
‘The Royaltie of Sight’: A 3D-GIS recreation of ‘prospects’ and ‘perspectives’ within an English designed landscape, c.1550–1660

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Introduction

In 1624, Henry Wotton highlighted the importance of “the Properties of a well-chosen Prospect”, a concept of viewing landscapes, which Wotton dubbed “the Royaltie of Sight” (Wotton, 1624, p.14). Sixteenth- and seventeenth-century English designed landscapes were artificially organised to optimise the ‘prospect’ whilst reflecting the landowners’ individual perspectives. However, little analysis has been attempted into determining the extent and characteristics of ‘prospect’ and ‘perspective’ at specific sites. The destruction and modernisation of estate landscapes has hindered their analysis and reshaped perceptions of their appearance and development. In this paper, I will therefore demonstrate how 3D-GIS has the capabilities to change this. For my ongoing PhD research, I am introducing 3D-GIS as a new computational tool for producing 3D representations of estate landscapes but also to subsequently provide the geographical and historical context to analyse the visual experience within them. This methodology will contribute to not only the study of designed landscapes but of historic landscapes generally.

Literature Review

In the study of designed landscapes, country houses, gardens, parks, and the wider estate landscape have been individually and collectively explored and analysed. This is evident from the literature produced in disciplines such as literary history, art history, architectural history, garden history, archaeology,

geography, and landscape history. Whilst each approach has its own merits, a noticeable lack of collaboration and acknowledgement of alternative methods has created a “disciplinary vacuum” (Spooner, 2010, p.7). In my research, landscape history is the leading discipline, but it also embraces the contributions of the other disciplines, thus creating an altogether multidisciplinary approach.

Our current understanding is predominantly based on research into well-documented and surviving estates. Consequently, there is a bias against sites which no longer survive or are lacking in evidence. Additionally, they are analysed separately from the wider landscape, which is frequently overlooked despite its significant bearing on the development and utilisation of designed landscapes. Although its contributions have been mentioned, the wider landscape has not been examined in detailed concordance with designed landscapes (Dix, 2011, p.152).

As a result, little research exists into how individual estates were experienced within their landscape context. Whilst the history of the senses, experiences and attitudes towards the landscape have been researched (Rippon, 2012; Hamilakis, 2013; Whyte, 2015), the examination and application of these concepts to historic landscapes, including designed landscapes, is minimal. Therefore, a greater understanding of contemporaries’ perceptions and experiences of designed landscapes can be reached by ascertaining how such notions were applied to individual estates.

In this paper, these issues will be addressed and a solution provided. This project utilises computer science as a conduit to address the many disciplines already featuring in the study of designed landscapes. Geographical Information Systems (GIS) is becoming increasingly popular in the spatial humanities, particularly historical and landscape studies (Gregory and Geddes, 2014; Knowles (ed.), 2002), but few have used GIS to analyse individual designed landscapes (Dalton, 2012) and ‘prospects’ within them (Spooner, 2009). Furthermore, 2D-GIS is typically used, which does not provide a suitable perspective for comprehending the intended experience within these landscapes. On the other hand, Computer Aided Design (CAD) can digitally restore lost landscapes (Virtual Past, n.d.), including designed landscapes (Urmston and Historic England, n.d.), thus providing equal opportunity for their examination alongside surviving specimens. However, the essential difference between GIS and CAD is the handling of

spatial data, and CAD is unable to conduct further spatial analysis (Abdul-Rahman and Pilouk, 2007, pp.4–5). Therefore, by incorporating CAD into a GIS environment, 3D-GIS can provide a more immersive perspective for the analyst to explore and analyse these landscapes more appropriately and effectively. 3D-GIS is, therefore, a promising approach for the study of historic landscapes. Regarding designed landscapes, the reconstructive capabilities of 3D-GIS have been demonstrated (de Boer et al., 2011). However, 3D-GIS has only more recently been trialled for the analysis of individual estates. This project builds upon my previous work, looking specifically at the 'prospect' with the use of 'viewshed' analysis (Stewart, 2015). By literally adding a new dimension, 3D-GIS has great potential to improve our understanding of designed landscapes.

Case Study

In this paper, I will present a case study which demonstrates the potential of 3D-GIS. My work adopts a regional approach, focusing on Norfolk, Suffolk and Essex. I will present work from one of these geographical areas. The combination of the aforementioned disciplines will provide the foundations upon which the recreations within CAD and GIS can be supported. This will involve the utilisation of polygons and imported CAD models, based on data extracted from geo-referenced contemporary maps, architectural plans, earthwork plans, fieldwork and archaeological surveys, alongside a range of qualitative historical documents, including estate accounts, inventories and contracts.

