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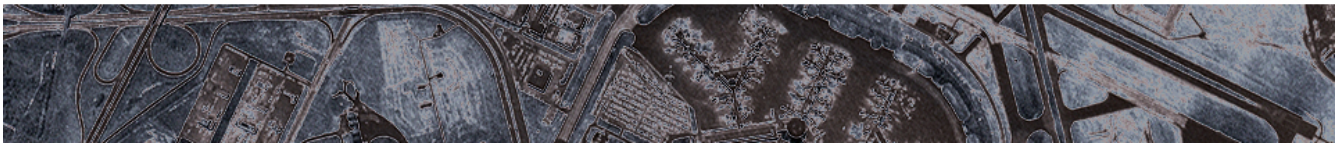

FCJ-216 'Know Your Place': *headmap manifesto* and the Vision of Locative Media

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Abstract: Ben Russell's *headmap manifesto* (1999) is an early and highly influential example of the discourse around commercial location-aware technologies that accompanied their emergence at the turn of the last century. Although numerous theorists acknowledge its influence on the fields of urban computing and locative media art, there have been few close analyses of the text and little consideration of its ongoing relevance in the current era of smartphones, location-based social networks and 'smart city urban planning initiatives. In this paper, I seek to address this shortcoming through a close examination of *headmap* and its influence on the discourse around what became known as 'locative media'. I argue that *headmap* offers a polemical, utopian vision of the world as it might have been, but also highlights the disparity between academic and artistic discourses around location-aware technologies and their current mainstream application.

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> What is the point of all the extraordinary technical inventions the world now has at its disposal if the conditions are lacking to derive any benefit from them, if they contribute nothing to leisure, if imagination is absent?
>
> Constant Nieuwenhuys, 'Another City for Another Life' (2006/1960: 71)

Introduction

When the *headmap manifesto* first appeared in 1999, Google was barely a year old, the U.S. government had not yet removed the GPS signal degradation that prevented its widespread commercial use, and Apple's iPhone was still almost a decade away. Predominantly written by computer engineer Ben Russell, *headmap* (always spelt in lower case, although I capitalise it here when beginning a sentence) envisioned a world not entirely unlike the one we inhabit today, in which location-aware devices have radically transformed everyday life. It foreshadows recent developments from the emergence of location-based

social networks like Foursquare and Yelp to dating and hookup apps such as Grindr and Tinder. In contrast to the strongly commercial, proprietary-driven nature of these applications, however, *headmap* foresaw these practices as emerging from the ground up. The potential for GPS technology to be integrated into every device and object would allow individuals to tag physical places with virtual information, provide site-specific advertising, organise community events and track people and objects. These practices, *headmap* claims, would lead to nothing short of a revolution of everyday life, transforming the way territory, architecture, politics, sex and social interaction are understood and enacted. We are at the precipice, it proclaims, of a 'new world' where 'augmenting and annotating reality will lead to a new conception of space, new ways of looking at land ownership, new kinds of communities and states' (Russell, 1999: 8).

Theorists such as Anne Galloway (2008) and Andrea Zeffiro (2012) acknowledge *headmap*'s conceptual influence on practices from urban computing to the 'locative media' movement. The document is even mentioned in a 2003 *Guardian* feature article, which quotes its author as declaring that 'the real possibilities for location-aware phones are predicated on contribution and sharing rather than centralisation and broadcast' (Russell quoted in McClellan, 2003). But since its publication *headmap* has gradually faded into obscurity, as the practices it saw as innovative and revolutionary at the time – tagging, tracing, and annotating physical locations; sharing one's location and actions with others in real time – have been commercialised and rendered commonplace for anyone who owns a smartphone. Meanwhile, there have been few close, full-length scholarly analyses of the text or, more importantly, any considered assessment of its ongoing relevance in the present era of ubiquitous location-awareness and 'smart city' urban planning models. [1] While it is not infrequently cited in scholarly literature in the field of mobile and locative media studies, with the exception of Zeffiro and Galloway it is seldom mentioned as more than a footnote. This paper seeks to rectify this lack of critical engagement with the text by undertaking a close reading of *headmap* and dissecting its historical importance as well as its ongoing influence on the present uptake and use of location-aware devices. The paper also situates the text in present debates over urban computing and locative media while reflecting on how its call for a grassroots, user-led appropriation of location-aware devices might still hold value today.

I begin by outlining and critiquing the *headmap* document itself and situating it within the broader context of how understandings of the relationship between digital technologies and urban space were evolving at the time of its publication. I then focus on the influence of *headmap*'s vision on the locative media movement, which strongly reflected the utopian – and sometimes dystopian –themes of Russell's text. Lastly I situate *headmap* in the context of current developments, with the advent of smartphones and pervasive GPS technology simultaneously realising Russell's vision of ubiquitous location-aware devices and closing off their radical potential. I argue that *headmap* not only remains an invaluable resource for understanding how location-aware technologies were understood at the time of their emergence, but it also accurately predicted and helped shape their subsequent development. This moment has well and truly passed, however, and the seeming disappearance of all traces of Russell and the 'headmap collective' he represented underlines the disjuncture between the adoption of location-aware technologies by academic and artistic circles and the actual uses of the technologies today.

'Geography Gets Interesting'

[2]

In 1999, Ben Russell published a 34-page document online called the *headmap manifesto*. [3] While the text is usually attributed to Russell, his name is not mentioned in the document and it was possibly written with other unacknowledged contributors.. The text optimistically describes a utopian near-future where location-aware devices have become ubiquitous and universally accessible, integrating themselves into the architecture, objects and public infrastructure of cities, reshaping the everyday lives of their citizens. It mostly celebrates the arrival of GPS tracking and mobile devices with the ability to store location-specific information about their users, proclaiming that they have the potential to revolutionise the way people interact and communicate from the ground up. Russell writes, 'what was once the sole preserve of builders, architects and engineers falls into the hands of everyone: the ability to shape and organise the real world and the [sic] real space' (1999: 2). It is an eccentric text, combining political commentary, poetry and haiku with quoted passages from sources as eclectic as Umberto Eco, Lewis Mumford, members of the Situationist International, a book about indigenous Australians' definition of place and an 'epic poem' about plants and herbcraft. These statements, quotations and musings are scattered throughout the document, roughly grouped under many headings and subheadings that correspond to a broad concept – 'architecture', 'dreams', 'maps', 'nature' and so on. Through the juxtaposition of these text fragments, *headmap* imagines a future transformed by location-aware technology in which the possibility for social, sexual and playful encounters with others are made increasingly commonplace and pervasive through technology. As Zeffiro writes, 'Russell amassed discourses of radical cultures of technology, politics, sexuality and community formations, in conveyance of a utopian future, in which everyday life is cushioned and dynamically energized by location-aware devices' (2012: 254).

