

Encircling the Land: Photographic Visualisations of the Experience of a Landscape

Hilton Stanley Sher

A dissertation presented to the Faculty of Humanities of the University of the Witwatersrand in partial fulfilment of the requirements for the degree of Master of Arts in Fine Arts

Johannesburg, 2012

Abstract

This project documents my process of visual and hermeneutic enquiry centred on the Tswaing meteorite impact crater, north of Pretoria. In my visual investigation I attempt to apprehend the landscape through a cyclical process which involves walking within it, photographing it in 360° 'visualisations', editing the imagery and returning, often frustrated, to repeat both encounter and process. The cycle of reflection leads me to consider my circular process itself as a dialogical mode of interpretation and response to the primeval, circular landscape of the impact crater. Informed by Gadamer's (1975) notion of a hermeneutic circle which extends interpretation and understanding, the reflexive process is extended and enriched through dialogue with the work of pertinent scientists, artists, poets and writers. Landscape is considered as an artefact of deep time, challenging entrenched traditions and notions while considering significant contemporary responses. The dissertation attempts to demonstrate the layered accretion of concept and meaning contained within the visual and theoretical components of the investigation.

List of Keywords

Tswaing, landscape, meteorite, impact crater, drill core, circular process, reflexive, visualisation, hermeneutics, walking and art, exposure bracketing, stitching, blending.

DECLARATION

I declare that this dissertation is my own unaided work. It is submitted for the degree of Master of Arts in Fine Art at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at any other university.

Stanley Sher

12th day of December, 2012

The copyright of this thesis vests in the University of the Witwatersrand, Johannesburg, South Africa, in accordance with the University's Intellectual Property Policy.

No portion of the text may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, including analogue and digital media, without prior written permission from the University. Extracts of or quotations from this thesis may, however, be made in terms of Sections 12 and 13 of the South African Copyright Act No. 98 of 1978 (as amended), for non-commercial or educational purposes. Full acknowledgement must be made to the author and the University.

An electronic version of this thesis is available on the Library webpage (www.wits.ac.za/library) under "Research Resources".

For permission requests, please contact the University Legal Office or the University Research Office (www.wits.ac.za).

ACKNOWLEDGEMENTS

I would like to acknowledge first and foremost my supervisor Prof. Karel Nel for his persistent challenges to me to extend my thinking. It is this which has been central to my growth and the re-invention of myself as an artist, not only an educator. His wide ranging interests as well as his patience in bearing with the circuitous development of the project was perhaps most creatively exercised in the many rich, varied and inter-linked conversations we had over the four years it has taken.

Penny Cummins provided wonderfully sharp editorial and proofing insights.

Walter Oltmann the co-ordinator of the post grad programme at the Wits School of the Arts is one of those rare people who is insightful as well as being concerned and available.

Natasha Christopher encouraged me in this photographic project from the outset. She provided sound and challenging advice, welcoming my use of the continually growing arsenal of photographic equipment at the Wits School of the Arts.

Digicape, the Apple dealership in Morningside, generously lent me a remarkable computer for 10 crucial days. It was that computer which first demonstrated that stitching a large number of full sized images together was actually possible.

When my early printing attempts proved rather disappointing, Carmen Jerrard gave me the first indications of what quality printing can produce. Daniel van Flymen, with considerable expertise, helped me take the images on their final journey.

Hanging an exhibition of large and peculiarly formatted photographs is daunting. Leonard Russell treats problem solving as an art form and is also willing to be remarkably present and persistent in the execution of solutions.

Prof Ray Durrheim encouraged me and introduced me to helpful geological texts.

Mark Sandham gave welcome advice with the more obscure referencing, including referencing images. His printing and publishing knowledge brought equally welcome and unsolicited suggestions about page formatting and consistency.

My wife Alison remained interested in what I was doing, frequently sharing in both the pleasure of discovery as well as my dramatic frustrations.

My son Daniel for being so available during the preparation and setup of the exhibition.

Thank you all

TABLE OF CONTENTS

List of Figures	vi
CHAPTER 1 INTRODUCTION	
Overview of the Project: The End is the beginning	1
Encircling as Leitmotif in a Personal Process of Building Meaning	3
CHAPTER 2 ON LANDSCAPE	
Perceptions/Conceptions/Readings	5
Landscape and Modernity	7
A Century with a Different Spirit	9
Landscape, Ownership and Duplicity	11
Re-imagining Landscape	15
Significant Artistic Influences	21
CHAPTER 3 TELESCOPIC AND MICROSCOPIC: COSMIC AND LOCAL	
Meteorites and the Cosmic Landscape	31
Science's Invitation to Contemplation	33
Tswaing, Place of Salt, Index of Time, Container of Memory	35
Geological Context and Questions	37
Location, Description and Older History	40
Recent History	42
CHAPTER 4 HOW TO TALK TO A LANDSCAPE	
Walking as a Subversive Activity	45
Being Lost and the Dynamics of Inscrutability	49
The Hermeneutic Circle: An Interpretive Rationale	51
CHAPTER 5 CONCLUSION AND REFLECTIONS	
Returning to the Beginning: Concentric Circles of Understanding	55
Multiple Readings and Voices	56

