract, lines of connectivity as an imaginary in which investment in locale is embedded and grounded. It is tempting to debunk the mediation of these three sites through the lens of a symptomatic reading or critique of official remembering and spatial practices of meaning-making in these carefully selected and curated histories that are intended to sell. However, this is not my intent here. Rather, my interest is not only to challenge the flattening of complex historical narratives into easily commodifiable space branding, but to conceptualize how memories of in-between spaces and vectors of mobility can be salvaged from being incorporated into the smoothly moving flows of (property) development discourse. I am particularly interested in material traces that disrupt, interrupt or break the surface of urban planning imaginaries and the common understanding – or, in Kara Keeling's take on Deleuze and Gramsci, visual "clichés" (Keeling, 2007: 14) – of the trajectories into which capital-friendly urban planning supposedly needs to be inscribed. What is established through clichés is "common sense," which "refers simultaneously to a shared set of motor contrivances that affect subjective perception and to a collective set of memory-images that includes experiences, knowledges, traditions, and so on and that are available to memory during perception" (Keeling, 2007: 14). The visual clichés afforded by the digital tools of geomediation are clearly linked to a contemporary consensus agenda of urban planning (and living) that is capital-friendly

while de-emphasizing the messiness and complexities of the movement of people and the complex geo-histories of which those movements are an expression.

What is established in the current conjuncture is a hegemonic form of understanding spatial practices that originates with, but reaches beyond, property discourse. For example, recent geo-critical approaches to the mediation of space in film, literature and popular culture, such as Bertrand Westphal's *géocritique* and his disciple and translator Robert Tally's elaboration of a "literary cartography", have re-invigorated a spatial turn in the humanities that is supported by the ease and accessibility of digital map-making tools, which has in turn led to a proliferation of projects that cartographically visualize film locations, plots of novels, and biographical information. While these approaches have produced interesting insights into narratives that constitute urban imaginaries, they also tend to be caught up in flattening the representation of slippery and complex cultural phenomena that have complicated sensitive and contested pasts. In the fields of Urban Humanities and Memory Studies, recent mobilizations of the spatial turn have highlighted the intricate interplay between imaginaries that are premised on representations (and misrepresentations) of the historically constituted texture of a city on one hand, and processes of urban planning and change. While the gentrification discourse has become a lightning rod for struggles over the right to the city in the 21st century, its specific manifestations are composite and situated processes and negotiations over the preservation, re-constitution, erasure or even production of histories and memories materialized in urban environments. When Disney imagineered the New Urbanist town of Celebration, Florida, urban planners were tasked with inventing a "back story," i.e. a history that could *ex nihilo* constitute community for an urban development in the Florida swamps.

[A] key part of the Imagineering process is developing what is called a "backstory" for the product, the mythological history that provides a focus as the development proceeds. Concocting a backstory for a town did not seem too different from concocting one for a new ride. But some of the ideas were ripe. At one point, the Imagineers suggested the tale of a city rising from the ashes of General

Sherman's march across the South, though the fact that he never set foot in Florida did not seem to matter. In the end, the more pragmatic development people recognized that the town would not be a ride or a movie, but a real place (Frantz and Collins, 1999: 52).



Figure 7: Alligator in Celebration, Florida (photo: S. Ingram)

It's impressive the effects a few well-placed alligators can have (Figure 7) on creating a sense of place! However, despite efforts such as Todd Presner's "thick mapping" of Berlin and Los Angeles in *Hypercities* (Presner et al., 2014) and Google Earth's historical timelines, the affordances of digital mapping tools tend to hegemonically produce an ever-more detailed landscape of what de Certeau has termed a "concept city," in which "[p]erspective vision and prospective vision constitute the twofold projection of an opaque past and an uncertain future onto a surface that can be dealt with" (1984: 93), rather than what he calls an "urban practice." Using such a surface as a point of reference for urban imaginaries, whether in the form of historical preservation, office and condo development, or strategic infrastructure investment, can thus be seen as continuing what de Certeau has labelled the "erasure of the itineraries" (de Certeau, 1984: 121), rather than the potential of human connectivity and mediation that de Certeau's in-between spaces (1984: 127) could offer. Reducing historically constituted spatial assemblages to smooth digital surfaces constitutes a

strategy for representing the future in such a way that masks its uncertainty, trying to keep people in their places, or move them from inappropriate places, or prevent them from occupying spaces where they are not wanted or are in the way, such as the tent cities that still remain in the streets in between the gentrifying nodes in Downtown LA, defying New Urbanist hipster localism in the global city's downtown. (There are no tent cities in Vienna, but a number of substandard buildings in the Central Train Station area have been razed). Digital mapping tools arguably have a propensity to seduce into a methodology of what Deleuze and Guattari refer to, in *A Thousand Plateaus*, as tracing, a form of reproduction from selection:

It is our view that genetic axis and profound structure are above all infinitely reproducible principles of tracing. All of tree logic is a logic of tracing and reproduction. [...] Its goal is to describe a de facto state, to maintain balance in intersubjective relations, or to explore an unconscious that is already there from the start, lurking in the dark recesses of memory and language. It consists of tracing, on the basis of an overcoding structure or supporting axis, something that comes ready-made. [...] What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real (Deleuze and Guattari, 1987: 12).

The same process of seduction can be found in the imaginary of big data and derivative trading, which similarly builds on a streamlined and flattened image of the past that is used for extrapolating the future.

The past is no longer the multiplicity of histories that is the spatial [...] with all its happenstance juxtapositions and unintended emergent effects but rather a resource for providing models that serve as guarantors against the randomness and unpredictability of the urban, simplified through what are fundamentally engineering practices imposed on data as well as spaces, and serving as the foundation of imposed and imposable social reform through a

particular (and equally limited) notion of community (Reisenleitner, 2016).

Following Deleuze and Guattari's logic, the challenge of critique in a regime of spatial practices built on the affordances of, in Deleuze and Guattari's conceptualisation, tracing tools is to transform cartographies into dynamic assemblages that involve affect (cf. Petschke, 2017: 12) and constitute multiple lines of flight for urban habitats. This means avoiding the binaries that so often riddle critique.

Tempting as it might be, as we have seen in the Vienna case studies, it is not particularly helpful to align hegemonic geomediations of urban locale with Jameson's seminal indictment against the "cultural dominant" (Jameson, 1984: 56) of postmodernism, in which he finds "a new kind of flatness or depthlessness, a new kind of superficiality in the most literal sense" (60), and which he connects to the waning of affect and the dominance of the synchronic over the diachronic, in which "our daily life, our psychic experience, our cultural languages are [...] dominated by categories of space rather than by categories of time, as in the preceding period of high modernism proper" (64). Contrary to Jameson's diagnosis, the discursive formations that geomediate spatial practices in my examples are underpinned by the assertion of linear temporalities that determine both affective and capital investment into those spaces, rather than simple synchronicity. Movement and flow are not denied but rather emphasized, albeit in smooth and clearly delineated ways, just like the stock market always supposedly moves "forward" and investment grows. Such spatial practices are addressed in Deleuze and Guattari's "Treatise on Nomadology" when they emphasize the complicity of both striated and smooth spaces:

One of the fundamental tasks of the State is to striate the space over which it reigns, or to utilize smooth spaces as a means of communication in the service of striated space. It is a vital concern of every State not only to vanquish nomadism but to control migrations and, more generally, to establish a zone of right over an entire 'exterior', over all the flows traversing the ecumenon. If it can help it, the State does not dissociate itself from a process of capture of flows,

money or capital, etc. There is still a need for fixed paths in well-defined directions, which restrict speed, regulate circulation, relativize movement, and measure in detail the relative movements of subjects and objects (Deleuze and Guattari, 1987: 385–6).

What Deleuze and Guattari have to offer as a way out of the co-optation of smooth space is, via a still from Eisenstein's *Strike* (413), the concept of “holey space”:

Holey space appears alongside ‘smooth’ and ‘striated’ space [...] as Deleuze and Guattari’s prescient warning about the tendency to read those two categories as self-evidently emancipatory or repressive. While the state apparatus perhaps worked initially primarily in the mode of striating space, the neoliberal war machine that reigns today has just as much interest in smooth space, in terms of swarming militarism, the global gaze of surveillance technology, and frictionless capital flows. Holey space, as a substance of content, compels theorists to consider the ways in which specific assemblages negotiate the mixture of smooth and striated space that characterizes any power formation. [...] Whereas smooth and striated spaces are substances of expression, holey space is rather literally about the intermediate and ambivalent subsoil in and through which apparatuses of capture struggle with nomadic assemblages (Hantel, 2012).

The concept of holey spaces connects to an earlier discussion in *A Thousand Plateaus* in which a black hole is introduced as the site of “consciousness, passion and redundancies” (167) against the white wall of faciality:

The face constructs the wall that the signifier needs in order to bounce off of; it constitutes the wall of the signifier, the frame or screen. The face digs the hole that subjectification needs in order to break through; it constitutes the black hole of subjectivity as

consciousness or passion, the camera, the third eye (Deleuze and Guattari, 1987: 168).

Meaghan Morris mobilizes Deleuze and Guattari's concept of 'faciality', which "shapes in their work a theory of 'majority'" (Morris, 1998: 125), to examine "the relentlessly redundant and self-signifying corporate architecture" of Sydney's CBD. Her masterful détournements of *A Thousand Plateaus* and de Certeau's spatial stories via her readings of *King Kong* and the "Human Fly" in the movie *A Spire* (1988) lay out an instance of practicing place as a form of vernacular criticism (Morris, 1998: 157), with a symbolic form of temporary occupation as a spatial practice that interrupts the logic of the corporate face of the business tower by exerting movements that are not contained in the striations of corporate and state control.

While Morris's reading provides a convincing example of acknowledging the complexities of the stakes in negotiating spatial practices in the contemporary city, I do not claim that the affordances of digital tools geomediating Vienna's masterplanning should simply be read as equivalents or extensions of the smooth tower surfaces of 1990s global corporate architecture. What Morris calls, with reference to Deleuze and Guattari's concept of 'haecceities', "individuating intensities" (Morris, 1998: 124), necessarily alerts us to crucial differences in the historical and spatial conjunctures of Sydney in the 1990s and Vienna in the 2010s. Morris draws our attention to the gendered home/voyage opposition in the imaginary of a colonial settler nation, Australia, that renders movement masculine and relates it to linear notions of time while relegating home to static and cyclical temporalities that are rendered feminine.

What is at stake in the contemporary re-imaginering of Vienna, by contrast, needs to be understood in the context of a national discourse that is inimical to immigration and a city that tries to practice place as a home for affective and capital investment in stability (rather than movement) while remaining married to the seductive discourses of flows and growth. The dominant imaginary is not one that juxtaposes the smooth flow of capital to the perceived stasis of home-making. Rather, local investment is represented as being predicated on the articulation of locale and circumscription of people's movement to the circulation of global capital

on which the real estate economy is built, in other words: on controlled movement, steady movement, juxtaposed to the irregular and unpredictable rhythms of migration and migrants' and migrations' uneven histories. In this conjuncture, an anti-hegemonic reading of memoryscapes that performs what Morris calls 'vernacular criticism' requires attending to the unruly forms of mobility that resist the seamless sutures of digital surfaces, historically saturated interruptions that challenge the representations of dominant flows of time (as teleological progress towards an ideal community) and capital/property (as investment and growth). What seems to be at stake in such an approach is identifying the holey space that punctures the surface of geomeia as a visual regime of common sense that has "found ways of moving with relative ease by affirming aspects of common sense" (Keeling, 2007: 4). If we accept that geomeia's hegemonic assemblages resemble film in being "defined by [an] 'internalized' relation with money" (Keeling, 2007: 17), we need to look for tokens of movement that defy this cliché.

In his exploration of critical art in *The Emancipated Spectator*, Jacques Rancière introduces the powerful metaphor of a visual wound or scar in his discussion of a photograph by the French artist Sophie Ristelhueber of a bird's eye perspective of an Israeli roadblock on a Palestinian road as a form of resistance of the viewer's anticipation:

She has photographed not the emblem of the war, but the wounds and scars it imprints on a territory. In this way, she perhaps effects a displacement of the exhausted affect of indignation to a more discreet affect, an affect of indeterminate effect – curiosity, the desire to see closer up. I speak here of curiosity, and above I spoke of attention. These are in fact affects that blur the false obviousness of strategic schemata; they are dispositions of the body and the mind where the eye does not know in advance what it sees and thought does not know what it should make of it (Rancière, 2011: 104).

Wounds or scars invariably point to the violent nature of the movement and/or temporality that caused them. I do not deny that such violence is often what is at

stake in re-remembering, in undoing smooth representations of historicity, but an interruption through a wound is not the only possible form of subverting surfaciality. What needs to be uncovered in a more general sense is what Homi Bhabha calls a “minority discourse” that is set against the commonsensical form of singular temporality inscribed in geomedial representations:

Minority discourse sets the act of emergence in the antagonistic *in-between* of image and sign, the accumulative and the adjunct, presence and proxy. It contests genealogies of ‘origin’ that lead to claims for cultural supremacy and historical priority ... Now there is no reason to believe that such marks of indifference cannot inscribe a ‘history’ of the people or become the gathering points of political solidarity. They will not, however, celebrate the monumentality of historicist memory, the sociological totality of society, or the homogeneity of cultural experience. The discourse of minority reveals the insurmountable ambivalence that structures the *equivocal* movement of historical time (Bhabha, 1994: 157).

While Bhabha presents these considerations in the context of his discussion of writing the nation, the principle obtains for any conjuncture in which locality needs to be released from the controlling forces of a dominant historical and controlling flow – in my case the specific temporality of investment – and restored to the multiple minoritarian temporalities that are able to accomplish the vernacular criticism Morris demonstrates in the Australian context. Rather than focussing on the violence of scars and wounds, as Rancière does, I propose, for the specific conjuncture I am addressing, to expose less spectacular interruptions of surfaciality, namely the ruts, understood both literally as furrows and indentations, and metaphorically as routines and patterns, i.e. as habitual imprints of, and produced by, movement and directionality in memory spaces that are neither obvious nor spectacularly disruptive yet prone to disturb or jar the mappability of urban space because they constitute sites of “the hybridity of histories and the displacement of narratives” (Bhabha, 1994: 169), revealing historical vectors that are camouflaged under the predictability of maps, graphs and computer-assisted design. I argue that turning our attention to these imprints can serve a similar critical intervention to the

kind of challenges to contemporary urban practices through visual culture identified in Jordan and Lindner (2016).

Interruptions

I will now return to my three examples to identify some of those ruts that point us towards alternative vectors of directionality, and thus alternative temporalities of the local that resist the linear makeovers of geomediated gentrification and investment discourse.

In the case of the Hauptbahnhof, this would seem most obvious. The project is centred around a line of transportation with multiple lines of connectivity that cannot easily be contained. As a railway station, the Hauptbahnhof necessarily needs to maintain an uneasy relationship with the dynamics of movement provided by the railway, movements of immigrants and refugees into, and deportations of the marginalized and discriminated out of, the city (at times, such as during the deportations of Jews during the Third Reich, with lethal consequences for those concerned). While PR maps currently tend to emphasize train connections to business centres in Western and Eastern Europe, the lines to the South that were historically the station's main lines are mainly absent from geomediation. Yet it was those lines that the "guest workers" from Yugoslavia arrived by for decades, starting in the 1970s. The Syrian refugees who were stranded in 2015 and 2016 at the Hauptbahnhof were also en route from the Balkans and Hungary, along the same lines that had been established by an empire whose traces are still there if you know where to look for them.

In this case, it is actually difficult to overlook the vectors of migration that have inscribed themselves into the cityscape. Literally across the street from the train station is the Belvedere palace, a tourist attraction that recalls the glory of the Habsburg Empire after the defeat of the Ottomans and the colonization of the Balkans. The Belvedere was the palace of Prince Eugene, the army leader who was instrumental in defeating the Ottoman troops at the end of the seventeenth century and pushing them back through what was to become Yugoslavia, and it still serves as a powerful symbol of the re-orientation of the Habsburg Empire's colonial efforts

towards the southeast. I have discussed this in more detail elsewhere (Reisenleitner, 2006), but what I want to emphasize here is that what was intended to be squeezed into a clearly demarcated space of development is crisscrossed by multiple historical fault lines and forms of connectivity that escape containment and alert us to flows and encounters that determine spaces in a myriad of ways. The Belvedere, built in Baroque grandeur precisely to give visibility to a particular history of the Vienna metropole as a colonial power, is located between the southern train station that used to connect the capital with its periphery in the southeast and a major traffic artery that points us towards southeastern Europe, and in the city's memory it is the street where "the Balkan begins," a territory imaginarily assimilated into the city and the historical root of Vienna's largest migrant population from the former Yugoslavia (Fischer, 2006). This has been the site of arrival and departure of migrant workers from (former) Yugoslavia since the 1970s, when a whole village of Yugoslav shops existed in its vicinity and signs in Croatian directed migrants to facilities in the train station. Gentrifying the district while calling for an end to refugee migration via the "Balkan" route is thus exposed (by the powerful presence of the Belvedere and the less powerful but still quite visible presence of Serbo-Croatian migration) as glossing over a temporal dimension that has constituted this particular locality. A clearly demarcated space of development is crisscrossed by the ruts of former connectivity that negate the containment of flows of gentrification. Those are the metaphors of the flows and encounters that overdetermine spaces as contested by multiple vernacular temporalities.



Figure 8: Ankerbrot delivery vans (photo: M. Reisenleitner)

Similar vestiges of the ineluctable instability and mobility that characterize any urban environment can be found at the other sites, even though their ruts are carved in different ways. The Anker bread factory became prominent through its billboard advertisements, delivery vans (Figure 8) and its distribution network of up to 270 outlets throughout Vienna that cut across the social and spatial divisions of the city (“Ankerbrotfabrik – Wien Geschichte Wiki”; see also Kristan and Rapp, 2011), generating a sense of local pride by claiming that its products were what the Viennese were looking for most when they returned from holidays. Both outlets and delivery vans are still a highly visible presence in the city and are often adorned with historical, clearly nostalgic photographs of the factory’s past presence and movement within and across the city, rather than the very local yet globally connected imaginary of Loft City, with its art galleries and media production companies. Through the constant movement of delivery vans and persistent presence of branded outlets, Loft City is thus both extended beyond the few blocks of redevelopment and at the same time scaled back from the transnational aspirations of its architecture and promotion, folded back, as it were, into the space of Vienna as a remembered, bounded, historical entity that intersects with the smooth flow of global capital trying to gentrify a district.



Figure 9: Ruts of Aspern airfield (photo: M. Reisenleitner)

Vienna's Urban Lakeside, on the other hand, is currently being promoted for its fast connectivity, via a major subway line, to the centre of the city, with every effort being made to gloss over the peripherality of the new town and the problematic aspects of its aeronautical past. The site was the city's airfield from 1912 to 1977, infamous as a site of air raids against Red Vienna during the Civil War of 1934 and as a base for the German *Luftwaffe* during the Third Reich. The historical town of Aspern was also the site of a major battle of the Austrian Empire against Napoleon in 1809 (drawing attention, just like the Belvedere, to a long history of imperial violence), but the morphology of Aspern's space is determined by the former temporalities. Indeed, one can literally find ruts left by the airfield in a remote corner of the new town (Figure 9), a reminder of a military past left behind by aspirational gentrification that its nautical, and not aeronautical, name (the "Seestadt") clumsily seeks to mask.

Conclusions

What I hope my three case studies have demonstrated are the possibilities of mobilizing, against the powerful geomediations of gentrification and capital flows, the barely visible markers and vestiges of complex historical directionalities, vectors and encounters that can constitute alternate, vernacular temporalities. These traces live on in memories and representations, such as maps, roads, and images, and are an oblique and potentially transgressive supplement to the smooth digital surfaces that mediate predictable urban futures as instruments of investment, an "encounter [with] the past as an anteriority that continually introduces an otherness or alterity into the present" (Bhabha, 1994: 157) and remind us of what Doreen Massey calls "throwntogetherness," "an attempt to urge an understanding of this place as permeable, to provoke a living of place as a constellation of trajectories, both 'natural' and 'cultural', where if even the rocks are on the move the question must be posed as to what can be claimed as belonging; where, at the least, the question of belonging needs to be framed in a new way" (Massey, 2005: 49). Only if we acknowledge spaces as nodes crisscrossed by a multiplicity of vectors of exchange, encounter, expansion, arrival and departure and thus constituted by the unpredictability of temporalities that cannot be translated into algorithmic models, that support a minoritarian knowledge of history as a possibility rather than a base of calculation, "a source of a liberating certainty that anything could happen" (Morris,

1998: 26) can they become meaningful commons, sites of participation and belonging.