The document's introduction contains what comes closest to a manifesto-style call to action. It argues for a shift from an 'inside' to an 'outside' way of being: away from the private space of the home, mind and computer screen to 'a recolonisation of the real world, computers becoming invisible, mobile, networked and location aware, the real world augmented rather than simulated' (Russell, 1999: 5). The remainder of the document describes how different aspects of everyday life will be transformed by the presence of location-aware devices. In this sense, *headmap* is a surprisingly prescient text. In a line that foreshadows the kinds of site-specific artistic projects and social networking applications that have since become commonplace, Russell (1999: 4) writes 'using a network you can publish the coordinates of a place with a note attached. That note can then be "found" by another user who visits the same place.' It also somewhat predicts the rise of apps like Yelp and Urbanspoon (renamed in 2015 as Zomato) that allow users to review places they've visited and share them with friends and other users on the network. Russell (1999: 32) describes 'entering a restaurant [and seeing] a huge burning skull in the middle of the room. Nobody else sees it. The skull was left at this geographical location by one of your peer group indicating that the restaurant is terrible.' Similarly, it anticipates the possibility for companies like Google, Facebook and Foursquare to track and analyse their users' data. Russell foresees individuals walking down the street and seeing one's mobile device light up 'with dots which represent places of interest determined by [the networks of] Starbucks [and] McDonalds' in addition to 'information based on your personal profile and the suggestions and opinions of your peers' (1999: 31). It also hints at the future rise of apps for dating and 'hookups' (one-off sexual encounters) imagining a world where 'sex and even love are easier to find' (1999: 4). And it even predicts the development of location-based gaming, describing 'computer games...that actually get kids out of the house and running around instead of being stuck in front of a computer screen' (1999: 32).

Although it is a fragmented, disordered text, there is a series of arguments and musings to be found as one

progresses through the document. I will offer a brief sketch of these here, although given the document's highly non-linear structure this must be taken at best as merely a paraphrasing of its far denser and more complex, convoluted ideas. First, Russell concentrates on the consequences of location-aware devices for the way we conceive of and regulate land and territory. Drawing on scholarly texts, as well as ethnographic reports and case studies primarily of indigenous Australians, he argues that tribal cultures have historically had a more fluid and nuanced understanding of space and territory than their European colonisers. Objects that are mundane to Western colonialists – trees, shrubs, rocks – had their own individual meanings or names; travel was conceived in terms of 'journeys' rather than following 'roads and paths'; and territorial boundaries were much more dynamic and in constant flux. 'The aboriginal concept of space clashed with Western ideas of law and land ownership', Russell (1999: 11) writes. 'Colonial settlers parcelled land up into neat rectangles enforcing these arbitrary boundaries with force and punishing trespassers.' Russell then reflects on the way contemporary life follows generic, predictable patterns, not unlike the military, in which soldiers are conditioned to follow highly routinised behaviour. We visit the same places each week, follow the same paths from home to work and back again, rarely deviating from the norm. Not only are our predictable, regimented lives reinforced by modern urban planning, marketing agencies and the media, but they also become captured and appropriated by these institutions and corporations, fuelling a highly consumerist urban life: 'human patterns have become commoditised' (1999: 13). [4]

Russell then shifts the discussion to location-aware devices, arguing that they hold the potential for a return to a more embodied, non-hierarchical, less predictable engagement with space akin to that of Indigenous culture. He writes that such devices 'show people their patterns in a way that might be directly useful and interesting to them, even suggest changes in behaviour and be able to measure and show direct changes in mood resulting' (1999: 13). Our actions no longer become just commodities to be analysed and harnessed by marketing firms or authorities, but instead placed in our own hands or shared with others. As a result, they make us reflect on our daily routines and interactions with others – in turn making us rethink and alter these patterns. One of the most intriguing sections of the document consists of Russell's account of his own autodidactic self-observation and monitoring through a series of different diary techniques. One involves daily entries consisting of 10 words that he would come up with in the evenings upon reflecting on the day. The first five words would describe 'practical' things, such as activities, events and exercise; the second five relate to 'abstract' things, like 'mood, people and sensations'. A sample entry he provides reads:

> 2.3.96 [date]
>
> climb.walk.work [practical words]
>
> sunlight.Carly.happy [emotive words] (Russell, 1999: 12)

Another concept consists of the 'pure mood log', which lists a number of categories relating to one's mood – 'boredom, fitness, health, how horny you feel, confidence' and so on – and rating each on a scale of -5 to +5. Viewing these entries over an extended period of time allows people to 'measure and show direct changes in mood' (1999: 13). These various methods of diary-keeping and mood-measuring are the most directly personal aspects of an otherwise often polemical document, and illustrate some of the everyday activities that might have inspired its author to write it.

The remainder of the text focuses on the ways in which ubiquitous GPS-enabled devices might transform

different aspects of society, from politics and political dissent to architecture, urban infrastructure and software development (for instance, open source projects like Linux going mobile). These arguments are put forward in typical manifesto-style, interspersing passages from selected texts that support Russell's worldview or provide 'evidence' of the changes he foresees happening accompanied by predictions and proposals about how they might unfold in real life. These range from the fanciful – 'if you know where a tree is and you know when someone is walking past it you could make it burst into song' (1999: 4) – to the almost prophetic – 'a world filled with notes and objects that aren't really there' (1999: 14). Russell's take on the potential of location-aware devices falls into the familiar techno-utopianist trap of over-optimistically predicting their impact and overlooking their potential to be co-opted by governments and corporations. His discussion of the tracking and tracing abilities of GPS focuses on how users will take advantage of location-specific information for sharing information about and reviews of places, keeping in contact with friends and organising activities and collective action. Less attention is paid to the surveillance and privacy concerns of these devices, although Russell does acknowledge the dystopian potential for government programs that store GPS location data (1999: 16) and the uneven possibilities they bring. As I discuss in the final section, though, in later versions of the text this development does attract more attention.

But perhaps more pragmatically, a similar critique made by Mary Flanagan of the Situationist International – a key inspiration for *headmap* – could be applied to Russell's vision. Flanagan's critique of the Situationist concept of psychogeography highlights how,

> as theorists, Situationists were bound by their time, place, class, language, and ethnicity, and may have failed to understand the *dérive* as an activity with race, class, gender, and ethnic implications. Theirs was also a class-specific view, in that they prioritized the autonomy of the individual who has unrestricted movement.
>
> (2009: 195-6)

In contrast, she notes that many people at the time did not have this privilege – the poor, homeless and marginalised – and that the Situationists' ideas seldom spoke to these people. Similarly, many of the utopian projects envisioned by Russell consist of activities to which only a relative few would have access: leaving messages on tress, overlaying urban space with symbols and 'electronic graffiti', creating playful games (who can get to the opposite end of town the quickest?). Only a certain professional class in generally progressive, democratic, predominantly urban and technologically-literate locations would be able to engage in such activities. Seldom are these arguably frivolous, naïve ideas challenged or problematised in the next, nor are external constraints – work, time, social pressures – factored into the scenarios envisioned in *headmap*. Of course, Russell accurately predicted many of the applications to which location-aware devices would be put – but as I discuss later these ultimately became subsumed by consumer devices. Before I get to this issue, though, it is necessarily to examine why this decidedly utopian, progressive thread is so dominant in *headmap*.

'The ability to mark and annotate real spaces will dramatically extend the possibilities for collective construction.'

Headmap shares much in common with other utopian visions of 'cyberspace' written in the late twentieth century that argued for an alternate world where networked technologies would lead to a complete restructuring of society. But it differed from other political manifestos and cultural representation of the internet from this time in two crucial ways. First, whereas most cyber-utopian texts depicted virtual and physical space as separate and distinct, the former liberating individuals from the constraints of the latter, *headmap* argued for an intersection of the two. It proposed the 'extension' and 'overlaying' of digital information in physical spaces; not a gradual transition from 'meatspace' into 'cyberspace' as was depicted in film and literature. Second, although other groups such as Mark Weiser's 'ubiquitous computing' research lab similarly advocated the merging of information technologies into physical architecture, they concentrated on consumer products created through private enterprise. *Headmap*, in contrast, focused on users' appropriation of these technologies, envisioning that most applications of location-aware devices would emerge through grassroots experimentation with them. These two factors make *headmap* almost unique in cyber-utopian discourse of the time, and further explain its subsequent influence on experimentation with location-based media. I will briefly elaborate on these two key distinctions in more detail.

