

# VISUALISING STORYTELLING THROUGH A LOCALLY BASED DIGITAL WAYFINDING EXPERIENCE

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## INTRODUCTION

This paper initiates a critical enquiry into the ecological and cultural history of the inner city of Sydney in relation to how we find our way and orientate to place. In this paper, I argue that wayfinding is founded on storytelling and memory-making practices that differ from the criteria prioritised in most digital mapping and wayfinding systems. Utilitarian digital mapping demands quick and efficient goal acquisition, directing, locating, and instantly connecting the user to the nearest amenities, transport, and local economy. Identifying the disjunct between articulating the ecological history of the area and contemporary digital mapping and physical signage led to the development of a prototype titled *Type Trails*.<sup>1</sup> The wayfinding experience of the prototype *Type Trails* involves getting lost and being immersed in this state and then re-finding the way and sits at the intersection of the digital and the physical. The prototype explores the affordances of the digital mapping program, Mapbox,<sup>2</sup> its fluidity and zoom functions to create a non-linear system designed to include a diverse range of literary sources. It responds to elements within the site-specific area of inner-city Sydney. *Type Trails* reveals the invisible memory lines of the original coastline of Sydney, the Tank Stream and the original Aboriginal trade pathways, with a primary focus on the flora, particularly the trees, and on what lies underneath, thus revealing the very beginnings of Sydney's city plans and through this, the reasons for the ways in which we currently find our way in this area. This is experienced through words (typography), a typographical map which is the interface for a digital wayfinding experience. The result is a memory of a landscape plotted over the actual one.

## WAYFINDING AS STORYTELLING AND MEMORY-MAKING PRACTICES

The primary role of urban wayfinding design is largely understood as functional, as helping people to find their way around a city and is widely researched and defined as a spatial problem-solving process that shapes behaviour in cities.<sup>3</sup> City wayfinding schemes are based on the concept of the “image” or “legibility”<sup>4</sup> of the city and assisting movement between points of interest to a destination point. Likewise, current manifestations of digital mapping largely focus on ‘getting’ there, finding/locating and key areas to help local economy.

Wayfinding is a performative act of finding your way and orientating oneself in an environment. Lynch defines wayfinding as a series of distinct and ‘organised’ ‘sensory cues’ in the environment.<sup>5</sup> Taking this further, Ingold describes wayfinding as a performative act over time and place in which wayfinders gain their knowledge of place or pathways “as they go” and that “people’s knowledge of the

environment undergoes continuous formation in the very course of their moving about in it”.<sup>6</sup> Ingold positions the role of wayfinding as more akin to storytelling, because “places do not have locations but histories”.<sup>7</sup> Wayfinding is also considered a social, cultural and historical narrative over time and distance.<sup>8</sup> Harry Heft argues that “the navigational and orientation practices and knowledge that exist within any culture are contingent on the environmental character of local conditions and on the sociocultural history of the culture.”<sup>9</sup> Scholars Iosefo, Harris and Jones, in *Wayfinding as Pacifika, Indigenous and critical ethnographic knowledge* (2020), discuss how wayfinding is a cultural story about place and journey that evolves over time and through movement and is “defined not just by the individual’s pedagogical experience ‘within an environment’, but rather by the generations of knowledge shared and passed down.”<sup>10</sup> Understanding how wayfinding theory has extended from transactional and practical to socio-cultural and generational and time based allows for the potential for digital wayfinding to enable new ways of experiencing place.

In this paper I use two broad categories of wayfinding in order to strengthen the positioning of interpretive wayfinding. In his book ‘Wayshowing: A guide to environmental signage; principles and practices,’ Mollerup argues that there are two types of travellers, those who like to be directed and those who like to find their way around a city.<sup>11</sup> Similar to this, during the Legible London wayfinding project,<sup>12</sup> two distinct personae were created that were coined the ‘strider’ and the ‘stroller’.<sup>13</sup> The strider wants to be reminded where they are, directed and connected quickly and efficiently to their destination. The stroller seeks an experience where the aesthetic, cultural and spatial qualities of the city may be absorbed. The stroller, unlike the strider, is collecting experiences as they move. Current digital wayfinding systems cater well for the ‘strider’ who is focused on ‘getting to a destination’ and who wants to be reminded where they are, but what about the “stroller” who wants to find their own way and get lost in that narrative? To orientate digital wayfinding systems to also allow for a stroller experience and perhaps ‘getting lost’ uncovers and points to a largely unrealised potential for digital wayfinding in allowing ways of focusing on the journey.