Time and Memory	58
Landscape and Culture	59
Art and Science as Complementaries	61
Completing the Circle, Reflecting on Horizons	64
APPENDIX THE TECHNICAL AND PHOTOGRAPHIC JOURNEY	
One Thing Leads to Another	66
The Camera and Shooting in 360°	67
Focal Length	67
Exposure and related issues	68
Dynamic Range	69
Nodal Point	72
Software and Computing	73
Editing of the Images	76
Editing of the View	76
Printing	77
REFERENCES	80
Permissions and Sources of Images	88
Non copyright and expired copyright images	89

LIST OF FIGURES

Fig 1	Tswaing Meteorite Impact Crater 18h18 – 18h27, 14 October 2008.....	page 1
Fig 2	Looking into the 200m residual hole left by the extracted core sample material. Camera reflected from inside.....	4
Fig 3	Willem Coetzer 1949. <i>Voortrekker Monument Inauguration</i> . Museum Africa.....	6
Fig 4	Monet, 1875. <i>Les dechargeurs de charbon</i> . Musée d’Orsay.....	8
Fig 5	Willem Boshoff, 2007, <i>Children of the Sky</i> , on site at Nirox Foundation, Magaliesberg.....	18
Fig 6	Richard Long, 2010, Circle of stones constructed at Nirox Foundation, Cradle of Humankind.	23
Fig 7	Jan Dibbets, 1969. <i>Flood Tide</i>	25
Fig 8	Jan Dibbets, 1971. <i>Panorama Dutch Mountain</i>	26
Fig 9	Jan Dibbets, 1995. One of the 135 medallions from the <i>Hommage à Arago</i> , along the 2°20'14" meridian.....	27
Fig 10	Cezanne, 1885. <i>Mont Saint-Victoire</i> . Cortauld Institute.....	28
Fig 11	David Hockney, 1982. David Hockney, <i>Merced river, Yosemite Valley</i>	29
Fig 12	Constructed view from the North West crater wall.....	29
Fig 13	Oblique view of the ‘ <i>lunar farside</i> ’, photographed from Apollo 11 during a Lunar orbit, July 16 1969.....	31
Fig 14	The cratered surface of Mercury. Messenger spacecraft’s second flyby of Mercury in October 2008.....	31
Fig 15	Aerial view of the Tswaing Impact Crater (Partridge, 1999).....	35
Fig 16	View from space of the Vredefort Dome. From the Earth Sciences and Image Analysis Laboratory, Johnson Space Centre (Image STS51I-33-56AA).....	35

Fig 17 Geological map of the Tswaing Crater. (Brandt and Reimold, 1989, p.18).....	37
Fig 18 Stratigraphy of the 1988/1989 drill-core (from Reimold et al. 1992, p.11).....	39
Fig 19 Detail of the muddy edge of the saltpan which occupies the crater floor. Photographed during the 2nd excursion to Tswaing in June 2008.....	39
Fig 20 Satellite image of Tswaing Impact Crater with Winterveld to the West and Soshanguve in the South and South East. (Google Earth, 7/2/2011).....	43
Fig. 21 Thursday night 7 th August 2008, 19h10. The crater pan illuminated by the moon; the sky by the high mast security lighting of Soshanguve.....	44
Fig. 22 Chair in the Vredefort Dome environs.....	45
Fig. 23 Ando Hiroshige, 1852. From <i>The 53 Stations of the Tōkaidō: 05 Hodogaya, 06 Totsuka, 07 Fujisawa</i> . (Tate E-Edition).....	47
Fig. 24 Richard Long, 1994. <i>Four Days And Four Circles, A Four Day Walk Along Dartmoor From South To North Walking For Eight Hours Each Day in Each Circle</i>	49
Fig. 25 August morning, looking through grass from the edge of the pan.....	53
Fig. 26 Chair once again in the Vredefort Dome environs.....	55
Fig. 27 360 ° Stitched visualization of the Tswaing crater, two days after the equinox. Tues 23 September 2008, 5.45am.....	56
Fig. 28 NW section 3 of the blackened crater wall after the winter burning September, 2008.....	57
Fig. 29 NW section 2 of the blackened crater wall after the winter burning. September, 2008.....	59
Fig. 30 1 st excursion to the Tswaing crater with the chair which accompanied me on all my walks in the early stages of the project. 13 May, 2008.....	64
Fig. 31 Collage of house and garden comprising 3 rows with 13 photos in each row.....	66
Fig. 32 Flaring in the bottom left corner caused by the camera's faulty light sensor...	68

