Immersive and Temporal Experiences in Historic Landscapes: Designing a Mobile Digital Guide for the Royal Botanic Gardens Melbourne

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> To orientate is to hop back and forth between landscape and time, geography and emotion, knowledge and behaviour (Hall, 2004, p 15).

This paper explores what mobile digital technology can bring to guiding our experience and appreciation of historic, designed landscapes. It focuses on the authors' attempt to design and implement a digital iPad tour to help landscape architecture students with fieldwork visits to the Royal Botanic Gardens Melbourne (RBGM). We situated this digital design project within a set of larger concerns surrounding landscape interpretation, exploration and history. The aim of this account is not so much to evaluate the success or otherwise of the mobile guide, or digital technologies generally,[1] but to consider how the project has reproduced or extended long-standing practices of landscape interpretation and guiding. The importance of conjuring a speculative approach to the perception of landscape, of delving more deeply into the vernacular and historic environments that surround us, is something that JB Jackson emphasised as 'learning how to see' and uncovering the 'nature' of landscape (1984, pp x, xi).

The pursuit of informed touring around designed gardens – sometimes supplemented by maps and images – has a long and continuous history. This includes formative precedents from the eighteenth century onwards in Europe and was further fuelled by the rise of mass tourism in the twentieth century, when visiting gardens became a popular pastime. However, the inculcation of *both* an informed understanding of a garden designer's intentions over time, *and* an appreciation of a garden's sensory experience in the present, has always been notoriously challenging. Edward Casey, for example, asks why the West was delayed (in comparison with the East) in developing visual languages for describing and representing gardens and landscapes as a primary subject rather than a secondary backdrop (2002, p 18). In answering, he points to the perceived difficulties of spatially and visually encapsulating any garden or landscape in terms of broad qualities such as scale, viewpoint and movement. Historic responses to this representational challenge gave rise to experimental panoramic, cartographic and topographical images as potential ways of communicating expansive and layered landscapes (Casey, 2002, pp 7–14).

Innovative techniques for describing and guiding around landscapes have advanced in recent years through the rise of ubiquitous digital mobile technology

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and ever-more reliable connectivity in outdoor settings. For example, in the United States, the Indianapolis Museum of Art has produced a mobile app for visiting the Virginia B Fairbanks Art and Nature Park: 100 Acres, which gives visitors access to videos, photographs and text for locations in the park.[2] In another case, the New York Botanic Gardens has created an app that guides visitors through the recreation of Monet's garden at Giverny. Here, the gardens can be seen through an 'Impressionist lens', and visitors use an iPhone camera to create and share images, while another immersive feature allows paintings and plants to be matched.[3] Also in New York, numerous apps are available for self-guided tours of Central Park. These use a more passive curatorial formula involving an image of a 'stop' representing some form of curiosity in the park, along with associated historic text or narration.

In a different way, the audio-visual modes revealed in the work of Janet Cardiff and George Bures Miller and their numerous scripted 'Walks' seek to combine audio, video and narration, reputedly with great potency and with an ensuing 'psychological immersion'.[4] From our research, however, it seems less common to find the presentation of, or interaction with, topographic, cartographic or archival (visual) information that might allow for a richer combination of cognitive processes leading to different forms of immersive landscape experience.

Rather than 'threatening' our first-hand experience of gardened places, new digital mobile media, if designed with sensitivity and intelligence, can enhance the exploration of landscaped sites and provide new modes of engagement rather than merely simulating or reproducing them. These exciting possibilities for creating new kinds of touring experiences in landscapes motivated the design of the iPad guide 'Landscapes in Time: A walking tour of the Royal Botanic Gardens Melbourne and the Domain' for use by Master of Landscape Architecture students at the University of Melbourne (Figure 1). In this paper we outline the

Figure 1: 'Landscapes in Time', iPad application for Master of Landscape Architecture students studying History of Landscape Architecture at the University of Melbourne (Lewi, Saniga, Smith et al, 2011).

particular challenges in making this guide and situate it within the tradition of touring and appreciating historically significant landscapes and gardens through in situ experience.

The students involved in the guide's development were undertaking their Masters of Landscape Architecture at the University of Melbourne, and the field visit was an important component of a course-work subject called 'History of Landscape Architecture'. The subject provided a critical examination of the historical development of landscape architectural design and theory including the events, social influences and personalities involved. The field visit also pursued these broad aims and was supported by the iPad guide, which was designed and updated between 2011 and 2013 along with an accompanying paper-based workbook to be completed and submitted for assessment.

In a pilot study in 2011, 16 students used the mobile guide over a designated two- to three-hour visit in which they were divided into four groups, each having a single iPad to share. They were followed by researchers who observed the usability of the guide. In 2012 and 2013, following improvements to content and navigation, a further 30 students completed the tour but conducted it in their own time. About 10 of these students carried it out alone and the rest worked in groups of two to four people, with the total time spent ranging from three to seven hours. In 2012, the students visited without staff present, but in 2013 two researchers observed them for a limited time. All visits were followed up with a questionnaire and focus-group discussion with students to examine their experience of the field visit and iPad guide. These observations inform the account given in this paper.