The 1980s and 1990s were characterised by the anticipated imminent arrival of new organisations of society, politics and the economy made possible by cyberspace. This optimism was fuelled by texts like John Perry Barlow's 'Declaration of the Independence of Cyberspace' (1996), novels such as *Neuromancer* (Gibson, 1984) and *Snow Crash* (Stephenson, 1992) and, of course, films like *Tron* (Steven Lisberger, 1982) and *The Lawnmower Man* (Brett Leonard, 1992). These texts, as Julian Kücklich (2009: 341) notes, all portray cyberspace as both separate from the physical world and outside the reach of governments and traditional forms of state-controlled power. 'The common thread in these discourses of cyber-utopianism', he writes, 'is a tendency to regard virtual space as lying "outside" the territory of national states, and its "population" as exempt from the legislation of national states.' This sentiment was reinforced by popular and academic accounts of cyberspace during much of the 1990s, which were dominated by accounts of an 'exodus' from the material world towards networked virtual communities, complete 'with their own laws, economy, culture and institutions' (Kücklich, 2009: 341; see also Chun, 2006; Varnelis and Friedberg, 2008: 25-6; Zielinski, 2006: 40). *Neuromancer*'s 'matrix', for instance, is a lawless frontier governed by a 'super-AI' that eludes police control, while the 'Metaverse' in *Snow Crash* is a radically privatised virtual network with few controls or boundaries bar private ownership. Likewise, Barlow delivers a warning to 'Governments of the Industrial World' in his 'Declaration' that 'cyberspace does not lie within your borders. Do not think that you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through our collective actions' (1996).

Headmap arrived at the height of this celebratory rhetoric surrounding the Internet. In some ways, it builds on the assumption common to these accounts that it is an inherently liberal, unifying technology whose decentralised architecture innately resists top-down, hierarchical control. *Headmap*'s description of location-aware technologies that make users more attuned to the physical environment around them, allowing them to augment physical architecture and objects with digital information and organise political dissent, taps into this tendency to inscribe the Internet with subversive qualities. But it also appeared at a time when the understanding of cyberspace as a spatially distinct realm, separate from the material world,

had for several years been extensively critiqued – at least in academic theory. Manuel Castells' *Information Age Trilogy* (originally published 1996-1998) had outlined in exhaustive detail the very material elements of the Internet and its embeddedness in physical infrastructure. In a perhaps dystopian (if not at least cautionary) corrective to the utopian ideals that characterised accounts of cyberspace at the time, Castells warns of the rapidly expanding gap he perceives between the 'space of places' and 'space of flows', roughly corresponding to physical space and virtual space respectively. 'Unless cultural, political, *and physical* bridges are deliberately built between these two forms of space', he writes, 'we may be heading toward life in parallel universes whose times cannot meet because they are warped into different dimensions of hyperspace' (2009: 459; original emphasis). Similarly, Saskia Sassen in her book *The Global City* (first published in 1991) describes the growing concentration of economic power in a select few cities – New York, Tokyo and London – linked through networked infrastructure. Despite their divergent histories, cultures, economies and political systems, Sassen argues that it is 'precisely because of the territorial dispersal facilitated by telecommunication' that these cities were able to develop parallel to one another and together come to 'account for a disproportionate share of all financial transactions' (1991: 5).

Both Castells and Sassen, then, dispelled the myth that cyberspace is both atemporal and spaceless. *Headmap* sits somewhere between the utopian literary visions of cyberspace and this more grounded understanding of the space of the Internet as materially bound and shaped. It retains elements of the romantic, idealised vision of the Internet from earlier accounts. But it also reflects this growing recognition within academic discourse that physical and virtual space are not separate, but closely interlinked. In this sense at least, it challenges previous ideologies that privileged cyberspace as a transcendental realm completely disconnected from physical space and time. It did, however, largely ignore the potential for governments, corporations and other forms of centralised power to regulate it (at least in its first iteration, as I outline in the final section of this paper).

Russell was not the only proponent at the time of blending physical and virtual space through computer technology. Eight years earlier, Mark Weiser had published his influential *Scientific American* essay, 'The Computer for the 21st Century' (1991). Weiser, who at the time headed the Computer Science Laboratory at the Xerox Palo Alto Research Centre (PARC) in California, was an early pioneer and proponent of the notion of 'ubiquitous computing.' Ubiquitous computing (also referred to as 'embodied virtuality') was based on the premise that although computers at the time required 'complex jargon' and technical expertise to understand and operate, soon they would become 'so ubiquitous that no one will notice their presence'. For Weiser, 'the most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it' (1991: 94). He criticised the dominant focus on desktop computers, contending that it perpetuated the idea that computers would occupy a specific place in the home or workplace and people's interaction with it would be confined to that space. This prevented computer technology from becoming a truly ubiquitous presence in people's lives. He predicted a 'post-desktop' future, in which computers will recede 'into the background' and 'embodied virtuality will make individuals more aware of the people on the other ends of their computer links' (1991: 104).

Headmap shares much in common with Weiser's desire to intermesh computer technology and physical architecture. There is even a fleeting reference to PARC's research in the 2004 'redux' version of the manifesto (see Russell, 2004b: 22). Nonetheless *headmap* envisions this process unfolding in a very different way to that of Weiser's research. Weiser was employed as the head of a research team dedicated

to finding ways of making computers more pervasive in the home. As such, his research was very much immersed in the consumer-driven mentality of Silicon Valley. As Paul Dourish and Genevieve Bell (2011: 9) note, Weiser's article was 'partly a manifesto and partly a progress report.' Its polemical language and futurist spin is reminiscent of earlier cyber-utopian visions of a future transformed by networked devices, but ultimately it contended that these would be delivered to consumers by global technology firms and small start-ups. *Headmap*, in contrast, predominantly focuses on the new possibilities that would be unleashed by the users of location-aware devices themselves and their creative experimentation with them. This distinguished it from already existing notions of 'ubiquitous', 'pervasive' and 'urban' computing, which as Galloway (2008: 185) points out, 'tend to be "top down" in the sense of originating in universities and corporate research labs.' Throughout *headmap*, there is an underlying assumption that the mere presence of these devices will automatically bring about the revolution Russell envisages; that the simple fact of their existence in the hands of everyday users means that they will disrupt the heretofore top-down, corporatised development of the Internet seen with the World Wide Web. This sentiment is expressed most clearly in the introduction, when Russell states that 'the internet has already started leaking into the real world. Headmap argues that when it gets trully [sic] loose the world will be new again' (1999: 5).