Once digitally recreated in 3D-GIS, the estate along with its landscape context can then be subjected to further spatial analysis. For the purposes of this study, the visibility of a 'prospect' can be ascertained using 'viewshed' analysis. To calculate this, topographical data produced by LIDAR is required, with amendments to replicate the historic landscape recreated in 3D-GIS. Viewshed analyses are then conducted from predetermined vantage points. Landowners ensured that 'prospects' could be enjoyed from certain places within their estates, such as the piano nobile of the country house, the rooftop, and from structures and landscape features within the grounds of the estate. Coupled with animations, whereby the act of movement throughout the landscape can be generated, the 'prospects' that contemporaries experienced can be recreated from these positions within the landscape.

Finally, the results can be interpreted in light of the evidence analysed using 'reception theory'; the creativity and reactivity of individuals in response to certain works (McGregor and White, 1990, p.1). This will focus on each individual landowner's possessions, such as published texts or artwork, but also personal correspondence, including letters and diaries. This research will utilise reception theory, which has not yet fully implemented into the study of designed landscapes (Hunt, 2013, p.7), in order to ascertain contemporary 'perspectives' towards these landscapes through the 'prospects' experienced within them. I will present the findings from this case study. This will demonstrate not only the synthesis of the approaches and resources addressed, but will provide the best opportunity to analyse the visual experience and thus improve our understanding of sixteenth- and seventeenth-century designed landscapes.

Conclusion

The potential of 3D-GIS to rekindle the analysis of sixteenth- and seventeenth-century designed landscapes will be evident. The results from this case study, as part of a larger study, will help to explore and examine what these landowners' visual perceptions were. Subsequently, our understanding will improve regarding how individual landscape designs have been influenced by their landowners' thoughts and ideas, and the extent of their individuality or conformity to contemporary fashions in landscape design and appreciation. My project will progress research into designed landscapes whilst demonstrating the methodological benefits of 3D-GIS. As a virtual environment, analytical tool, and database, this approach can subsequently contribute to studies in landscape conservation, heritage management and outreach activities, with scope to benefit research within other areas of the spatial and digital humanities.

Bibliography

- Abdul-Rahman, A. and Pilouk, M.**, (2007), *Spatial Data Modelling for 3D GIS*, Springer Science & Business Media.
- Dalton, C.**, (2012), *Sir John Vanbrugh and the Vitruvian Landscape*, Routledge, London.
- de Boer, A. et al.**, (2011), 'Virtual Historical Landscapes' Nijhuis, S., Lammeren, R. V. and Hoeven, F. van der (eds.), *Research in Urbanism Series 2 (Exploring the Visual Landscape: Advances in Physiognomic Landscape Research in the Netherlands)*, pp.185–203.

- Dix, B.**, (2011), 'Experiencing the past: the archaeology of some Renaissance gardens', *Renaissance Studies* 25(1), pp.151-182.
- Gregory, I.N. and Geddes, A.**, (2014), *Toward Spatial Humanities: Historical GIS and Spatial History*, Indiana University Press, Bloomington.
- Hamilakis, Y.**, (2013), *Archaeology and the Senses: Human Experience, Memory, and Affect*, Cambridge University Press, New York.
- Hunt, J.D.**, (2013), 'A Reception History of Landscape Architecture' in *The Afterlife of Gardens*, 2nd ed. Reaktion Books, London, pp.11-32.
- Knowles, A.K.** (ed.), (2002), *Past Time, Past Place: GIS for History*, Environmental Systems Research Institute Inc., Redlands, CA.
- McGregor, G. and White, R.S.**, (1990), 'Introduction' in *Reception and Response: Hearer Creativity and the Analysis of Spoken and Written Texts*, Routledge, London, pp.1-7.
- Rippon, S.**, (2012), *Making Sense of an Historic Landscape*, Oxford University Press, Oxford.
- Spooner, S.**, (2009), 'A prospect two fields' distance': Rural Landscapes and Urban Mentalities in the Eighteenth Century', *Landscapes* 10(1), pp.101-122.
- Spooner, S.**, (2010), *The Diversity of Designed Landscapes: A Regional Approach c.1660-1830*, Unpublished PhD Thesis, University of East Anglia.
- Stewart, E.**, (2015), *Recreating Contemporary Views Of Seventeenth-Century Designed Landscapes in Norfolk*, Unpublished MA Dissertation, University of East Anglia.
- Urmston, P. and Historic England**, (n.d.) *History of Audley End House and Gardens*, <http://www.english-heritage.org.uk/visit/places/audley-end-house-and-gardens/history/>, [Date Accessed: 27.02.2016].
- Virtual Past** (n.d.) *Virtual Past - Bringing History to Life | Our Expertise*, <http://www.virtualpast.co.uk/about.php>, [Date Accessed: 24.04.2016].
- Whyte, N.**, (2015), 'Senses of Place, Senses of Time: Landscape History from a British Perspective', *Landscape Research* 40(8), pp.925-938.
- Wotton, H.**, (1624), *The Elements of Architecture*, London.