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**Records of Representation:
Clement Valla's Postcards
from Google Earth**

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Abstract

This brief commentary explores images in Clement Valla's (2010-present) *Postcards from Google Earth* series from the vantage of aesthetics, landscape theory, and experience of the remote.

Keywords

Documentary art, Google Earth, Landscape, Simulacra, Tourism

Introduction

Clement Valla is a different kind of artist, one that could only exist in a post-modern, digital moment. Unlike artists of the past, for whom “work” was essential to the creative process, today we find equal value in the document. Secondary proof of the work is almost as valuable, if not more valuable, as the work itself. There is a precedent for this kind of approach in the art world of the last fifty years – Hamish Fulton, Ai WeiWei, Richard Long, Andy Goldsworthy, Ana Mendieta, and Robert Smithson to name a few. On some level, all of these artists have utilized the record as a fundamental component of their output. Both observation and the excerpted moment play key roles in their diverse record-based practices. By means of the digital, then, Valla continues the role that the record has come to play in art.

Drawing from W.J.T. Mitchell (2003), we might consider Valla's work in a different register as engaging with a series of fault lines and ruptures that call attention to Google Earth's “veiling” of the imperial landscape (30). We could view these images

as highlighting the hubris of Google's attempt to provide a perfect and seamless pictorial representation of the world, implying that Valla's postcards are the moments of falter, not unlike Google's tragically failed attempt to map Mount Everest in 2015. To make these claims, however, would be to fail to distinguish between Google Earth's database of images and Valla's artistic work. The purpose of this piece is to discuss the latter.

A Simulacrum



Figure 1: Clement Valla (2010-present) *Postcard from Google Earth* (46°42'3.50"N, 120°26'28.59"W). Permission from the artist.

Clement Valla's *Postcards from Google Earth* (2010-present) raises a number of questions about digitally representing place. Deviating from the static relationships between space and place employed by traditional mapping methods, the Google Earth and Street View mapping initiatives together attempt to create a seamless volumetric representation of the Earth. As Valla suggests, by constantly updating its database with new images gleaned from a variety of sources, "the software edits, re-assembles, processes and packages reality in order to form a very specific and useful model" (2012). It does so mainly by laying satellite imagery of the land over a three-dimensional model of the earth's topographical features in a process known as texture mapping. While, at first glance, these images appear to record an error, as

Valla points out, “these images are not glitches. They are the absolute logical result of the system” (2012).



Figure 2: Clement Valla (2010-present) *Postcard from Google Earth* (48°24'31.45"N, 122°38'45.52"W). Permission from the artist.

Indeed, “Google Earth is a database disguised as a photographic representation” (Valla, 2012). The images Valla has chosen to share raise the fact that Google Earth is a database in the first instance, and a means of photographic representation in the second. We might even begin to argue that these aren’t photographic representations of place at all, but rather a simulacrum for one. In the act of stitching together the images and merging them with topographical data we create a hybrid picture map whose relationship to the place it purports to represent is topographically precise; and yet, in its construction as a kind of Frankenstein’s monster of images taken over periods of time, the images are shuffled and selected to create a map that offers the clearest and most wide-ranging image of the place. In this sense, the places as represented through these constructions do not exist in actuality the way the representation suggests it does. Composite pictures of the actual, integrated with precise topographical data, present the impossible. It is more challenging to recognize Google Earth as a simulacrum when the image is devoid of human-made structures. Rocks, trees and water, to a large degree, appear to exist in their natural state; rolling hills and large wooded areas appear to make sense visually, if a little pixelated in their appearance. Where we begin to become aware of the presence of

the simulacrum is when the image includes human-made objects – particularly those that span an area where there is a sudden change in elevation or in instances where a multitude of human-made objects are layered on top of each other. The pictorial representation of place, complicated by time gaps and topographical data, struggles to synthesize the land in its natural form and the things which clutter the top of it, and it is in this juxtaposition that the simulacrum becomes evident.

As a result, our world appears, to use Valla's term, evoking Freud, "uncanny": that is to say, familiar, more the place than the place itself in some instances, and yet impossible because of either time discrepancies or unresolved complications caused by texture mapping (2012). The uncanny rears its head too, although more subtly, in the lack of cloud covered images which are perpetually lit by a high noon sun (so as to minimize the appearance of shadows). At the time of writing these remarks on Valla's work, the bridge span in Valla's *Postcard from Google Earth (48°24'31.45"N, 122°38'45.52"W)* (Figure 2) has been repaired: virtually corrected to insert a bridge so that the road appears to follow its actual path. Evidence of a car accident – debris, smoke flare, people walking around – marks the satellite record of the road leading into the bridge at Canoe Pass just south of the Canadian border in Washington State. The Google Earth satellite record of Trent University does not include the Student Centre that was built over the last two years. These remarks, like Valla's images, are date stamps in relation to the world view that Google Earth represents – they, like a photograph of any place, represent the place in the moment of its rendering. The Trent University of Google Earth is circa Summer 2014; there will be the aftermath of a car accident in front of the Canoe Pass bridge in Washington state until the area is photographed again.

By capturing these anomalies and recording them where and when he finds them, Valla is able to create an archive of Google Earth's development process and record the evolution of this new approach to representing the planet. Valla does not alter the images he discovers, he instead records their existence and tracks their increasing disappearance as Google Earth enhances its capabilities and begins to erase the signatures of its own shortcomings. By sharing these images, Valla is also able to "focus our attention on... the network of algorithms, computers, storage systems,

automated cameras, maps, pilots, engineers, photographers, surveyors and map-makers that generate them” (2012). As representations of the earthly surface, these images are less about the images and more about the human and artificial intelligence that went into creating the images. Their classification as a simulacrum of the planet brings our attention both to the distance from which we view worldly events and our simultaneous attempt to have intimate knowledge of them.

A Landscape



Figure 3: Clement Valla (2010-present) *Postcard from Google Earth* (36°0'51.04"N, 114°44'26.62"W). Permission from the artist.

We might view Valla’s images as a kind of digital landscape, and thereby put it into conversation with a well-established genre that has been theorized and discussed extensively. Landscape, although readily used in the vernacular as synonymous to the land and its features, is a complex and loaded term. Its various and contentious uses have resulted in an ambiguity that often leads to confusion. Landscape (being both a noun and a verb) can be understood to describe the physical characteristics of the land, the process of refashioning the land, a genre of painting largely associated with the modernist period, and, as W.J.T. Mitchell asserts, a medium in which nature is formalized by culture (2002: 5). Mitchell extends his characterization of landscape as a medium to take on overtones of the negative, such that representations of nature become the “veil” behind which the drive toward imperialism and nationalism reside (Mitchell, 2002: 30).



Figure 4: Clement Valla (2010-present) *Postcard from Google Earth* (33°32'41.98"N, 86°38'35.28"W). Permission from the artist.

Regardless of the approach one takes to the discussion of landscape, describing something as “a landscape” ultimately suggests that humans have altered the land in some way. There are many layers of this readily apparent in Valla’s work. Not only are the images the result of a kind of landscaping, caused by the interfacing of photograph and topographical data, such that the photograph, in some senses, becomes landscaped into three dimensional images. More than this, the images exhibit nature mediated by culture, in the sense that they are representative of the changes we have made to the land, and, as was previously mentioned, the product of human labour. Valla’s images also seek to reintroduce the frame to capture singular anomalies out of a representation of the Earth’s surface that sought to do away with the frame altogether. That is, Google Earth’s goal is to create “fluid continuity...a smooth, complete and easily accessible knowledge of the planet’s surface (Valla, 2012). Valla’s records bring the frame back into the picture and consequently ask us to consider whether or not we would classify Valla’s images as landscapes.

Even after laying out the grounds for Valla’s images to be considered landscapes, I still find myself resistant to the idea of classifying them as “landscapes.” This is perhaps because the land is not the subject of these images, nor is it the interaction between the land and things humanity has placed on the land. The subject of these

images is the aberrations caused by the “Universal Texture” and, metaphorically, they comment on the processes employed by Google in its representational mapping of the globe (Valla, 2012).

A Journey



Figure 5: Clement Valla (2010-present) *Postcard from Google Earth* (34°1'45.70"N, 118°13'32.98"W). Permission from the artist.



Figure 6: Clement Valla (2010-present) *Postcard from Google Earth* (40°26'29.66"N, 79°59'32.91"W). Permission from the artist.

These images suggest a journey, the journey of humankind to depict his world in ever greater exactitude and to put that depiction on display for the world to see, perpetually updated and retooled to achieve the most seamless and complete mapping our world has ever known. These images, however, like Google Earth in general, also remove us from the here and now and invite us to project ourselves into the realms of the virtual. Valla's language of tourism should not be ignored. These are the images of the armchair traveller: capable of seeing the entire world without ever having to do more than lift a finger. It is an imperfect world, not unlike our own, but the imperfections are not the result of real world events, but of a virtual disconnect between two and three-dimensional representations.

By referring to his images as "postcards", Valla highlights the fact that they mark out something exceptional. In the same way that a postcard from New York might feature the Statue of Liberty, postcards from Google Earth must feature something that could only be a sight seen on Google Earth. These outliers, moments where actual topography and two-dimensional photographic representation are out of step, are Google Earth's version of an exceptional view. This exceptional view, however, can only be found when one projects oneself away from the real world and into its timeless simulacrum. A "wish you were here" from a "here" that does not exist and cannot exist.

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**Bergson's GIS:
Experience, Time and Memory
in Geographical Information
Systems**

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Abstract

Geographical Information Systems (GIS) intended as digital forms of mapping struggle to represent time, change and temporality. The assumption of a static Cartesian, metric space of two or three dimensions only and defined by coordinates makes it difficult to create GIS and Historical GIS (HGIS) interfaces and representations that include the dynamics Bergson and later Deleuze describe. They argue that temporal memory is the basis of attention in encounters and perception of situations. This “affiliation” of the past enlivens the present perceptual life of experience. Video gaming and the combination of Google Earth and Street View are explored as limited alternatives that draw on embodied, kinaesthetic experiences of movement in space to open up or “uncurl” extra dimensions that allow more nuance in digital representations of spatiotemporal encounters, and the many modes and rhythms of duration found in the environment.

Keywords

Bergson, Geographical Information Systems, Google Earth, Spatio-temporal, Street View

Introduction

Geospatial media permeate a vast portion of those regions and places that humans are familiar with. Even inaccessible places are now easily surveyed by amateurs with drones to produce one representation or another of territory. Automatic weather equipment and webcams tweet or broadcast information about conditions not only

“locally” in an area but contribute images and weather data from multiple pinpoint sites. With fading batteries, lost mobile phones and keys with Bluetooth trackers listen for a digital summons to respond with their location and condition (and often a slew of data about orientation, acceleration, ambient temperature and so on that is bundled together in bursts of status information).

Geographical information systems (GIS) represent information in map formats. Broadly speaking, they respond to the problem of how to visualize geographical relationships that cannot be easily expressed in any other way than on a map. Unsurprisingly, the representation of time is not innate to this cartography. However, users have demanded that GIS represent both the spatial and temporal. I will argue that problems arise in the geospatial representation of time due to the construction of GIS on the basis of a Cartesian space that is metric, with two or three dimensions only, and defined according to coordinates. In relation to this coordinate system, the past can only be added as a narrative about a point, or implicitly represented through the changing location of a user or device. It can be understood by users' comparing two maps showing a changing situation over time or animating a digital map on screen to display this change. Alternately, an implicit trail of the coordinates of someone changing location traces a line on a map. This represents a geographical “before and after” but does not typically record any change to the user or device itself, just a trail of points. While location is innate, experience is a foreign concept to GIS. Thus, this technology poses a problem not only for temporal memory but also spatial duration in space.

To discuss memory in geospatial media, this article draws on Bergsonian and Deleuzian discussions of the virtual and fluid character of memory, supported by contemporary neuroscience that understands memories as “worked up” or actualized performatively by the brain in conjunction with the body and in coordination with environmental cues and affordances. Given the spatial and temporal simplification at the heart of GIS software, is it possible to talk about GIS, including historical and various multimedia approaches, as encoding memory?

Bergson provides a helpful orienting discussion for geographers and programmers: a classic description of becoming familiar with a strange city to the point that it

becomes taken for granted. In this example, attention is withdrawn from the surroundings. The environment becomes flattened and slips below the threshold of perception. The habitué no longer remembers the detail of their experiences learning landmarks and finding their way. But, at the same time, this experience or set of memories is the basis of habitual mobility. Memory is thus the unacknowledged continuation of attention. In a thick durational present, memory overlays or doubles present perception with images developed through attention. Sensation is compared with experience in a cyclical process of detail and fit (after Protevi, 2008).

At every street corner I hesitate, uncertain where I am going. I am in doubt. I mean by this that alternatives are offered to my body, that my movement as a whole is discontinuous, that there is nothing in one attitude which foretells and prepares future attitudes. Later, after prolonged sojourn in the town, I shall go about it mechanically, without having any distinct perception of the objects which I am passing. Now, between these two extremes, the one in which perception has not yet organized the definite movements which accompany it and the other in which these accompanying movements are organized to a degree which renders perception useless, there is an intermediate state in which the object is perceived, yet provokes movements which are connected, continuous and called up by one another (Bergson, 1988: 93).

Geographical Information Systems, Accuracy and Authority

Amongst professionals and members of the public, GIS and maps have come to possess an objective and authoritative allure:

Ultimately, GIS privileges reductionism and disambiguation in its organization and analysis of knowledge, and the map has assumed a seemingly unassailable sense of spatiality, surety, and finality...Critics contend, however, that GIS privileges master narratives and categorical causation at the cost of contingent causation and

alternative interpretations and renderings of space and particularly place (Harris, 2017: 2-3).

For example, GIS is primarily channelled through spatial representations such as maps that poorly capture not only the passage of time but also the overlap of eras and sense of history in a city. There is a tendency to separate and disembody spatial analytical geographies from the mixed methods approaches of social, cultural, and political geographies (Sui and DeLyser, 2011 cited in Harris, 2017). Geographical information systems (GIS) record spatial data only in the most reductive, Cartesian terms of latitude and longitude. Objects are represented firstly by their geographical location according to Euclidian geometry and Cartesian coordinates. In GIS programs, polygons, lines and nodes are treated as the actuality of spatial “data” rather than a type of information or representation that translates real-world data into the information and variables treated by the software.

This spatial information in turn references databases of descriptive information. For example, nodes are described as classes of object such as a type of street light, or a vertice of a property line, or a point along a fence. The attributes table for these objects is a linked set of characteristics dependent on this locational index. It is the coordinate structure that is the backbone that integrates GIS. While the spatial information can be tagged with qualitative detail, this “attributes table” is a database format akin to lists of information about a location or an area rather than any thick description of place. Even in its three-dimensional variants, GIS has been marked by a failure of ambition to go beyond conventional cartography with its traditional interest in topography and the placement of objects.

The focus has been on acquiring, categorizing and accurately plotting these nodes, including the distance and direction of lines between them and the topology of polygon areas. The net result is that GIS continues a Cartesian “grand narrative” about space and the spatialization of the environment. The assumption is that mapped objects are static and do not move in space. Their relationships define a relational space but that space has no qualities. Space has no character or agency: neither as a result of the presence of the objects, nor the relations between them, nor

as a result of objects that were at that location or in the area in the past (see Shields, 2013).

We might understand this through the challenge of Historical GIS (HGIS) that georeferences locations of events, objects and addresses in historical records. For example, an Ancient Places layer or digital overlay for Google Maps locates sites mentioned in historical texts.¹ The use of annual layers, or map overlays, that record changing annual mappings of the state of cities is another example (Thompson, 2011). Much HGIS is simply the geocoding of sites or objects mentioned in historical texts. One monumental example is the Harvard project on Chinese historical places, part of which has been actually carried out at Nanjing University of Technology.

HGIS tagging at its simplest marks “g was here” on a contemporary digital map, cross-referencing “g” in an attributes table to an entry that represents an object in a certain class of objects with latitude and longitude coordinates “x-y.” A more sophisticated example can be found in Aporta’s project to digitize Inuit trails in the Eastern Arctic in areas such as Baffin Island (2003; 2009). He describes mapping a trip taken by snowmobile:

The geographic information collected during the journey was integrated into a database that at present contains over 60 trails and 2,000 place names...This database allows the comparison, for example, of the trail we used in 2006 with the one followed by Hall in [the] 1860s, and the place names used in Iglulik today with the ones recorded by Parry and Lyon in the 1820s. Beyond the creation and use of the geographic database, the project involved several interview sessions where experienced travellers mapped all the routes and their variations connecting the two communities and recalled memories of their journeys. These interviews permitted the recreation of the experience of the journeys beyond the mere mapping of the route, both now and in the past (Aporta, 2009: 134).

However, it is difficult to capture the experiential nuance of a heritage area or the transition between areas, and even more difficult to appreciate them as contexts for action in the current data and representational modes of GIS. Harris argues that writers evoke a “world of emotions and place-based qualities [that] exceeds the representational dimensionality of a two-dimensional map” (Harris, 2017: 6), necessitating an expansion of strategies.

Stories and film are examples of competing representations of such contexts that resist reduction to material objects and aim at a “thick” description. A variety of hybrid methods, including digital media, have sought to weave, mash-up and fuse GIS mapping with other forms of representation (e.g. ArcGIS Story Maps; see also Caquard, 2011; Cope and Elwood, 2009). Sketch maps have been used as a participatory tool to develop qualitative GIS that embody the viewpoints and spatial narratives about areas and places that are held among subcultures, groups and individuals (Boschmann and Cubbon, 2013). However, as Dennis (2006) noted, the effective incorporation of a plurality of viewpoints collectivized as photographs, drawings and narratives remains elusive in GIS which has evolved as a technocratic tool for experts rather than communities or as a tool for stakeholder participation. Websites use maps to geo-catalogue photos,² video,³ and audio field recordings⁴ of everyday and threatened environments. While group mapping activities have potential for local collectives, they have not been engaged by GIS practitioners. Others respond that the question is “how,” not “whether,” this data can be integrated (Jones and Evans, 2011).

Walking with participants has attracted a good deal of attention as a means of accessing responses to specific locations and environments as these are passed through. Kusenbach (2003) refers to the practice of accompanying participants on their daily walks as “go-alongs,” although there are a number of different approaches to walking with participants utilizing greater or lesser degrees of freedom in the routes chosen (Carpiano, 2009; Hein et al., 2008; Hall et al., 2008). The action of walking with participants can give a variety of insights into their lives, such as Middleton’s (2009) examination of walkers’ understandings of time and Anderson’s (2004) walks with environmental protestors (Jones and Evans, 2011).

The Turbulence of Memory

There is an irony about the difficulties with temporality that I argue are embedded in GIS: the stress on fixing objects and building up a digital map or environment according to their coordinates means that its focus on spatialization conceals but requires a preoccupation with endurance and thus with duration and resisting the passage of time. Objects in GIS, nodes, areas, have to “stay put” and this fixity must have practical meaning for the digital cartographer. In Bergsonian terms, GIS implicitly assumes that duration is permanent and only static. An inverse illustration of this irony is the complaint that an Open Street map of a downtown, created two years ago, is now out of date for new buildings have appeared, old structures have been demolished and street lanes have changed. The entire space has to be remapped because there is no specific pattern to these spatial and architectural changes. Time passes quickly even in an established central business district.

Drawing on Bergson and Deleuze, we might understand this as not just a line or thread (“filière”) but a “filiation” between past and present. In GIS, however, the software and its structure of coordinates and tables do not act as conduits of temporal transmission. One might imagine a user interface (UI) in which one clicks a point on a map and related historical information “pops up” or is displayed. Bergson and Deleuze understand the relation between the past and present in a manner that problematizes the treatment of history and memory in GIS. I will not present a detailed reading of their work but draw from philosophers such as Alia Al-Saji (2004), and from John Protevi’s reading of Bergson (2008). The focus is on GIS as a form of geospatial media in relation to memory.