## **CRITICALITY IN DIGITAL MAPPING**

Wayfinding design and digital maps are powerful artefacts<sup>14</sup> and mechanisms that shape experience, provide informal education and help us find our way, not just spatially, but geographically and culturally. There is extensive literature on how cartographic systems and maps are ‘inherently partial’,<sup>15</sup> and devices of power<sup>16</sup> and should be understood for the constraint they have in representing only particular points of view and for what they omit.<sup>17</sup> The history of Cartography, a westernised way of navigating and organising space, is ‘deeply entangled’ in the colonial occupation of space and the ‘erasure’ of people and cultures.<sup>18</sup> This is particularly relevant to Australia and New Zealand, where maps and journals became a surveying tool for land claim.<sup>19</sup> My prototype Type Trails explores the use of literary fragments (sourced from archives, authors, government documents and signage in place) in a non-linear experience to attempt to make explicit the partial nature of maps.

Critical cartography is a field of scholarship concerned with the critique of cartographic practices and the emergence of new mapping practices.<sup>20</sup> Mapping practices in Aboriginal culture are a reflection that “Indigenous knowledge is inherently spatialised, as it is related to recurring processes, site specific knowledges and is embedded into the landscape through the names and stories of places which contain the meanings, relationship and interconnectivity of a place”.<sup>21</sup> Contemporary Indigenous mapping practices have also re-invented, deconstructed and counter-mapped western approaches to organising space. Counter-mapping is a term used to explain practices that centre on adding storytelling to a map,

subverting grand narratives and empowering communities.<sup>22</sup> Digital maps can therefore be used to dissect, contest or re-invent mapping conventions.

In my prototype *Type Trails*, my intent is to critically probe the “hidden logic” of the way we find our way around the city centre of Sydney based on historical, ecological and cultural information. Ross Gibson notes that Kurgen has a provocation in her own work to “put the project of orientation–visibility, location, use, action and exploration–into question ... [but] without dispensing with maps”<sup>23</sup>. This became a provocation for me to use mapping software as a form to experiment with in my practice-based research. In addition, digital maps can make an argument and rather than seeing them as “static representations”<sup>24</sup>.