Fig. 33 Looking into the saltpan from the NW crater wall section 1.....	70
Fig. 34 Bracketed photographs of the same spot on the edge of the crater pan.....	71
Fig. 35 48 bracketed photographs encompassing the horizon line when rotating the camera through 360°	71
Fig. 36 The 360° horizon line.....	71
Fig. 37 The foreground tier comprising 17 photographs.....	72
Fig. 38 Digitally stitched composite image constituted from 99 originals.....	72
Fig. 39 Stitched image with distortions.....	74
Fig. 40 Camera on stilts.....	77
Fig. 41 View through the lens of the camera into the borehole.....	77
Fig. 42 Tswaing meteorite impact crater, 18h18 – 18h27, 14 October, 2008.....	79

CHAPTER 1

Introduction

Overview of the project: The End is the Beginning



Fig. 1 Tswaing Meteorite Impact Crater, 18h18 – 18h27, 14 October, 2008

*We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time*

T.S. Eliot, 1936, *Little Gidding*

During the course of 2008, in several extended encounters with the Tswaing meteorite impact crater, north of Pretoria, I built up a sizeable body of photographic images, taken during many circular walks around and within the impact crater. This led to a ritual of returning to the site successively, having processed and considered the images, in order to repeat yet again the walking on different days, at different times of day and night. I slept nearby and was able to remain in the crater at night, returning to it well before the sun rose. My body of photographs grew at an exponential rate as I pushed my technological boundaries.

Most of my focus in the investigation was on being able to finely apprehend that unique site and so represent it in all of its 360 degrees. Implicit in my pursuit of this elusive end was the question of how to read the landscape, given the recently established knowledge of its meteoritic origins (Partridge, 1999). That essentially hermeneutic question, of how to read the

(African) landscape, is also identified by J.M. Coetzee (2007) as a distinct concern within the writing of South African poetry, particularly by those of European descent¹. The question has propelled my investigation through what has been an elusive, yet magnetic quest.

Paradoxically, what began as a *modus operandi* for encountering the site, my process of walking, photographing and returning, evolved into a primary concern of the investigation, in due course taking on as much interest theoretically and conceptually within the investigation as the landscape itself.

The selected landscape, the Tswaing meteorite impact crater, is right next to the township of Soshanguve, 36km north of Pretoria. It is one of two recognised major meteorite impact sites (Reimold and Gibson, 2005) close to Johannesburg, the area with the highest population density in South Africa. Of the two sites, Vredefort and Tswaing, Tswaing is by far the smaller and the more recent. Although it has eroded over the 220 000 years (Reimold, Brandt, de Jong & Hancox, 1999) since the impact, it is still recognisable as a crater; and, with its relatively modest diameter of 1.13km it invites walking.

My walking was largely around the crater rim, although the borehole marking the subsoil analysis performed in 1988, near the central locus of the crater (Partridge, 1999) ultimately became the visual and conceptual epicentre from which I looked and to which I returned. This is the point from which, and around which, I walked and waited during the days and nights of my excursions to the crater. It is from this pivotal point that most of the photographs were taken, and to which the circular process of engagement and reflection consistently returned me. My end point, paradoxically, was the starting point.

It is partly the frustration of failure that brings me back repeatedly to my starting point; but also the fascination and challenge of representing this transforming site, redolent with historic, scientific and astronomical associations. Masked by the erosive climatic processes, the haze of day and the glare of overhead lighting masts at night, the site demands response, yet defies apprehension. It metamorphoses with the variations of each day and night as well as the weather. My failure to adequately apprehend the 360° landscape has led me on an obsessive quest; with countless images taken digitally and with film, at different times of day, on different occasions, stitched together through a variety of laboriously learned software applications,

¹ Coetzee's question is more fully developed in Ch. 2.

resisting the simple fact that the average of the light over a 360° field will inevitably have large areas of both overexposure and underexposure².