Perhaps an obvious observation is that approaches such as the examples of HGIS presume a simple form of temporality that takes the form of homogenous, unidirectional (usually linear) progression. Time in general is a line between points that succeed each other. This linear spatialization of time fits well with the rectilinear coordinate system that is the foundation of georeferencing in GIS. It identifies reality primarily with presence. For GIS, this is a fixed and static snapshot. As if assuaging anxiety over change and dynamism of the world, GIS accommodates no temporality as such (i.e. as temporal change). There is also thus no diversity of temporalities or durations for the entities in GIS mapping. An historical event or a remembered

situation that seems “reconstituted by the new present” (Bergson, 1988: 58) is as if “trapped between two presents: the one which it *has been* [in the past] and the one [now] in relation to which *it is* past” (Deleuze, 1994: 80 italics added).

There can be no genuine constitution of the past qua past. The present, under different aspects and in different degrees of intensity, takes over the whole of time; the past is merely a present that has passed and the future is a present which is anticipated and prefigured in the now. However, this fails to account for the complex interrelations of past and present, since in this picture the present only has to do with itself. This flattens the heterogeneous relations of filiation that give rise to our experiences of temporalization and of remembrance and that make these experiences sometimes appear surprising, even aleatory. Time in the GIS “standard picture” forms a closed system where the new and the unpredictable are excluded – the future is the imminent prolongation of the present in action (Al-Saji, 2004: 205).

Bergson is, in a sense, a sympathetic critic. He sees perception as always a subtraction from the infinite potential of material and the dynamism of memory (cf. Bergson, 1988: 35 ff.). Yet for Deleuze and Bergson, time is not unidirectional from the past to the present but intermingled and entangled with it. Temporal duration “relies on a different ordering of past and present than that of succession, another kind of coexistence than the juxtaposition of now-points” (Al-Saji, 2004: 205). This would require a temporalizing of the space of GIS. To follow Deleuze, a relation of duration and transmission – an “affiliation” – is needed between the past and present as separate dimensions if GIS is to be temporal. The past bears on the present: we don’t act merely in the instant but in the light of experience. As we act in the present, this in turn bears on and changes the past. The linkage is a circuit and: whether the past and present are kept on distinct planes, or whether they blur so that we see the present as a repetition of a past experience, or the present as foreshadowing a future, they are ontologically entwined (Deleuze, 1988: 61; Bergson, 1988: 135). Memory is a working actualization. It is a process of temporal synthesis that inflects and constructs the present which otherwise exists only as a theoretical object: the punctual “instant” which is actually a mere interface between what will have been and what has already been (Bergson, 1988: 152-166). Thus “the present already

includes the past (in principle and not merely in fact); that presence implies memory and cannot be conceived without it” (Al-Saji, 2004: 208).

Your perception, however instantaneous, consists...in an incalculable multitude of remembered elements; in truth, every perception is already memory. Practically, we perceive only the past, the pure present being the invisible progress of the past gnawing into the future (Bergson, 1988: 150).

Again, present perception draws on experience. The present is an interval, an interface which “does not cease to pass.” By the time we have cognized it, the moment has gone, while the past is an independent presence in itself which “does not cease to be but through which all presents pass,” reverberating as experience (after Deleuze, 1988: 59). The past is not “an archive passively awaiting the present that will recover it...[but] the condition for the present’s fullness and succession... Memory...is a virtual and active reality that exceeds consciousness and presence” (Al-Saji, 2004: 299-30), or proximity. This implies that, for example, social interaction in the present is based on mutual attunement of affect and experiences rather than mere proximity that GIS would show (Al-Saji, 2004; Deleuze, 1988). For Bergson, memory is a remembering process at the end of which we get memory images. These are the product, not the origin (Bergson, 1988: Ch. 3).

Gaming the Past

In part because of the limitations of GIS, and despite their different orientation (and the requirement of much higher computing and battery power), game designers have seen opportunities to apply their software platforms to the domain of geographic information and spatial data. Space is a central trope of any videogame (Aarseth, 1997; Lammes, 2008). These can be thought of as invoking an imagined “magic circle” or ritual space of play, or of the game which allows an “intensified place” of cultural expression (Huizinga, 1971). Alvaraz and Duarte argue that spatial design and placemaking could learn from videogames’ flexibility and multiple viewpoints, and from the element of participation that maintains a plurality of possibilities for players. Videogames allow rich diachronic environments rather than synchronic

space (Alvarez and Duarte, 2017). The virtual environments of computer games are designed with qualitative features foremost in mind. This contrasts with the quantitative orientation of GIS. The power of gaming platforms can be illustrated by historically based games. The best known is Ubisoft's *Assassin's Creed* which offers a fictional plot or pretext set against historically accurate cityscapes that have included Renaissance Florence, Medieval Jerusalem of the Third Crusade, Ottoman-conquest Constantinople and Egypt's Alexandria, roughly at the time of Ptolemy. One of the most historically attentive games is *Total War: Attila*. This videogame traces the changing climate and population pressures of Northern Europe and the Western Asian Steppe in a "living map" of change at the time of the fall of the Roman Empire (Hafer, 2017).

Lammes suggests that immersive virtual worlds be linked to everyday place and space of planning as "magic nodes" (2008: 264) like digital playgrounds that also tie in with many other domains:

A game can be perceived as a knot in a network or as a magic node. Some games are more concentrated as knots, holding stronger associations. When a game is such a stronghold, its associations are more durable and its extent wider. Other games may be conceived as weaker knots because they attract a smaller formation of associations. In addition, some games may have stronger boundaries than others, but boundaries are an outcome of a process and are not pre-given. How strong such produced boundaries are all depends on the strength of the formation and the way "representatives" are concerned with producing borders. Furthermore, the intensity of play depends very much on where the player is situated in this force field. At the center of the knot intensity increases, whereas at places where the ties become more loose or weak the player is less "lost in translation" (Lammes, 2008:264).

Bergson proposes that memory is not a matter of contemplation or reflection as much as it is a sensorimotor skill or capacity to draw on past experience to recognize sensation and process with the aim of directing this forward into the future. Rather

than fixed objects, recognition is part of the mastery of the flow of experience. This emphasis on the virtual or intangible rather than material quality of skill and of flow nicely fits the sensorimotor experience of immersive gaming environments. Some games demand the players master “the world” of the game using, making and transforming maps that, like the space of much GIS are two-dimensional diagrams. This interactive cartography, however, is “mutable instead of fixed, changing appearances and meaning according to where the player travels and what is being altered in environments (e.g., mining, founding trade posts or towns, expanding borders)” (Lammes, 2008: 266; see also Consalvo, 2005). This network is thus topological in that it is unstable but maintains the connectedness of the space and network of elements. Lammes argues:

Touring becomes entangled with cartography, and mapping is not a clearly delineated and ordered practice. Hence, dominant social categories are not reproduced but are translated into new spatial and hybridized connections...games differ from GPS applications in that they do not simply present us with an objectification of our personal spatial itineraries but forge...a stronger link with an application such as Google Earth, which also allows users to mix observant roles with subjective and personal experiences of space (Lammes, 2008: 266).

The reference to Google Earth is intriguing, for this is also a representation based on a Cartesian coordinate system. However, Google Earth is a web platform in which the relationship of the user’s point of view to the represented places is continuously variable. Rather than a map, Google Earth draws on satellite photographs of a spherical globe and is linked to Google Street View photographs of facades of buildings.

Google Earth combined with Street View allows one to zoom in from aerial heights to a viewpoint located within the fabric of the satellite photographs. Google has touted this as allowing users to “virtually walk the streets of a city, check out a restaurant before arriving, and even zoom in on bus stops and street signs to make travel plans” (cited in McQuire, 2016: 68; see also Graham, 2016). While Street View

indexes the “city as data” (McQuire, 2016: 68), this animated shift in scale is also topological in that the third dimension provided by Street View is only added close to ground level, whereas the satellite photographs are two-dimensional. This transformation is the opposite of the reduction of three-dimensional volumes to two dimensions through cartographic projection. The opposite, adding dimensions, is properly “conjecture.” However, conjecture has a quality of “imagination” as the vertical dimension appears to extrude from the two-dimensional satellite photos. The animated detail of the third dimension is virtually present in the two-dimensional visual interface.

Syenko argues that Street View’s narrative thinness and encouragement of “the dull curiosity of a naive tourist” (2017: 147) creates a general erasure of the specificity of sites and can serve to obscure historical events, and the collectively experienced traumas associated with them, by ignoring anything but what the current environment bears witness to. At the same time, however, “by immersing in digitally mapped space, the user of the Street View images is pulled to reconsider some of the most basic assumptions” (Syenko 2017: 148) around maps and the ways sense is made of them.

The metaphor of navigation, in other words, is “replacing the conventional correspondence theory [which is] based on the illusory idea that maps should resemble as much as possible the territory and the phenomena mapped” (Caquard, 2011)...because Google’s cache of Street View images calibrates the recorded spatial environment with navigational tools, another set of questions must be addressed regarding the materiality of the digital image and the limited spatial experience that it allows (Syenko, 2017: 149).

Rather than map-reading, kinaesthetic and experiential methods are adopted to relate the user to the environment depicted in the Street View UI. The effect is thus often described as magical, or virtually magical. The topological transformation means that the spatial fabric of Google Earth together with Street View is mutable from two up to three dimensions. Users are challenged to attune their understanding of how to interact with and in the changing representation. It mimics in important ways the

everyday experience of space which varies between close-up contact with surfaces and the flatter distance perception of more distant objects. Cognitively, our spatial focus constantly shifts between dimensionalities in a topological transformation that is not merely a shift in scale or variation in distance.

The animated zooming effect is similar to flying, and less like the zooming-in and out effect of enlarging an area of a digital map. Street View deliberately exaggerates “swooping” trajectories which suggest a curving arc toward the area of interest, rather than a direct, linear zoom as might be experienced when looking through a zoom lens. The result is to evoke a virtual kinaesthetic reference to the motion of a body swinging or falling in an arc that might be experienced in a circus midway or on a playground swing. The body is the centre and site of this experience of pure spatial memory. This draws and builds on an intuited memory of experiences of spatial embodiment and mobility. With the erosion of the critically reflective position of the reader in favour of the kinaesthesia of a virtually mobile user there is, however, also reason to be suspicious of immersive maps:

The panoramic cosmology of Google Street View calls for a further reassessment of the intended visitor, or “subject,” of the digital spatial environment. By developing Kenderline’s (2007) observation that panoramic spaces enclose visitors in a total experience without any particular narrative support...further questions should also be raised about the way in which Street View panoramas uniquely participate in atomizing that experience (Synenko, 2017: 149).

Mobility is significant in that it encodes duration as “continuous variation” (Deleuze, 1988) rather than fixity. Mobility is the connecting thread against atomizing experience. But the thread traced is post-representational and not necessarily mimetic of an actual temporal trajectory or historical itinerary. Yet, it offers the promise of not only encoding the transformation in spatial dimensions, but also a temporality for what is represented – but this need not be an actually real or historical truth. This needs to be seen as a new form of narrativity and representation, an abstraction not a virtual-but-real temporality. The third dimension must always have been present in

the diagram in order to be discovered upon swooping in. That is, it is similar to the notion of time as a dimension. Also, if one can move through animation, so animated variation offers some possibility of representing the pace of change over time.

There is a fractal quality to the multiplication of dimensions from two to three and perhaps further. It yields a “thick” present rather than the sparse “thinness” of GIS’s diagrammatic maps. Interfaces such as Street View transmit a temporality based on user experience within the map-cum-immersive environment. This may easily become solipsistic and trivialize historical memory around actual sites. The challenge for digital media such as GIS and games is to support memory as a process rather than another fixed object to be geolocated, pinned down with latitude and longitude coordinates. This requires incorporating the plurality of rhythms of experience and duration.

Conclusion

Much more can be said on the user as an embodied, cultural subject equipped with their own breadth experience that can be brought to bear in producing meaning in these interfaces. This paper has not considered debates about the precarious and easily hijacked linkage between maps and historical memory. It has sketched a Bergsonian and Deleuzian critique of the representation of temporality and memory in geographical information systems. While it allows a synoptic view of the spatial, too much is expected of GIS. They are structurally dependent on geolocation by coordinates and an emphasis on fixing the features of the environment abstractly by nodes, vertices, lines and polygons. While duration as durable presence is presumed by the focus on static locations in GIS, this temporality is unrecognized. The flow of time and the rhythm of other temporalities is only awkwardly incorporated in tagging locations on the spatial maps of GIS interfaces. However, the animated swooping effect of games and Google Earth in combination with Street View elicits bodily attention that layers the sparseness of the digital representations with an experience of virtual kinaesthesia. The uncurling of an additional third dimension to the two-dimensional map or satellite image as one zooms in and passes from Google Earth’s satellite photography to topography and the elevations of Street View suggest some promise. This might incorporate temporal rhythms according to a similar conceit of

adding additional detail, conceived as dimensions, that show the experience of time, the persistence of memory and the duration of the environment.

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Notes

¹ <http://gap.alexandriaarchive.org/gapvis/index.html>

² <http://www.geoimgr.com>

³ <http://kinomap.com>

⁴ www.aporee.org/maps/; <http://www.sesol.org>

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**Earth Constellations:
Agrarian Units and the
Topological Partition of Space**

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Abstract

During the Spanish Inner Colonisation – a large-scale agricultural reform and land settlement program of the central decades of the 20th century – new towns were built in the middle of the arid areas that were going to be transformed into irrigated lands. Their names and locations were announced in the Official State Gazette together with their proposed locations. The system employed to address their positions in the wastelands was based on the road network: it involved the distances to the nearest roads, and the specification of the kilometric milestones concerned.

This paper proposes to analyse the positioning system in relation to one of the most salient features of this Spanish program: the use of the so-called cart-module to distribute the settlement towns. These were arranged in constellations so that each piece of land could be addressed through a walking distance from the closest town. Taking into account also the role of the authoritarian State, present in the technical management of the irrigation systems, the agriculture put into work will be analysed as a vertical practice.

This paper will consider these operations from what social anthropologist Penelope Harvey has pointed out as the topological quality of infrastructural spaces, where space is apprehended in relation to the effects of a calculating framework. The material transformation of this topological zoning through irrigation, finally, will be examined in relation to Lisa Parks' critical infrastructure notion of satellite footprints and signal territories.

Keywords

Footprints, infrastructure space, large-scale agriculture, state-driven programs, verticality.

Introduction

The practice of agriculture is one of interweaving the sky to the ground. “Activated by radiation, the matter of the biosphere collects and redistributes solar energy, and

ultimately converts it into free energy capable of doing work on Earth,” stated Vladimir I. Vernadsky when arguing for the Biosphere to be understood as an interfacial geological layer of the planet (1998: 44). Soils are cultivated and crops grown because operations such as seedtime or harvest have been coordinated with “exogenous cosmic forces,” to use again the early 20th century biochemist’s words (Vernadsky, 1998: 44). This coordination entailed a close observation of natural cycles, such as the revolutions of the Sun, the Moon or the position of the stars, which coalesced, together with the agricultural everyday, into calendars and, ultimately, into the production of the notion of time (Macho, 2003). As media theorist John Durham Peters’ play on words put it succinctly, “time is planted in heaven” (Peters, 2016: 183), thanks to an agriculture that works by synchronising the biosphere to the celestial spheres.

Exogenous radiation feeds both the agricultural and the non-agricultural lands of the biosphere. The difference between the two is delineated first by an operation that occurs upon the ground. Recalling Cornelia Vismann’s work on the foundational cultural techniques of ploughing (Vismann, 2010), Geoffrey Winthrop-Young highlights how elemental “agriculture...is initially not a matter of sowing and reaping, planting and harvesting, but of mapping and zoning, of determining a piece of arable land to be cordoned off by a boundary that will give rise to the distinction between the cultivated land and its natural other” (Winthrop-Young, 2014: 6-7). However, this initial two-dimensional demarcation gives rise to a practice that can be further understood when the many vertical layers that exist simultaneously above and below the ground start to be considered. From the interaction of synthetic nutrients in the soil with the roots of the plants, to the influence of weather or the effect of both human and machinic labour, agriculture appears as a volumetric activity whose many different strata recall the vertical analysis that geographer Stephen Graham (2016) has claimed for the cities and their surrounding spaces.

With this perspective in mind, this paper deals with a set of spatial and temporal operations that took place in Spain between the 1940s and the 1970s as part of a large-scale agricultural program. The state-driven creation of towns designed to host human workforce, the planning of circular units conceived as coverage areas around

them, and the organisation of the involved flows of water and chemicals will be scrutinised here as vertical technical practices. In particular, the management of time in these operations of addressing, partitioning and watering land will unveil a relation to contemporary positioning systems in the context of the ubiquity of satellite signals. To borrow a term from Keller Easterling, this case of “infrastructure space” (2014: 19) will be analysed in terms of its topological reshaping of space, a reformulation where agriculture will emerge, finally, as a satellite-like footprint of this early form of orbital geography.

Rational units of agricultural production

At the end of the Civil War in Spain in 1939, after the three-year long exposure of a large amount of territories to intense destructive forces, the government of the resulting dictatorship of Franco launched several plans designed to support the recovery of economic activities, such as the development of industry, housing, and agriculture. Among them, the National Institute of Colonisation (INC) was created to be in charge of the development of the latter, agriculture. The institute carried out a land settlement program that involved the expropriation of plots, the introduction of new techniques – water infrastructures in particular – and the accommodation of settlers. It accomplished a program of so-called *inner colonisation*, differentiated from the standard form of colonisation of land resources of an external country. As defined within the Spanish laws, *inner colonisation* was put into practice by the State as:

an administrative activity, of a technical and legal nature, that transforms the agronomic and economic characteristics of specific extensions of land as well as the social organisations within them, creating rational units of agricultural production whose property is delivered to certain farmers, with the aim to ease the fulfilment of their individual and familiar needs, provide stability to the society as a whole and augment the production (Leal, 1969: 116).

Many similar programs, albeit with local differences, had been accomplished already in other countries. Most of them took place before WWII¹; a fact that highlights that, in relation to these, the Spanish one was a late colonisation. In detailed and exhaustive documentation work carried out by the Spanish government in 1925, a

total of thirty-four individual countries were analysed in relation to their existing agrarian and repopulation reforms.² The common double dimension of these – an intensification of agriculture production on the one hand, and the settlement of new populations on the other – identified them in several cases as colonization processes, specifying in some cases that it was an “inner” or “internal” colonization, contrasting with the more usual expansive sense of the word. These include the Italian *bonifiche*³ from the Mussolini era, the Portuguese *Internal Colonisation*, the German *Innere Kolonisation*, and the Israeli Moshaves and Kibbutzs.

In his classic work, *Seeing Like a State* (1999), James C. Scott describes the rationalisation of farming performed by social engineers and agricultural planners in the context of authoritarian States as an ordering of landscape in terms of legibility and State control: “Units can easily be duplicated across the landscape, and the inspectors coming to assess their operations enter legible domains which they can evaluate with a single checklist” (117). As I demonstrate below, this readability was performed in Spain against a notion of idle lands. Large areas of land were rendered empty, unproductive and prone to be colonised by a centralised authority. They needed to be brought under central control: to be addressed, registered and connected to a new productive cycle. Networks of settler towns, inhabited by farmers, managers and agricultural engineers, became the sites from where to access, read and transform the remote lands, in what has been described as “the largest urban operation within rural zones ever practised in Spain” (Gómez Benito, 2004: 84). If, during the colonisation of America, fleets of ships were sent across the Atlantic together with a set of managing techniques to handle a problem with idlers and vagabonds,⁴ an earthly constellation of urban platforms was, in a related way, sent to the rural space to terraform the idle soil.⁵

Idle lands

One of the main constraints that the inner colonisations had to face was the limitation of the available lands. As one of the leading theorists involved in the Spanish *Inner Colonisation*, Alejo Leal García, stated:

The transformation into irrigation is one of the means that can be used to satisfy the needed amount of agricultural products; a means that is chosen as it is estimated that the arable surface cannot be augmented noticeably and because the simple improvement of cultivations only increases by an insufficient factor its productivity (Leal García, 1969: 113).

New methods needed to be applied, and in Spain, the first to come to mind, as it was known for a long time, was irrigation. Although the INC also supported practices related with dry agriculture, its main goal was the replacement of dry plots and wastelands by irrigated lands. This meant that the problem of productivity in the Spanish case was understood, briefly, in terms of lands; that is: to improve agriculture involved the improvement of lands, and not, initially, its mechanisation or the chemical manipulation of natural processes. The colonisation plans, therefore, aimed to “revalorise” the territories through water. It was a matter of “revalorisation” linked to the surface, then, as Leal García explains: “this revalorisation can be considered from several points of view, such as the value or price of the lands, the indices of seeded surface, the performance of exploitations and the indices of employment” (1969: 112). For those attempting to colonise through irrigation, then, land – and the societies settled on it – was the targeted object to transform.