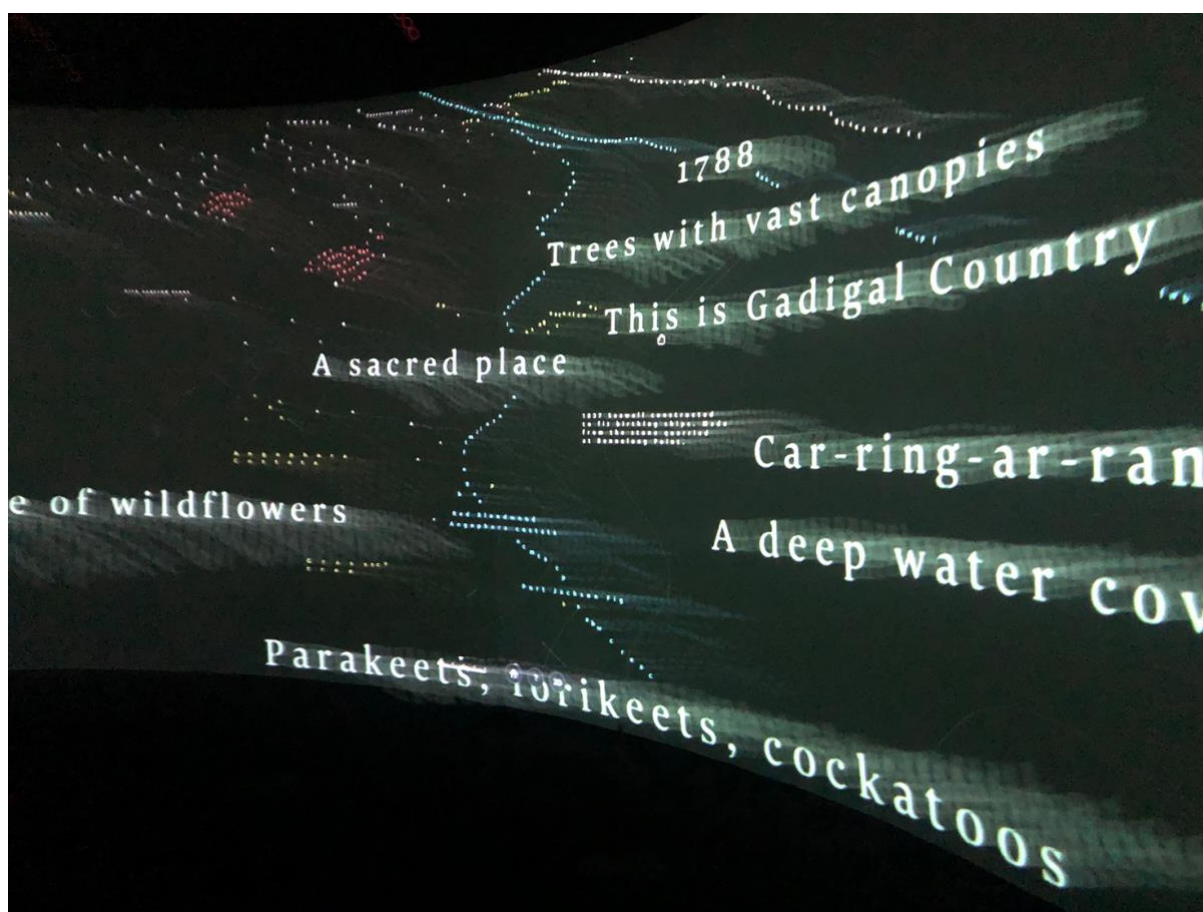


Figure 1. Prototype exhibited in a small exhibition in the Data Arena at the University of Technology.

### SITUATING THE PRACTICE-BASED RESEARCH

The wooded areas and forest were pushed back as soon as the colonials arrived in Australia in 1788.<sup>25</sup> In this prototype *Type Trails* I focus on the inner-city business district area of the city of Sydney from Hyde Park down to Warrang (Circular Quay), the harbour, and from Macquarie Street to George Street. The initial reason for choosing this area in the heart of Sydney’s financial centre for the research was to follow some of Sydney (and Australia’s) earliest principal streets. We are following the traces of Aboriginal past activity over thousands of years on some of Sydney’s main streets, George Street being one of them. Many of the main streets in Sydney follow Aboriginal pathways of trade and access to ceremonial places or places of resources.<sup>26</sup> Many of the streets and original Aboriginal pathways also followed the contours of the land or the ridges or the streams of fresh water.<sup>27</sup> While Macquarie Street,

situated on the highest ridge, appeared later, in 1810, as part of Governor Macquarie’s attempt to regiment Sydney streets into a more military pattern, these other roads already had a fairly organic formation.<sup>28</sup>



Figure 2. The situated area: from Hyde Park to Warrane/Circular Quay and from Macquarie Street to George Street.

Currently inner-city Sydney projects a colonial framework of names through its street signs. George Street is Australia’s oldest colonial street and was a bustling, thriving hub of commerce, retail and residence. At one point it was the town’s main shopping street, which is why, in the tradition of English streets, it was originally named “High Street”.<sup>29</sup> Pitt Street, like George Street, runs up from where the head of the Tank Stream used to exist. One of its parallels, Macquarie Street, contains many of Sydney’s oldest architectural and heritage sites, such as the Hyde Park Barracks, the Law Courts and Sydney’s oldest hospital. Historically, Macquarie Street was a street of wealth, in sharp comparison to Pitt or George streets. Bridge Street is named after the small wooden footbridge that was built across the Tank Stream.<sup>30</sup> So what is left out of this narrative?

