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Exploration without boundaries: virtual voyages into virtual landscapes

Hilary Frances Rhodes
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Note: The print copy of this thesis came in a box set with the following items.

1. Invitation, passport & postcards
2. The Explorers Guide
3. Documentary video of exhibition & presentation on CD ROM
4. An interactive multimedia adventure version 1.0
5. Audio CD
6. Appendix D: Index of Researched .pdf files on CD ROM

These are available with the print copy of the thesis in the Library.

Exploration Without Boundaries: Virtual Voyages into Virtual Landscapes

A thesis submitted in partial fulfilment of the degree

Doctor of Creative Arts

from

The University of Wollongong

by

Hilary Frances Rhodes

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2003

Certification

I, Hilary Frances Rhodes, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Creative Arts, in the Faculty of Creative Arts, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Hilary Frances Rhodes,

25 February 2003

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Exploration Without Boundaries: Virtual Voyages into Virtual Landscapes

Abstract

Exploration Without Boundaries is a visual digital media exploration reflecting industrial, technological and environmental change over time. It comprises an interactive CD ROM, a book, and a gallery installation. *Exploration Without Boundaries* is distinctive in that it describes natural and imagined worlds in the virtual domain with materials described entirely by means of algorithms and fractals, rather than from photographic textures.

This document is an exegesis that assists the viewer in understanding the complexities of *Exploration Without Boundaries* and to place it in an historical and social context. It addresses aspects of particular theories and issues pertinent to the work, for instance aesthetics, fine art, mathematics and cultural studies.

I consider aspects of utopian and dystopian environments in the historical context of virtual reality, its technology and literature. Importantly I consider the relationship of the real and virtual worlds, and provide an overview of Land Art, an influential art movement of the 1970s, by comparing the creation of spatial constructs in the real world with generating land forms in the virtual world, and place *Exploration Without Boundaries* in the context of art work in the landscape. In particular, I present two case studies of noted Land Art artists, Robert Smithson (1938-1973 US) and Richard Long (b. 1945 UK).

Navigation, mapping and orientation are all important concepts in *Exploration Without Boundaries*, therefore I provide information concerning topographic and diagrammatic mapping as they relate to computer games and environments. Also I compare the environments of *Exploration Without Boundaries* with those of two other interactive CD ROMs: *Eve* (1996) by Peter Gabriel, (b. 1950 UK) and *Puppet Motel* (1995) by Laurie Anderson (b. 1947 US).

Neither the process nor the production of *Exploration Without Boundaries* can be separated from its technological origins, therefore I discuss work done by Benoit Mandelbrot (b. 1924 Warsaw, now resident in USA), Kenton Musgrave (b. 1955, USA) and Eric Wenger, (b. 1960 France, now resident in USA) in developing the tools for synthesising mathematically described textures.

In an autobiographical context, I examine some of the historical and theoretical aesthetics underlying *Exploration Without Boundaries*, and describe the landscape as seen from an ironic post-modern view of the colonial perspective. Finally, I provide a description of the content of both the gallery installation and the interactive CD ROM and the structure and symbolism of *Exploration Without Boundaries*.

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Introduction to the Digital Media Project, *Exploration Without Boundaries*

Exploration Without Boundaries realises my own fragmented recollections of travel in simulated digital landscapes. Memories of reality usually consist of a mixture of changing reflections and visual fragments, which inevitably become progressively distorted and degraded over time, becoming fused with the imagined and the dream world. Thus *Exploration Without Boundaries* is a virtual world reflecting my journeys in the real world, an iconic journey recalling broken memories of past experiences viewed in the light of the contemporary context of socio-industrial climate of change and uncertainty.

In *Exploration Without Boundaries* the total absence of the human form is vital to its expression, as to introduce recognisable figures would be to make it gender or culture specific. I intended that there be a general experience of loss and isolation, and whatever recognisable artefacts pertaining to human occupation are present in the landscapes, act as metaphors, rather than having any literal significance. Placing objects or sounds in the scenes associated with generalised times and cultures implies the presence of humans and their endeavours, thus giving viewers a chance to imagine their own narratives and histories, and to imbue the artefacts with their own significance. Therefore, the gaze in *Exploration Without Boundaries* is that of the lone traveller who explores empty unbidden landscapes in strange lands, always with the explorer's urge to see over the next ridge or round the next bend in the river, attracted by features in the distance that seem all the more tantalising by their immediate unattainability.