As educators, our motivation was to create a functional hand-held digital guide to support the fieldwork of students studying a historical landscape. First, we wanted to test how the delivery of digital content could extend the ways of physically guiding students through a site of complex historical significance – whether as a replacement for, or supplement to, a conventional teacher guide. Important to this guidance were the concepts described as 'directed looking' and 'choreographed walking'. Second, we posed the question of how the hand-held guide might provide resources that informed and augmented a person's on-site experience. This is a larger educational issue being pursued by inquiries into 'mobile-learning' more generally (Cochrane, 2010; Kinash et al, 2012; Vavoula et al, 2010). Documentary resources particular to the discipline of landscape history and heritage include historical and contemporary maps, archival and contemporary photographs, archival film footage and sound and text narration. A third question, which falls outside the scope of this paper, was how this mode of guided touring might encourage, or discourage, social interaction between students, which is widely understood to foster group learning (Pfeiffer, 2009; Sharples et al, 2005).[5] In terms of technological issues, we specifically wanted to explore the possibilities of the iPad format, in contrast to the smaller smart phone,[6] as the increased dimensions of a tablet screen supported better map and image presentation and comprehension, which was clearly important for landscape settings. Other technical possibilities, including the use of global positioning system (GPS) locational information, were incorporated in the design.

While these pragmatic, technological and educational concerns were central to the project, a complementary motivation was also involved. Being more germane

to the historical concerns in this paper, and applicable to all sites of historical design significance, it focused on exploring ways of capturing and experiencing the changing layers of design intentions and interventions that have shaped (and sometimes failed to shape) landscapes and gardens. Such design intentions and influences may or may not be extant in the physical fabric of the setting today. An attempt to understand and appreciate these partly visible, partly invisible design intentions involved two possibly contradictory activities. The first was promoting an immersive bodily and sensory experience of the site in a manner sympathetic to its design, and the second was adding to that experience with information and documentation not normally on-hand to the visitor. This twin agenda – of immersive experience and information – has been analysed by others through 'reception theory' formulated around landscape appreciation (Conan, 2003a, pp 28–31).

In setting the challenge to combine information delivery through the iPad platform with the promotion of physical and sensory immersion in the site, we were conscious of what Corner has referred to as 'eidetic operations' (1999). These 'operations' concern the mental imaging of landscape inclusive of not only the visual but also other senses such as the acoustic and tactile. Corner concluded that: 'the future of landscape as a culturally significant practice is dependent on the capacity of its inventors to image the world in new ways and to body forth those images in richly phenomenal and efficacious terms' (1999, p 167).

Historical design intentions at the Royal Botanic Gardens Melbourne

Guided by the contextual focus of fieldwork in the Master of Landscape Architecture subject, our spatial and historical focus was the RBGM and neighbouring sites that form part of the King's Domain: Alexandra Avenue, Queen Victoria Gardens, the Alexandra Gardens and the Yarra River. The information we chose to present through the mobile guide focused on the intentions and influence of the early gardens' directors Ferdinand von Mueller (1825–1896) and William Guilfoyle (1840–1912). It was their contribution to design and management that proved so influential to the structure of the contemporary landscape. The inclusion of part of the King's Domain was as much about being historically accurate in terms of narrating the gardens' creation as it was about designing a walking route that negotiated different types of boundaries, including property, visual, physical and the cognitive or even experiential boundaries, we identified as being potentially significant for those experiencing the gardens (Downs & Stea, 1977).[7]

The gardens were founded in 1845, with the site selected by Superintendent (later Lieutenant-Governor) Charles Joseph La Trobe (1801–1875). Ferdinand von Mueller, who was appointed as Government Botanist in 1853, became director of the gardens in 1857 (Aitken & Looker, 2002). His directorship of 16 years marked a significant era in garden policy, which emphasised the scientific arrangement and display of plants for the purposes of expanding knowledge and for economic advancement over and above aesthetic qualities and recreational use (Watts, 1983, p 60). In his first years, von Mueller established a pinetum and the two-acre Systems Garden for the cultivation of plants with economic, medicinal and commercial potential. By 1864, the gardens were perceived to have been

proceeding in faltering starts, and von Mueller was dismissed in 1873, although he continued to work in the park's herbarium until his death in 1896. Regardless of the later radical transformation that would be brought upon the European sensibility von Mueller had established, it was his influence in clearing the land and curating a vast collection of plants that set down the crucial vegetative frame that subsequent directors would build on (Figure 2a).