This project acknowledges that “We walk in the footsteps and live in the spaces of those who were here before and of course are still here”.<sup>31</sup> These walking tracks of thousands of years that became roads are traces of lived space. In addition to the movements of “walking feet”, bringing attention to the original vegetation and natural features of this area, conveys a sense of how this area has been transformed over the last 200-plus years, of what lies beneath the city as undisturbed pollen or buried streams and what is left as remnant trees. *Type Trails* also emphasises the fact that this area is now unrecognisable from

its 1788 state and hard to imagine. Very little remnant vegetation remains in this area and the biodiversity has been greatly reduced. The City of Sydney Urban Ecology Strategic Action Plan states, “Almost all of the original vegetation and other natural features have been removed or modified”.<sup>32</sup> The vegetation community has been completely removed from this area apart from pockets in The Royal Botanic Garden Sydney and The Domain, Sydney.<sup>33</sup>

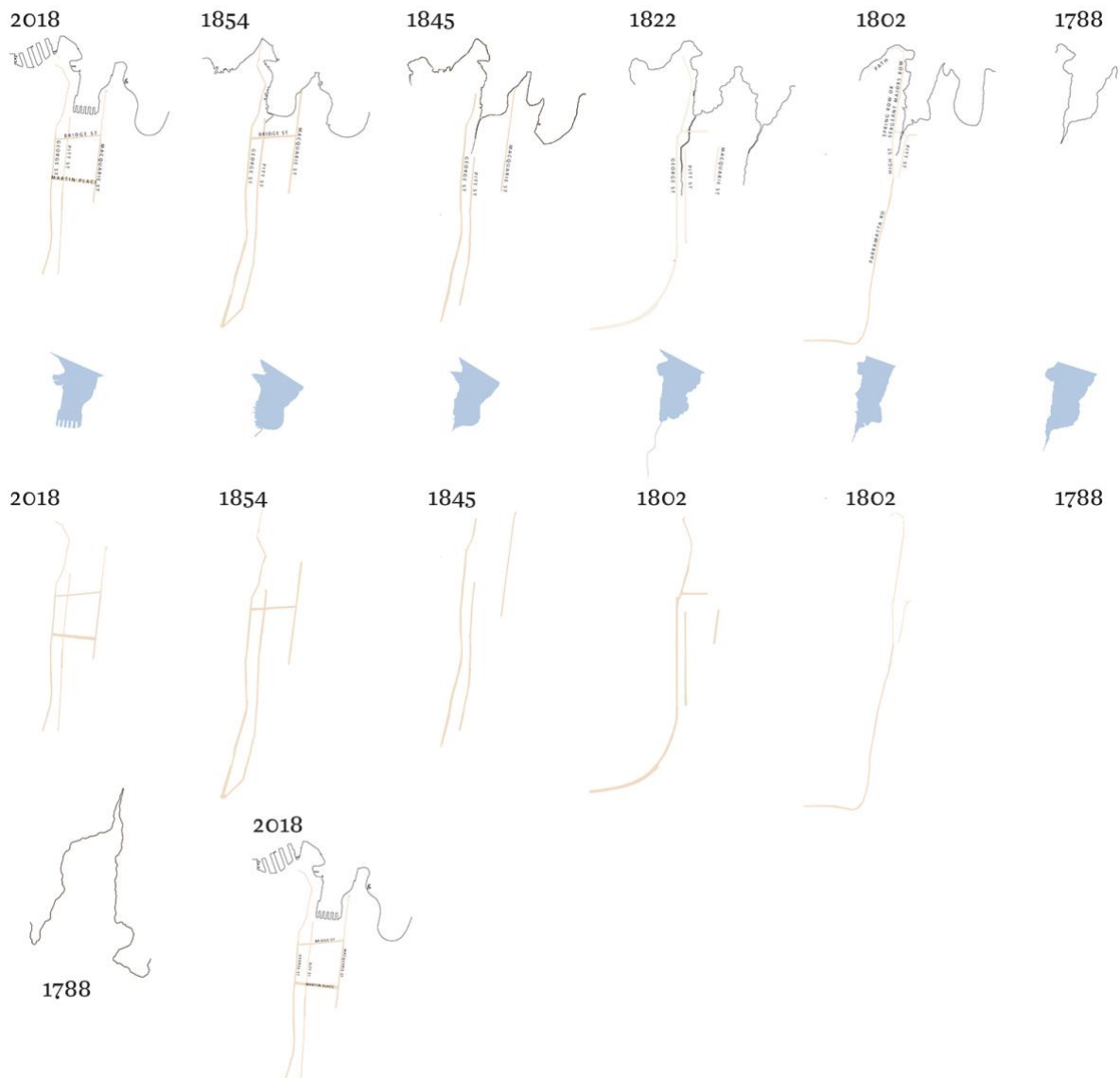


Figure 3. Tracing the adapted coastline, the Tank Stream and the development of the roads.

In addition to pathways, trees and vegetation, there is very little in the inner city of Sydney indicating the invisible Tank Stream, there are environmental graphics as drain coverings, street signage and city artworks as fountains. Once a stream of fresh water which made its way from the current day Hyde Park as marshland and then trickled down with its head at Sydney Cove incorporating a series of small waterfalls along the way, this stream now runs under the city as a storm water drain.<sup>34</sup>

This prototype is not intended to be scientifically or geographically accurate. In fact, such accuracy is not possible, as the historical data on pollen and geographic coordinates is fairly speculative, based as

they are on the lack of pollen readings from this urban centre,<sup>35</sup> on old maps that were hand drawn and lack important geographic information and on tree growth patterns that cannot be completely accurate as their historical references are circumspect. I have traced the line of where Tank Stream and the original coastline and George street from the original colonial maps. If you are in this area, this prototype locates you. The trees are plotted as accurately as possible and the stories on the trees, tank stream, the coastline and the wildflowers are located in the areas the research indicates. I have therefore reframed the space into one that is experimental, placing the information from the colonial maps of the area over the GIS map to be as accurate as possible. I have also used data from the Significant Tree Register<sup>36</sup> and data and research on pollen readings in the area. The person experiencing this moves around the city based on what trees were here and what environmental and ecological aspects have lain underneath in the landscape.