Because this is an artistic engagement with landscape, this project refers to the work of artists who have worked in a sustained way in the landscape. Richard Long (b. 1945), whose sculpture has been fundamentally concerned with walking in the landscape (Moorhouse, 2002) has been an important influence, and simply essential in its contribution to the frame of reference for this study. Jan Dibbets (b. 1941), has worked largely in the Dutch landscape; his work brought a rich conceptual juxtaposition to this project through his drawings of 'perspective corrections' executed on the landscape itself, yet visualised through the lens of a camera. Dibbets also works with photographic panoramas, transformed through apparently simple rearrangements of the components. This composite and constructed interpretation of the landscape is to be seen in the work of the earlier painter Cezanne (1839-1906) and in David Hockney's (b. 1937) photomontages of landscape. Cezanne's quest to apprehend the particular landscape of Mont St Victoire, through repeatedly painting it over a period of 15 years, provides a profound example of engagement with a single site. The fragmentation of time inherent in his subtle shifting viewpoints is developed later by Hockney in his own fragmented photographic montages, which also question the relationship of time to the changing viewpoint.

Encircling as Leitmotif in a Personal Process of Building Meaning

The circle is an object of nature, an idealization of pure mathematics, and a symbol or framework we use to understand and describe our world. The circle exists independently of human thought, as ripples in a pond, or the appearance of the sun and moon, or the shape of the iris of an eye. In mathematics, we choose to define a circle as the places at a constant distance from a center...(Sarhangi and Martin, 2000).

The use of the term 'encircling' in the title relates to several aspects of the project. It refers to my attempt to apprehend the circular landscape of the impact crater, as the site of an astronomical and geological drama reaching back in time, prior to any human witness. It also refers to the act of walking and circulating in and around the impact site and to the cycles

² When stitching a panorama, the ground rule in specialist panoramic photography is that exposures may not vary much from one frame to the next if the intention is to digitally stitch them together. (Reichmann, 2011) Yet when one comes back to where one began, especially in twilight, time has elapsed and the light intensity has altered. Panoramas are indexical of time.

within my photographic method in which I document, process and assemble the images, returning to the same point, with altered perceptions. Encircling can be a method of drawing attention to a word or concept which invites questioning or emphasis, 'turning it around' in the light of closer consideration. The word evokes the circling flight of a bird of prey, taking in both terrain and prospect as it glides, suspended by thermals, its effort directed towards seeing, rather than flying. The circular orbit of the Landsat satellite complements these evocations, bringing with it an objectivity gained by the view from afar - so essential to the apprehension of the landscape as a site of meteoritic activity.

The circular process ultimately finds a theoretical grounding in Gadamer's 'hermeneutic circle', which also provides the structure for a methodology which is able to embrace not only these evocations but also the reflexive interaction with the work of relevant artists, writers and practitioners of other disciplines. It synthesizes meaning reflexively through a process of regarding texts, perspectives and encounters, while re-visiting them in an evolving self-reflexive 'conversation' (Lavery, 2003). Rather than merely providing a metaphor for what I was already doing, the hermeneutic circle provides a conceptual structure both for making sense of the reflexivity of my process and for taking it further.

Retrospectively then, my 360° photographic images derived from the impact site, capture the visual material which initiates a process of consideration, proliferating interpretation, providing further enrichment and altered perspectives, with a resulting accretion of meaning within the project as a whole. This dissertation attempts to chronicle the unfolding conversation and has itself extended the 'horizon' (Gadamer, 1975) of my engagement with this landscape.

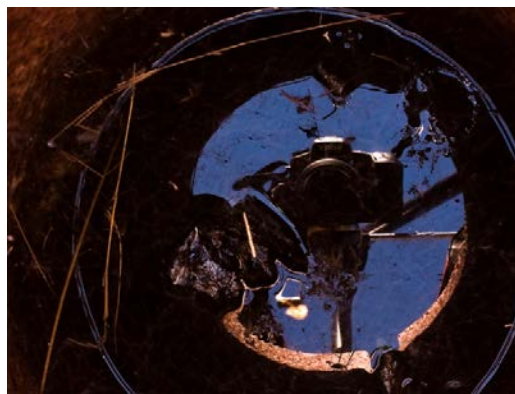


Fig. 2 *Looking into the 200m residual hole.* Water has filled the hole left by the extracted core sample material which was sent for paleo-climatic and geological analysis. The camera is reflected from inside.

CHAPTER 2

On Landscape

Perceptions/Conceptions/Readings

The mountains have not changed, but the context in which they are viewed has changed..... Perhaps landscape exists only because Western man used his Cartesian scissors to cut himself adrift from the context of earth, and so an identifiable object called landscape floats free across the chasm (Evernden, 1981, p. 155).