William Guilfoyle was appointed as the next director in 1873. He set about transforming the gardens into a landscape underpinned by a new design approach; one that appreciated aesthetic (and recreational) values as much as it did the
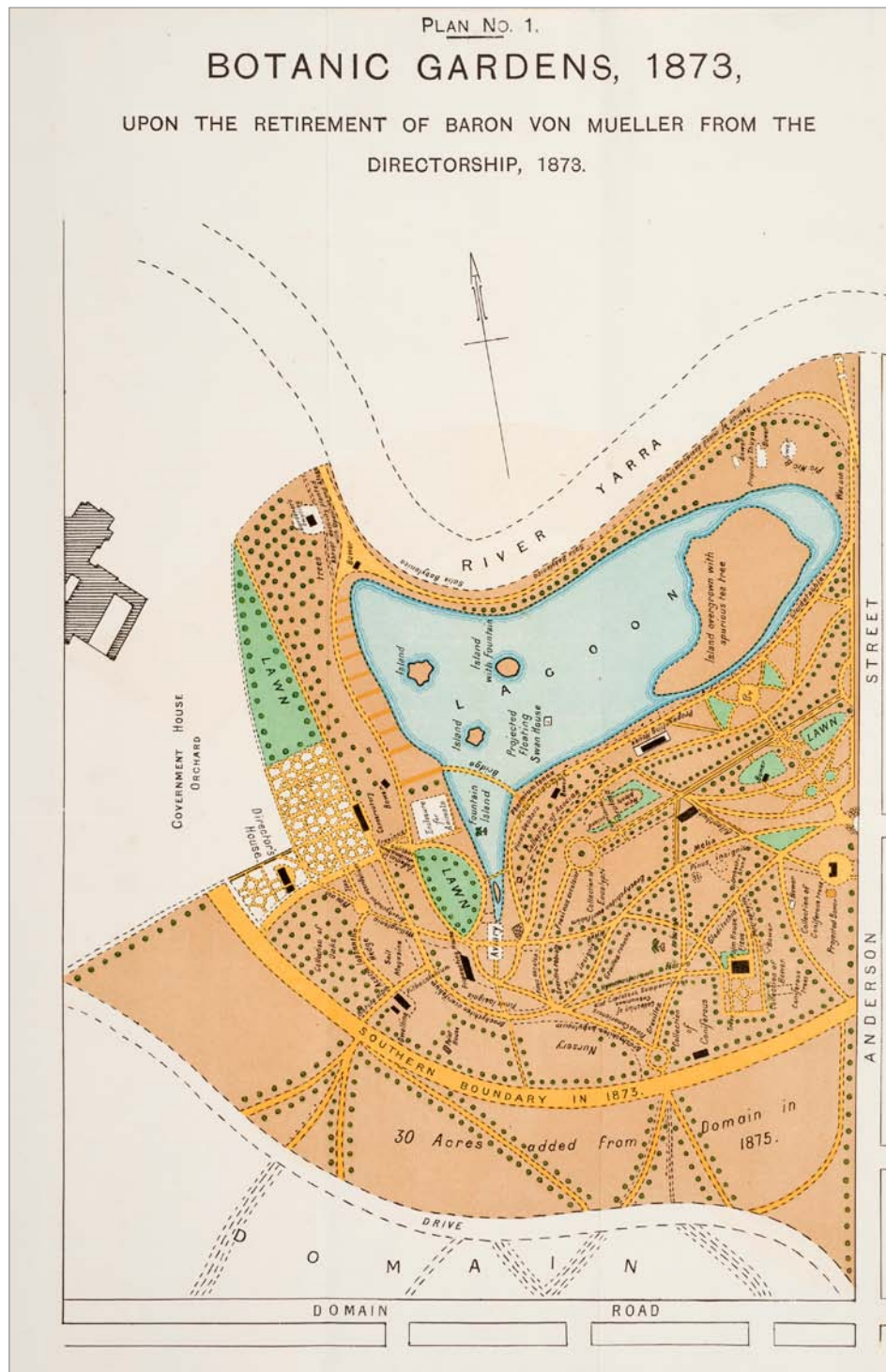

Figure 2a: Royal Botanic Gardens, Melbourne, plan of alterations and additions under the direction of Ferdinand von Mueller, 1873. Source: Handbook or Descriptive Guide to the Botanic Gardens*, Melbourne, 1908 edition. University of Melbourne Archives, William Robert Guilfoyle, 1974.0104, item 2/7.*

scientific. The fundamental transformation involved transplanting great numbers of trees of all sizes and creating wide, curvilinear paths with lawns and clusters of plants that replaced the straight, narrow paths lined with trees and spotty planting that had resulted from von Mueller's years as director (Pescott, 1982).

Guilfoyle advanced the propagation and acceptance of Australian native plants (Guilfoyle, 1909) while simultaneously establishing a picturesque quality with the inclusion of rustic ornaments and follies, whose visual qualities arose from Guilfoyle's broad personal experience of exploring colonial frontiers.[8] Finally, as a consequence of an ambitious engineering project to straighten the Yarra River, the major tributary upon which Melbourne was established, Guilfoyle

Figure 2b: Royal Botanic Gardens Melbourne plan of alterations and additions under the direction of William Guilfoyle, 1901. Source: Handbook or Descriptive Guide to the Botanic Gardens*, Melbourne, 1908 edition. University of Melbourne Archives, William Robert Guilfoyle, 1974.0104, item 2/7.*

incorporated the severed portion of the Yarra River into an enlarged ornamental lake that, once beautified, became a focal point for the gardens (Figure 2b).

Guilfoyle's contributions persist to the present day, and the thematics can be explored in plant material, path alignments, structures and the views and vistas created by landform and the centrally located ornamental lake (Watts, 1983, p 62). The scale of these topographic works, combined with the substantial road and earthworks around the river, is reflective of public park-making in the mid-nineteenth century around the world, with places such as Central Park in New York and Parc des Buttes Chaumont in Paris illustrating how marginal sites were transformed for public recreational use. Toward the end of the nineteenth century, the RBGM also provided the impetus for sweeping changes in a bid to beautify Melbourne around the time of Australia's federation. In the early years of the twentieth century, the area between the gardens and river front was formalised with the laying out of avenues and gardens and construction of several commemorative imperial statues (Whitehead, 1997, pp 52–62).

The radical nature of changes to the RBGM in the latter half of the nineteenth century, along with the wealth of archival material on von Mueller and Guilfoyle's directorships and the Yarra River's engineering at this stage in history, provided the motivation for interpretation in the context of landscape architectural education.[9] Pivotal was the need to inculcate sensitivity and inquisitiveness around how to define 'landscape' in all its complexities. As JB Jackson argued, landscape is:

> … a space deliberately created to speed up or slow down the process of nature … a composition of man-made or man-modified spaces to serve as infrastructure or background for our collective existence [underscoring] not only our identity and presence, but also our history (1984, p 8).