## METHODOLOGY

Research through design (RTD) has been used for more than 20 years by an international community of practitioner researchers “to describe practice-based inquiry that generates transferrable knowledge”.<sup>37</sup> Throughout this research, I used RTD for my research process of using design practice as a mode of scholarly inquiry explored through a critical documentation process. This methodology enabled me to demonstrate how the particular methods and processes evolved through an iterative practice—each experiment led to a new idea, experiment or process—and how this led to insights that generated knowledge—synthesis perspectives.<sup>38</sup>



Figure 4. Pin-up of critical documentation for critical feedback within a doctorate program.

### Methods: prototype

A prototype is a working format often used in applied design fields; partly it is a ‘representation—a plan, program or image—of an artifact to be constructed by others’<sup>39</sup> and partly it is a discursive object for—an inquiry into a field of practice. The design work for this research was taken to the stage of a prototype, not to a final artefact. In their article “Making as growth: Narratives in Materials and Process”, Ian Lambert and Chris Speed say, “Increasingly, ‘the doing’ (the process) seemingly yields more new knowledge and insight than ‘the done’ (the outcome),”<sup>40</sup>

## TYPOGRAPHIC ARCHIVE

*Type Trails* is also an interpretive investigation into the geospatial possibilities of using typography as a system for non-linear storytelling within digital mapping, and exploring the potential of how it could also operate as a text archive. As an alternative to other ways of reading information in a city I explored different ways of reading text in digital mapping through exploring typographic structural relationships. Central to this practice-based research was a question that author and theorist Johanna Drucker asked in her 2013 book *Diagrammatic Writing*, “how do structural relations participate in the production of meaning?”.<sup>41</sup> Digital storytelling offers the opportunity to layer information, often this is done categorically, in this prototype, I have layered the information fluidly and not in categories. The limitations and restrictions of Mapbox determined how I structured the navigation of the reading. Placing the literary fragments or words on the digital map became an organisational principle<sup>42</sup> and allowed me to layer information and to plot it, thus splitting the historical content geographically. The historical information became geospatial data with longitudinal and latitudinal co-ordinates. It could be expanded on further from an archival research point of view to split and display only certain texts and narratives, and to work with live data.



