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Sense of Place: The phenomenology of virtual heritage place

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Abstract- This paper examines the critical importance of time to the experience of place and argues that time-based virtual heritage creates more engaging and affective virtual places supporting rich learning opportunities for heritage audiences. It examines the experience of place, heritage place and virtual place as instanced in state-of-the-art computer games. It discusses the use of heritage visualisation for public edification and the advantages of, and concerns related to, computer generated visualisations. It reports on a number of time-based virtual heritage projects that illustrate the power of time-based virtual heritage to create affective, memorable and educational experiences for the general public. The paper concludes by arguing that time-based virtual heritage supports richer virtual heritage places, both phenomenologically and culturally, and that these in turn offer engaging, affective and memorable experiences creating learning opportunities for the general public.

***Keywords*- digital heritage; place; time; virtual heritage**

I. THE EXPERIENCE OF PLACE

The individual experience of place is a gestalt of the primary sensory impression of the location combined with individual, historical and cultural associations. Yi-Fu Tuan's classic *Space and Place: The Perspective of Experience* (1977) explores relations with and across space and place that concern peoples and communities, cultures and economies. The central theme of Tuan's book is the individual experience of the world. That experience begins in infancy with direct sensory interaction with the physical world and over time deepens as greater conceptual and symbolic understanding is developed. Place is the amalgam of direct sensory impressions and the web of individual memories, human meanings and connections that overlay the topography of homes, environs, regions and countries [1].

According to Tuan, space and place require each other, and time is a critical dimension of place-making. For Tuan the act of spending time in a location is critical to creating the experience of place, declaring that "What begins as undifferentiated space becomes place as we get to know it better and endow it with value". Tuan also notes the way that place makes time visible, acting as a memorial to the past. While the personal experience of a particular place is limited to a single lifetime the cultural timescale of that place can span hundreds or even thousands of years. Place is dynamic. All aspects of place, both cultural and natural, change over time. The weather, the time of day, the phase of the moon and the season of the year, drive the behaviours of fauna and flora and combined with cultural calendars, the activities of humans to collectively determine the sights, sounds and smells of a particular place at a particular moment in time.

A World Heritage Site is a place that is listed by UNESCO as being of outstanding universal value from the point of view of history, art or science [2]. Heritage places are not only the physical places themselves but also the cultural meanings associated with them and the activities that take place within them. Heritage places are experienced physically, emotionally and cognitively. The sense of place experienced at a heritage site is shaped by the phenomenological affect of the environment, the unique memories and disposition of the individual as well as by the cultural and historical associations connected to the site. Heritage places are dynamic and experienced in the context of the present. They change over time, not only due to temporal wear and tear on material fabric, but also due to wider societal changes that affect attitudes about those places and the activities within them.

II. VIRTUAL PLACE

The current state-of-the-art for computer-generated three-dimensional virtual worlds is embodied in the extensive, richly detailed and populated worlds of commercial game franchises like *Grand Theft Auto* and *Assassin's Creed*. The budgets for these games rival those of large Hollywood movies and the huge financial rewards generated by a successful commercial game mean that multi-million dollar development costs are increasingly common. Grand Theft Auto V (GTA 5), the latest in the Grand Theft Auto franchise, was created over four years by a team of 250 people, and is reputedly the most expensive computer game to date with the production costs put as high as $US265 million [3]. Released in September 2013, 33 million copies were sold by May 2014 representing a return of about $US2 billion dollars [4]. These are not so much games as expansive worlds in which numerous stories play out. Game reviewer Hollander Cooper describes GTA 5, as 'absolutely, brutally, amazingly massive, and features so much content you could play for months without seeing it all.' [5]. The author agrees with the assertion by virtual world designer William Bartle that 'others may debate whether or not virtual spaces are actual places, but for players and designers there is no conception that they might not be. The five million people who enjoy World of Warcraft certainly look upon it as a world, and in the face of this any argument to the contrary is pretty well moot' [6]. Virtual worlds are undoubtedly real places in their own right to the people who

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spend time in them and virtual game worlds provide important practical examples of virtual place-making for heritage visualisers.

It is instructive to consider the effort spent to create the virtual worlds in which these games are played out. Locations in the game world are as carefully crafted as movie sets with lighting and sound very carefully designed to enhance the player's experience. While the 'look' of a particular game is often discussed the importance paid to sound is less often acknowledged. The following quote from Christian Schilling, the lead audio designer for the game Crysis (2007), reveals the degree of consideration that goes into designing soundscapes for games.