'Technology is a hard edged reality, but it is also a carrier of metaphors, and those metaphors are often as important as the devices themselves'

Remarkably, while location-aware technologies would eventually be co-opted by consumer applications (epitomised by the release of the iPhone 3G in 2008), Russell's vision *was* actually realised in practice. The *headmap manifesto* is cited by some theorists (Lenz, 2004; Tuters and Varnelis, 2006; Zeffiro, 2012) as a foundational text for what later became known as 'locative media.' The term 'locative media' was first coined by Karlis Kalnins during the Art+Communication Festival held in Riga in May 2003 (Zeffiro, 2012: 251). Drew Hemment notes that this moment 'brought together many early practitioners and played an important role in the emergence of the *field* of locative media' (2006: 350; my emphasis). The actual technology used by locative media artists and practitioners had existed for many decades, in the form of Global Positioning System (GPS) technology developed by the U.S. military. As Eric Gordon and Adriana de Souza e Silva (2011: 41-2) note, 'although GPS technology has existed since the early 1960s, it was not until the Clinton Administration removed the signal degradation called Select Availability (SA) on May 1, 2000 that these devices became popular.' As a result, GPS technology was made 'much more accurate, allowing users to locate specific places and objects on the globe's surface.' The widespread growth and accessibility of online digital mapping tools such as MapQuest (1996), OpenStreetMap (2004) and Google Maps (2004) also laid the groundwork for bringing commercial mapping and 'geo-locative' tools to everyday users. But Russell's prediction that amateurs and artists would conduct the most interesting experimentations with location-aware devices proved accurate – at least during its crucial early period.

It is not necessary to provide a definitive, or really even brief, overview of the different types of locative media art and projects that emerged during its zenith (generally considered between 2003-5, although locative media projects are still created today). Hemment's (2006) article in the widely known *LEONARDO* special issue on locative media gives a useful breakdown of the different types of projects, while other theorists provide taxonomies and histories of the movement and the multitude of projects it produced (see in particular Drakopoulou, 2010; Tuters and Varnelis, 2006; Zeffiro, 2012). It has also produced an entire sub-discipline of mobile media studies focused on locative media, led most prominently by American-

based scholars like Jason Farman (2012), Adriana de Souza e Silva (2006) and Jordan Frith (2015), but encompassing theorists from many other (albeit mostly Western) countries. This widespread uptake of locative media as both artistic practice and academic discipline can be traced to the history behind the development of the term itself – in which Russell's text played no small part. 'Locative media', as numerous theorists have pointed out (Galloway and Ward, 2006; Kalnins, 2004; Tuters and Varnelis, 2006: 357; Zeffiro, 2012: 251), is derived from the locative noun case in the Latvian language. It roughly corresponds to the English words 'in', 'on', 'at' or 'by' and refers to the final location or time of an action. As Kalnins (2004) explains, it is a decidedly apt term for location-aware devices that use GPS technology, given 'GPS devices are useful for not just geographical coordinates but also for obtaining very accurate time from orbiting atomic clocks', emphasising the fact that these devices (and the projects that use them) are 'not just about location'. The use of the Latvian case also nods symbolically to the locale at which the term itself was coined, neatly bringing everything back full circle.

Since its inception, then, locative media has been imbued with self-reflexive terminology and symbolic language that distinctly marks it as an intellectual, artistic and avant-garde practice. Evidence of this can be found from the clever coining of the term – which gave a previously disparate set of artistic practices a somewhat unifying direction – to the poetic, mostly optimistic language of Russell's manifesto. 'Locative media' encompasses not only the technologies and tools for location-based tracking, but also the mythical 'aura' around these devices that its practitioners and proponents espoused. This symbolic significance of the term is reinforced in Russell's definition of locative media in his introduction to the *Transcultural Mapping Online Reader*. He contends that

> Locative media is many things: A new site for old discussions about the relationship of consciousness to place and other people. A framework within which to actively engage with, critique, and shape a rapid set of technological developments. A context within which to explore new and old models of communication, community and exchange. A name for the ambiguous shape of a rapidly deploying surveillance and control infrastructure. (2004a)

Both Russell and Hemment's (see above) descriptions of locative media as a 'field', 'site', 'framework' and 'context' for understanding and 'critiquing' technological and social transformations underscores their advent as the arrival of a new movement, not merely a new set of technologies and devices. This was partly accomplished by distinguishing locative art from the new media art that came before it – namely, net art (sometimes stylised as 'net.art'). While net artists used digital technologies to create art works that participants could interact and engage with, they were generally confined to the computer monitor or showcased on a computer screen inside art galleries (Pearce, 2006: 73). By the late 1990s, Marc Tuters and Kazys Varnelis (2006: 358) note, net art had begun to show 'signs of exhaustion', with many art critics noting its boom had 'come to an end'. Soon after, locative artists began to fill this void, defining themselves against net art in two ways. First, they embraced consumer technologies such as mobile phones, PDAs and GPS-enabled devices, bringing new media art out of the gallery and into the public spaces of the city (Hemment, 2006: 351). Second, they were more willing to accept corporate sponsorship: Proboscis cited endorsements from clients such as HP and Orange UK, while Blast Theory openly acknowledged their acceptance of corporate sponsorship for their projects, as well as other public arts funding and university partnerships (see Tuters and Varnelis, 2006: 360; Varnelis, 2011). In this sense, many artists and proponents of locative media defined themselves as not unlike 'freelance Research and Development' teams (Cubitt, 2007: 1152), experimenting with new devices and putting them to unintended uses, just as

much as they were traditional artists. Both these arguments contributed to a rhetorical positioning of locative media as the 'forefront' of new media art, embracing new devices and taking interactive art out into the streets, in contrast to net art's 'confinement' to the gallery and computer screen. [5]

Headmap provided more of a conceptual inspiration for the practices that ultimately emerged out of locative media than a principled framework or handbook directly adopted by artists. Yet traces of Russell's utopian rhetoric and compelling vision of location-aware devices can be found in workshops, conferences and descriptions of artistic projects. South Korean artist Taeyoon Choi mentions *headmap* as a direct influence on his work in public space, [6] while projects like *Urban Tapestries* (Proboscis, 2002) and *dot.walk* (Wilfried HuJeBek, 2002) realised the grassroots possibilities for tracking and tracing people's movement through the city. Media scholar Anne Galloway even specifies *headmap* as the inspiration for her PhD dissertation on locative media and urban computing (see Galloway, 2008: 185). And in her genealogy of locative media, Andrea Zeffiro (2012: 253) cites the publication of Russell's manifesto, alongside the Art+Communication Festival in Riga, as one of the two 'defining moments of [its] emergence' (2012: 253). Artists took up its argument for an 'outside' rather than 'inside' worldview in spirit, making its call for a grassroots, amateur uptake of mobile, location-aware devices a tangible reality.

In this sense, *headmap* served as one of the key inspirations for the conceptual category of locative media, which subsequently subsumed existing artistic practices into one collective movement and spurred further experimentation and innovation. But it is worth noting that locative media as a critique and practice of location-aware devices was, and remains, highly problematic. On one level, it is subject to extraordinarily optimistic claims about its potential to reinvigorate public space, make participants and users more engaged with the people and environment around them, and get people outdoors in stark contrast to earlier forms of new media art (Tuters and Varnelis, 2006; Varnelis and Friedberg, 2008). In part, this is a legacy of *headmap*'s influence on the movement – a deliberately provocative manifesto whose celebratory rhetoric gets taken up uncritically by artists and proponents who identify with its vision of the world. Of course, many theorists and commentators did offer far more pessimistic and critical correctives to these optimistic declarations. These criticisms focus on the potential for location-aware devices to be surreptitiously tracked and surveilled by governments and marketers, most prominently represented by Andreas Broeckmann's oft-cited description of locative media as 'an avant-garde of the "society of control"' (see Dieter, 2014: 227; Flanagan, 2009: 190; Tuters and Varnelis, 2006: 360). But these claims were often equally as problematic as the optimistic accounts perpetuated by Russell and other advocates of locative media.