*Prototype Type Trails exhibited in a small exhibition in the Data Arena at the University of Technology Sydney.*

The affordances of the software –the fluid and fleeting transitions–contributed to the kinetic and temporal feel and the zoom function created the way I structured the changes in content and helped to integrate hierarchies of information. The scalability, as information appears and then again disappears as one zooms in and out, up and down, is an important part of the journey. The fluidity of the navigational logic echoes past text based explorations in interface design but does something different

through being location-based and particular to the affordances and limitations of this mobile mapping software.

On the first zoom level, Letterforms indicate the memory lines and the main areas where the wildflowers that once grew. Tree names are scattered over the whole area and located to where the archival research and pollen data indicates they would have grown. At the same time, larger titles of text flicker in and out and have to be read across the screen. Zooming in ... Literary passages are broken into single words and fragments of sentences can be followed like pathways down, up or across the screen... Zooming in further words give way to paragraphs of information by historical authors, council reports, cultural authors and from the content found in place, on signage within this environment. This content converges with significant existing native plants or trees, remnant trees or signage in the physical environment.

## **CONCLUSION**

In this paper I have discussed the complexities of wayfinding mechanisms and digital map making and the need for criticality in their design. Through the prototype TypeTrails I have invoked the idea of prioritising the needs of the ‘stroller’ above those of the ‘strider’ in digital mapping, exploring the experience of finding your own way and getting lost in that narrative. This sense of getting lost can open up a new state of being in the work. Type Trails also destabilises the usual hierarchy in wayfinding design by taking the focus away from destination points as places and emphasising the value of trajectories by prioritising the journey.

I have identified three potential directions for this project to contribute to field of typography in digital mapping:

- structuring typographic storytelling layers in digital mapping in a fluid manner so that they can converge and present a diverse set of narratives
- using the dimensionality and scalability of the zoom functions of digital mapping software as a typographic system for storytelling which could be used as a text archive or as digital wayfinding
- providing a non-linear and generous way of working with content, so many literary sources can be included as an alternative to layering information in categories.

## **ACKNOWLEDGEMENTS**

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## NOTES

<sup>1</sup> Type Trails is the practice-based outcome of my PhD thesis and is currently presented online in a website as an interactive system for wayfinding inquiry and place-evocation. <http://typetrails.com.au/> It has been exhibited in the Data Arena at the University of Sydney, May 12, 2021.

<sup>2</sup> Mapbox is a mapping platform for location based services.

<sup>3</sup> See Paul Arthur and Romedi Passini. *Wayfinding: People, Signs, and Architecture*, (New York: McGraw-Hill Book Co.), 1992; Craig Berger, *Wayfinding: Designing and Implementing Graphic Navigational Systems* (Mies: RotoVision, 2005); Per Mollerup, *Wayshowing: a Guide to Environmental Signage; Principles & Practices* (Baden: Lars Müller, 2005).

<sup>4</sup> See Lynch's seminal work on legibility: Kevin Lynch, *The Image of the City* (Cambridge: Mass: M.I.T. Press, 1960).

<sup>5</sup> Kevin Lynch, 3.

<sup>6</sup> Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill* (Abingdon, Oxon: Routledge, 2022), 230.

<sup>7</sup> Ingold, 219.

<sup>8</sup> Heft's research is instrumental in positioning wayfinding into the socio-cultural domain. See Harry Heft, "Environment, Cognition, and Culture: Reconsidering the Cognitive Map," *Journal of environmental psychology* 33 (2013): 14–25.

<sup>9</sup> Heft, 22.

<sup>10</sup> Fetoui Iosefo, et al, "Wayfinding as Paskifika, indigenous and critical auto ethnographic knowledge," in *Wayfinding and Critical Autoethnography*, ed. Fetoui Iosefo et al. (Abingdon, Oxon: Routledge, 2021), 17.