Thus, by using the guide, students were exposed to the idea that agency in the creation of landscape is not confined to the strictures of professional identities, and that engineering and related practices and contingencies often carry equal weight in producing a designed urban landscape. The approach taken in the guide was to present selective threads of the RBGM's history through audio narration, text and a timeline, without attempting to reconcile them into a readily consumable singular narrative. Rather, it was left for the student visitors to encounter and make sense of the changing landscape and to try to reconcile the disparate forces at play: some were the product of design and others a result of entropy and evolution of landscape. In this sense, the guide attempted to make change over time visible while moving through the landscape.

Choreographed experience

In considering motion as an important element of eidetic experience, we return to the core design challenges of the iPad tour. As identified above, these involved how to immerse and inform the visitor and how to present design intentions and discontinuities in the landscape as a historical record. A third challenge was how to achieve these aims in the context of moving and guiding through large-scale sites like the RBGM, which usually involve choreographed walking and viewing. This act of moving through a landscape has been identified as formative to creating an immersive and personalised experience that also allows for an understanding of

narratives of meaning embedded in a landscape by its designers (Conan, 2003a). However, although this close association between gardens and motion is taken as a given, Michel Conan, in his book *Landscape Design and the Experience of Motion*, asks why there is still relative silence regarding the experience of motion in contemporary landscape design writing. He suggests our understandings and descriptions of motion itself are still inadequate or illusive: '[T]he motion of the traveler does not seem to open aesthetic appreciation in picturesque literature' (Conan, 2003b, p 300).[10]

John Dixon Hunt (2003) has partially responded to Conan's provocation in his analysis of movement in gardens over time. Hunt categorises three kinds of movement that can be found in historical gardens and other designed landscapes: the procession or 'ritual'; the 'stroll'; and the 'ramble' (2003, p 188). These informed the conceptualisation and design of navigation in the guide.

A procession implies ritualised movement that follows a preordained path or purpose. It is prescribed and so it is repeatable and, indeed, is expected to be repeated. The route is encoded in some manner – whether through a formal guide, designated paths, onsite signage or accompanying guides.

The ritual experience of the procession is likely to be undertaken by a group, perhaps with set aims to be accomplished. Within the European tradition, Hunt offers the example of the gardens of Versailles, as narrated by Madeleine de Scudéry in 1669, and later by Louis XIV's guided tours (2003, p 291). Also, the garden of Stowe in Buckinghamshire, England, is seen as a somewhat ritualistic experience, where visits since the mid-1700s were guided by detailed guidebooks that helped draw together the many built and natural elements of the garden into a narrative sequence (Hunt, 2003, p 202). As evidenced by Hunt and other accounts of garden appreciation, the formalised guiding of movement around designed landscapes and gardens through guidebooks and similarly organised means has a sustained history upon which many recent digital reincarnations build (Richardson, 2007).

The 'stroll' and the 'ramble' occur where visitors give themselves over more to the individual sensation of movement. They are, therefore, less purposefully directed than the ritualised procession. Strolls are marked by incidents that 'punctuate and give rhythm to the movement' (Hunt, 2003, p 188). As exemplars of historical strolling sites, Hunt offers the ancient strolling gardens in the Chinese tradition, and picturesque gardens in the European tradition. Strolls are also defined by material incentives, but not prescriptions, to move forward in the landscape, as found in the lakeside route famously created by Henry Hoare at the garden of Stourhead in Wiltshire, England. Stourhead set a fascinating precedent in guiding experience through induced movement and looking, as embedded fundamentally in the gardens itself, including the careful placement and sequencing of statues, follies and landscaped elements, and stone signs inscribed with poetic directions to the visitor (Figure 3).

In contrast, Hunt's third type, a ramble, describes 'the pleasure of movement itself' and involves 'disconnected wandering' that is likely to be solitary and neither prescribed or induced (2003, p 188). Central Park in New York is singled out as a quintessential place for a ramble, and Hampstead Heath in London comes to mind, alongside of course the less 'designed' landscapes of national parks and nature reserves.

Figure 3: Early example of garden 'interpretation' in the form of stone inscriptions at Stourhead, Wiltshire, England (Hannah Lewi, 2011).

Categorisations are useful but never tidy. As Hunt acknowledges, many gardens cater for at least two kinds of movement – the processional guided tour in groups with allowance for, and indeed promotion of, informal and singular strolling. For example, paintings and drawings of the gardens at Chiswick House in London commissioned by the owner Lord Burlington show groups of guests experiencing the gardens through both defined pathways and guided tours. But they also show figures obviously deviating from these prescriptions and undertaking their own exploration; and this was apparently encouraged (Hunt, 2003, p 206).

At Alexander Pope's garden, designed by William Kent in Twickenham, England, while visitors might have been invited for a formal guided experience by the owner or designer they were also encouraged to follow personal curiosity by exploring the gardens over the course of an extended stay. Hunt describes this mixed experience as a 'middle mode' (2003, p 207). He also alerts us to the changing status and interpretation of such garden journeys over time, according to shifts in both narratives of design intention and use (2003, p 213). The intention of the self-directed stroll, for example, can become ritualised or more programmed over time, often through conscious heritage and public educational strategies and agendas.

Our research included surveying an archival collection of picture postcards (photographic and wood engravings) held within the State Library of Victoria that depicted mid-to-late nineteenth and early twentieth century views of people in the RBGM. Although these scenes are static representations, they provide extensive illustrations of people strolling along broad gravel paths and vistas framed by exuberant vegetation, topography and flowing swathes of lawn and water. One immediately notices the finery – the parasols and special attire – and the implied actions of promenading, looking or pointing, clusters of people roaming and observing the cultivated scenes or natural objects. These images show the value

placed on strolling through a picturesque setting, a tradition clearly inherited from England and the United States and supplanted into the colonial setting, but one that continues to have relevance today.