It is worth observing at this point that Franco’s colonisation program has been considered, in hindsight, a counter-reform of previous agrarian reforms (Barciela, 1996). The Government before the Civil War, the *República*, had started an expropriation program aimed at redistributing land in response to the political actions of peasants facing uneasy labour conditions, to the point of even occupying lands in the tumultuous 1930s (Gaviria, Naredo and Serna, 1979: 18). It is an established fact that, as a consequence of these actions, the larger affected landowners were part of the lobbies that supported the military coup that gave rise to the War (Barciela, 1996: 354; Gómez Benito, 2004: 77). Barring other repercussions,⁶ the initial aim of Franco’s colonisation was to counter the reform (Barciela, 1996: 354). As the new plans were presented, the emphasis was put on transforming the miserable conditions of wastelands populated by “rotten burgs” that had witnessed – and continue to hold, in the form of bombs and bones⁷ – a “buried war” (Alagón

Laste, 2015: 2, 21). The lands of the New Spain were therefore defined in opposition to a stagnant past that, despite the effectiveness of the armed struggle, needed to be eradicated. In Franco's words, just before the end of the War, "Spain is still at war against every enemy from the inside and the outside" (Gutiérrez et al., 2004:13). If the military government started to seek, to pursue, to imprison and to sentence to death the supporters of the *República*, the unproductive lands needed to be mapped, addressed, and – in their own words – "redeemed" (Alagón Laste, 2015: 2).

To do this, an image-dependent surveying agriculture was put into operation. As I have discussed elsewhere (Gil-Fournier, 2017) this transformation of territories coincided with the first civilian use of aerial images in Spain, which gave rise to visualising techniques within agriculture in which the new irrigated lands were designed from above in a way that precedes contemporary precision farming techniques.⁸ Interestingly, the task of redeeming, activating and revalorising large extensions of idle soil amplifies a different technical practice. In particular, it brings up the problems associated with writing down addresses that point to specific positions in the midst of the wastelands to be transformed.

Ephemeris: Addressing the foundation of settlement towns

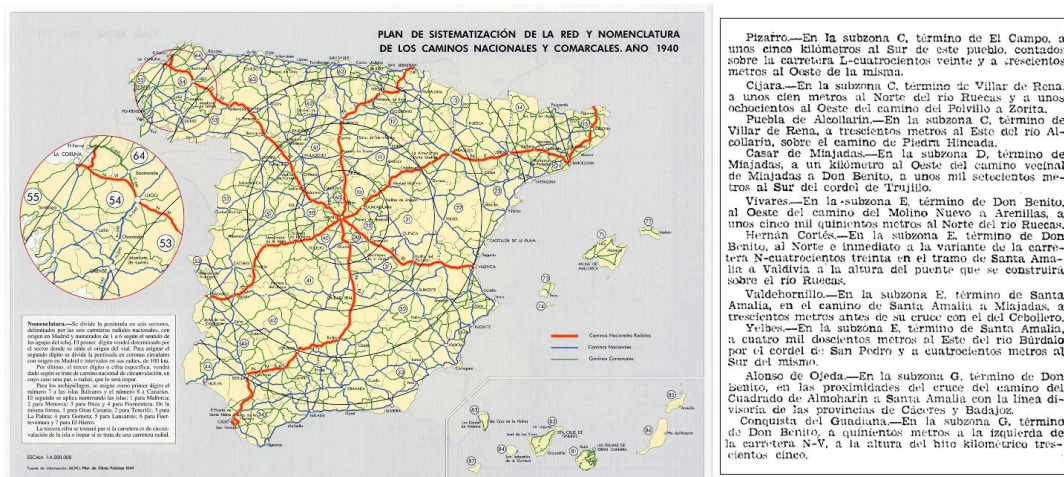


Figure 1: Left: map displaying the road network naming system, elaborated in 1940. Right: announcements of the new towns in the *Boletín Oficial del Estado (BOE)*, in 1955.

After an initial autarchic period of confidence in private initiative – which proved to be a total failure (Tordesillas, 2010: 191) – the INC became more interventionist, particularly after their technicians visited the integral management programs carried

out in the United States (Delgado, 2013: 80). Subsequently, the Institute started to generate agricultural landscapes as sequences of easily recognisable patterns, networks of small towns, reached by irrigation channels and protected by a slim forest outline surrounding them. Through this “soupy matrix of details and repeatable formulas” (Easterling, 2014: 19), the infrastructure space of the Zones deployed, as “spatial software” (Easterling, 2014: 22), the model guidelines.

Part of these guidelines was the protocol used to address the positions of the newly built towns. As a state-driven program, most of the relevant actions of the Inner Colonisation plans were logged and published in the Official State Gazette, the *Boletín Oficial del Estado* (BOE). There, remarkably, we find the announcements of new settlement towns together with their proposed locations. In order to address their positions, a system based on the road network was used. Since 1940, roads and motorways were distinguishably numbered following a procedural nomenclature system⁹ (Figure 1). Given this organised platform of road names, it served as a reference for the position of the new towns to be created inside the idle lands. This way, their locations were written down as distances to the nearest roads,¹⁰ with the specification of the kilometric milestones concerned. The location of Pizarro, Hernán Cortés or Alonso de Ojeda, for instance – tiny towns significantly named after the *conquistadores* sent to America¹¹ – were specified (Figure 1) in the following way:

BOE, 5 of July of 1955	Pizarro	Subzone C, within the boundaries of the municipality of El Campo, 5Km South of this town, counted on the road L-420, and 300m West of this road.
	Hernán Cortés	Subzone E, within the boundaries of the municipality of Don Benito, to the North and next to the turnoff of the road N-430, in the stretch between Santa Amalia and Valdivia, next to the bridge that will be built over the Ruecas river.

	Alonso de Ojeda	Subzone G, within the boundaries of the municipality of Don Benito, in the vicinities of the crossing of the road from Cuadrado de Almoharín to Santa Amalia with the borderline between the provinces of Cáceres and Badajoz.
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As an address system based on the calculation of distances to an infrastructure in the background, this ephemeral information signifies what social anthropologist Penelope Harvey (2012) has pointed out as the topological quality of infrastructural spaces, or, in her analysis of the national road network in Peru, as the operational transformation of territories after the impact of transport infrastructures. Here, as Harvey emphasizes (2012: 78), geographical surfaces are conceived and designed after a new kind of spatial awareness. Space is apprehended in relation to the effects of a calculating background. As Nigel Thrift (2004) explains, it is a “movement-space” (597) that is linked to the experience of the gridding of time and space, the invention of filling and listing systems, and the invention of logistics (587). Surfaces of land are intertwined within a new spatiotemporal continuity that emerges in the practices of sorting, numbering and calculating, where “it is relationality that is important...turning space and time from ‘a priori’ into ‘a posteriori’ categories” (Thrift cited in Lury, Parisi and Terranova, 2012: 5).



Figure 2: Settlement towns of Miralrío (Jaén) and Esquivel (Seville), part of the inner colonization. Source: (Delgado, 2013)

The nodes of these constellations were announced then in the official gazette through messages that point at the projective logic that reshaped the colonised

territories¹². Like satellites broadcasting their ephemeris information, these were towns sent from the design space of the Institute to the outer space of the rural.

The Cart-module: The footprint of a broadcast agriculture

As Michel Serres (2007) explains, early large-scale agriculture entailed the expertise of geometry. Where the flooding of the Nile erased the parcelled banks, the land surveyors – the harpedonapts – with their ability to calculate areas from their measurements, were the ones who could bring back the agricultural order within that fluctuating stability: “They had the cord, the unit, the measure, writing, and prestige” (Serres, 2007: 179). The equilibrium between landowners was articulated by the size of the plots, which came out as the critical magnitude.

In the case of the agricultural program we are working with, property and size were not the problem. In the first place, the expropriated lands were considered areas of national interest and belonged to the State. Secondly, following the procedures put into work in the referential case of the US Columbia Basin Project, the shape of the family units and the sizes of the plots were prescribed as part of the colonisation plans (Tordesillas, 2010: 192). In other words, the Zones were partitioned in a homogeneous way. The main problem of the plans, however, resided in the spatial distribution of the houses of the settlers and the allocation of their plots within the Irrigation Zones, where nothing existed but wasteland or previous dry exploitations. A spatial distribution was sought that, taking into account the productive spirit of the whole project, filled the entire space with agrarian units – house plus plot – such that no idle soil could be found within the Zones.

After analysing the failure of a model based on disseminated farms authored by Mussolini (Alagón, 2015: 7), the INC decided to distribute settlers among constellations of towns scattered as networks inside the large Irrigation Zones. The problem was therefore transformed into a question about the spatial distribution of the nodes of a network. Additionally, each network of settlements had to be linked to the irrigation system, as the settlers needed to be placed in the vicinity of their irrigated plots. This problem was solved with one of the most salient features of the Spanish plans: the use of the so-called *cart-module*. The cart-module was a graphical planning tool used by the INC that was defined after the maximum operative

distance covered by a settler with a cart; that is, the distance that would allow a farmer to go and return to a plot without losing much time (Alagón, 2015: 8). Estimated as 2.5 km, this distance was used as the radius of a circle around the town – the cart-module, or its area of spatial influence – where the plots were placed. Neighbour towns, as a consequence, should ideally be separated by 5 km, with their influence areas drawn as tangent circles. The cart-module therefore allowed the graphical exploration of different combinations able to fill the available space. Once one of these visual arrangements was chosen, the circles were transformed into the canals, the water and the humans that would farm the Zones.

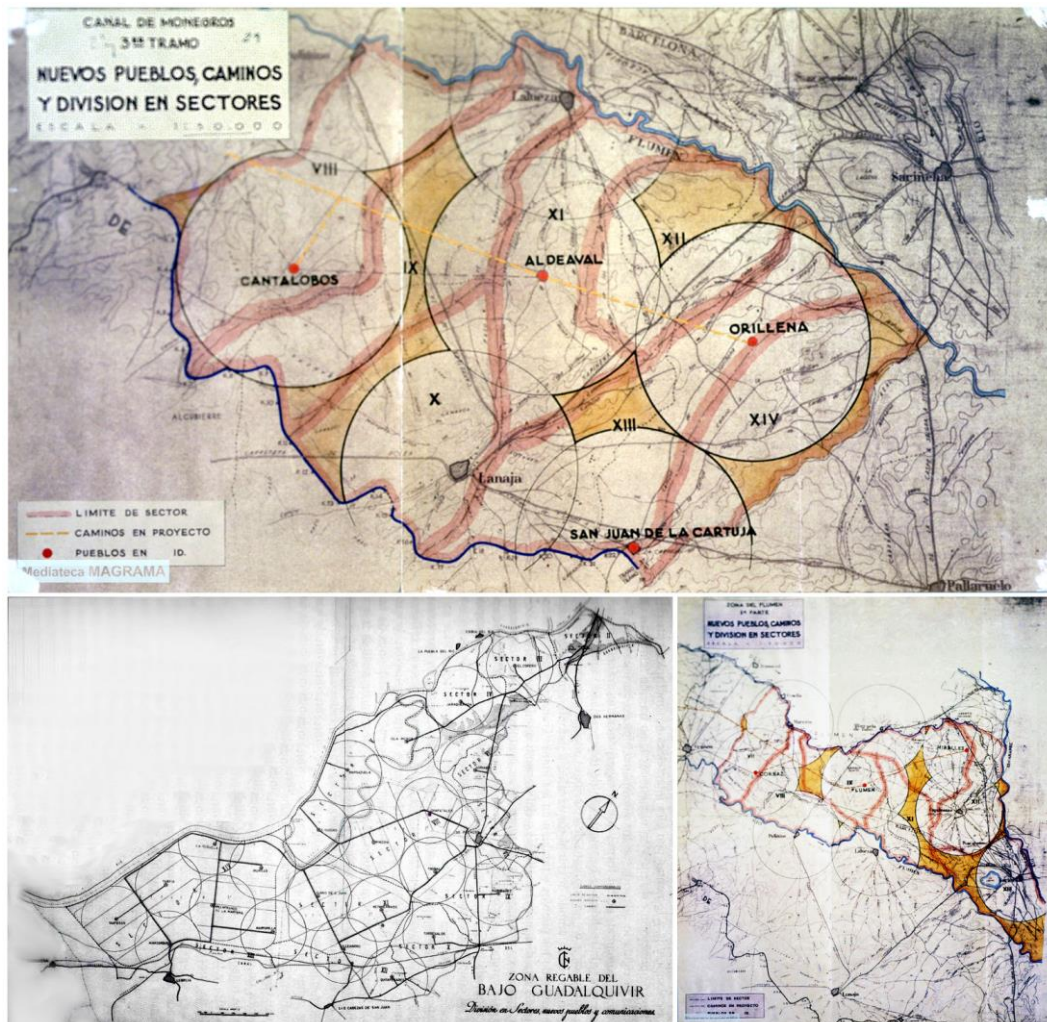


Figure 3: Cart-modules. Sources: (Villanueva and Leal, 1990) and Mediateca del Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente.

This drawing technique allowed the technicians of the INC to position the settler towns as well as to deploy the needed infrastructure; water canals in particular. A

singular case of mapping infrastructures, the central role of the cart-module highlights a significant dimension of the agriculture put into play: agriculture was being broadcast over these extensions. Following the work of Lisa Parks (2005; 2009; 2013), broadcasting can be understood as a technologized practice that results in the establishment of signal territories; that is, territories that are both culturally and materially transformed by the presence of specific signals. Within this inner colonisation, the design of the cart-modules abstracted the daily flows of farmers and water streams as periodic signals whose extent was calculated beforehand. On the maps of the infrastructure, workers and water are replaced by circular signals broadcast by the settlement nodes of the network. The Zones became signal territories, where each single settler town entailed its own footprint – the cart-module – as the territorial boundary in which its emissions could be received.

The arable space emerged after the expropriations as a signal space. Lands were connected lands. In addition to the space filling character of the cart-module circles, it is important to highlight their time-based nature. As I have explained, their radius was linked to the workers' displacement time considered in relation to their workday. It was an averaged everyday measurement of human activity that turned out to shape the vast Zones. If water had to reach the plots through the circuits of the network, farmers had to access them too, by their own means¹³. The ordering of space was subsumed to this temporal constraint.

Agricultures in orbit: Surfaces for the averaged sedimentations of time

Once in the plot, another temporal window comes into play with the watering of the yields. These plans were designed to promote surface irrigation, which was at the time the standard system of distributing water. Practised for millennia, surface irrigation can be executed through several methods that guide and spread the water: parallel furrows, contour ditches, bench terraces, basin flooding, etc. Each of these methods irrigates differently, and it is recommended for different cultivations and characteristics of the terrain. As a general rule, water reaches one side of the plots through a canal, but enters the ditches and furrows only if the corresponding floodgate is opened.



Figure 4: Training and irrigation practices in one of the colonised areas. Source: *Mediateca del Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente.*

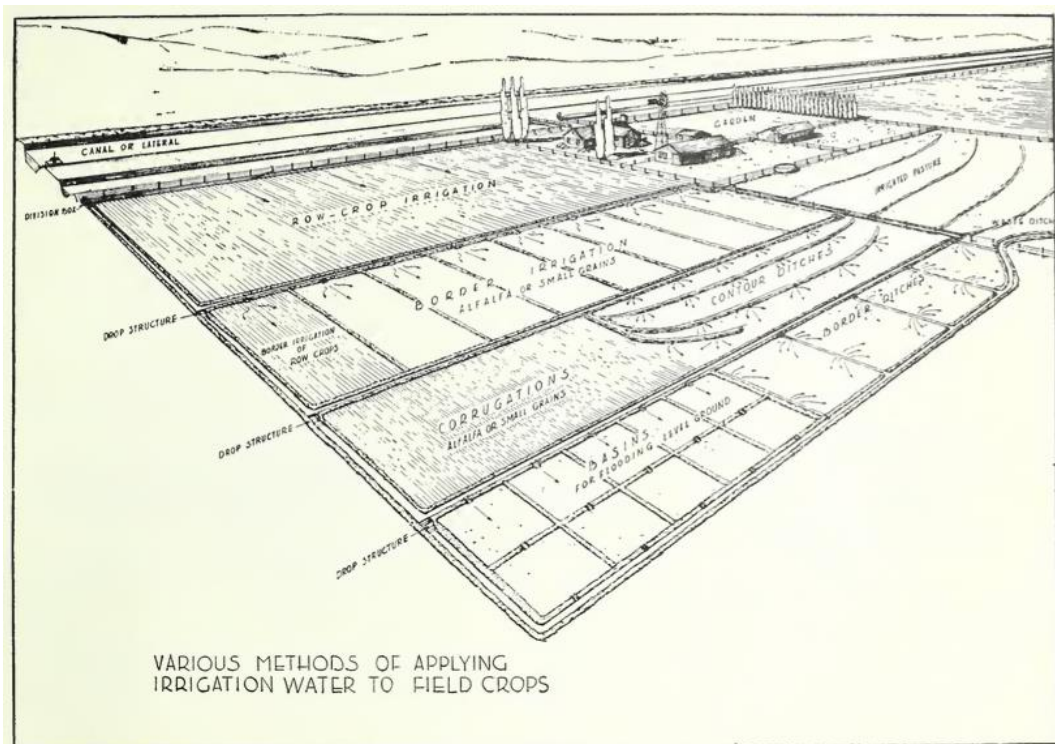


Figure 5: *First Aid for the Irrigator* manual (1947, p.3).

These farmers only had access to a stipulated maximum daily quantity of water, which they needed to manage and distribute within their fields through the use of different gates and irrigation methods. To make the most of that water depends on the expertise of the farmer. The *First Aid for the Irrigator*, for instance, was a 1947 manual by the US Department of Agriculture distributed during the execution of the American irrigation programs. It details the characteristics of the different methods and the importance of coupling them together, as for instance how the excess of water after an irrigated surface can be drained and used in another, how to avoid water erosion, over-irrigation, etc. Inside the booklet, flow is the most repeated word, and it might be read as a manual for the “accurate control of flow of irrigation water” (US FHA, 1947: 2), with sections devoted to the different types of gates, check boxes to limit the flows, measuring devices and more.

In the case of the Spanish inner colonisation, we need to take into account that in order to keep the big land tenants pleased, most of the plots offered to settlers had low quality soils.¹⁴ In addition to this, a big amount of the settlers had never worked before with irrigation crops (Gaviria, Naredo & Serna, 1979: 278). Initially, during the first decade or so, these limitations resulted in very low figures, which in turn forced a redesign of the plan. After a new colonisation law,¹⁵ each of the settler towns, for instance, received an agricultural engineer of the Institute, and each of the Zones was in the charge of a chief engineer. This way, the INC assumed control of the irrigation design, types of cultivations, timings, fertilizers and pesticides. The inner colonisation thus became a program of supervised agriculture. Settlers received specific training, and they were monitored during a testing period of two years. The watering machine, then, was put into operation, with controlled and periodic flows of water. No idle soil, no idle water.

The industrial character of the colonising agriculture we are analysing involved a controlled cut in time and space of the sedimentation of light on infrastructured surfaces of soil. Light was commodified by means of the spatial control of flows, such as water and pesticides, through gates and exposure times, as well as through the estimation and numerical averaging of their productivity. In these circuits, agriculture becomes an averaging activity that seeks the control of production, guaranteeing the needs of the markets as well as preventing the generation of surplus.

Embedded inside logistic circuits and broadcast over Irrigation Zones conceived as signal territories, the streams of water, chemicals and human workforce converge in these agricultural programs as a systematic practice of slicing surfaces of commodified light.



Figure 6: Satellite image and map of the colonised Zone of the Bajo Guadalquivir, the main producer of rice today in Spain. Source: Google Maps/Digital Globe.

Conclusion: An inverted astronomy

The entrance of the satellite into civilian life and spaces comes together with a transformation of the spaces themselves (Parks, 2005) as well as of the subjects inhabiting them (Kaplan, 2006). This technology that originated inside the military

complex is considered to have even “draped the planet with a militarised image of itself” (Stahl, 2010: 86), to a point that, in the experience of its surface, new conditions of knowledge and perception are involved: “an inverted astronomy...has come into being, looking down from space onto the earth rather than from the ground up into the skies” (Sloterdijk, cited in Graham, 2010: 44).