Ever preoccupied with mysteries of natural and fabricated patterns, optical puzzles concerned with symmetry, mazes and mirrors, and fascinated by the ever-changing horizon, I was drawn to the idea of creating landscapes entirely with fractals and algorithms. Similarly the Dutch artist, Mauritz Escher (1898-1972) and the Hungarian designer, Victor Vasarely (1908-1997), artists fascinated with mathematics, created complex and puzzling works with visual algorithms and were deeply involved in representing three dimensions in the two dimensional domain. Their concern with patterns is reflected in the technological developments in computer aided graphics like the weaver who uses a Jacquard loom to realise far more complex patterns than could have been achieved hitherto. The technology facilitates; the artist creates.

Exploration Without Boundaries traverses imaginary and real landscapes in 3-D space and representational time. There are no boundary fences or customs officials in these virtual worlds, and the planar horizon in the landscape imaging programs *Bryce 5* and

Vue d'Esprit 4.5 is boundless and infinite. It is for these reasons that I chose virtual landscape images as the ideal medium to explore the unfathomable and mysterious concepts present in these fractal landscapes. The labyrinth and compass are metaphors for disorientation and orientation, losing and finding one's way.

The three-dimensional (3-D) environments of *Exploration Without Boundaries* have been produced both as video animations of travelling through landscape as well as *QuickTime Virtual Reality (QTVR)* scenes which have been incorporated in an interactive CD ROM. Some scenes have also been reproduced in print as part of a gallery installation so that the viewer may experience a documentary of the world-builder's own virtual journey into these spaces. In particular, the large format prints and full screen projections arouse in the viewer a greater sense of an immensity of scale and heightened hyperreality.

Exploration Without Boundaries was produced in my home studio using proprietary software as well as specialised applications. Working in this manner, without being dependent on external equipment allowed me the time, space and ambience to create these virtual environments. Throughout the entire production, I deliberately chose technologies for which I had synergy.

The Chapters

In each chapter I provide a detailed description of different aspects and theoretical context of *Exploration Without Boundaries*.

Chapter one: discusses fractal geometry and the pioneering work of the mathematician Benoit Mandelbrot, computer scientist Kenton Musgrave and programmer/artist/musician Eric Wenger, describing their contribution to the development of realistic digital landscape imaging during the 1980s in the USA. Fractals are the digital building blocks employed in the construction of *Exploration Without Boundaries*.

Chapter two outlines concepts of virtual reality as they impinge on *Exploration Without Boundaries*, a project that emulates reality. This chapter also describes existing digital virtual reality technologies and gives an overview of their origins as well as theoretical aspects of virtual reality digital media in the context of the prevalent discourses. There is also a section concerned with utopias and dystopias in literature, film and digital media.

Chapter three examines the process and experiences involved with sculpting landscape in both real and virtual worlds and referring to Land Art, an influential movement in the USA and the UK during the 1970s in particular.

Chapter four looks at both mapping and navigation, both of which are intrinsic to many interactive multimedia projects. In this chapter, the development of authoring packages and their relation to structure of navigational games is also described.

Chapter five interrogates the way romantic adventure has informed *Exploration Without Boundaries* whose images are consciously influenced by illustrations from the colonial period of exploration, and describe the landscape and aesthetic as seen from an ironic post-modern perspective. In concluding, I present in an autobiographical context, how my travels have informed this work.

Chapter six describes the content of both the gallery installation and the CD ROM and explains the structure and the symbolism in *Exploration Without Boundaries* and its amalgam of viewpoints.

Although I briefly discuss various theoretical aspects as they relate to the work, this document is not intended to be read from any particular theoretical viewpoint. The theoretical aspects, whether they be concerning aesthetics, virtual reality, mathematics or new media discourse, are pointed out purely in order to give the viewer a background against which *Exploration Without Boundaries* may be read.