Sneaking through nature means you hear birds, insects, animals, wind, water, materials. So everything -- the close and the distant sounds of the ambiance. Firing your gun means you hear birds flapping away, and silence. Silence of course means, here, wind, water, materials, but also -- and this was the key I believe -- distant sounds (distant animals and other noises). We left the close mosquito sounds in as well, which fly in every now and then -- because we thought they don't care about gun shots. [7]

III. VIRTUAL HERITAGE PLACE

Virtual heritage worlds are, like other virtual worlds, real (though virtual) places in their own right. But what is the nature and purpose of virtual heritage places and what is their relationship with real heritage places? Walter Benjamin's influential essay *The Work of Art in the Age of Mechanical Reproduction* (1968) introduces the idea of a unique 'aura' that objects acquire from their particular presence in time and space [8]. The importance of the 'real thing' to people is readily apparent in the prices paid in auction rooms where objects owned by famous people or present at important historical moments are worth much more than otherwise identical objects with unknown owners and histories. The power of the 'real thing' is particularly evident in museums. A diorama featuring a life-sized wax model of the murdered French Revolutionary Jean-Paul Marat, in the actual bathtub that he had been murdered in, went on display at the Musée Grévin in Paris in 1886. The annual report to stockholders reported that the authenticity of Marat's bathtub increased the attraction of the tableau tenfold and resulted in a significant rise in receipts for two months [9].

While a virtual heritage place is clearly a real (though virtual) place in its own right, it is obviously not the same as the actual place it has been modeled on as it has none of the history of the actual place. So exactly what kind of a place is a virtual heritage place? It is useful at this point to consider the difference between virtual archaeology (virtual reconstructions of heritage sites that have been built by archaeologists) and virtual heritage (virtual reconstructions of heritage sites that have been built for public edification). The audience for a virtual archaeology reconstruction is assumed to be expert while for virtual heritage a general audience is assumed. Virtual archaeology is therefore an exploration tool for specialists while virtual heritage is an educational tool for the general public. There is an inherent and central pedagogical dimension to virtual heritage.

Tuan believes that the cult of the past as manifested in museums calls for illusion rather than authenticity [1]. Strategies for engaging the general public via spectacle are not new (as is evidenced by the Marat tableaux at the Musée Grévin referred to earlier). Nor is the debate about the relative merits and possible tensions of education versus entertainment. Indeed spectacle was intrinsic to the 'cabinets of curiosity' that were the seeds of what are now major public museums such as the Kunstkamera in St. Petersberg, Russia [10]. Sarah Kenderdine argues that virtual heritage is the interface between heritage content and digital visualisation technologies and sits within a long tradition of immersion and spectacle in museums [11]. While virtual heritage places cannot match the physical and cultural immersion and affect of real heritage places they, like illustrations and dioramas, can engender insight, understanding and learning in museum audiences.

A key concern for virtual heritage is authenticity and completeness. When creating a virtual heritage model there is much that may not be known, which in turn raises the question of whether it is better to leave things out or to fill them in with the informed speculation of an expert. Most re-creations of past places, either dioramas or computer-generated 3D, will be incomplete if only that which is one hundred per cent known is included. David Frederick makes this point clearly when he discusses his virtual re-creation of Roman houses [12]. Only the ground floor survives of the many multi-storey houses in Pompeii. The designer of a virtual Pompeii is confronted with a number of questions. Do they build the upper levels? How do they decorate and furnish them? Do they fill in the missing bits with an expert's best guess or do they leave them blank? If they are filled in then a degree of speculation enters the visualisation, while if they are not then the visualisation is incomplete.

In today's media saturated world most people have been exposed to all manner of depictions of life in, to name just a few, ancient Greece, Rome and Egypt, medieval Europe, Victorian Britain, First World War Europe and a wide range of global locations during the Second World War. However, not all productions share the same attention to historical detail as *Downton Abbey,* and their historical inaccuracies are then accepted by the public as truths [13]. It is therefore better to use the informed speculation of experts in preference to relying on the imagination of the general public.

The publication of the London Charter for the Computer-based Visualisation of Cultural Heritage (2006) prompted discussion which has led to an emerging international consensus on best practice in heritage visualisation across disciplines [14]. The Charter seeks to address the very legitimate concerns that have been raised regarding the authenticity of virtual heritage by ensuring the methodological rigour of computer-based visualisation used for researching and communicating cultural heritage. It does this by identifying principles concerning the importance of a clear purpose for the model, the transparency of data sources,

a commitment to authenticity and historical rigour with clear distinctions between fact and speculation [15].

The affordances of New Media lend themselves to the display of levels of uncertainty inherent in any heritage visualisation. The modeling and the texturing detail of an object or building can be used to indicate levels of authenticity. A highly detailed, near photo-real object or building would indicate that a great deal was known about it while a low resolution model with a simple colour would indicate a more speculative object or building. The different levels of authenticity would thus be immediately apparent to the viewer. In addition, by directly linking a building or object in the virtual world to a database of relevant information, users are able to easily access additional information including the reference data that informed the creation of the model.