In this paper I have analysed a change in the surface of a small part of the planet, linked on the one hand to the practice of the aerial, and, on the other – as it has been emphasized in this case – to a set of agricultural and managing practices put in operation during one of the several episodes of state-centred, large-scale land reforms characteristic of the 20th century; the Spanish inner colonisation. The use of a particular geo-location procedure, the ideation of the cart-module as a design tool and the centralised organisation of the watering timings and policies have been related to the topological reshaping of space that characterises the orbital apprehension of the planet. On the whole, I have argued that this agricultural episode is linked to the genealogies of orbital space. By doing so, the cultural significance of notions including signal territory and footprint – as discussed in the work of Lisa Parks – has been extended to the agricultural, thereby linking this large-scale agricultural case to the broader context of the media histories of the planetary surface.

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Notes

- ¹ Two important exceptions are remarkable, as their influence to the Spanish *inner colonisation* has been highlighted several times. First, the North American large irrigation program, the Columbia Basin Project, whose final execution works took place between 1948 and 1952 (Bloodworth and White, 2008); it had been designed since the decade of the 1920s, but it was only after the war that water started to arrive to the fields. Second, the agrarian reform performed by the Italian Christian Democrats after the war as also a sister project of the *colonisation* (see for example Tordesillas, 2010; Gómez Benito, 2004).
- ² *La colonización y repoblación interior en los principales países y en España* (1925) – The colonization and internal repopulation in the main countries and in Spain – published during the dictatorship or Primo de Rivera (1923-1930), consisted of three volumes in which the following cases were examined: Germany, Austria, Hungary, Belgium, Denmark, France, Finland, Netherlands, England, Ireland, Italy, Norway, Portugal, Russia, Sweden, Switzerland, India, Japan, Siberia, Korea, Algeria, Egypt, Tripoli, Tunis, South Africa, Argentina, Brazil, Canada, United States, Mexico, Uruguay, Australia, New Wales and New Zealand.
- ³ Among these, the *integrals* (1924-1950) was the most influential for the Spanish program (Gómez Benito, 2004: 75).
- ⁴ As Siegert has insisted, the use of grids in the colonization of America is linked to the importance that the Spanish Authorities assigned to the problem of the idlers. As “the New World was a paradise for idlers, a realm of lazybones, gamblers, and loose women” (Siegert, 2015: 91), it was crucial to devise a system against the vagabond – originally the bagamundo, the idler world wanderer. They were the parasite that threatened the economic activities in the New World as well as the stability of the Spanish cities. Parallel to their definition, to their distinction, they were channeled: as it has been plainly demonstrated by Siegert, the grid-shaped cities performed the disciplinary and governmental need.
- ⁵ The relation between the Inner Colonisation with Siegert’s notion of grids as cultural techniques has been explored in (Gil-Fournier, 2017).
- ⁶ The striking and murderous violence of the Civil War in the affected lands, in Extremadura particularly, are related to this agrarian conflict (Gaviria, Naredo & Serna: 17).
- ⁷ Cartridges and other projectiles are still easy to find in some of the Civil War scenarios. Moreover, most of the mass graves are still uncovered. In relation to this, see for instance the work of Francesc Torres (Ferrán, 2013)
- ⁸ An updated revision of these precision and automated farming techniques can be read in a recent speculative essay on the futures of the rural countryside (Wood and Bjerke, 2018).
- ⁹ The new naming system was elaborated in the *Plan General de Obras Públicas* (1940), and referenced each road with number that depended on 1) its angular location in relation to the six main radial motorways and 2) its distance to the *Puerta del Sol* square in Madrid. This nomenclature protocol is still in operation nowadays.
- ¹⁰ Other geographical references were also used, such as the course of rivers or borderlines between provinces.
- ¹¹ Many towns received names linked to the colonisation of America, to recall an infamous “glorious national past” (Delgado, 2013: 21).
- ¹² Interestingly, the design decision of positioning settlement towns in the nearby of the road system has been discussed by Scott to the control and monitoring disposition of authoritarian States (Scott 237). In this sense, the INC program has been criticized for its pervasive practices of surveillance on the settlers (Gaviria, Naredo and Serna, p.356).
- ¹³ The “cart” in the cart-module accounts for the main transportation means in the rural Spain at the time, a cart pulled by a donkey, a horse or a farmer. As explained, the plans clearly took this into account. To a level that, as it has been repeatedly argued (Alagón, 2015: 8; Tordesillas, 2010: 199), this has been one of the most salient failures of the model too, as the design became immediately obsolete when mechanised vehicles filled the lands (once the international blockade to Franco’s Spain ended).
- ¹⁴ To keep the big landowners pleased, the State assigned the worst lands to the settlers. The rest of the plots – still private property – were connected to the irrigation system. This way, the owners multiplied their benefits, despite the lands having been expropriated (Gaviria, Naredo & Serna, 1979: 262).

¹⁵ The new colonisation law was introduced in 1949 (Gómez Benito, 2004: 75).

Abelardo Gil-Fournier is an artist and researcher whose work addresses the material interweaving between the contemporary image and the living surfaces of the planet. His practice is based on the elaboration of platforms – installations, devices and workshops – conceived as open mechanisms, where art, knowledge and politics intersect.

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The Overgrounds and Undergrounds of Pure and Applied Science: Cosmic Collisions and Industrial Collusion

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Abstract

Archeology and geology are presumed to be “pure” knowledge practices, curiosity-driven investigations of the material histories of humankind and the Earth. Underwritten by Enlightenment techniques and tropes like clarity, organisation, cleanliness and illumination, there is in all the sciences a similar drive and imaginary toward a valuation of *purity*, against application, in all the sciences. These practices of observation, sampling, inscribing, analyzing and publishing are, of course, much more untidy than we sometimes imagine. What other sciences might be possible, were we more sensitive to the complicity of specific material practices as collusive affairs, amalgams of the pure and the applied, the clean and the messy, the ecological and the infrastructural, of light and shadow, of overground and underground?

Keywords

Applied, infrastructure, knowledge, science, pure.

Introduction: The Cause of Some Recent Changes

The Earth’s procession sways with us. It moves by way of a chant. It steps in the way of the base, in the way of the dancing tao. It bows to the sisters of the good foot, carrying flowers from Caliban’s tenderless gardens. The Earth is on the move. You can’t join from the outside. You come up from under, and you fall back into its surf.

This is the base without foundation, its dusty, watery disorchestration on the march, bent, on the run. Down where it's greeny, where it's salty, the Earth moves against the world under the undercover of blackness, its postcognitive, incognitive worker's inquest and last played radio (Harney and Moten, 2017).

Here thoughtless men, seized with the newness of such objects, become thoughtful, and willingly contemplate the incessant changes of this Earth's surface. They see, as in one instant, the revolutions of past ages, the fleeting forms of things, and the decay even of this our globe; whose youth and first formation they consider, whilst the apparent spoil and irreparable breaches of the wasted mountain show them the world itself only as a noble ruin, and make them think of its approaching period (Shaftesbury, 1709, in Klein, 1999).

We begin, as ever, impelled by the soft suggestions of the Earth. By tectonic whispers, from below.

Mildred is a discontented art student, someone who feels that both she and her community of fellow artists in the painting department have lost their way: "I'm sick of wasting time. We start work at ten and tire after half an hour...we aren't enjoying ourselves but what else can we do? I'm tired of it. I want to do something vigorous and constructive." She is a student at a modern art school, probably in Glasgow, a city supposed as a seedbed of inspired, creative industry. And yet, poor Mildred finds herself confiding in a classmate her frustration at the tedium of institutional studio art studies. Her confidant gives immediate advice, as improbable as it is practical:

"Dig a tunnel," he recommends, earnestly.

It is counsel from the pages of a short story, "The Cause of Some Recent Changes," by the Scottish pedestrian, independence activist, Glasgow Art School alumni and writer, Alasdair Gray (1997). It comes as some surprise that Mildred and her cohort wind up passionately taking up this advice, as given. She and her classmates set

immediately, continuously and vigorously to the work of boring a hole in the sub-basement of the institution.

They return, throughout the ensuing semester, to their advisor to show off milestones of their earthward labour. At first, we visit upon a large hole, then we witness involvement by students from industrial design and more technical departments, a manhole cover, an organising committee, an elevator shaft. The project proves a huge success at motivating even the most jaded students. The tunnel reaches staggering depths just as interdisciplinary, communal spirits at the institution reach new heights.

The vertical shaft, eventually and unexpectedly, opens out into a pre-existing hollowed out cavity deep in the Earth – a vast infrastructure, an architected technopolis which no one expected to find. White lab-coated engineers whizz by on bicycles, ignoring their new visitors-from-above (“It’s like all big organizations. The staff are so numerous that you can go where you like if you look confident enough”, Mildred explains). Attention is drawn to a buzzing, whirring, central mechanical engine that seems to be driving the whole affair. Standing on a mezzanine that overlooks the elaborate subterranean clockwork, Mildred says: “The industrial design boys are quite certain it’s a steam engine of the most primitive sort imaginable.” The steam engine, we find out, is responsible for Earth’s gravity and other supposed constant cosmological effects. The more zealous amongst the student group convince themselves that they are able to re-engineer the contraption, that they understand it, and can make it run “better”...Mildred is unable to heed the cautions of the project’s initiator, her trusted advisor, who describes what happens next:

That night I was wakened by an explosion and my bed falling heavily to the ceiling. The sun, which had just set, came up again. The city was inundated by the sea, and we survivors crouched a long time amongst ruins threatened by earthquakes, avalanches and whirlwinds... It is clear that the planet has broken into several bits. Our bit is not revolving (Gray, 1997).

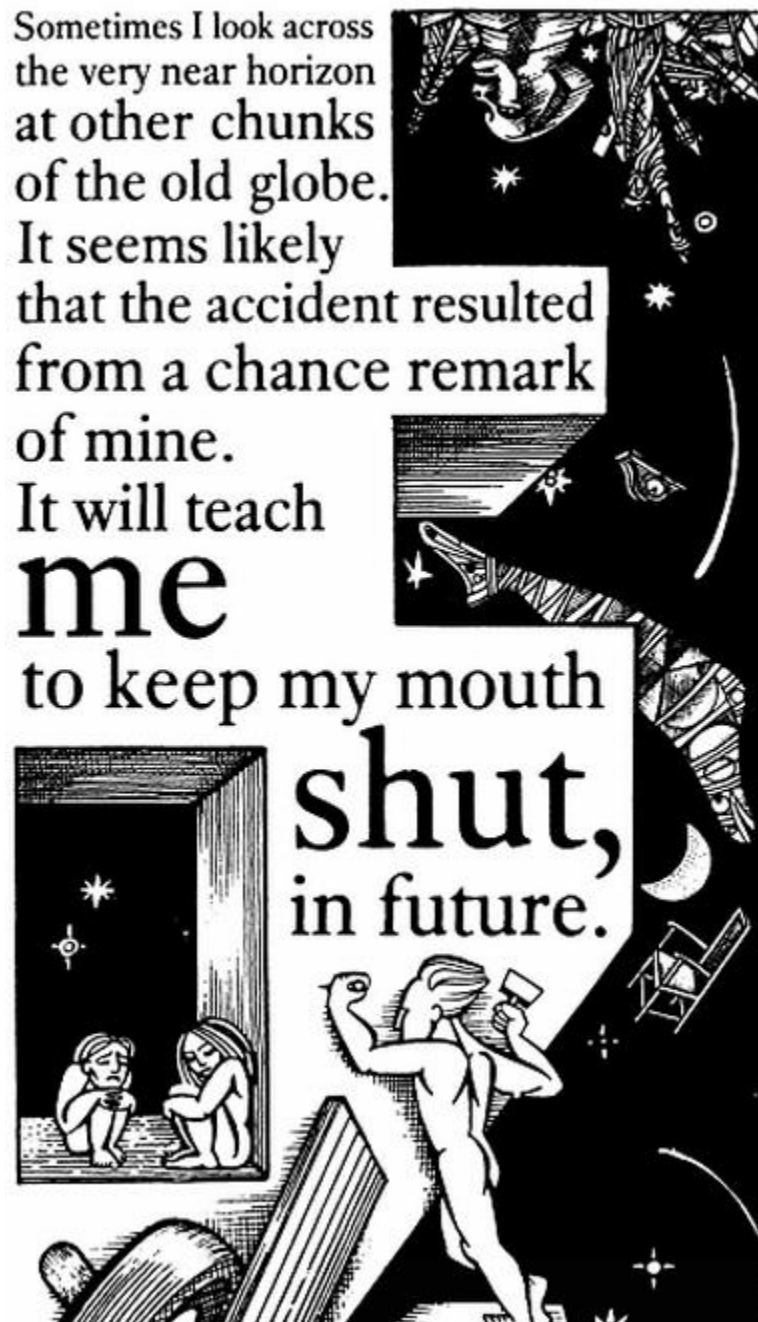


Figure 1: The last page of Alasdair Gray's "The Cause of Some Recent Changes," 1997

Alasdair Gray's story calls to mind a recurrent, imagined fantasy of engines, mechanisms, laboratories, factories, metropolises and architectures, energies and agencies, kept secret and deep in the Earth, that somehow power, articulate or control cosmic and telluric processes. As Rosalind Williams points to in both of her wonderful books, *The Triumph of Human Empire: Verne, Morris, and Stevenson at the End of the World* (2013), and *Notes on the Underground* (2008), the development of enlightened, technoscientific and industrial lives and futures has always been driven

and paralleled by geological and archaeological realities and imaginaries. Industries of extraction, and in-earth resources – mined, pumped or dredged from the deep – are arche- and fossil- fuels which feed the many engines of modernity: labour, industrial technics and technologies, scientific “progress” and acceleration.



Figure 2: The first page of “When the World Screamed” by Arthur Conan Doyle (1928) in Liberty Magazine.

Arthur Conan Doyle's "When the World Screamed" is the story of Professor Challenger, a "wild genius of a violent and intolerant disposition" (Doyle, 1928) and his colleagues, whose perfunctory ambition it is to make man's first direct contact with the "world upon which we live...[the] living organism, endowed...with a circulation, a respiration, and a nervous system of its own." Mother Earth is "quite unaware of this fungus growth of vegetation and evolution of tiny animalcules which has collected upon it during its travels round the sun as barnacles gather upon the ancient vessel," and it is this condition that Challenger seeks to undo; he wants her maternal recognition (Doyle, 1928). The story follows Challenger's commissioning of two other men, Peerless Jones and one Edward Malone, who help with the drilling of ever deeper shafts into the Earth, culminating in a "vigorous stimulation" of the planet's "sensory cortex," at great depths beneath the mantle (Doyle, 1928). Challenger describes, just before a public exposition and experimental performance of this operation, that an "exposed and sensitive substance will be pricked, and how it will react is a matter for conjecture" (Doyle, 1928).

The result of a direct electrical impulse applied to the Earth's sensory cortex is a violent discharge of petroleum-like fluids and a rapid healing of the drilled wound, a fleshy organic life form. Challenger's experiment justifies a kind of sexual assault on the Earth, proof that the Earth is a living organism, and the mantle its living tissue (Parikka in Hörl & Burton, 2017). An audience of researchers and lay-people, press and industry representatives, all hail "Challenger the super scientist, Challenger the arch-pioneer, Challenger the first man of all men whom Mother Earth had been compelled to recognise" (Doyle, 1928). Doyle's Professor Challenger, like Jules Verne's Professor Lidenbrock of "Journey to the Center of the Earth" (1864, 1992) creates the imaginary of a type of earthly recognition that would seem to evolve toward the R&D labs of both the Eldorado Mining and Refining Limited and Elon Musk's "Boring Company," dedicated to eradicating "soul destroying traffic" and fixing "congestion in any city, no matter how large it grew (just keep adding levels)" (Boring Company website). Gray's, Doyle's and Verne's fictional protagonists always lead to the brink of a kind of destructive, lusty knowledge-madness, as actual extractive science and industries likewise constantly shock in their overreaching attempts to understand Earth as an archeological object, ripe for interpretation, and hence interventionist probing and violation. These mobilised, fictional, hubristic

archeologists of recognition and progress are reflections of and precursors to our real, engineered desire (machines), which, more and more hurriedly, have sought to tame the secrets of nature and capture ever deeper corners of the globe. Isabelle Stengers' comments on the fast science of chemistry hold equally well for the applied, colonial sciences of geology and astronomy, through to today's physics and applied mathematics (computation):

[T]he sciences that became synonymous of progress in the nineteenth century – and which were what I would call “fast sciences” already then – are extractive sciences. Chemists, for instance, used to be artisans, craftsmen...But the extractive, purified objects of chemistry – which nineteenth century industry produced, and which could enter into protocols which everybody could follow – produced a fast science that had nothing to say any longer to the old craftsmen. It was contemporary with big industry, not small industry. And I would say that this isolation, this new kind of environment for the now academic chemists, is as important as epistemology! (Latour, Stengers and Tsing, 2018)

Can we make clear, or simple, separations between actuality and fiction, in tracing the causes of more recent changes? Rationalism, realism, demythologization, the scientific method, objectivity – a whole battery of terms – attempt to describe stances and positions that might occupy a space outside superstition and history, narrative, tradition, myth. Knowledge practices, nonetheless, remain forever linked to genealogical and archaeological myth and fiction. Science and enchantment mix and co-mingle, an amalgam that can be opportunistically re-deployed, containerised or re-pre-packaged in the service of sanctioning the ways in which industrial free enterprise puts the squeeze on the Earth, its beings and its resources. The magic of “capitalist sorcery” gives way to exchange-based environmental management, which is full of metaphors, beliefs and spirits that we think we have destroyed, but discover we have just lost all appropriate means of responding to (Pignarre and Stengers, 2011). Deep mythologies of application and extraction sanction the contradictory,

and supposed inexorable, belief that a finite planet could somehow be the basis for infinitely increasing value:

The mobilised scientist stridently defends the position of science as the “goose that lays the golden eggs” and his fearless certainties (outside the laboratory, at least) result in what Alfred North Whitehead, an early critic of the twentieth-century professionalisation and specialisation of knowledge, would call “dogmatic denial”: an enormous difficulty in dealing with what is external to science except in the derealising terms of “beliefs,” “mere opinion” or “illusions” (Pignarre and Stengers, 2011).

Meanwhile, in Chile for example, Indigenous practices and archaic, sacred uses of metals are twisted by companies like Codelco (the largest refined-copper producer in the world, nationalised in a country where one-third of the Gross Domestic Product is copper-derived) into a justificatory national(ist) patrimony, or a kind of extractivist birthright. “*Chileans have always mined copper, it is what makes the country strong, and its people pure*” – this is the implicit message of Codelco-sponsored exhibitions and tours, featuring archeological goodies like copper facemasks and amulets found during excavation:

Copper has been one of the pillars of our economic and cultural development since before we were a nation. The Indigenous cultures that lived in the Andean region, such as the Incas and Tiahuanacos, Aymaras and Atacameños (Chuquicamata derives from Chukos people), incorporated the red metal to make tools, utensils, and even alloys with other metals which they used as a means of exchange with other neighbouring peoples, and in their various ornamental and artistic expressions, creating part of the symbolic and material universe of these cultures (Codelco website, 2017).

In Canada, also for example, Aboriginal peoples’ relations to land and territory is likewise aberrantly refashioned into rationales that produce an opportunistic remodelling of deep and sacred relations and genealogies of belief. Indigenous

peoples' relationships to flora and fauna, so the exploitative retelling goes, *have always been overtly managerial* (Notzke, 1994); extractive relationships have existed between all peoples and their lands throughout time. The land, so the story goes, has forever been a natural source of power and riches for Canadians, native or settler, and we can simply “obey the laws of nature so as to make nature obey” (Pignarre and Stengers, 2011). Contemporary industries of hydro-electric energy generation, fossil fuel and mineral extraction preserve and perpetuate traditions of extractivism – is what is suggested by such expedient retellings. Thomas King, the Cherokee, German, and Greek novelist, points to a well-known historical event — the Boston Tea Party — as historical precedent for the repurposing of aboriginal ideals and aesthetics in the service of colonial exchange and economics: “Whites, disgusted by the tax that the crown had placed on tea and determined to show their displeasure by dressing up like Indians and dumping the tea into the bay” (King, 2003). The recasting of ancient and artisanal uses, cohabitation and care for localised material resources through the lens of modern managerialism and value production is as perverse as it is inaccurate as a legitimisation of contemporary industrial expansion.