My work is concerned with landscape and the making of a landscape image. In this chapter I attempt to locate this project in relation to the shifting relevance and interest in landscape within Western art, literature and thinking. As a genre, apart from its acknowledged importance in China, most writers on landscape, whether 'contemplative' or 'interpretive' (Mitchell, 1994) and themselves Western, have an underlying agreement that landscape is a Western European and Modern phenomenon, that it emerges in the 17th century, reaching a peak in the 19th century, and that it was a supposedly 'new' way of seeing. In the 20th century, Harrison (1994) argues that although landscape painting was near the centre of artistic discourse in the early 20th century, there was a subsequent "loss of status" (p.205) in which it moved to the very periphery. Towards the end of the century however, there is a noticeable movement back again (Cosgrove and Daniels, 1988, Corner, 1999), albeit with somewhat altered concerns, which have persisted to the present time (Longan, 2008, Fuchs & Chaudhuri, 2002).

The literature on landscape reveals the especially contested nature of the topic and varies considerably depending on who is writing, when and from what perspective. This is particularly evident if one compares some of the significant English language writing on landscape over the brief but eventful second half of the Twentieth Century, in which new political, sociological and philosophical perspectives weigh in on the domain of art history. From Kenneth Clark's (1949) Eurocentric and somewhat patronising, *Landscape into Art*, challenged by John Berger's (1972) Marxist sociological critique of art history, through to W.J.T. Mitchell's 1994, *Landscape and Power* which brings a postmodern irony to a re-reading of Clark, we see that readings and interpretations of landscape can not only be remarkably different, but contentious.

Although much of the art and literature concerned with landscape as well as the writing about it has been a European phenomenon, contestation over land has certainly not been limited to Europe. This was true of the Americas, Australia and Africa; contestation over the land was possibly the central concern of the colonisers. In South Africa ownership, possession and exclusion have been at the centre of its history and this has been expressed in the way artists 'framed' their work; whether they imposed their European view upon the land, attempted to 'own' it through the development of a distinct view of it or as with the colonial nationalist South African view of Willem Coetzer, celebrated ownership, power and the conqueror's story. His *Voortrekker Monument Inauguration*, below, with its fortress like form dominating the (then) Transvaal landscape, provides a remarkably graphic example of how ideology is able to inform the shaping of a landscape, even asserting political power over it. In the present time in a post-independent South Africa, 'the topographies of colonial and apartheid power' (Delmont and Dubow, 1995, p.10) are being redrawn as new questions of space, identity, inclusion and exclusion are asked.



Fig. 3 Willem Coetzer (1949) *Voortrekker Monument Inauguration*. Courtesy Museum Africa, Johannesburg.

J.M. Coetzee's (1988/2007) consideration of the particularly hermeneutic problems that poets of European descent found in developing a distinct view of the African landscape, has significance for the question informing this investigation. The question of how to read the landscape is at the heart of Coetzee's discursive chapter, *The Picturesque, the Sublime, and the South African Landscape*. He acknowledges the complexity of the questions around colonisation of the land, and in particular, the European preconceptions which white artists, poets and writers brought with their perceptions right until the 1960s and beyond. Coetzee suggests that, unlike well watered American and other colonial landscapes, neither the assertion nor denial of the sublimity of the South African environment therefore becomes an important issue for South African landscape art. Filling that apparent vacuum instead, is...

...a concern with the hermeneutics of landscape. The dominating questions, particularly in poetry, and most of all in English-language poetry, become: How are we to read the African landscape? Is it readable at all? Is it readable only through African eyes, writeable only in an African language? Is the very enterprise of reading the African landscape doomed, in that it describes the quintessentially European posture of reader vis-à-vis environment? Behind the questions, in turn, lies a historical insecurity regarding the place of the artist of European heritage in the African landscape such as we do not encounter in America – an insecurity not without cause (Coetzee, 2007, p.64).

Most of what follows in this chapter emerges out of a European context, which is where much of the theorising around landscape has taken place. It is necessary to engage with this discourse in order to understand how frames of reference and orientations have shifted. I trust that what has been included does indeed illuminate contemporary practice to some extent and my own work within it.

.....images have become enigmas, problems to be explained, prison houses which lock understanding away from the world. The commonplace of modern studies of images, in fact, is that they must be understood as a kind of language; instead of providing a transparent window on the world, images are now regarded as the sort of sign that presents a deceptive appearance of naturalness and transparency concealing an opaque, distorting, arbitrary mechanism of representation, a process of ideological mystification (Mitchell, 1986, p.2).

Landscape and Modernity

Looking back to the late 19th century and the beginnings of the remarkable trajectory of western art in the 20th century, a considerable proportion of the discussion around painting specifically concerned developments in landscape painting (Harrison, 1994, Greenberg, 1961). This is not surprising when one considers the landscape concerns of artists such as Monet, Cezanne or Kandinsky and their influence upon the subsequent transformation of Western art (Harrison, 1994, Novotny, 1977, Nef). As Charles Harrison puts it, ".....the development of the genre of landscape painting played a decisive role in the development of a qualitative modernism in painting as a whole." (Harrison, 1994, p. 205).