Broeckmann's statement was really a throwaway line in a discussion forum post intended more as a question regarding the 'ambivalence' about locative media noted by others than a scathing criticism. He writes,

> i [sic] have always understood the term "locative" as pointing in both directions, the potential for enriching the experience of shared physical spaces (as described by Marc [Tuters] in his mail), but also fostering the the [sic] possibility to "locate", i.e. track down anyone wearing such a device. (in Graham, 2004)

But Broeckmann's cutting phrase has since been immortalised, and is now often invoked by numerous other theorists who dismiss locative media as a military and consumer tool for hegemonic control. Most

prominently (and perhaps polemically) Brian Holmes (2004) argues that many locative media projects simply serve as 'proof of infallible performance by the satellite mapping system' despite their visual beauty. He accuses locative media practitioners of being at best uncritically oblivious to the military and consumerist origins of the technologies they use; and at worst wilfully introducing a more widespread acceptance of surveillance and tracking through their practices (2004). But the problem with critiques like Holmes's is that they often tend to be equally as hyperbolic and uncritical as the celebratory claims espoused by locative media's proponents they target, offering a similarly one-sided perspective rather than a more nuanced or 'ambiguous' one.

Headmap, then, influenced the formation of locative media as a conceptual category. But it also arguably contributed – if only in a marginal way – to the development of this rather binary, oppositional discourse around the term, whereby locative technologies are either embraced or dismissed. Certainly, there have since been invaluable scholarly contributions to the study of locative media that have unpacked its historical lineages in mobile communication and positioned it within broader understandings of everyday urban life. But a great deal of the discourse around it has fallen into either of these two camps – uncritically optimistic or uncompromisingly dystopian – with little middle ground between the two. This leads to an extremely abstract, overly rhetorical understanding of location-aware technologies and the artistic projects that have emerged from them. It ultimately comes at the expense of a more grounded critique with the actual, embodied experience of engaging with them or the institutional constraints and imperatives that shape their creation.

This is, arguably, *headmap*'s dual legacy. It provided a powerful vision of location-aware devices that emerged right at the very beginning of their mainstream development, inspiring a radical, avant-garde artistic movement dedicated to experimenting with them. But at the same time, its overtly utopian rhetoric led to a field of discourse that became highly contested and problematic, initially shaped more by promises and claims than an embodied critique of the technologies and practices around them. It was incredibly successful in spurring practical experimentation with location-aware technologies that might not otherwise have occurred. But it also generated equally as much myth and imaginary as productive critique.

'The world as interface.'

Locative media and the vision of location-aware devices perpetuated by texts like *headmap* are now a far cry from the applications to which these devices are predominantly put today. As I mentioned at the onset of this paper, Russell was actually remarkably accurate in predicting the kinds of commercial uses of GPS and location-aware devices that are now commonplace. *Headmap* predicts the rise of location-based social networks like Foursquare, restaurant and hotel review services like Yelp, location-based dating apps such as Grindr, and location-based games. And it does so in some instances well before their actual advent years later. But, as I have outlined in this article, *headmap* depicts these applications as primarily being driven from the ground-up, operated in an almost communal fashion at the highly local, community level. Instead, the services that exist today – Foursquare, Yelp, Grindr and even many location-based games – are operated by start-ups mostly based in California and entangled in the global app economy dominated by Apple and Google (see my discussion of this evolution in relation to location-based games in Leorke, 2014). On one level, this has allowed these applications to become far more widespread and closely ingrained in the everyday lives of users. Facebook and Google's capacity to create intricate databases of their users' social networks, coupled with the ubiquity of smartphone devices, has effectively made Russell's prediction

of a 'spontaneous extended community defined by both common interest and proximity' (1999: 4) a reality. But these are extremely commercialised applications: recommendations based on one's purchase history, 'gamification' and app stores with 'microtransactions' or in-app purchases do not figure in Russell's vision of the original 1999 *headmap*.

In fact, as subsequent iterations of *headmap* were published in 2002 and (circa) 2004, Russell's vision remains strongly utopian, rather than becoming more pragmatic. The 1999 version's utopianism does subsequently become somewhat counterbalanced by warnings that echo the dystopian anxieties about location tracking by theorists like Holmes mentioned above. In the 2002 manifesto, Russell cautions, 'if location aware devices reach the mass market in a form that does not cryptographically protect the user, governments and corporations are soon going to know exactly where everyone is in real time' (2002: 29; see also p. 22). But these fleeting warnings are dwarfed by an additional 15 pages of text devoted to exploring the relationship between location-aware devices and 1960s counter-culture. The final sprawling section attempts to trace a link between networked mobile technologies and counter-cultural practices. These include hippie communes; temporary autonomous zones (real and imagined pop-up communities like Burning Man, Archigram's Instant City and the Glastonbury festival); electronica and trance music; new age spiritualism; experimentation with LSD and other drugs; and the sexual liberation movement. Insisting the spirit of counter-culturalism is not dead, Russell argues 'the spatial and social weirdness that location-aware devices are going to make possible is prefigured by the spatial and social experimentation of the counter-culture' (2002: 38). For Russell in 2002, the endpoint of ubiquitous location-aware devices is now 'a digitally mediated 21st century extended commune' (2002: 48).

At more than twice the length of its previous iteration and three times the original, the (circa) 2004 'redux' version of *headmap* contains a far more expansive and structured analysis of contemporary developments (now with a fully numbered, albeit still incoherent, table of contents). But it is only very marginally less polemical and optimistic than previous iterations. Among its main new opening arguments is Russell's account of what he describes as an emerging state of 'nodishness', in which the distance between one's psychological and electronic, online identities is increasingly diminishing. People, he writes, are becoming 'mobile nodes', 'bound to their devices' but still embedded in physical space, entering into impromptu conversations with others and forming collective networks across territorial and cultural space (2004b: 4). The emergent platforms foreshadowing this process Russell identifies are blogging and Apple's Rendezvous technology (software released in 2002, and later renamed as 'Bonjour', that allows different devices to talk to one another). Blogs, he argues, will soon move away from static online texts containing mundane monologues about daily life and become a method for connecting to others through mobile, location-aware devices in a social equivalent of Rendezvous.

Crucially, Russell envisions this process, once again, as occurring inside but beyond the confines of commercial development: it will be 'adhoc-corporate but still cellular' and 'likely end up being something more than nokia or sony [sic]' (2004b: 3). On page 23 of the PDF (the page numbers are mixed up in this section), he posits a trend whereby using GEOURL (tagging websites with GPS information), individuals will be able to index items and services they are selling, thereby bypassing websites like eBay. He contends this will lead to a new 'gift economy', where people trade their possessions or perform tasks for others in exchange for money or favours in return: 'exporting successful internet models to physical reality'. [7]

Later in the text Russell does ruminate once again on the growing privacy concerns over locative

technologies, predicting (accurately) that

> people will almost certainly use location aware devices without strong privacy protection in place, as long as transactions are secure and there is no overt discernable [sic] violation. If it makes there [sic] lives easier Americans seem content to have huge market research firms keeping data on them and selling that data. (2004b: 56)

In a further prescient remark, he states

> if this technology impacts without privacy built-in, all kinds of organisations could not only know your internet browsing habits, but where and when you go (in real time – i.e. where are you now), what you buy and who you see, and from that establish the patterns in your spatial behaviour. (2004b: 56; see also pp. 66-7)

But ultimately the text remains unabashedly idealistic and optimistic. While the 2004 version much more explicitly acknowledges the path location-aware technologies will eventually follow – social networking, marketing and government surveillance – it still proposes amateur, anarchic and grassroots practices to counter this. It concludes with a 'revision note' which states how this is already happening – the aforementioned use of GEOURL to associate web content with individuals and geography – and declares that as location-aware technologies become more mainstream such practices 'will be easy for anyone' (2004b: 95).