The tour of the RBGM was conceived as a programmed walk for small groups of students in a prescribed journey around a carefully edited and selected part of the site. The journey's content was based on a personalised tour that had been led by Andrew Saniga in the RBGM over several years. So it adhered, in part, to the tradition of ritualised processional guiding – both as a mode of experience and as a digital design metaphor. As a design metaphor for organising the iPad guide, a fairly tight choreographed route was defined, with 13 stops in the RBGM and King's Domain. However, within this route was a suggestion of loose exploration as depicted by a red 'lava-like' flow that links the stops together rather than a sharp line of movement (Figure 4). The use of GPS tracking, in the form of a yellow dot on the guide's map to indicate current position, was also included to encourage more free exploration with the security to reorient when required.[11]

Each stop included text narration by Saniga, as the tour guide and subject lecturer, accompanied by images related to the location. The route's itinerary was scripted with limits on time and stamina in mind, and therefore only locations that could most directly illuminate particular historical or design themes were highlighted. No narration or information was given between the 13 stops.

Movement was therefore guided in a somewhat staccato fashion, and perhaps thereby fell into the criticism offered by Stephen Bann that landscaped sites are generally described throughout history as a series of still points rather than a constant flow of moving and looking (2003, p 53). However, in addition to this programmed guiding through a set route, the tour aimed to promote a less structured and sequenced experience, reminiscent of Hunt's 'middle mode' that combines the stroll and procession. So while students followed a predefined larger-

Figure 4: 'Landscapes in Time', orientation map page showing the 'lava-like' walking direction (authors, with assistance of Jacqueline Monie, 2011).

scale procession through the 13 stops, they had freedom to stroll in and around the vicinity of each stop. This movement is embodied both in how the gardens can be physically experienced and moved through, and through the intended virtual navigation of the iPad guide. Aside from the mapped tour with designated stops, a series of thematic resources, gathered and presented in 'drawers', allowed users to wander and pursue archival territories of personal interest.

To provide further navigational choice and promote longer use of the guide, either at or away from the park, a 'Scramble' function was included that was inspired by the possibility of more radically mixing up the guided experience. A series of sound bites cut from the stop narratives, video and still images was collaged together for playing at leisure. The Scramble function was not intended to didactically guide but to create an 'ambient' backdrop for exploring on one's own, and perhaps even to induce more random-like wanderings that evoke the spatial and material qualities of the park and historical episodes that created it.

Paul Carter has described the mode of collage as a legitimate or 'normal' way of tackling representation of knowledge and place in a post-colonial setting: 'collage as a compositional technique is … to imitate things as they are and, what's more, to mirror them without any obvious addition of meaning' (1992, p 186). The goal of collage in this context is to 'decompose' straightforward linear and direct associations and interpretations and so is apt for the interpretation of a European-styled park in an Antipodean urban setting.

The Scramble option alludes to this messiness of historical interpretation: of unfinished plans and unrealised ideas that are inherent in the making of any layered place over time. It also mimics familiar digital modes such as the 'screensaver'. Plus, in the same way that the random appearance of an image or a sound can lead to serendipity and forced connections, it was thought that Scramble may lead to the invention or multiplication of narratives and, ultimately, the possibility of ideation. Put another way, Scramble encouraged the students to develop their own interpretive framework from a combination of historic data and varied geographic contexts. This outcome supports Gardner and Harfield's (2014) claim that the new era of mobile devices can be relational and the 'personal interpretive framework becomes one that is largely determined by, and contingent on, movement through urban space' (p 202). Alternatively, and perhaps more pragmatically, Scramble also allowed for a more circumspect use of the iPad tour, one that could exist in the background should a user wish to give their primary attention to the site itself and less to the mediation of the iPad.

Demonstrating historical time through images

To return to broader questions on representing historic landscapes, Casey (2002) has described the historical difficulties faced in encapsulating and presenting experience of designed landscapes and gardens that, in turn, gave rise to interesting and experimental images such as the panoramic and topographical image. Here, Casey makes a useful distinction between the terms representation and presentation. A representation strives to re-present or replicate something that attempts to stand in for the 'real thing'. By contrast, he sees most landscape images as seeking to 'present' not '*re*present', as they principally aim to 'show' or 'demonstrate' and interpret, not to replicate (Casey, 2002, p 18). In charting

the challenges of presenting landscapes through time, Casey (2002) analyses an eclectic variety of examples including: Carleton Watkins's photographs capturing the sublimity of Yosemite Park in the United States; John Constable's intimate paintings of the region of Dedham Vale in England; and the tradition of the vertical and horizontal Chinese scrolls showing Chinese landscapes from the Northern Sung period.

The possibilities afforded by digital and mobile technologies offer new twists to this field of landscape presentation, demonstration and explication. Through the digital guide we were interested in testing how easily different types of images and maps could be read and what they would offer or hinder in terms of the immersive and informative experience. At each of the 13 stops, a selection of images and films accompanies the narration and directs users to look at various features and views.

To take a few stops as examples, the first is titled 'Straightening the River' and locates the beginning of the tour at the plaque of the RBGM directors. The first contemporary image in each stop serves as a 'you are here' indicator.