Revisionist and less-progressivist European and Western colonial-scientific knowledge practices benefit from recognition of the linked tensions between what is real and what is imagined in them, what hauntings and mythologies prevail and authorise, and what other science(s) might be possible. There is no shortage of menacing stories of unforgiving, natural gods that use the Earth and its beasts against us, rendering the Earth as a resistant and puzzling object, even an enemy, or at least a problem to be solved. “As subjects, we face a universe of objects, of problems, which are somehow hurled against us” (Flusser, 1986). Against these elements, we find ourselves in a curious position – residents of a mysterious home we *come from*, out of, but having already exited it in order to presume it knowable, colonisable, and controllable (often in that order). A more modern and popular terminology for the spectrum of observational, reflective and activated knowledge practices — “pure” and “applied” sciences — drives ambiguous ambitions and conjoined pursuits in archaeology, geology, mining, infrastructure in downward, inward directions. A taut and substantial tension exists between infrastructures of knowledge, industrial infrastructures, and the extraction of material, as well as the likewise ambiguous

pursuits of much more “modern” sciences that hasten in the opposite orientation — upward, outward, onward.

Pure Masters, Applied Slaves

From this point of view, science – the real game in town – is rhetoric, a series of efforts to persuade relevant social actors that one’s manufactured knowledge is a route to a desired form of very objective power (Haraway, 1988).

“Science” remains the sign under which we imagine pursuits of *knowledge per se*, somehow different from and tainted by *knowledge for practical use*. The intermixed, confused and parallel values that saturate these two orientations, or directions, of Western science are trans-historic; they pervade eras, thoughts and actions with claims of either uselessness or usefulness. “Pure” and “Applied,” imagined as the poles of a globe where ideal ideas and practical utilities reside, are in fact amalgams of techniques and opinion that permit and motivate the knowledge work of thinking, notating, writing and speaking (“theory”) just as much as sampling, arranging, instrumenting, analysing and re-presenting (“practice”) and building, making and bricolage. Yet the binary rubric of high-minded purity versus dirty, vulgar practice that has installed itself in our Western thinking seems to know no bounds. Other, related imagined polarities that we moderns hold dear include, “high” and “low” culture, the “poetic” and the “pragmatic,” “art” and “design,” “idealisation” and “implementation,” “politics” and “policy.” As Keller Easterling points out through the work of Gregory Bateson in her essay “Histories of Things That Don’t Happen and Shouldn’t Always Work,” these “binary” stances are entirely too common categorical errors: “People even set up binary oppositions over things that are ‘not dual in nature—youth versus age, labor versus capital, mind versus matter’” (Bateson cited in Easterling, 2016). There are always thin and permeable threads that join imagined bifurcations, as differentiation supposes relation. Even as the disciplines reiterate pure thought and pure idea as dissociated from applied action and implemented function, where different interrelations between art and technology are obsessively re-performed, and endless attempts are made to break open, recombine and pervert supposed, nonexistent boundaries between practice and theory. These are the contradictory, idealised pursuits of thinking about thinking, which is, of

course, *doing* something. That is, “thinking *is* a practice” (Rancière & Sloterdijk, 2008).

The dissociations between practice and theory are imbued with a level of moral culpability as they relate to (de)couplings between work and management, and the plight of slaves controlled by masters. That we owe ourselves and our thinking in these ways to a history of subjugation, control and command, is evidenced by denotations in contemporary telecommunications systems, in which “receivers” of clock synchronisations and “peripheral” systems are “slaved to the master.” The archeology of this communicational messenger-slave relation has been analysed by Markus Krajewski (2013) in his essay “The Power of Small Gestures: On the Cultural Technique of Service” and as the “fusion of bodily techniques and technical media.” Its echo is also felt in the name we give to computers or computer programs that manage accesses in a communications network: “server.” The work of communications transfer and storage is done through diminished and dejected labouring subjects, but also of hardworking, exothermic objects. Replaceable relations, in a race to the bottom, resulting in the concomitant erosion of moral-material and ethical-ecological responsibilities. Slavery is both a technique and a technology. Technology, in a way, is an enslavement of the physical properties of matter. Matter is one of the “some/thing[s] logistics is always after” (Krajewski, 2013). When our “hardware devices are imported as needed...programs are now service providers on loan; they are treated like guest workers or leased labourers” (Zielinski, 2013).

Our “debt that cannot be repaid, the debt at a distance, the debt without creditor, the black debt, the queer debt, the criminal debt” (Harney and Moten, 2013) to the slave produces never-efficient-enough machines of desire, material and information extraction, and capital accumulation without limit. The indentured technological-bondship of millions of server computers all over the world invokes the co-subjugation of human and electronic labour. Human counterparts, contracted to companies like TaskUs (www.taskus.com), are custodians to content, servers, networks and psyches, providing for and staving off Internet users’ more depraved tendencies (see Wired Magazine’s article “The laborers who keep dick pics and

beheadings out of your Facebook feed,” Chen, 2014). Earnings analyses for server-based labour for Amazon’s Mechanical Turk crowd-labour service show that human workers earn slavishly low median hourly wages well below minimum wage in the U.S., in the region of \$2 USD (Hara, *et. al* 2018).

Said another way, as Pierre-Maxime Schuhl did in 1947 (echoing Gilbert Simondon and translated through Henning Schmidgen), historic developments of certain proliferative technologies can be seen to have been slowed or stalled due to the reprehensible, forced-abundance of living human labour:

If one did not make recourse to machines on a large scale, it was because there was no need to reduce manual labor, given the fact that one had (inexpensive and numerous) living machines ready at hand who were as distanced from the free man as animals, i.e., slaves (Schuhl in Schmidgen, 2012).

Tim Ingold retells the Platonic dialogue between Socrates and Alcibiades, in which a discussion of shoemaking and their shoemakers serves to convince Alcibiades of the existence of the human soul. Socrates argues to convince Alcibiades that the shoemaker is a divided being, a deferential and perhaps slightly tortured body and an unencumbered, soulful “mind.” The soul’s separateness from menial practice grounds a Socratic ethics that justifies the slavery of Classical Greece:

In one of his dialogues, Plato has Socrates debate with a character called Alcibiades on precisely this question. “What are we to say of the shoemaker?” asks Socrates, “Does he cut with his tools only, or with his hands as well?” Alcibiades is forced to concede that he does indeed cut with his hands, and moreover that he uses not just his hands but his eyes – and by extension his whole body to accomplish the work. Yet he had already agreed, with Socrates, that there is a fundamental difference between the user and the things he uses. So who is this user? If it be man, counters Socrates, it cannot be his body, which is used. Only one possibility remains, it must be the soul.

“So”, he concludes, “do you require some yet clearer proof that the soul is man?” Alcibiades is convinced.

There is no reason, however, why we should have to follow suit. “It would be wrong to assume,” as Roger Coleman caustically remarks, “that because Plato was a Greek he knew what he was talking about.” He was no craftsman, and had no practical experience whatever of shoemaking or any other trade. Plato’s objective, in forcing a division between the controlling mind and subservient body, was to establish the supremacy of abstract, contemplative reason over menial work, or of theoretical knowledge over practical application, and thereby to justify the institution of slavery” (Ingold, 2000).

For Leo Marx, culture and technology stand in for a “stock distinction between the *useful* and the *fine arts* [which] had served to ratify an analogous – often invidious – lineup of distinction between things and ideas, the physical and the mental, the mundane and the ideal, body and soul, making and thinking, the work of slaves and of free people” (Marx, 2010). There are ambiguous and multiple meanings we can read into terms like “anthropotechnics,” some of which call attention to the technosphere (Haff, 2013), and some of which call attention to the ways in which people are employed as technics (Wiener, 1967).

The middle-aged, internet-addicted, obsessive emailer and insomniac from Chris Petit’s film, *Content*, links the industrial subconscious of contemporary life with indentured labour and incarceration:

All those secret torture zones, or rooms – where the U.S. has been rendering its non-people prisons, are not so different from all the servers in the world – those underground sites where your email is rooted, sustained. Lines and lines of shiny servers...like prison corridors (Petit, 2010).

“Pure” and “Applied” Science mark a difference that somewhat softens this scenography and history of master-slave roles, but it is still a nomenclature that signals various levels of opportunity, acquisition, subjugation and control. The pure and the applied, somewhat insidiously, distribute and evaluate standing reserves of information, value, labour and resources across human/mental and material/ecological scopes and scapes. The Applied Sciences at once evoke strategic and systematic studies that fulfil particular purposes or operations, but also seem to suggest a sort of coating, an *application* or *appliqué* that lathers all the stuff of the world with the goopy, synthetic ooze of science. Like the image of the Sherwin-Williams Company logo, or the actuality of Monsanto’s, Ciba’s and Montrose’s swathing of whole continents with dichlorodiphenyltrichloroethane...we apply science all over the place.



Figure 3: Stills from Chris Petit's *Content* from 2010 (1h17m. Screenplay: Chris Petit, Ian Penman. Produced by ARTE, Illuminations Films, More4).



Figure 4: Sherwin Williams' paint and coatings company current logo, first made a trademark in 1895 (Sherwin Williams, 2018). The logo has generated fervent discussion online in and amongst graphic design communities, and almost yearly spurs logo redesign competitions and classroom assignments (Barrack, 2011).

Blossoming between the wars and through the Cold War era as practice-based research that conceptually elevates craft and technique to the status of *ways of knowing*,

Applied Science all the while provided the precursory and perfunctory framing for need- and application-driven research that resulted in things like Agent Orange, and the sticky, flammable anti-personnel liquid innovation “Napalm B,” both products of the Dow Chemical Company. Lab scientists, field scientists, engineers (Applied Scientists) enact age old divisions between the *known* and the *known-for* – between the abstract poetry of cosmological understanding, and those things that are *still* seen by some as the opportunistic or violently crass labours of pragmatic productivity.

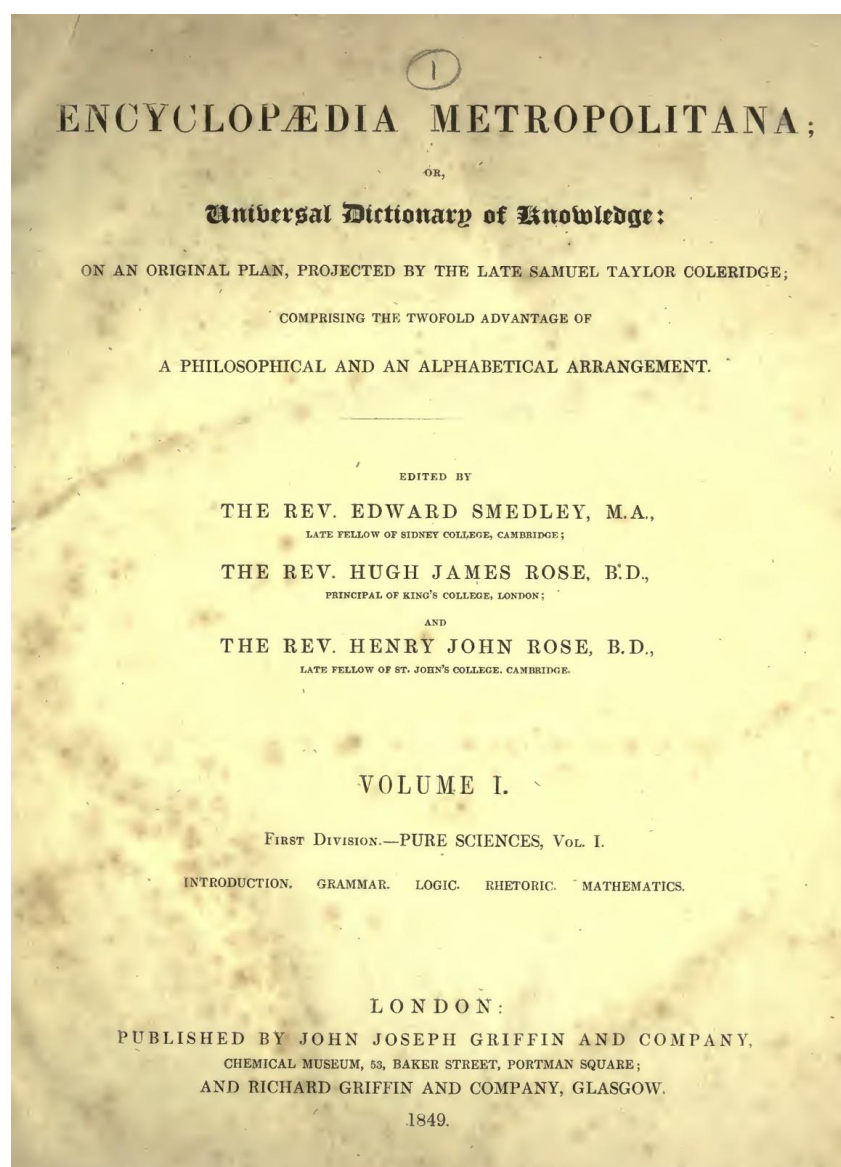


Figure 5: The title page of the “Encyclopaedia Metropolitana; or, universal dictionary of knowledge, on an original plan: comprising the twofold advantage of a philosophical and an alphabetical arrangement, with appropriate engravings” (Smedley, Rose and Rose, 1845). Over thirty volumes of this Encyclopaedia were published up until 1845. As Diderot’s manuals did for the French, Smedley’s almanacs concretised and popularised an opposition between the empirical sciences and the “*a priori* sciences” in the English-speaking world (Bud, 2012).

It is first through a set of concepts introduced in Samuel Taylor Coleridge's 1817 "General Introduction to the Encyclopædia Metropolitana; Or, a Preliminary Treatise on Method" (Coleridge, 1849) that we find explicit mention of the term "Applied Science" in English (Bud, 2012). Later, the phrase appears in the "Encyclopaedia Metropolitana; or, Universal dictionary of knowledge...comprising the twofold advantage of a philosophical and an alphabetical arrangement," edited by other authors but begun by Coleridge's prospectus and based on Kantian categories which wholly separated practiced knowledges *in* the natural world from impractical understandings *of* that same world. Resonances continue between German idealist categories like *angewandte Wissenschaft* (Applied Science or Knowledge) and the English idea of a "practical science" introduced into science classrooms at the beginning of the 19th century (Gee and Clackson, 1992). A similar French concept of "*arts appliqués*" is differentiated from a more industrial conception, "*arts et métiers*" by none other than René Descartes. This latter term was all but invented by Descartes to bridge a gap he understood to have been opened up too wide by Aristotle between *episteme* and *tekhne* in knowledge practices.

The main orientation of the American 20th century seems to be its leanings toward pragmatist technical study and research, birthed into the U.S. educational establishment largely through the efforts of a 35-year-old educational reformer and American exceptionalist named Charles William Eliot (1834-1926). Eliot expressed what reads now as somewhat contradictory views in his inaugural address as president of Harvard College. He spoke in the same speech of a "truth and right [that] are above utility in all realms of thought and action," but at the same of his desire to "have science taught in a rational way, objects and instruments in hand – not from books merely, not through the memory chiefly, but by the seeing eye and the informing fingers" (Eliot, 1869a). Eliot's vision for "The New Education" (also the title of an essay he wrote, published in *Atlantic Monthly*) would transform teaching throughout the U.S. and set the stage for the ways in which the presence of practicality, practicability, economy, industry and corporate liaison are still negotiated in U.S. Universities, especially in the natural and physical sciences. "We are fighting a wilderness, physical and moral," said Eliot (1869b) the youngest president in Harvard's history. From the highest pulpit of America's oldest university, Eliot

boomed forth his plans for orienting not just one American school, but the project of new American universities and education, designed to combat natural enemies and for global dominance. “For this fight we must be trained and armed” (Eliot, 1869b).

Nexuses of power-knowledge have been pointed out and picked apart, (un)productively de-constructed by lots of people; Denis Diderot and Jean le Rond d’Alembert, Michel Foucault (“Knowledge is not for knowing: knowledge is for cutting,” Foucault, 1984), Paul Feyerabend (“The idea that truth is concealed and even perverted by the processes that are meant to establish it makes excellent sense,” Feyerabend, 1993), and Donna Haraway (see, for example, the citation at the start of this essay). Applied Science, for humanities, philosophy of technology and critical studies of science has become a kind of requisite evil villain – the engineer, since Robert Oppenheimer perhaps, ever the figure of the unreflective, amoral technical-zombie, carrying a pickaxe in one hand, and an atom bomb in the other. We must attend to practices, say such critiques, as the humanities have become disenfranchised from their origins in cultural techniques of human expression, including, sometimes, language itself. We raise a radical challenge wherever and whenever an unambiguous motivational or moral certainty is asserted, and in so doing hobble the hubristic presumptions of modern men.

Applied Science disrupts the lofty presumptions and disengaged politics of un-applied knowledge labours in multiple ways, first and foremost by pointing at the fact that there is, after all, no theoretical world. We all wind up complicit, as there are no “pure” knowledges, only techniques, only knowledge *practices*. Pure Sciences, as the Humanities are sometimes conceived, are always much dirtier than their naming implies, in part as they rely, increasingly, on engineered technologies and instrumentations, scripting and scratching implements, media devices and substrates of representation – each with an industrial genealogy and origin in material resources, complicit with divisions of class and labour that these have always precipitated. Permitting and arming forces of planetary scale engineering and the basest interests of the economy and everyday people, the purest of sciences come down to purpose as engines of progress and productivity, and are given near exclusive purchase on hopes for innovation, change and economic salvation. The specialisations of Applied Science and Engineering re-expose the true colours and colourful subsidies of

supposed-pure sciences like Chemistry, Geology and Biology – knowledge practices and “fast sciences” as Isabelle Stengers puts it – that regularly reconfigure planetary systems and life, so far mostly in the service of petrochemistry, pharmaceuticals, extraction and agriculture, amongst other anthropogenic pursuits.

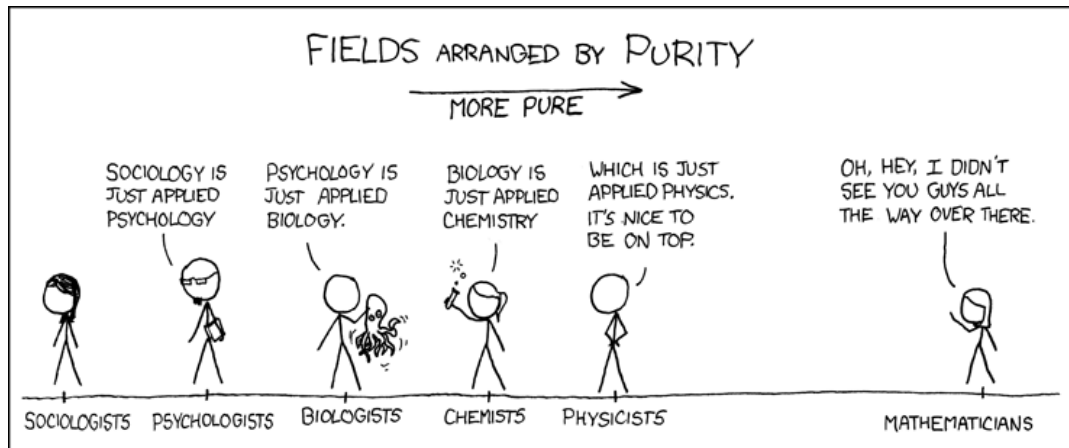


Figure 6: Xkcd comic about the spectrum of Pure and Applied science. Available at <https://xkcd.com/435/> [Accessed 10 April. 2018].

All strands and dissections of scientific knowledge, labour, means and motivation, leave us to wonder if there are, or ever have been, practices of “pure” science, presumably unexploited or unexploitable? What of other means of thinking and doing that avoid expansionist and extractionist drives? What other modes of knowledge practice exist that elide and derive colonising epistemes? Are there modes of engagement that encounter material realities with understandings that do not deplete, re-value, process and exchange them into dust? The beings and environments of planet Earth and beyond, wrought more real only as returns on investment, return to us warped, broken and enslaved. What of this “church in the wild...study rather than knowledge production...a way of being together in brokenness...” (Halberstam in Harney and Moten, 2013).

Plumbed Depths

All science is either physics or stamp collecting (Sir Ernest Rutherford in Birks, 1963).

I owe the best of myself to geology, but everything it has taught me tends to turn me away from dead things (Pierre Teilhard de Chardin, 1969).