It is no coincidence that the 2004 version of *headmap* was its final iteration. This is the point at which artistic experimentation with locative media was reaching its apex. Numerous conferences and workshops were being devoted to its application and study; seminal projects like Esther Polak's *MILK* had gained widespread attention (winning the Ars Electronica Golden Nica the following year); even the mainstream press was covering its developments (see for example McClellan, 2003; Stroud, 2002). But it was also just as the inevitable commercialisation of locative media had begun: 2004 was the year of Google Maps' launch, ushering in Google's dominance of the field, followed by Apple in 2008 and Foursquare in 2009. Tellingly, 2004 was also the year of Tim O'Reilly's Web 2.0 conference, popularising the concept of 'user-generated content' and its subsequent assimilation into the corporate strategies of technology companies around the world.

Rereading *headmap* today, it is clear that its predictions of future developments in location-aware technology are startlingly accurate. The 2002 manifesto includes a sketch of a prototype for augmented reality glasses not entirely dissimilar to Google Glass (p. 10; see description of device on p. 8). It also foreshadows the rise of services like Uber and Airbnb: 'drive cars that aren't yours and live in houses you don't live in' (2002: 7). The 2004 version, as mentioned, accurately predicts and cautions against the general indifference towards location-aware media's potential for surveillance and data mining that is now the norm. It also describes a simultaneously utopian and dystopian near-future where 'your view of the space and other people is supplemented by additional subjective annotation and symbolism' such as advertisements, directions and information about friends' activities' (2004: 7). This is essentially the vision promoted in Google's Glass promotional videos and parodied so brilliantly in Jonathan McIntosh's 'ADmented Reality' remix of one their ads. [8] But aside from these clever predictions and notable connections with the present, the world described in *headmap* is very different to the one we now inhabit.

As I have sought to emphasise throughout this paper, *headmap* – like many locative media artists following it – acknowledged the consumer and military origins of location-aware media. At the same time, it ambitiously argued for a widespread, amateur-led appropriation of them leading to the formation of ad-hoc communities and social networks outside the corporate structures and imperatives of these technologies. Needless to say, this has not eventuated on the scale envisaged at the time.

Of course, such communities and networks are formed every day on a small scale, using GPS technologies and mobile devices – geocaching being an excellent and still widespread example. But most people's daily experience with location-aware devices is in the form of smartphone devices with closed, highly controlled architecture and apps that generate profit either through up-front purchases, microtransactions, advertising or vast volumes of data collected from their users. The evolution of location-based media has followed much the same path as that of the World Wide Web – a technology that initially held the promise to revolutionise communication, political organisation and the dissemination of ideas that quickly became corporatised and assimilated into the logic of neoliberalism. The publication of the final *headmap* marks the turning point for location-based media: Google's entrance into the field, followed by a few more years of experimentation before tracing, tracking and location-based social networking become commonplace tools in commercial platforms. As a consequence, despite often being spot-on with its predictions about future developments, *headmap*'s vision of a future shaped by unanticipated applications of location-aware devices once they are placed in the hands of everyone has not been realised.

Probably *headmap*'s most visible, concrete legacy has been to describe – and to a certain extent inspire – the artistic practices that would later be cemented and critiqued under the rubric of the locative media movement. This movement is where Russell's ideas and vision were most practically realised: projects like Polak's *Amsterdam RealTime* (2002) and Blast Theory's *Can You See Me Now?* (2001), among many others, that took location-aware devices out into the streets of the city and constructed ways for individuals to gain a new understanding of the environment and their relationships with other people. Yet as location-aware technology has become increasingly commercialised and incorporated into the profit-generating structures of Apple, Google and Facebook, scholars have expressed dismay at the concurrent decline of artistic experimentation with locative media. Zeffiro laments the 'disjuncture between recent commercial "locative media" applications' and the more ambitious experimentation of only 'a few years ago' (2012: 250). Her comments echo others by Kazys Varnelis (2011) and Johan Brucker-Cohen (2014) that observe the growing gap between locative media art's radical early period and its present consumer appropriation. Of course, locative media art has by no means vanished entirely – Brucker-Cohen lists a spate of recent projects that 'call into question the very existence of the technology and social frameworks that underpin location-based technological systems' (2014), and new works utilising location-aware technology are still being produced today. But where once these practices were cutting edge, representing the forefront of experimentation with location-awareness, now they pale in comparison to the expansive incorporation of location-based services into commercial platforms from Facebook and Google to Twitter, Foursquare and Grindr with their countless users.

Yet the term locative media is alive and well today – perhaps even more so than the practice itself. As I mentioned earlier, the artistic projects that positioned themselves as part of this movement have in turn spawned an entire sub-discipline of 'locative media studies' within the broader field of mobile media studies. Entire books, edited collections and journal articles (including of course this one) devoted to the topic continue to be published almost as much as ever before, and numerous high-profile scholars have

built careers around its study. As the technologies and applications to which they have been applied began to move from the avant-garde into the commercial realm, the discipline evolved to reflect this shift. Initially some scholars were highly celebratory about the arrival of locative media in an attempt to describe their impact on everyday life, praising their capacity to reframe and reinvigorate users' relationships with the people and environment around them (see for example de Souza e Silva, 2006; de Souza e Silva and Hjorth, 2009). Now studies are predominantly devoted either to analysing people's use of smartphones and apps like Foursquare in their social relationships or retracing the legacy of early locative art.

Nonetheless, the term locative media has stuck, even though it is used almost exclusively in the artistic and academic domains – the everyday user of location-aware devices would not think of or describe them as 'locative media'. The term persists largely because it is perpetuated by scholars who have reclaimed it and transformed it into a vibrant academic field, despite the term itself seldom being used outside of the field. This reification and ossification of the term's lineage is evidenced most recently in the title of Jordan Frith's book *Smartphones as Locative Media* (2015), which clearly attempts to position smartphones within the historical trajectory of early locative art – even though for all intents and purposes the two have completely diverged. Tellingly, Frith's book hardly mentions locative art projects, concentrating primarily on smart phone applications, almost assuming that the two are synonymous. In this sense, locative media has come to almost transcend the material, embodied artworks and projects it began with. It has subsumed the practice itself, becoming a conceptual category for analysing them, just as Russell envisioned it (see his descriptor of the term quoted above, 2004a); albeit almost solely within the purview of academic discourse. Perhaps this is ultimately *headmap*'s most enduring legacy: contributing in a small way to the formation of a scholarly discipline that has arguably outlived the very concept it critiques. att This is not to slight locative media studies of course, which has contributed enormously valuable – and for me personally highly influential – studies of location-aware technologies and the movement more broadly. But it does reinforce my argument that *headmap*'s legacy has been primarily conceptual and discursive: it is more of historical importance as a window into how location-aware devices were thought of at the time than a roadmap for how they have actually been taken up. In true manifesto form, it provokes, inspires and sometimes influences developments, but its rhetoric falls far short of lived reality. Despite its canonical role in the formation of locative media and the subsequent take-up of location-aware devices by amateurs and artists, *headmap* and its author have since receded into the background. Following the publication of *headmap redux* on the headmap.org website circa 2004, Ben Russell seems to have largely withdrawn from web forums and public discussions of location-aware media and computing more generally. Likewise, the headmap collective's website is now defunct and an email I recently sent to their address went unacknowledged (although it did not bounce back). The technocult.org website, where *headmap* is currently archived, points out '[Russell] seems to have disappeared from the web around 2005.' It quotes one tech commentator, Tish Shute, who declares, 'the prime mover of the Headmap manifesto, Ben Russell retired from the scene – perhaps bored by seeing a radical vision gone thoroughly mainstream.' [9] Or more likely, as I have suggested, he saw the writing on the wall after 2004 and decided to retire the manifesto after accepting the inevitable commercial appropriation of location-aware devices that has now eventuated.