At Stop 1, users are directed to look at the rock escarpment that rises before them as a relic of what was once the edge of the Yarra River. Frequent flooding prompted mitigation work between 1896 and 1900, and the Yarra River was straightened, thereby creating the causeway of Alexandra Avenue. This sliced-off body of water became an enlarged lake in the botanic gardens, and so transformative was this feat of engineering that, without the supplementary archival photography and maps in the mobile guide, users would almost certainly be unable to detect these topographical changes in the landscape before them. The first image depicts the engineering of the new course for the Yarra River and its excavation in 1898, including a boulevard complete with street tree planting already under way.

Subsequent images taken from roughly the same location go back and forward in time (to circa 1870 and 1917 respectively) allowing direct comparison of the Yarra River's course and its associated landscape embellishments. Detailed images of the excavation work, and a Department of Lands and Survey plan, indicate the engineering changes. Perceptual processes mix with the cognitive, providing the potential to see and realise how time has managed to obscure the magnitude of the historic earthworks. The rock escarpment, once worn into existence by the flow of the Yarra River, is now subject to another equally compelling form of gradual decay in its life as an ornamental garden feature. The escarpment faces weathering and erosion as it becomes subsumed in cultivated plants and retained soils and as its geological structure is undermined by their roots.

That such entropic forces of change in a landscape could be made visible[12] by presenting, in situ, an ensemble of historic and immersive information was one of the prime motivations for this research. Such a motivation stems from the importance of reading time in landscape, and reading the impact of industry and infrastructure and the somewhat irreversible, yet often concealed, changes that such interventions bring. As Robert Smithson noted about time and change in respect to Frederick Law Olmsted's design for the landscape of Central Park, New York:

Imagine yourself in Central Park one million years ago. You would be standing on a vast ice sheet, a 4,000-mile glacial wall, as much as 2,000 feet thick. Alone on the vast glacier, you would not sense its slow crushing, scraping, ripping movement as it advanced south, leaving great masses of rock debris in its wake. Under the frozen depths, where the carousel now stands, you would not notice the effect on the bedrock as the glacier dragged itself along … Back in the 1850s, Frederick Law Olmsted and Calvert Vaux considered that glacial aftermath along its geological profiles (Smithson, 1973, pp 157–158).

At Stop 3, images of the Separation Tree and rest house in 1909 allow comparison with how the site appears today (figures 5a and 5b). This stop was chosen to provoke consideration of the clash between colonial history and the Indigenous presence before the gardens were established. The intention was to prompt this through experience and explanation of the 'Separation Tree', which is far older than white settlement but was named in 1850 as the site of celebration of the colony of Victoria's separation from New South Wales.

The narration reminds guide users of the importance of this setting to the people of the Kulin nations as a food resource and meeting place.[13] The user is then pointed to the rest house nearby as an example of the kinds of timber structures constructed throughout the gardens. Often, in von Mueller and Guilfoyle's time as directors, structures and rustic ornaments such as the timber seat within the rest house were made with timber from indigenous trees and shrubs cleared from the gardens. Here, physical residues from both colonial and Aboriginal histories are conflated in the construction of a picturesque garden design. The result opens up the possibility for a new reading of this space, in a way partly echoing the sentiment behind what Grant Revell describes in collaborative teaching experiences as 'the third space'. This is a learning environment where 'design students and their respective Indigenous collaborators are able to share and understand these critical histories, and accompanying values' (Revell, 2001, p 15). It is the act of allowing users to position their body – to sit within a space that manifests this history – that provides the opportunity to mentally unpack what they see before them and feel beneath them.

At Stop 5, archival photographs and sketches from Fiji are presented, illustrating Guilfoyle's design influences for his vision of the garden landforms

Figure 5a (left): The Separation Tree and rest house, postcard, 1909 (State Library of Victoria).

Figure 5b (right): Contemporary view of the Separation Tree and rest house (authors, 2011).

and plantings. This stop locates the user at 'Guilfoyle's volcano', which includes a recent reconstruction based on Guilfoyle's original design for a water reservoir in the form of a crater-like volcano. Guilfoyle's volcano was intended to be reminiscent of his experiences on plant-collecting expeditions in the South Pacific in the late 1860s (Fox, 2004, pp 135–137) (see Figure 6).

From the available historic photographs, the original design around the time of construction consisted of a large earthwork much like a volcanic crater with bare earth walls. The surrounding garden beds and rockery represented the substance of volcanic islands, with lawns occupying the space in between and aiding the illusion of a flow of lava (Pescott, 1982, p 118). In Guilfoyle's day, when viewing the volcano from the distant Government House, the smoke from the adjacent wood-fired furnaces of the conservatory (now gone) created the sense that this simulated volcano was indeed still active (Fox, 2004, p 137).