Fig. 4 Monet 1875, *Les Dechargeurs de Charbon*. Musée d'Orsay, Paris. Wikimedia Commons

Although landscape was not their exclusive area of interest, it held a significant place in the representation of the 'real' world by many artists at the end of the 19th and early 20th century. In place of romantic or idealised rural landscapes, artists such as Monet were able to turn their attention to ordinary urban and rural subject matter; from the gloom of workers loading coal onto barges at the quayside, to the transforming effects of light on a haystack. A good proportion of this work occurred in the context of landscape, and it was landscape painting that also saw much of the formal development of style (Harrison, 1994), upon which art history over the next century focused so completely. Realism's disinterested affirmation of the ordinary world populated by ordinary people also included a growing interest in the stuff of the paint medium itself (Greenberg, 1960). Loose brush marks, colours and autonomy of paint became characteristics of modernist painting. In Clement Greenberg's words, "The impressionists in Manet's wake, abjured underpainting and glazing, to leave the eye under no doubt as to the fact that the colors they used were made of paint that came from tubes or pots" (1960, p.2,3).

Harrison (1994) suggests that in the conventional wisdom of the social history of art, the convergence of a 'disinterestedness' of vision with the claims for the autonomy of 'pictorial effects' led to the historical emergence of landscape as a vehicle for major art. Clement Greenberg, one of the foremost interpreters of modernism in art in the mid 20th century, understood the essence of modernism to lie in the use of the characteristic methods of a discipline to criticise the discipline itself, "...not in order to subvert it, but to entrench it more firmly in its area of competence." (Greenberg, 1960, quoted in Harrison & Wood, p.774 - 5). The real task of self-criticism as Greenberg saw it, was "...to eliminate from the effects of each art any and every effect that might conceivably be borrowed from or by the medium of any other art."

It was the 'flatness' of the painted surface which Greenberg saw as the single endemic characteristic of painting, distinguishing it from other media. "The limitations that constitute the medium of painting - the flat surface, the shape of the support, the properties of pigment - were treated by the Old Masters as negative factors that could be acknowledged only implicitly or indirectly. Modernist painting has come to regard these same limitations as positive factors that are to be acknowledged openly." (Harrison & Wood, p 775). So, "Modernist painting oriented itself to flatness as it did to nothing else" (p.775).

The paradox in the evolution of French painting from Courbet to Cezanne is how it was brought to the verge of abstraction in and by its very effort to transcribe visual experience with ever greater fidelity (Greenberg, 1961, p. 171).

The logic and internal critique, as Greenberg put it, led almost inexorably to abstraction, with the emphasis on flatness requiring an abandonment of, "the kind of space that recognizable, three-dimensional objects can inhabit." (Greenberg, 1960, pg. 776). From that perspective, the 'paradigmatic Modernist painting of the mid-twentieth century' (Harrison, p. 209) was abstract painting and for formal reasons alone this was a turning point for landscape. However painterly and integrated its individual 'effects' may be, it requires just such a space to inhabit.

A Century with a Different Spirit

.....the history of the landscape idea suggests that its origins lie in the renaissance humanists' search for certainty rather than a vehicle of individual subjectivity. Landscape was a 'way of seeing' that was bourgeois, individualist and related to the power over space. The basic theory and technique of the landscape way of seeing was linear perspective, as important for the history of the graphic image as printing was for that of the written word. Alberti's perspective was the foundation of realism in art until the nineteenth century, and is closely related by him to social class and spatial hierarchy. It employs the same geometry as merchant trading and accounting, navigation, land survey, mapping and artillery. Perspective is first applied in the city and then to a country subjugated to urban control and viewed as landscape. The evolution of landscape painting parallels that of geometry just as it does the changing social relations on the land in Tudor, Stuart and Georgian England. The visual power given by the landscape way of seeing complements the real power humans exert over land as property (Cosgrove, 1985, p. 45).

It was not for formal reasons alone that the concern with landscape did not persist very far into the twentieth century. James Corner (1999) notes that the degree to which particular views of landscape have remained with a society have historically been subject to periods of great cultural significance. In other words, there was something about 18th and 19th century culture and thought which brought to the practice of landscape painting a significance which articulated around or emerged from the contemporary culture. However, as Corner points out, the concern with landscape did not persist for long into the twentieth century and for the most part was 'deflected'.