It would be nice to think that *headmap* still remains valid today, and that its call for a user-led appropriation of location-based media and content is still realisable. But current developments suggest otherwise. The chances of locative media experiencing some kind of resurgence are slim. Apps like *Pokemon Go*, despite their widespread popularity, merely perpetuate the appropriation of location-aware technology by the

digital games industry as a means to capture users' time and money in the 'attention economy' of smartphone apps. And despite initiatives aimed at incorporating citizens into the urban planning process and going against the top-down, bureaucratic management of cities, the dominant trend is now towards 'smart city' planning – which as theorists like Adam Greenfield (2013) and Rob Kitchin (2014) note is primarily vendor-driven, technocratic and based on visions that are more conceptual than pragmatically realisable. There are instances where Russell's vision resurfaces in contemporary debates and practices, or gains new relevance. More pertinent than ever is his observation that 'cities have scaled up so that more and more people live in them, but the people in them are further apart than ever…there are opportunities to help and be helped, to exchange or share, that the bluntness of our current social interfaces exclude' (2002: 9). But these amusing connections between contemporary developments and Russell's text aside, the future envisioned in *headmap* is, paradoxically, both tangibly close to our own present reality and even more distant and unrealisable than it was when it was first published.

Conclusion

In December 2015, Berlin-based artist Julian Rosefeldt's exhibition *Manifesto* premiered at the Australian Centre for the Moving Image in Melbourne. The exhibition consists of thirteen screens situated around the gallery space, some separate, others adjacent to one another. Each screen shows a different film, featuring actress Cate Blanchett reading out a series of well-known manifestos from the twentieth century juxtaposed with a performance that undercuts, comments on and recontextualises their radical rhetoric and premises. One depicts a classroom of junior school students being taught Lars von Trier and Werner Herzog's principles of filmmaking by Blanchett-as-schoolteacher. In another she plays a deranged homeless man shouting Situationist musings while wandering amongst the rubble of a post-revolutionary cityscape. Walking around the exhibit, I couldn't help but wonder how *headmap* would be refracted through this prism of retrospective reevaluation and reframing. Would its predictions of greater social and sexual intimacy seem facile juxtaposed with images of couples immersed in their smartphone screens while on dates, or people running into each other on the street because they are paying more attention to their phones than the people and objects in front of them? Or would Domino's and Amazon-branded drones swarming in the spaces between skyscrapers delivering products while broadcasting advertising messages tailored by local demographic data through loudspeakers seem a logical extension of the consumer potential of these devices predicted by Russell?

In many ways, *headmap*'s publication is still too close to our recent past to say decisively one way or the other. Despite the extraordinary leaps in GPS technology and location-awareness that have occurred since its first appearance, it remains a part of our recent history. Its vision continues to persist in academic and artistic discourse – and in practice, such as works by artists like Keith Armstrong, Sophia Brueckner and Mark Shepard to name just a few. But the radical vision it put forward has been firmly closed off, in favour of a much more conservative, consumer-oriented uptake of location-aware devices. The reality, though, is that *headmap* is no different than the innumerable manifestos published over the centuries: an expression of a moment, a desire, that may never be realised but remains as a powerful remnant of an idea that nonetheless shaped and altered – if only slightly – the thinking of the time. *Headmap* is, strangely, a simultaneously realised and unrealised vision: it did influence a number of artists and at least partially aided their formation into the locative media movement. But the practical output of this movement, along with Russell's manifesto, largely failed to live up to the hype and rhetoric, exposing some deep contradictions in the process and eventually being co-opted by mainstream culture.

The aim of this paper has been to outline and critique the discursive claims that circulated around location-based media – and especially those perpetuated by Russell in *headmap*. It highlights a time when the potential of locative media had not been fully realised, and was still open to new possibilities and unforeseen developments. When dealing with any new technology or set of technologies, it is important to analyse and dissect these discourses as much as possible, to identify the gap between the rhetorical claims surrounding them and how they are actually taken up and adopted by users. This is especially the case when dealing with highly celebratory, manifesto-style documents like *headmap*, oriented towards provoking new actions and ways of thinking by enthusiastically demonstrating what the future might (or should) be like. But by revisiting *headmap* I also hope to demonstrate how locative media was initially mobilised as a powerful political tool, through both the rhetoric of Russell and the practices of a multitude of artists around the world that it inspired directly or indirectly. While it is virtually impossible to recapture this initial wave of enthusiasm and possibility, today traces of them are more than ever an inseparable part of the everyday lives of people in many parts of the world. For future developers and users of these technologies, the arguments made throughout *headmap* that I have outlined in this paper remain as pertinent as ever – even if the circumstances around their development have since changed irrevocably.

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Biographical Note

Dale Leorke recently completed his PhD in the School of Culture and Communication at the University of Melbourne. His thesis examines location-based gaming and play in public space, critiquing the discourse around games and artistic projects that use mobile and location-aware media devices to bring digital play into physical spaces. His most recent work can be found on his research page: http://unimelb.academia.edu/DaleLeorke.

Notes

[1] There have been a few short analyses of the text on several blogs over the years; one of the better ones can be found here: http://www.sirc.org/articles/know_your_place.shtml

[2] The first, second and fourth quotes serving as sub-headings here are from Russell (2009); the third quote is from Russell (2004a).

[3] In 2002, an expanded version of the original text was released with the title *headmap localis(z)ation* followed by a further expanded 115-page version called *headmap redux* circa 2004. In this paper I predominantly focus on and quote from the original 1999 text, although I discuss the differences between this and the later versions in the final section. These texts were originally published on the now defunct headmap.org website. See http://technoccult.net/technoccult-library/headmap for an archive of the various editions.

[4] See Guy Debord's (1958/2006) account of the urban sociologist Paul-Henry Chombart de Lauwe's

diagram mapping a student's movements through Paris over the course of one year, 'pathetically limited' to three points (her university, accommodation and piano teacher's residence) with little deviation.

[5] Of course, as Hemment (2006: 351) points out, many locative media projects consisted of abstract representations of people and spaces on a screen, or were primarily experienced as maps and visual representations in art galleries rather than embodied outdoor experiences. This is just one of the many contradictions in the discourse around locative media.

[6] See http://www.momentarium.org/dialog/choi/

[7] Interestingly, platforms like Taskrabbit can be seen as realising this vision, although it is a far more commercial service than those that Russell envisions, which are based on mutual need and common interests rather than solely profit-making. Uber and Airbnb, both also foreseen by Russell as I mentioned shortly, fall into the same category.