Rosalind Williams writes of a great “eruption from below” that “paleotechnic industries” unleashed in the pre-Industrial Revolution 18th century (Williams, 1990). Ambiguously dark, subconscious, hellish-yet-necessary and productive impressions of industry and labour are, for Williams, birthed with underground industries of extraction, along with modern Geology. Williams writes of the rise and preeminence of The Freiburg Academy as a center for the Applied Science of Mining derived predominantly from the teachings and research of Abraham Gottlob Werner (1750-1817). The Werners were an old industrial mining and metallurgy family from Silesia, a background which gave Abraham some authority as a “Neptunist,” promoting a theory that the features of the crust of the Earth arose out of a receding, vast ocean. This and the other more popular, opposing theory (that would wind up more in line with today’s earth science), Vulcanism, which pre-supposed that the cooling of magma resulted in rock masses and large-scale land formations, were amongst the first European hypotheses of earth formation. The Neptunism/Vulcanist debate was a popular one, and the more organised, proof-enabling and ambitious popular speculation it fomented, constituted a genesis of modern Geology. In Abraham Werner’s day, opinions and positions, either Neptunist or Plutonist, were socio-scientific litmus tests, indicating and determining the “kind of person” you were, which “side” of contemporaneity you were on. Discussing the history of the Earth was not merely a matter of scientific veracity, but a learned skill and concern, closely connected to one’s all-embracing *Weltanschauung*, or worldview. Geology was at the time a scientific politics (or a political science of a different sort) comparable to the creationist/evolutionist debates in North America, or conflicts over climate change. Understanding the evolution of the Earth’s origins, features, and changes partially interpolates our political worldview, personal ethics and the quality of our relations, human and otherwise.

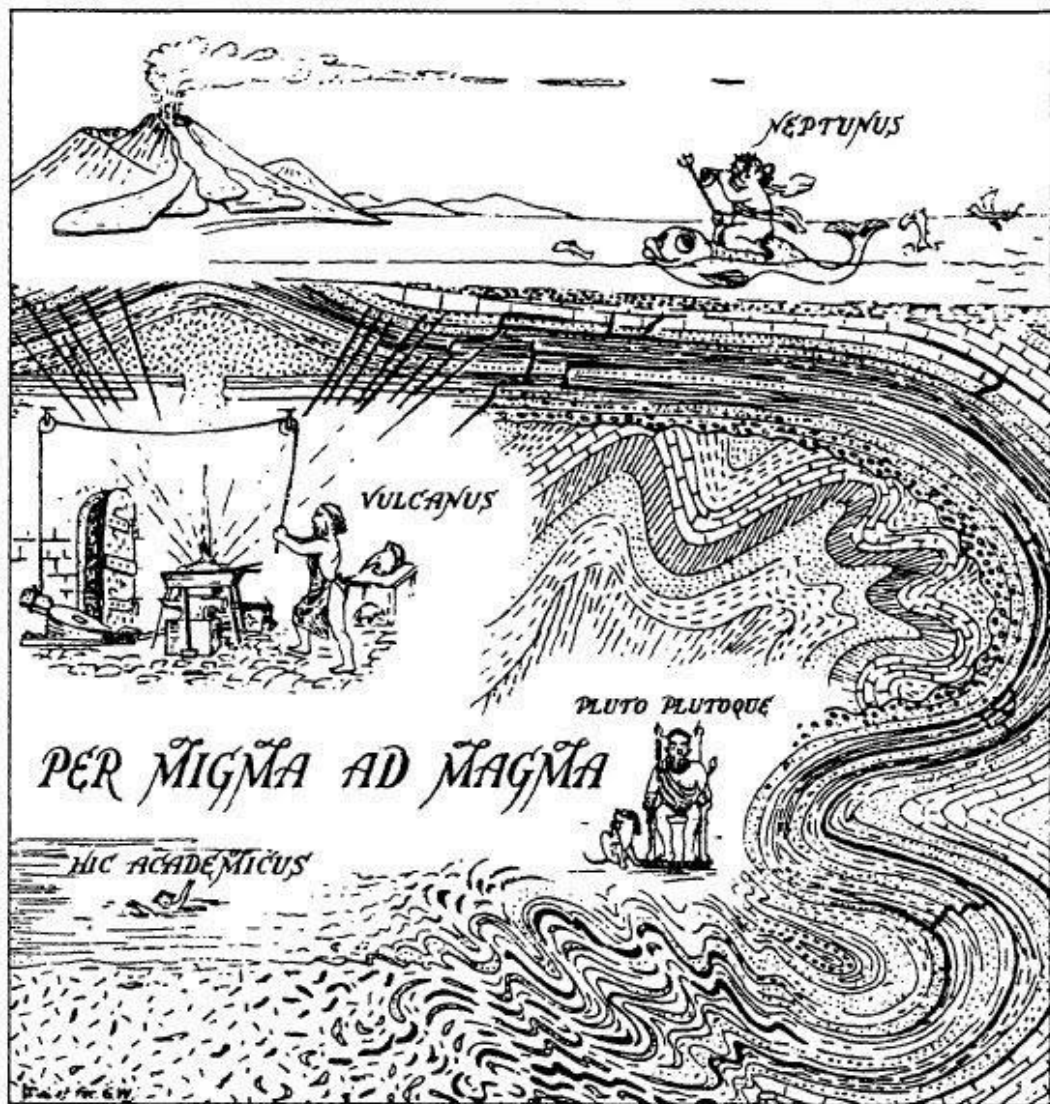


Figure 7: Frontispiece of “The Granite Controversy” by H. H. Read (1957), drawn by D. A. Walton.

It is a longstanding public secret, and a fairly benign joke, that Geology is not a “real” science (for an odd yet interesting personal reflection on this issue, see Larry Davis’ contribution to *The Compass: Earth Science Journal of Sigma Gamma Epsilon*, “Is Geology a Real Science?” Davis, 2012). The implication and questioning we bring in through the adjective “real” is, of course, intended as a diminution. It is a diminution usually backed up, if at all, via claims of methodological insubstantiality (rock collections evolving somewhat arbitrarily or through overly personal interest derived aesthetical or geographical contingencies) or the very, very longitudinal nature of geologic investigation (requiring observational experiments that last longer than the average human observer’s lifetime). This second factor prevents the causal cycles of experience and observation some would require of the Scientific Method, with its

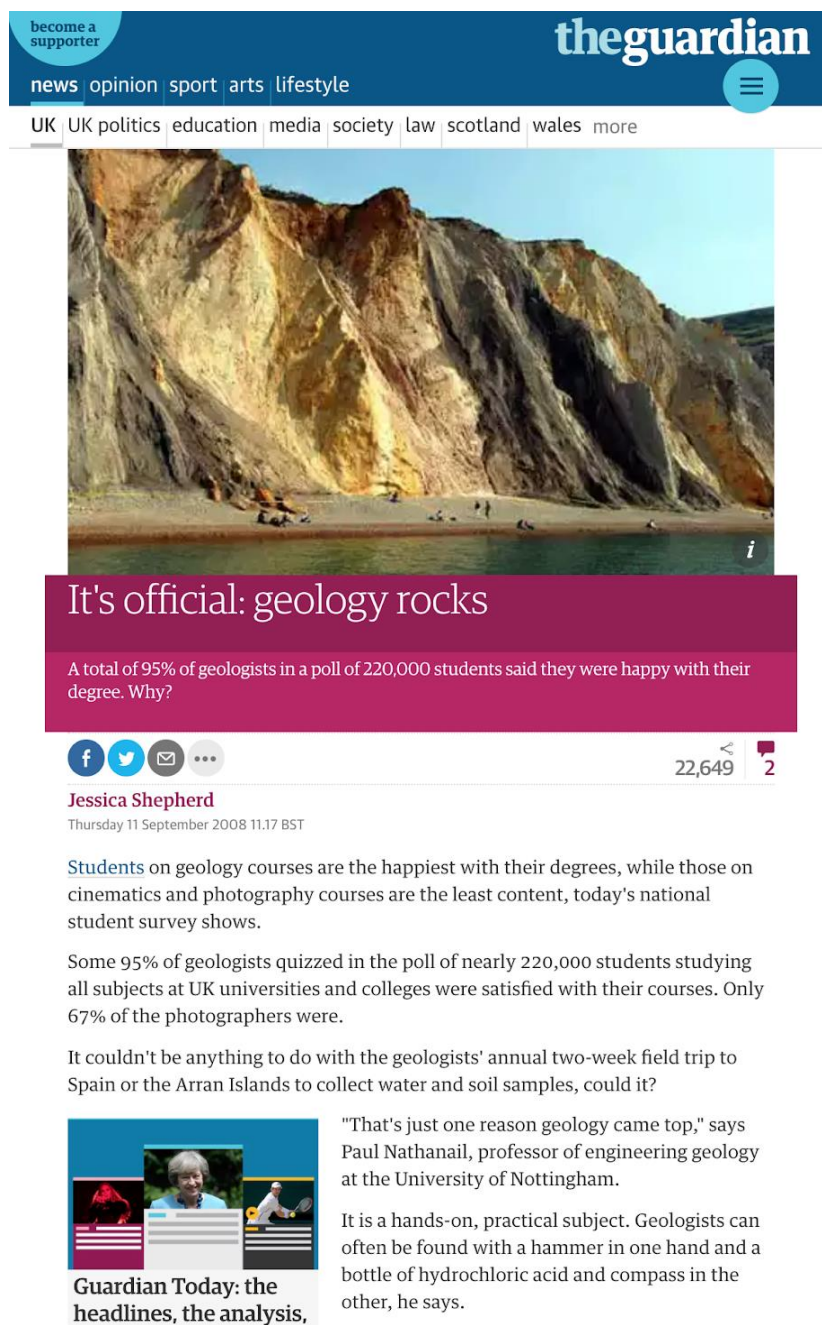
requirement of recursive intervention and iterative data production. Geology, first allied to a set of rich historical archives and resources from medieval mining industries, and then reborn in the Romantic age of Goethe's rock collections, seems forever and somewhat understandably maligned. Goethe had a passion for the gathering of mineral specimens, and for Mikhail Bakhtin it was an avocation which spoke to Johann's insightful ability to make necessary, material connections between the past and the living present:

All we have said reveals the exceedingly chronotopic nature of Goethe's mode of visualisation and thought in all areas and spheres of his multifaceted activity. He saw everything *sub specie aeternitatis* [from the point of view of eternity] as his teacher Spinoza did but in time, and in the power of time. Everything – from an abstract idea to a piece of rock on the bank of a stream – bears the stamp of time, and is saturated with time, and assumes its form and meaning in time (Bakhtin in Aronowitz, 2010).

The “higher” modern sciences – physics, astrophysics, biophysics, and the like – give off an air of ratiometric aesthetics and an ascetic rationality, through appeals to mathematics, modelling and digital data. Sharp-ended instruments, vibration-isolated environments and Underwriters' Laboratories, these are the scenes of post-industrial Pure Science, which descends into the practical matter of empirical proof and dirty workbenches only when absolutely necessary to the verification of theoretical constructs or in the translation of such constructs into practical applications. The image of modelled and data-driven science is one of clean, infrastructural purity – of telescopic arrays high atop a rainless mountain, or a robotically managed twenty-four-hour industrial clean room. These are not your grandfather's rock collections; this is not your grandmother's science.

There remain pundits of the geological imperative and sciences today; geoscientists like Leila Gonzales and Christopher Keane ask questions like, “Who will fill the geoscience workforce supply gap?” in the *Journal of Environmental Science and Technology*, arguing that their chosen discipline is central, if not indispensable, to contemporary societies “inextricably linked to the resources and natural processes that exist and

occur on our planet,” for which “dependence on resources and the impact from processes is becoming increasingly apparent” (Gonzales and Keane, 2010). Their fundamental concern? We are not training enough geologists. Chemistry is more lucrative, and Physics more and more where one accrues academic status, popular accolades, larger research grants and more numerous funding sources.



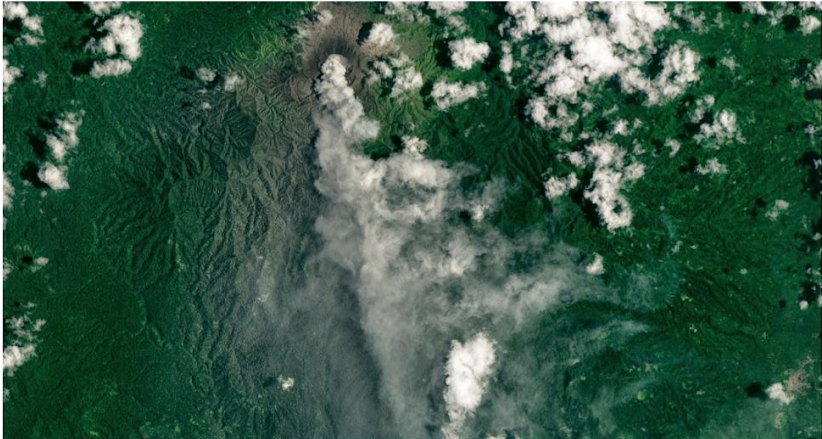
The image is a screenshot of a news article from The Guardian. At the top, there is a navigation bar with the Guardian logo and a menu icon. Below the navigation bar, there are several category links: UK, UK politics, education, media, society, law, scotland, wales, and more. The main image is a photograph of a large, layered rock formation, likely a cliff face, with a beach and the sea in the foreground. Below the image, the article title "It's official: geology rocks" is displayed in a large, bold font. Underneath the title, a sub-headline reads: "A total of 95% of geologists in a poll of 220,000 students said they were happy with their degree. Why?". Below the sub-headline, there are social media sharing icons for Facebook, Twitter, Email, and a generic share icon. To the right of these icons, the number "22,649" is displayed, along with a small icon of a speech bubble containing the number "2". The author's name, "Jessica Shepherd", is listed below the social media icons, followed by the date and time: "Thursday 11 September 2008 11:17 BST". The main text of the article begins with: "Students on geology courses are the happiest with their degrees, while those on cinematics and photography courses are the least content, today's national student survey shows." This is followed by a paragraph: "Some 95% of geologists quizzed in the poll of nearly 220,000 students studying all subjects at UK universities and colleges were satisfied with their courses. Only 67% of the photographers were." Another paragraph follows: "It couldn't be anything to do with the geologists' annual two-week field trip to Spain or the Arran Islands to collect water and soil samples, could it?" Below this text, there is a small inset image showing a person in a field setting. To the right of this inset image, a quote from Paul Nathanail, professor of engineering geology at the University of Nottingham, is provided: "'That's just one reason geology came top,' says Paul Nathanail, professor of engineering geology at the University of Nottingham." Below the quote, another paragraph reads: "It is a hands-on, practical subject. Geologists can often be found with a hammer in one hand and a bottle of hydrochloric acid and compass in the other, he says." At the bottom left of the article, there is a small thumbnail image with the text "Guardian Today: the headlines, the analysis,".

Figure 8: “It’s official: geology rocks,” article from The Guardian online, Thursday September 11 2008. 11:17 BST. “A total of 95% of geologists in a poll of 220,000 students said they were happy with their degree. Why?” (Shepherd, 2008).

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DEAR COLLEGE STUDENTS: YOU SHOULD TAKE GEOLOGY



A steam and ash plume from Dukono in Indonesia, seen on March 22, 2016 via Landsat 8.

[NASA EARTH OBSERVATORY](http://earthobservatory.nasa.gov/naturalhazards/view.php?id=87762)

Geology (or, more properly these days, geosciences) is a field that most incoming first-year students have little experience with. Maybe they had a rock collection, or maybe they took AP environmental science. Maybe, if they were lucky, they had a high school teacher with some training in the field. However, most of the time, geology is *faaaaar* down the list of disciplines that any first-year might think to study ... and the field doesn't even cross their mind before they graduate.

Figure 9: “Dear College Students: You Should Take Geology” article from Wired Magazine online. August 31, 2016. “Geology (or, more properly these days, geosciences) is a field that most incoming first-year students have little experience with. Maybe they had a rock collection... Maybe, if they were lucky, they had a high school teacher with some training in the field” (Klemetti, 2016).

If there is one thing the hubbub about “The Anthropocene” has done for Geologists, it is to re-up the centrality of the Earth Sciences. It may yet re-popularise and re-resource that science of rock collection that has for a long while found itself with lessened public, private and institutional interest. If it was Einstein who cast his long shadow over much of 20th century planetary-scale research and discovery, geologists and geoscientists are back in the news, guiding and explicating fluctuations

in the price of oil, gas, precious and rare earth metals, and the sand, gravel and stone we need to “modernise” the remaining two-thirds of the planet. Geologists and geoscientists predict and explain the increasing frequency of devastating earthquakes, floods, and volcanic eruptions. With the Anthropocene, knowledge practices of the Earth return as lenses through which we view and orient human activities and knowledge. The Applied Science of Geology precipitates and projects a future that only Geology can save us from.

Ups and Downs

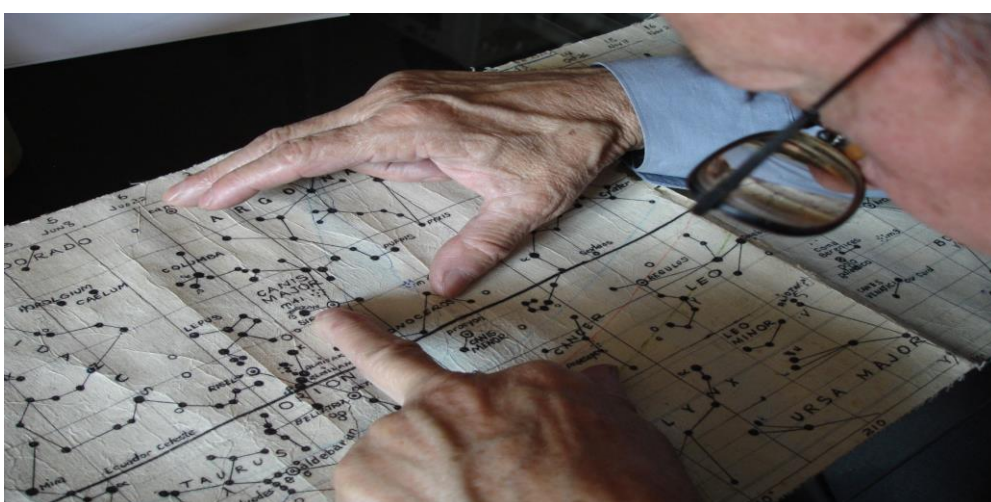
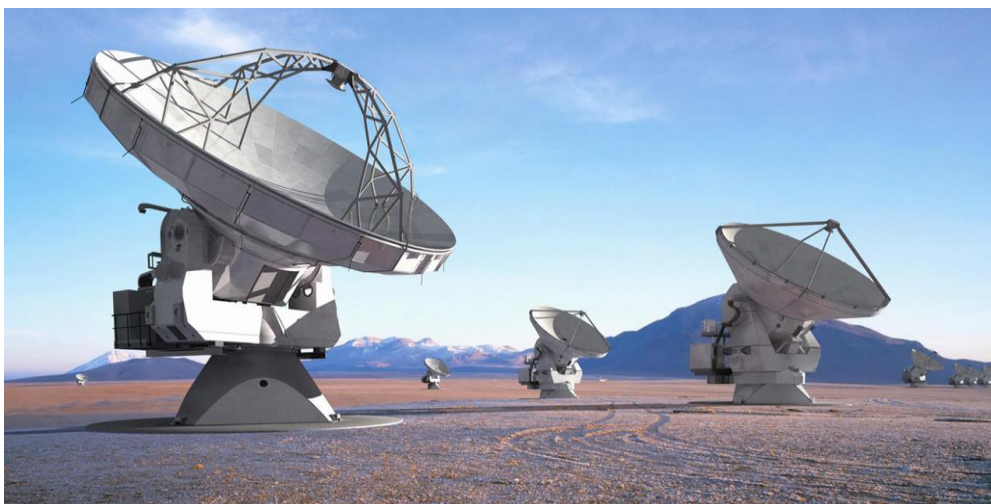


Figure 10: Stills from the documentary *Nostalgia for the Light / Nostalgia de la Luz* (Guzmán, 2010).

Astronomer (Gaspar Galaz): We manipulate the past. We are used to living behind the times. That's how it is.

Interviewer (Patricio Guzmán): Like an archaeologist who also studies the past.

Astronomer (Gaspar Galaz): Exactly. A not-so-distant past, but it's the same (Guzmán, 2010).

Typically the island inverted the geologists' maxim, "The key to the past lies in the present." Here, the key to the present lay in the future. This island was a fossil of time future (Ballard, 1964).