Within the palette of Victorian gardening styles, Guilfoyle's metaphor represented the special qualities of natural places as discovered through colonial experience in the nineteenth century. Yet it draws upon European traditions of picturesque follies, kinetic sculptures and the choreographed spaces of grottos. As John Dixon Hunt has extensively shown with examples like the imperial hunting lodge of Laxenburg in Austria, such design interventions could 'elicit a full range of responses [including] historical association ... melancholy ... peaceful reflections ... exotic fancies ... or simple satisfaction ...' (2002, pp 173–174). The recent reconstruction of the volcano was driven by landscape architect Andrew Laidlaw. It consists of dry gardens and expansive cacti planting in a bid to exhibit water-saving landscape design. The coloured bituminous concrete-paving design graphically mimics the patterns of a lava flow. Given the markedly different treatment to what originated in Guilfoyle's time, the archival materials within the iPad tour allow the contemporary viewer to identify significant changes over time.
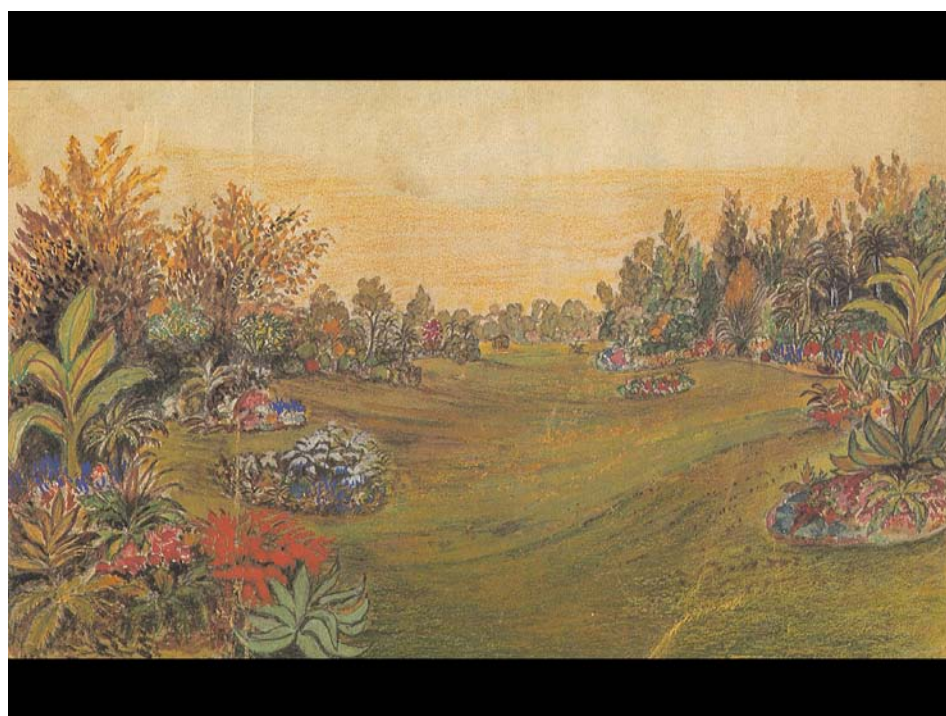

Figure 6: Guilfoyle's design inspiration was partly drawn from his fieldwork in the South Pacific and this influenced his design for the Eastern lawn directly below the volcano reservoir c. 1880. (Undated rendering by William Guilfoyle, archives of the Royal Botanic Gardens Melbourne.)

In addition to the 13 stops, the iPad tour contains other documents accessible as a series of resource drawers in the taxonomy of: contemporary contour maps; key historic maps; a basic timeline; aerial views over time; and a series of archival images (paintings, photographs, sketches, postcards and films) organised under the themes of landform, planting, and social use and structures (Figure 7). The collections aim to help capture how the park has been used over time. In terms of the presentation of these resources, other considerations came into play such as the technical surface of reproduction, the size and framing and where it is viewed, or what Casey has termed the 'place-of-exhibition' and 'place-of-surface' (2002, p 120). In the digital mode, the framing and scale of images and film are constrained by the screen size of the iPad, but the format is, without doubt, easier to reproduce and manipulate in a variety of ways than conventional guidebooks and printed resources (Figure 8).

Conclusions: The challenges of immersive and informative experience

In designing and evaluating an iPad tour for the RBGM, one motivating question was what, if anything, might be new about this emerging digital form of guided landscape touring? As shown in this paper, on the surface, the digital guide delivers information in a format that differs from the approach of the human guide and the guidebook. Importantly, it provides a virtual environment for information to be explored and navigated in tandem with the experience of the physical place. At a deeper level though, as demonstrated in this paper, this new format is responding to longstanding and familiar issues in the visitor's encounter with historic landscapes.

As with other interpretive devices in museum environments, the extent to which the user seeks an open-ended emotive response, and the extent to which the experience tends towards a more prescriptive cognitive one, is always going to be open to debate. The RBGM has earned an international reputation for its aesthetic qualities. Likewise, the emotional or psychological 'pull' the site wields in the geography of Melbourne no doubt interplays with the user's experience in ways so complex as to elude quantification. It was certainly not the intention in this research to engage in the field of environmental psychology but rather to

Figure 7 (left): 'Landscapes in Time', typical 'stop' page (authors, 2011).

Figure 8 (right): 'Landscapes in Time', resources drawer page (authors, 2011).
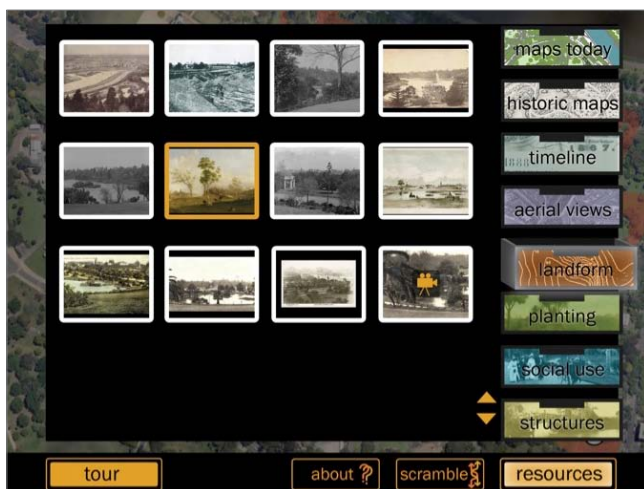
accept such interplay exists in a manner perhaps best described as 'experiential gestalt' (Nettleton, 1990). That is, the experience involves a combined set of schema including cognition, perception, emotion and fantasy, all of which the iPad tour seeks to trigger. Ultimately, the iPad tour was made for design students, and the expectation is that studying the past may inform the development of their own proficiencies as designers capable of generating new ideas.