[8] See https://www.youtube.com/watch?v=_mRF0rBXIeg

[9] Source: http://technoccult.net/technoccult-library/headmap/

[10] See http://lbutler.github.io/MelbParking/

References

- Barlow, John Perry. 'A Declaration of the Independence of Cyberspace', *Electronic Frontier Foundation* (1996), https://projects.eff.org/~barlow/Declaration-Final.html
- Brucker-Cohen, Johan. 'Locative Media Revisited', *Rhizome* (2014), http://rhizome.org/editorial/2014/mar/26/locative-media-revisited/
- Castells, Manuel. *The Rise of the Network Society*, 2nd edition (Cambridge, M.A.: Blackwell, 2009).
- Chun, Wendy Hui Kyong. *Control and Freedom: Power and Paranoia in the Age of Fiber Optics* (Cambridge, M.A.: MIT Press, 2006).
- Cubitt, Sean. 'Media Art Futures', *Futures* 39 (2007): 1149-1158.
- De Souza e Silva, Adriana. 'From Cyber to Hybrid: Mobile Technologies as Interfaces of Hybrid Spaces', *Space & Culture* 9.3 (2006): 261-78.
- De Souza e Silva, Adriana and Larissa Hjorth. 'Playful Urban Spaces: A Historical Approach to Mobile Games', *Simulation & Gaming* 40.5 (2009): 602-625.
- Debord, Guy. 'Theory of the Dérive', in Ken Knabb (ed. and trans.) *Situationist International Anthology*, 2nd ed. (Berkeley, C.A.: Bureau of Public Secrets, 2006; 1958), 62-66.
- Dieter, Michael. 'Locative Esthetics and the Actor-Network', in Rowan Wilken and Gerard Goggin (eds.) *Locative Media* (London: Routledge, 2014), 224-36.
- Dourish, Paul and Genevieve Bell. *Divining a Digital Future: Mess and Mythology in Ubiquitous Computing* (Cambridge, M.A.: MIT Press, 2011).

- Drakopoulou, Sophia. 'A Moment of Experimentation: Spatial Practice and Representation of Space as Narrative Elements in Location-based Games', *Aether: The Journal of Media Geography* 5A (2010): 63-76.
- Farman, Jason. *Mobile Interface Theory: Embodied Space and Locative Media* (London: Routledge, 2012).
- Flanagan, Mary. *Critical Play: Radical Game Design* (Cambridge, M.A.: MIT Press, 2009).
- Frith, Jordan. *Smartphones as Locative Media* (Cambridge, M.A.: Polity, 2015).
- Galloway, Anne. *A Brief History of the Future Urban Computing and Locative Media*, PhD dissertation (Ottawa/Ontario: Carleton University, 2008), http://www.purselipsquarejaw.org/dissertation/galloway_phd_full.pdf
- Galloway, Anne and Matt Ward. 'Locative Media as Socialising and Spatializing Practice: Learning from Archaeology', *LEONARDO* 14.3 (2006), http://www.leoalmanac.org/wp-content/uploads/2012/07/Locative-Media-As-Socialising-And-Spatializing-Practice-Learning-From-Archaeology-Leonardo-Electronic-Almanac.pdf
- Gibson, William. *Neuromancer* (New York: Ace Books, 1984).
- Gordon, Eric and Adriana de Souza e Silva. *Net Locality: Why Location Matters in a Networked World* (Malden, M.A.: Wiley-Blackwell, 2011).
- Graham, Beryl. 'Exhibiting Locative Media: [Crumb Discussion Postings]', *Mute*, May (2004), http://www.metamute.org/editorial/articles/exhibiting-locative-media-crumb-discussion-postings
- Greenfield, Adam. *Against the Smart City* (New York: Do projects, 2013).
- Hemment, Drew. 'Locative Arts', *LEONARDO* 39.4 (2006): 348-355.
- Holmes, Brian. 'Drifting through the Grid: Psychogeography and Imperial Infrastructure', *Springerin* 3 (2004), http://www.springerin.at/dyn/heft_text.php?textid=1523&lang=en
- Kalnins, Karlis. 'Locative is a Case Not a Place', posting to [Locative] listserv, 10 May (2004), http://web.archive.org/web/20050907080544/http://db.x-i.net/locative/2004 + /000385.html
- Kitchin, Rob. 'The Real-time City: Big Data and Smart Urbanism', *GeoJournal* 79 (2014): 1-14.
- Kücklich, Julian. 'Virtual Worlds and their Discontents: Precarious Sovereignty, Governmentality and the Ideology of Play', *Games and Culture* 4.4 (2009): 340-352.
- *Lawnmower Man, The* [film], Brett Leonard, 1992.
- Lenz, Ronald, *Locative Media*, 2004, http://docenti.lett.unisi.it/files/99/16/2/1/LocativeMedia.pdf
- Leorke, Dale. 'Location-based Gaming Apps and the Commercialization of Locative Media', in Adriana de Souza e Silva and Mimi Sheller (eds.) *Mobility and Locative Media: Mobile Communication in Hybrid Spaces* (London: Routledge, 2014), 132-48.
- McClellan, Jim. 'Get Caught Mapping', *The Guardian* (Mar, 2003), http://www.theguardian.com/technology/2003/mar/27/newmedia.onlinesupplement
- Nieuwenhuys, Constant. 'Another City for Another Life', in Ken Knabb (ed. and trans.) *Situationist International Anthology*, 2nd ed. (Berkeley, C.A.: Bureau of Public Secrets, 2006;1960), 71-73.

- Pearce, Celia. 'Games AS Art: The Aesthetics of Play', *Visible Language* 40.1 (2006): 66-89.
- Russell, Ben. 'Introduction to TCM Online Reader', *Locative* (2004a). http://web.archive.org/web/20060613044920/http://locative.net/tcmreader/index.php?intro;russell
- Russell, Ben, *headmap (3) redux* (2004b), http://technoccult.net/wp-content/uploads/library + /headmap.pdf
- Russell, Ben, *headmap (2) localis(z)ation* (2002), http://technoccult.net/wp-content/uploads + /library/headmap-local.pdf
- Russell, Ben, *headmap manifesto* (1999), http://technoccult.net/wp-content/uploads/library + /headmap-manifesto.pdf
- Sassen, Saskia. *The Global City: New York, London, Tokyo* (Princeton, N.J.: Princeton University Press, 1991).
- Stephenson, Neal. *Snow Crash* (London: Penguin, 1992).
- Stroud, Michael. 'Have Cell Phone, Will Shoot', *Wired* (Feb, 2002), http://archive.wired.com/gadgets/wireless/news/2002/02/50205
- *Tron* (1982) [film], Steven Lisberger, 1982.
- Tuters, Marc and Kazys Varnelis. 'Beyond Locative Media: Giving Shape to the Internet of Things', *LEONARDO* 39(4) (2006): 357-363.
- Varnelis, Kazys. 'The Rise and Fall of New Media in the Art World', *Frieze* 141 (2011), http://frieze.com/issue/article/down-the-line/
- Varnelis, Kazys and Anne Friedberg. 'Place: The Networking of Public Space', in Varnelis (ed.) *Networked Publics* (Cambridge, M.A.: MIT Press, 2008), 15-42.
- Weiser, Mark. 'The Computer for the 21st Century', *Scientific American* 265(3) (1991): 94-104.
- Zeffiro, Andrea. 'A Location of One's Own: A Genealogy of Locative Media', *Convergence: The International Journal of Research into New Media Technologies* 18(3) (2012): 249-266.
- Zielinski, Siegfried. *Deep Time of the Media: Toward an Archaeology of Seeing and Hearing by Technical Means,* trans. Gloria Custance, (Cambridge, M.A.: MIT Press, 2006).