This deflection is understandable; with two world wars, unprecedented development in industry, technology and social critique, the twentieth century brought with it a much altered mindset. Social and political upheaval, although not a new phenomenon, took place on a scale which affected a wider geographic circle. More people were affected not only through being caught up in the events but through more varied and more widespread communication of them. Modernity brought with it a profound sense of social, political and psychological awareness as well as an energy fueled by multiple developments in science and technology. Out of this awareness, new conceptions for making art, reading it and interpreting it arose. This to the extent that one of the most frequently asked questions about twentieth century art came to be, "but is it art?" (Danto, 1981, Freeland, 2002).

While it might be a generalization³ it seems reasonable to argue that in such a context landscape as a genre was simply not a significant part of the culture and zeitgeist of the twentieth century. As Harold Rosenberg put it in *The Tradition of the New*, "The wars and revolutions of the twentieth century, including its cultural revolutions, have left no space for detached contemplation." (1959, p.14) Rosenberg wasn't referring in particular to landscape painting, however he captures the spirit of a century, whose focus shifts from the country to the city. Corner points out soberly that where landscape art was made, it largely tended towards romanticized reproduction of picturesque rural scenery, nostalgia and commercialism. (Corner, 1999, p.8).

³ The generalisation of course has important exceptions such as the German painter Anselm Kiefer, who explores landscape as metaphor and the British artist Paul Nash who responded to both world wars through the medium of landscape painting. In South Africa, William Kentridge has consistently located a great deal of his work within a generic mining landscape which specifically evokes the Witwatersrand Reef.

Landscape, Ownership and Duplicity

*now you will uncode all landscapes
By this: things founded clean on their own shapes,
Water and ground in their extremity.*

Seamus Heaney, 1990, p.11.

The shift in mindset did not stop there. Together with the social, political and psychological changes of the century came new critiques. Among the most important of these, particularly for considering landscape, was Marxism. The first volume of Arnold Hauser's *Social History of Art* was published in 1951. Unlike the art history of Wölfflin (1864-1945) or Berenson (1865-1959) which majored primarily on the development and analysis of style, Hauser introduced a sociological lens. Looking from a sociological and especially a Marxist perspective it was apparent that art was influenced to a large extent by the society in which it occurs. He proposed that form and content develop in direct relation to concrete material conditions as well as to cultural development (Liukkonen & Pesonen, 2008).

In 1972 John Berger presented the television series and book, *Ways of Seeing*, drawing on Walter Benjamin's (1936) Marxist aesthetics. The series was widely seen at the time and together with the accompanying book exposed a broad range of people to the idea of looking at art through a socio-economic lens. One of the striking examples in Berger's text is the discussion of Gainsborough's *Mr and Mrs Andrews*, in which the patron and his wife are depicted in the enormous landscape of their property. Berger's reading of the painting is in sharp contrast to Kenneth Clark's⁴ response to the same work, which held considerable currency at the time. "This enchanting work is painted with such love and mastery....." Expressing the artist's "Rousseauism" (Clark, 1949, 1979, p. 67). Berger dispels all sentimentality: 'They are not a couple in nature as Rousseau imagined nature,

⁴ This is perhaps an unfortunate comparison for Clark because he is not uncritical of Gainsborough, suggesting in the next sentence that the artist abandoned direct painting after this work, evolving the "melodious style of picture making" which Clark considers to be a calculated compromise. Berger's point, for obvious reasons, was far more striking.

they are landowners and their proprietary attitude towards what surrounds them is visible in their stance and their expressions....' (Berger, 1972, p.107).⁵

Far from it being an eccentric or peculiarly Marxist view, today it is difficult to look at this painting without being influenced by the logic of Berger's reading. Visiting the website of the National Gallery in London, where the painting is housed, almost 40 years after Berger's publication, it is noticeable that the gallery's published commentary about the Gainsborough painting has embraced this interpretation, going even further by pointing out that the marriage of Robert Andrews to Frances Carter added property to the joint estate being represented. (<http://www.nationalgallery.org.uk/paintings/thomas-gainsborough-mr-and-mrs-andrews> accessed 12/12/2010).

Landscapes can be deceptive....

Sometimes a landscape seems to be less a setting for the life of its inhabitants than a curtain behind which their struggles, achievements and accidents take place. For those who, with the inhabitants, are behind the curtains, landmarks are no longer geographic but also biographical and personal (Berger, 1969, p.13, 15).