Just as it is for the geologist, the past is the astronomer's main field of research, as futuristic as cosmic sciences seem to be. Disciplinary squabbles and hierarchies manifest some irony, as the principles and practices of geoscience, mining and underground engineering have eventually been pressed into service in the proving out of Einsteinian particle physics and astrophysical theory. It would be difficult to over-emphasise the role that mines, caves and tunnels, mine and mountain-moving engineering has played and will continue to play in the experimental proving out of the existence and behavior of post-Newtonian particles. A poetic kinship links the work of the geologist and the archeologist to that of the physicist and astrophysicist, as all have a common concern in extra-human temporalities and in arche-fossils, dug up and brought into the present. This link is more than figurative, however, as the use of the Earth as a filter for cosmic noise makes literal Tycho-Brahe's incantation:

Despiciendo suspicio

Suspiciendo despicio

("By looking up I see downward

By looking down I see upward")

(Tycho-Brahe (1546-1601), inscription at Castle Uraniborg, Øresund, quoted in Howell, 1998)

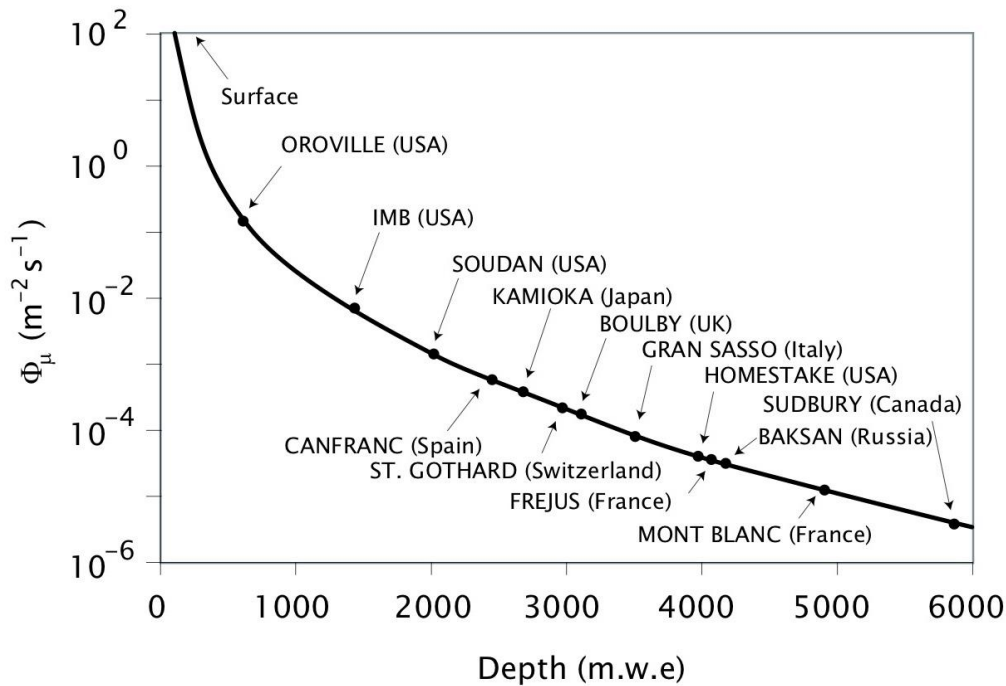


Figure 11: A diagram showing the various depths of underground laboratories around the world (Morales et. Al, 2005).

It is through the construction and use of deep underground laboratories that today's physicists are able to reach the low radioactive background levels required to attempt the detection and characterisation of cosmic particles. Allowing the study of the fundamental laws of physics, including those that guide proton stability and particle-antiparticle neutrino properties, "rare event physics" is seemingly the purest of sciences. Yet, it is only by going deep into the dirt that particle physicists can probe the interiority of the Sun, or model and experiment with the nature of dark matter.

These reconstructions of past states of matter and the universe allowed for by underground industries also enable the archeological promise of reassembling microcosms of human history. Ancient mining practices are a large area of archaeological study for this reason, as underground caverns, sealed or caved-in, present conditions that preserve the activities and implements of ancient peoples. Consequential archeological finds also regularly result from the field investigations, imaging and extraction operations of mineral and petroleum engineers and workers. One such find was of second century gold coins, linked to the great mines of the Roman Empire at Riotinto, a river tinted red from five thousand years of mining.

Riotinto is an area that often pits archeological and metallurgical interests against one another, and it has been rendered largely impossible to study by present-day archeologists due to continued large-scale open-cast mining in the area (“Rio Tinto Group” is also now the name of an Australian-British multinational, one of the world’s largest metals and mining corporations).

The cleansing effect that reconstructive, “pure” knowledge pursuits like astrophysics and archeology have in sanctioning further and future extraction is easily seen in the ways that industries reframe what are, for them, production delays, or what we might call cultural-resource curses. Rio Tinto mining company Atalaya’s Second Quarter 2017 Operations Update declares their applied pursuits, purified through archeology-as-CSR: “As part of the Company’s Corporate Social Responsibility (CSR) initiatives a significant archaeological programme was launched in June 2017 to study a number of archaeological sites including Cortalago, a Roman mining settlement of relevance” (Atalaya, 2017). The rewards of contemporary extractive industries are never just mineral or petrochemical, but they involve complex collusions of knowledge practices – at once geological and mineralogical, archeological and metallurgical, Applied and Pure. It is only by going deep underground that we can look into the deep history of the universe and its humans, and it is only by extracting material at those depths that conditions are created for many of these histories to be revealed.

The Deepest and Most Rewarding Holes Ever Drilled¹

The National Institute for Nuclear Physics (NINP), which is under the supervision of the Ministry of Education, Universities and Research of Italy, operates four national laboratories. One is in the ancient Sicilian port city of Catania at the foot of Mount Etna; another in the suburban commune of Frascati within Rome’s metropolitan area; a third is in Legnaro near Padua. The fourth, the most elaborate and well-funded of the facilities of the NINP is the *Laboratori Nazionali del Gran Sasso* (LNGS), an extensive underground research facility extending from and next to the longest two-tube, two-lane tunnelled roadway in Europe, *Traforo del Gran Sasso*. LNGS is the largest underground science laboratory in the world, located a thousand meters above sea level, in the highest part of the Italian Alps. The laboratory comprises three massive, brightly lit experiment galleries, each one measuring one hundred meters in length, and about twenty meters in diameter, all sheltered beneath

1,400 meters of limestone and dolomite rock – “conditions of ‘cosmic silence’ are guaranteed by the protection of the rock” (INFI, 2018). Such conditions are needed for the minimisation of cosmic and human-made “noise,” which enhances the probability and quality of detections of cosmic particles of known and unknown kinds.

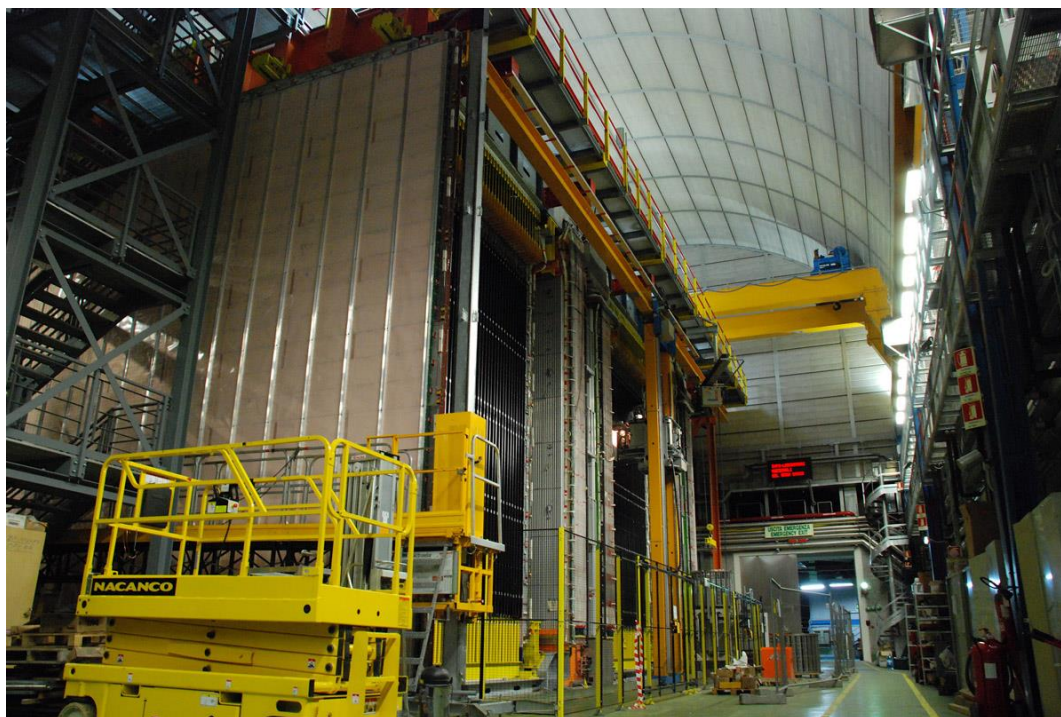


Figure 12a: Tunnel 1 of the Laboratori Nazionali del Gran Sasso (LNGS).

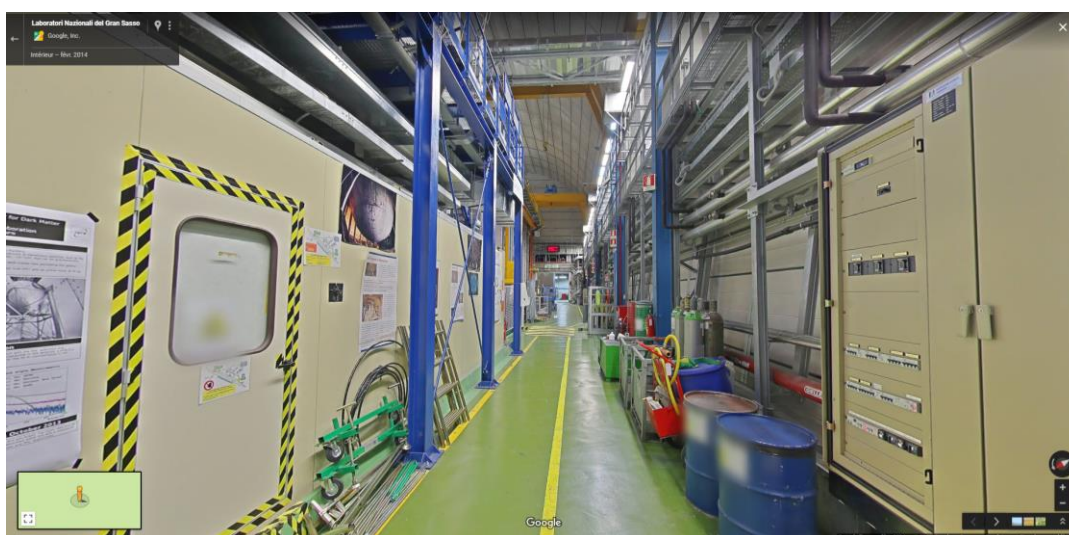


Figure 12b: To view on Google Maps: <https://goo.gl/maps/hVFiN1dfGA42>

LNGS is situated within and extends disused service and access tunnels for a major highway and a freshwater aqueduct. It is where it is because, in 1984, Italy decided to bore a ten-kilometer two-lane highway tunnel carrying the A24 autostrade through

the Gran Sasso Massif. The site has been publicly controversial, and opposition to the project helped to galvanise the environmental movement in Italy, somewhat. In 2002, over fifty liters of trimethylbenzene, a chemical used to increase the light emitted from water when struck by neutrino particles, was spilled and released underground, flowing into an overground stream, its gasoline-like smell noticed by locals. LNGS is a quintessential example of a scientific infrastructure that was forged through, and symbiotically benefits from, collusion with transport, mining and industry needs.

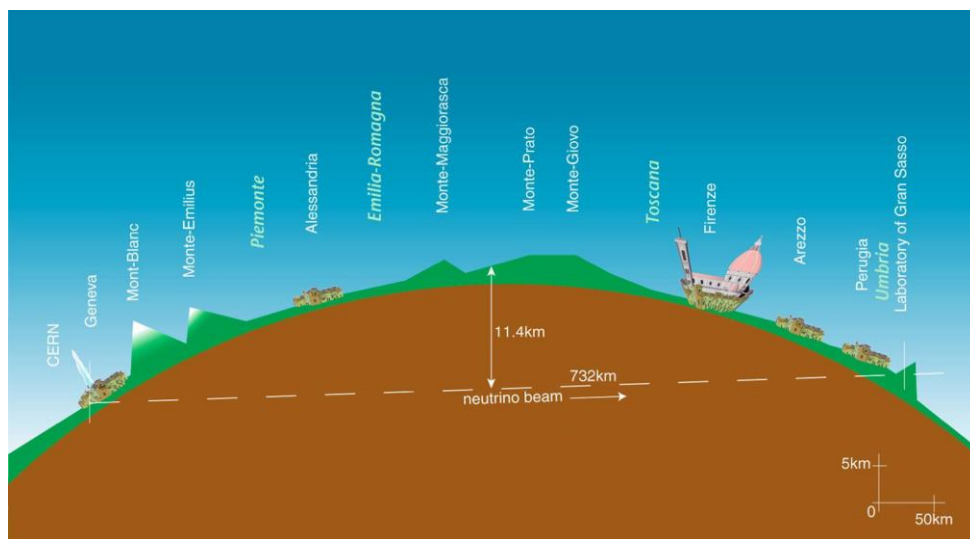


Figure 13a: CERN shoots neutrino beams at LNGS. Diagram from Symmetry. (From <https://www.symmetrymagazine.org>), a joint publication of Fermi National Accelerator Laboratory and SLAC National Accelerator Laboratory (US Department of Energy).



Figure 13b: To view on Google Maps: <https://goo.gl/maps/iMARdbyxvQH2>

The European network of Deep Underground laboratories includes the LNGS, as well as *Laboratoire Souterrain de Modane* (the deepest laboratory in Europe at 4,800

meters) in France, at the midpoint of the Fréjus Road Tunnel, and *Laboratorio subterráneo de Canfranc* in the disused railway tunnel of Somport under Monte Tobazo, in the Spanish Pyrenees.



Figure 14a: Estación Internacional de Canfranc, a former international railway station in the Spanish Pyrenees, at the Spanish end of the Somport railway tunnel that runs to Cette-Eygun, France. It is here that authorised personnel access the tunnel containing *Laboratorio subterráneo de Canfranc*.

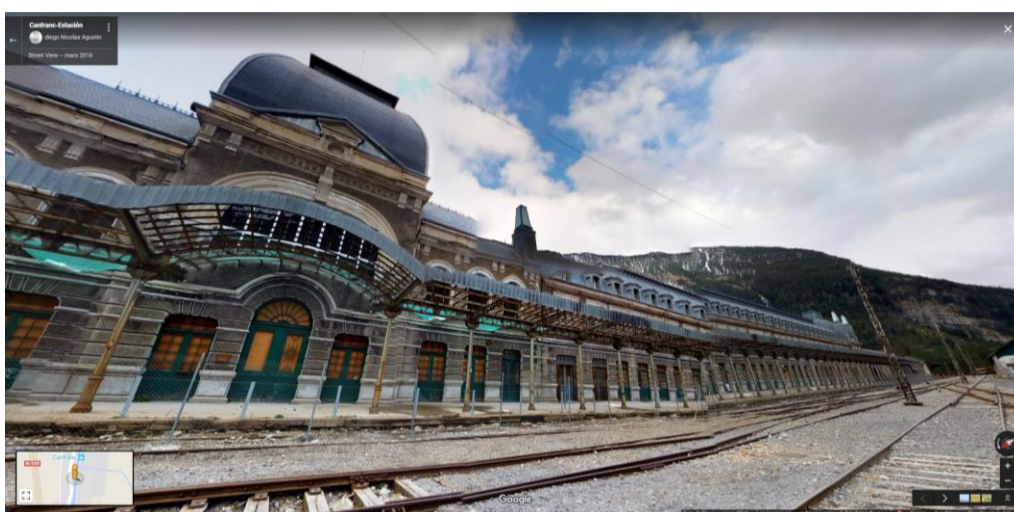


Figure 14b: To view on Google Maps: <https://goo.gl/maps/KBAzRfqspES2>

The Boulby Underground Laboratory in the UK is the fourth member of the European coordinating group of Deep Underground observatories, called the Integrated Large Infrastructures for Astroparticle Science, or ILIAS. Boulby's laboratory facilities are housed in an old mine within an active and busy mining site that produces half of the United Kingdom's agricultural potash. The mine is owned and operated by Israel Chemicals' subsidiary Cleveland Potash Limited. The Boulby Underground Laboratory is 1,100 meters below Earth's surface.



Figure 15: The entrance to the the Boulby Underground Laboratory in winter, located within the still-active Boulby Mine in Cleveland, England. It is run by Cleveland Potash Limited, a subsidiary of Israel Chemicals Ltd.

In the U.S., an international mega-science project, to which the UK alone has committed \$88 million, will result in something called the Long-Baseline Neutrino Facility (LBNF) and something else called the Deep Underground Neutrino Experiment (DUNE). The LBNF will support DUNE activities toward new discoveries in neutrino and proton science, requiring a neutrino “gun” fired by the U.S. Department of Energy's Fermilab near Chicago, and a receiving detector deep in the earth at the The Sanford Underground Research Facility (SURF). This second facility is housed in the repurposed Homestake Gold Mine in South Dakota, at

depths reaching to 2,440 meters underground. Homestake mine was a deposit discovered in April 1876, and so was part of and precipitated the Black Hills Gold Rush in Dakota territory at the time.



Figure 16a and 16b: Exterior and interior photographs of the repurposed Homestake Gold Mine in Lead, South Dakota, U.S.A., now called the The Sanford Underground Research Facility (SURF).



Figure 16c: To view on Google Maps: <https://goo.gl/maps/3ReAHpFRA6s>

Outside of Europe, and currently under expansion, the China Jinping Underground Laboratory (CJPL) is situated in the Jinping Mountains of Sichuan, China. It was placed where it is because the construction of the Jinping-II Dam hydroelectric power project required excavation of an extensive tunnel system beneath the Jinping Mountains. CJPL sits at 2,400 meters below the Earth's surface.



Figure 17: Entrance to the China JinPing Deep Underground Laboratory, or CJPL, in Sichuan province within a complex of tunnels that cut 17 kilometers straight through Jinping Mountain.

The Sudbury Neutrino Observatory, or SNOLAB, in Canada, resides in the former site of the Creighton nickel mine, still owned and operated by the Vale Brazilian multinational metals and mining company. It is the deepest nickel mine in Canada and SNOLAB was for a moment the world's deepest Deep Underground

observatory, until CJPL opened in 2010. It is now the world's second-deepest underground research facility, at 2,070 meters.



Figure 18a and 18b: Nobel Prize winning Sudbury Neutrino Observatory, in Sudbury, Ontario, now called SNOLAB. The sign out front reads: "Mining for Knowledge, Creuser Pour Trouver...L'Excellence."



Figure 19c: To view on Google Maps: <https://goo.gl/maps/cG3RfSBqG8B2>

Mining for Knowledge

There is no copper or nickel mine without its correlative constitution of a field of knowledge, no astro or particle physics that does not presuppose and constitute at the same time power relations, domination and exploitation (to paraphrase Michel Foucault). These are the strange knowledge-practices, always at once pure and applied, that subtend civilization, modernity. It is a modernity in which we wind up inhabiting weirdly contradictory real and imaginary places. To look up, we must go down, into the quiet deep, away from the noise and clamour of industries we have so elaborated that they blind us to the stars. To detect the faintest of signals, we descend into the remains of extraction, extraction that also powers (tele)communicative desire machines. Government agendas and workforces move away from manual and physical labour and toward cultural, informational and research economies that are knowledge and/or data-driven, as we accelerate all knowledge-practices into “fast science” (Latour et al., 2018).

Are these dirty, concealed shafts (*wissen-schafts*?) ever truly repurposed and reclaimed – their votive character, cleaned up yet still haunted by industry and contamination; their histories re-written, their applied science *purified*? Can new economies of knowledge extraction ever cleave or entirely remove themselves from long shadows of the mineral-material, the industrial, from base desire? Perhaps, noting and witnessing these vertical oscillations, these transapplications (not transformations), should give us pause, could suggest other decelerative paths and uses. Might we ask

ourselves what other knowledge practices, what new kinds of science, could be made possible in the deep alcoves of our mines, and minds?

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Notes

¹ This subsection title comes from the superbly titled paper by Janet Martin-Nielsen, “The deepest and most rewarding hole ever drilled?: Ice cores and the Cold War in Greenland” (Martin-Nielsen, 2013), which traces the transition that Greenland makes from an infrastructure of U.S. military to one of importance for climate and atmospheric sciences.

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