IV. TIME-BASE VIRTUAL HERITAGE

Time is critical to the experience of place. Yet, unlike the dynamic and atmospheric virtual worlds associated with state-of-the-art commercial games, virtual heritage usually depicts a static and unpopulated place at a frozen moment, usually noon on a sunny day. The absence of time is especially curious given that time is an inherent affordance of most of the programs used to create virtual heritage. Time-based virtual heritage offers heritage educators additional ways to engage and educate users. Time of day or night, phase of the moon and season of the year determine the activities taking place, enabling a more accurate cultural recreation of place, and also directly influence the lighting and ambience, encouraging emotional and affective connection. Time-based virtual heritage also supports time-lapse which allows users to directly see change over time. A time-lapse of a glacier has a powerful cognitive impact bringing an immediate visceral understanding to the description of a glacier as 'a river of ice'. Likewise, a time-lapse of a heritage place makes plain the change that occurs in the built environment of a city over timescales beyond direct human experience. Additionally, giving users control over time provides them with greater agency, and thereby increasing their engagement.

As part of her doctoral studies exploring the educational potential of time-based virtual heritage the author created an interactive time-based virtual model, the Virtual Sydney Rocks, of the historic Sydney Rocks district from 1788 to the present day. Users could explore freely, play a game or take a tour. While playing the game and exploring freely users were able to select a particular date and time and this was used to determine the buildings that were displayed, the position of the sun and, for 1788, the weather. Users were also able to set the speed of time (for example 1 second = 1 year) and view the resulting time-lapses. The virtual model was supported by an extensive online database and selecting a building or ship caused a dedicated webpage to open on a second screen. Testing was carried out at the Rocks Discovery Museum, a small museum dedicated to local history located in a heritage-listed building situated in the Rocks. The museum attracts a wide range of visitors of all ages and nationalities, including international, interstate and local tourists, school parties and individuals with a specific interest in the Rocks [16]. The two key findings from testing was that navigable time was engaging and informative and that individual museum visitors have clear preferences when it comes to activities within a virtual heritage world [17].

The author is currently involved in the development of a time-based virtual heritage project based on the Narrabeen Aboriginal town camp in Sydney, Australia with historian Peter Read and Gai-Mariagal elder Dennis Foley who can remember very clearly who lived there prior to the camp's destruction in 1959 and their way of life. Time is an important part of the project because the inhabitants of the camp paid careful attention to the natural cycles of moon, tides and seasons as these dictated both cultural rituals and also the availability of particular food sources such as fish, birds and plants. With virtual heritage the images can be so powerful that it is very easy to forget that what is seen is only a reconstruction, not historical reality. Oral history is an important and often neglected resource. The combination of participant, historian and visual creator is unique and offers a model for future projects.

The author is also currently creating a stereo VR version of Sydney Cove in early 1800 based on print drawn by E. Dayes from a picture painted at the colony and engraved by F. Jukes (Figure 1). The painting shows the town of Sydney and, in the foreground, an Aboriginal family beside a fire. It is possible that, while the view of the town is accurate, the inclusion of the Aboriginal family is a romantic affectation on the part of the painter. An image from 1830 shows quite a different reality with an assortment of inebriated Aboriginals, semi-naked in a few ragged bits of European clothing (Figure 2). Reconstructions are often based on historical documents that themselves contain biases and omissions. This project, *Artistic License*, will foreground the role of interpretation in the creation of virtual heritage and it will investigate if audiences conflate the phenomenological immersion of stereoVR with historical fidelity.

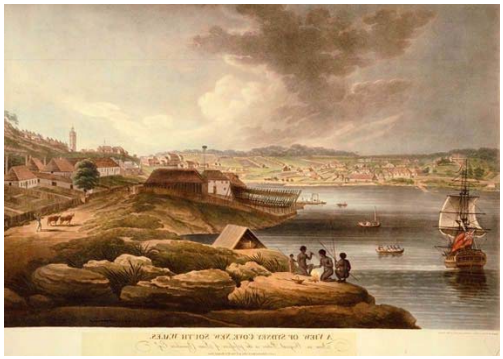

Figure 1 *A view of Sydney Cove, New South Wales*
Francis Jukes & Edward Dayes (1804)

Figure 2 *Natives of New South Wales as seen in the streets of Sydney* A. Earle (1830)

V. CONCLUSIONS

Museums have a long history of using illustrations and dioramas to help audiences engage more deeply with heritage and to foster historical understanding, insight and learning. Virtual heritage is part of this pedagogical tradition. The ability of virtual environments to engender a sense of physical immersion makes them particularly well suited to create affect and engagement in heritage audiences. The author argues that time-based virtual heritage enables a richer phenomenological and cultural re-creation of place and therefore provides heritage audiences with affective and memorable experiences rich in educational opportunities. The author is undertaking further research to investigate if phenomenologically richer environments are assumed by users to be more accurate historically. Additionally, time-based virtual heritage supports time-lapse which, by showing changes in the built environment over timescales outside of normal human experience, allows heritage audiences to gain insight and understanding of historical processes thereby opening up a dialogic engagement with heritage itself.

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