<sup>11</sup> see Mollerup.

<sup>12</sup> *Legible London* is a wayfinding system aimed at pedestrians and promoting walkability launched in London in 2007. For an excellent analysis on this project see: Jim Davies, *The Yellow Book: a prototype wayfinding system for London* (Transport for London, 2007). <http://www.tfl.gov.uk/info-for/boroughs-and-communities/legible-london>

<sup>13</sup> These two personae developed for the design of the Legible London wayfinding scheme are discussed in: Davies, 26–27; Shiho Asada, *Storytelling in urban wayfinding* [Unpublished Master's dissertation], (University of Reading:2015) <https://issuu.com/shihoasada/docs/dissertation>, 29–30; Colette Jeffrey, "Wayfinding perspectives: Static and digital wayfinding systems—can a wayfinding symbiosis be achieved?," in *Information Design: Research and Practice*, ed. Alison Black et al. (Routledge, 2017), 518.

<sup>14</sup> Martin Dodge et al, "Introductory Essay: Power and Politics of Mapping," in *The Map Reader: Theories of Mapping Practice and Cartographic Representation*, ed. Martin Dodge et al. (John Wiley & Sons, Ltd. 2011), 444.

<sup>15</sup> Dodge et al, 444; and Laura, Kurgan, "Cities full of data: a preface," in *Ways of Knowing Cities*, ed. Laura Kurgan et al. (Columbia University Press, 2019), 7.

<sup>16</sup> See J. Brian Harley, "Deconstructing the map." *Cartographica* 26, no 2, (Summer 1989): 1–20.

<sup>17</sup> Kurgan, *Cities of full data*, 7.

<sup>18</sup> Shannon Mattern, "Mapping's Intelligent Agents," *Places Journal*, (September 2017): para 23

<sup>19</sup> See Ross, Gibson, "Narrative hunger: GIS Mapping, Google Street View and the Colonial Prospectus," *Cultural Studies Review* 20(2) (2014): 263.

<sup>20</sup> For an understanding on the field of critical cartography see Dodge et al; and Jeremy Crampton and John Krygier, "An Introduction to Critical Cartography" *ACME: An International E-Journal for Critical Geographies* 4 (1) (2006): 11-33.

<sup>21</sup> Pearce & Louis, 2008 cited in Danièle Hromek and Dillon Kombumerri, "Designing with Country: Rethreading Aboriginal culture into the design fabric of Sydney's built and natural environment through language, place and memory," in *Our Voices II: The De-Colonial project*, ed O'Brien et al (Eds.), 2021, 149.

<sup>22</sup> Christine Rogers, "Almost always clouds: Stitching a map of belonging." in *Wayfinding and critical autoethnography*, ed. F. Iosefo et al. (Routledge Taylor & Francis Group, 2021), 115.

<sup>23</sup> see Gibson, *Narrative Hunger*, 253 cites Kurgan 2023: 17.

<sup>24</sup> See Anne Burdick et al *Digital\_humanities* (MIT Press, 2012), 47: "Within a dynamic, ever-changing environment, new data sets can be overlaid, new annotations can be added, new relationships among maps can be discovered, and, perhaps most importantly, missing voices can be returned to specific locations through "writerly" projects of memory that the participatory architecture of Web 2.0 applications has made possible."

<sup>25</sup> For a full history on Sydney Cove (Warrane) see; Karskens, 2009; and on the notion of landscape as Indigenous infrastructure and country see Gammage 2011 and Pascoe, 2014.

<sup>26</sup> see Grace Karskens, *The colony: A history of early Sydney* (Allen & Unwin, 2009).