On the question of how digital guides may choreograph movement and experience through designed landscapes, we refer back to Hunt's (2003) historical schema of movement types. The iPad tour recreated something of a 'procession': the ritualised route inscribed activities to be completed by the students with a clear goal at the outset.[14] At the same time, having never taken this route before, and in the absence of a knowledgeable human guide, the students' experience was also that of the self-motivated stroll, depending on their will to proceed at each point and punctuated by defined points of interest (Figure 9).

As established in this paper, another issue confronted by the digital tour guide concerns the demonstration of historical time and relates to Casey's (2002) distinction between presentation and representation. The individual items of content exhibited in our guide drew on various genres – photographic images, maps and films – that depicted garden views at various historic moments. When they are deployed within the iPad tour as the 'place-of-exhibition', we suggest that these exhibits align with Casey's (2002) notion of presentation and demonstration rather than representation, with an emphasis on synchronous comparison and interpretation conducted in situ. Thus, resources that might serve as merely representative copies when viewed elsewhere, here become tools of 'directed looking' and interpretation when synchronised with their real counterparts in context. While such juxtaposition is possible with guidebooks and common enough with fixed sign boards, it is the unexpected appearance and vivid alignment with the physical scene as the visitor moves through the site that characterises this particular comparative experience.

Figure 10: Student and lecturer hugging a tree in the Royal Botanic Gardens Melbourne, a teacher's ploy to encourage students to engage with their context. Xin Fu, Master of Landscape Architecture student, University of Melbourne, drew the event to illustrate the immersive potential of fieldwork.

In conclusion, many productive precedents are found in modes of touring and presenting gardens in the past that remain instructive in addressing anew the challenges of offering both an immersive and personalised experience alongside an informative guide to a designed landscape. For example, to revisit the extraordinary stone signage at the garden of Stourhead in Wiltshire, England, Michael Charlesworth suggests these inscriptions 'invite the visitor across a crucial threshold that separates the mythic domain of the garden from real space ...' (2003, p 285). It is this motif of the 'inscription' (whether instructive or poetic) as a guiding voice that has persisted in many modes of garden experience and, arguably, makes us feel differently within designed gardens 'compared to how we feel in other "everyday" spaces' (2003, p 285). Even within the formal task of university fieldwork, we ultimately wanted students to benefit from the more didactically illustrated experience of 'historical' time, as offered by the resources in the iPad guide, but also to retain some semblance of the personal and perhaps even the poetic experience of their own time spent in the gardens (Figure 10).

This paper has described how the creation of a mobile digital guide for a particular designed landscape and its history presented challenges that were linked to centuries of attempts to guide visitors around designed landscapes. It is also perhaps not much of an exaggeration to state that the attempt to design, build and implement a mobile digital guide for the RBGM encountered the same fundamental issues inherent in designing a landscape itself. That is not to conclude that digital mobile guides bring nothing new to historic landscapes, for they introduce increased volumes of content, ready access to rich and vivid images and film collections, connectivity and location-aware functions. These all bring new opportunities. At the same time, the guides continue the lineage of shaping the productive exchange between people and landscapes.

Acknowledgements

NOTES

1 Studies of the teaching and learning objectives and findings have been published elsewhere and are covered in the project website. To access, see
http://mobilefieldworklearning.wordpress.com

2 To access, see www.imamuseum.org/blog/2010/06/07/going-mobile

3 To access, see www.nybg.org/exhibitions/2012/monet/index.php

4 John Weber describing the work of Janet Cardiff ('The Telephone Call', 2001) at:
www.cardiffmiller.com/artworks/walks/telephonecall.html

5 The issues of socialised learning using mobile technology have generated a growing field of educational technology scholarship. This is engaged with in other accounts we have written and covers the process of implementing mobile apps for higher education teaching and learning, but falls outside the historical scope of this paper.

6 For other studies on the iPad format see, for example, Lewi and Smith (2012).

7 The expansiveness of the King's Domain and its associated topographic richness mean that one's sense of orientation, movement and location is correspondingly reliant on landmarks and maps for way-finding. To an extent, our research involved contemplation of cognitive maps as a record of the experience of landscape and as a central driver in formulating the route of the walk.

8 For example, Guilfoyle designed a new water reservoir in the shape of a volcano, and the neighbouring rockery, garden beds and lawn were laid out to represent the materiality of volcanic islands and lava flows. He had formed such imagery when he travelled to islands in the South Pacific.

9 Under subsequent directors throughout the twentieth century, the design foundations set in the nineteenth century were largely perpetuated.

10 Adding to this is the complex task of capturing a more nuanced, subjective and gendered understanding of the experience of the contemporary moving body in a historic setting such as a public garden.

11 Curiously, though, it was those students who were not given the GPS marker who appeared to interrogate the space more actively and construct their journey. Those with GPS seemed to move more slavishly to the prescribed route.

12 The authors refer here to Robert Smithson's important contributions to earthworks and art practice in the 1960s and that have been generated from Smithson's writings on this topic (see Smithson and Sky, 1973).

13 When Melbourne became a self-governing city in 1842, new policy was formed that resulted in the progressive exclusion of Indigenous people from white society. This continued to be enacted concurrently with the first park directorship under the scientist Ferdinand von Mueller.

14 As noted above, the inclusion of GPS seemed to strengthen this processional experience by allowing the group to follow the track with little deviation or inclination for exploration.

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