<sup>27</sup> Jakelin Troy is a Ngarigu person whose Country is the Snowy Mountains of NSW. Troy mentions in the ABC article that George Street was once an Aboriginal pathway. Sue Daniel, "Walking in their tracks: How Sydney's Aboriginal paths shaped the city." *Curious Sydney*, ABC: May 17, 2018, <http://www.abc.net.au/news/2018-05-17/curious-sydney-aboriginalpathways/9676076>

<sup>28</sup> See Karskens, *The Colony*; and Shirley Fitzgerald and Lisa Murray, "A History of Sydney Streets," [Video], January 20, 2009. YouTube.[https://www.youtube.com/watch?v=9ZFkkK2fw\\_Q](https://www.youtube.com/watch?v=9ZFkkK2fw_Q)

<sup>29</sup> This is mentioned in the City of Sydney's History of Sydney Streets spreadsheet, which is an updated document that contains original naming and the history of the naming of each street: *History-of-Sydney-Streets2.xls*, [www.cityofsydney.nsw.gov.au/learn/sydneyhistory/peopleand-places/streets](http://www.cityofsydney.nsw.gov.au/learn/sydneyhistory/peopleand-places/streets)

<sup>30</sup> See Karskens; and “Bridge Street”. Dictionary of Sydney. State Library of New South Wales, accessed February 10, 2023, [https://dictionaryofsydney.org/place/bridge\\_street#refuuid=29e11ea8-ec6c-7804-a7f9-39e8e78e9c18](https://dictionaryofsydney.org/place/bridge_street#refuuid=29e11ea8-ec6c-7804-a7f9-39e8e78e9c18).

<sup>31</sup> Hromek and Kombumerri 2021, 149

<sup>32</sup> City of Sydney. “Urban ecology strategic action plan (Issue August 2020)”, 2014. <https://www.cityofsydney.nsw.gov.au/strategies-action-plans/urban-ecologystrategic-action-plan>: 8

<sup>33</sup> Doug Benson and Jocelyn Howell, *Taken for Granted: The bushland of Sydney and its suburbs*, (Kangaroo Press in association with the Royal Botanical Gardens Sydney, 1990),.44

<sup>34</sup> The Tank Stream is still a storm-water channel which runs under the city from the lower part of the city centre out into the harbour. See Sydney Water, 2004

<sup>35</sup> In the archaeological paper: ‘The Soil and Pollen Analysis of part of the Gardens of First Government House, Sydney’ *Australian Historical Archaeology*, 6, 49–56., the authors state that ‘Not only are undisturbed soil profiles extremely rare in the City of Sydney, but the existence of one sealed from later contamination must also be unique’ (p. 51). Doug Benson and Jocelyn Howell in their 1990 book *Taken for Granted, the Bushland of Sydney and its Suburbs*, refer to the bio-diversity in their map and research of this area as ‘likely vegetation’ and comment that ‘no details of the original vegetation have survived’, they list what was likely to have grown in this area based on what ‘the soils and topography indicate’, 42.

<sup>36</sup> The City of Sydney Significant Trees Register is a map and list of Sydney’s significant trees within the City of Sydney Council area, both native and introduced, and helps to protect and maintain them. The trees contained in this list were put forward by the local community and then assessed according to a classification criteria ‘by landscape and heritage experts’. City of Sydney, n.d., para. 4.

<sup>37</sup> Abigail C. Durrant et al, “Research through design: Twenty-first Century Makers and Materialities.” *Design Issues* 33 no. 3 (2017), 39.

<sup>38</sup> Sadokierski’s 2020 guidelines on critical documentation provided a structured framework to work within. The methods and processes also draw on the work of Mäkelä & Nimkulrat, 2018; Lambert & Speed, 2017; and Groot 2010.

<sup>39</sup> Donald A. Schön, *The reflective practitioner: how professionals think in action*, (Arena, 1995), 78

<sup>40</sup> Ian Lambert, and Chris Speed. “Making as Growth: Narratives in Materials and Process.” *Design issues* 33, no. 3 (2017): 105.

<sup>41</sup> Johanna Drucker, “Diagrammatic Writing.” *New formations* 78, no. 1 (2013): 83–101.: 87

<sup>42</sup> Agnieszka Leszczynski discusses how “locating” has become an organising principle of spatial media: Agnieszka Leszczynski. “Spatial media/ion.” *Progress in Human Geography*, 39, no. 6 (2015): 729–751

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