Following Berger there have been a series of significant publications, in one way or another bringing a sociological lens to the reading of landscape both in literature and art. Raymond Williams' (1973) *The Country and the City* brought his socio-cultural lens to the content of English literature since the 16th century. Williams examines how changes taking place in the landscape due to money, property and politics had a noticeable effect on specific literary forms. He interrogates the notion of the unadulterated simplicity of the country, ".....a working country is hardly ever a landscape. The very idea of landscape implies separation and observation." Williams maintains that the 'elevated sensibility' of

⁵ Stephen Daniels (Peet and Thrift, 1989) points out that Berger paradoxically maintains that of the various forms of oil painting, landscape is the one to which his thesis of a proprietorial way of seeing applies the least. This is because, landscape painting begins with the problems of painting sky and distance which are intangible. "...the sky cannot be turned into a thing or given a quantity". Furthermore, painters like Turner and Monet let it move, "progressively away from the substantial and tangible towards the indeterminate and intangible" (Berger, 1972, p.11).

landscape is an ideology which needs to be exposed by the “real history.....the common history of a land and its society” (Williams 1975, p. 120-121).

James Turner (1979) in *The Politics of Landscape: Rural Scenery and Society in English Poetry 1630 -1660*, asks the question, “Why did landscape poetry thrive in an age of political conflict?” He looks at the way ideas and opinions were woven into the form and structure of pastoral poetry in the 17th century, and concludes that, “Landscape is an instrument of thought, a useful analogue for personal and social values.” (p.36) He refers to Roland Barthes’ notion of Mythology as a polyvalent concept which, “seemed to show that the whole material and cultural world could be uncoded, and its social meaning revealed” (Turner, 1979, p.189).

While looking at the ironies in many of the poetic voices at the time Turner also however emphasises the contribution which the ‘new experience of landscape’ made to 17th century literature, in which verbal descriptions were also able to evoke the constructed space of landscape. He quotes from Emerson,

The charming landscape which I saw this morning is indubitably made up of some twenty or thirty farms. Miller owns this field, Locke that, and Manning the woodland beyond. But none of them owns the landscape. There is a property in the horizon which no man has but he whose eye can integrate all the parts, that is, the poet (Turner, 1979, p. 195).

In *The Dark Side of Landscape* (1980), Barrell examines how the rural poor are represented in the English landscape paintings from 1730 – 1840. During that period, English society was becoming more stratified and divided, partly through the effects of new legislation which enabled landowners to fence off and privatise land which the common people had previously had access to for agricultural and pastoral purposes, so displacing many rural families from their homes. It is in the context of this transforming agricultural economy that Barrell considers the landscapes of Gainsborough, Morland and Constable. He argues that landscape painting concealed this darker reality by constructing a harmonious version of country life that concealed the harsh new social order. Anne Bermingham takes this notion further by suggesting that those paintings actually promoted within the society, “a set of socially and, finally, economically determined values to which the painted image gave cultural expression.” (Bermingham, 1986, p. 3) While much of the critical writing on landscape specifically refers to England and Europe, this approach to the land was typical too of colonialism in South Africa, Australia and the

United States, where partition and ownership was the modus operandi of the powerful colonisers, while their art and poetry naturalised their projections and constructions of the landscape (Bunn, 1994).

Mitchell extends the critique in a different direction by challenging the Eurocentric and Modernist view of landscape epitomised by Kenneth Clark in *Landscape into Art. (1949/1979)*. The irony, in Mitchell's view, is that this anachronistic perspective is actually shared, by the 'skeptics'. Although he is largely sympathetic to the critique so far described, Mitchell makes the important point that there is actually a lot of common ground between the idealist and sceptical interpretations. i.e. "the framework in which facts about landscape are constituted," (Mitchell, 1994, p.7.) is very similar. As noted earlier in this chapter, Mitchell suggests that they share an underlying agreement that landscape is a western European and modern phenomenon, that it emerges in the 17th century, reaching a peak in the 19th century, and that it is a supposedly 'new' way of seeing.

Clark articulated a view which for much of the 20th Century did represent the perspectives of many in Europe. His narrative starts with the sixteenth century, when "the medieval landscape of symbols" is succeeded by "the landscape of fact" (Corner, 1999). Mitchell takes exception in particular to this 'revolutionary' claim of landscape being a post-medieval development, which as he says, "falls to pieces in the face of the overwhelming richness, complexity, and antiquity of Chinese landscape painting." (Mitchell, 1994, p. 16). Furthermore, quoting Clark's 'historical' idea of Petrarch being the 'first modern man', Mitchell reduces the idea

He was, as everyone knows, the first man to climb a mountain for its own sake, and to enjoy the view from the top. (Clark, 1949, 1979, p.10).

to a "pseudo historical myth" in which landscape becomes a means of legitimating a modernist view which assumes that previous readings of landscape were limited in some or other way. He specifically makes a link between imperialism and the development of the landscape genre, finding a similar pattern even in the Chinese landscape tradition which he asserts, flourished especially during the time of their imperial strength. David Bunn in the same volume looks at the South African context in *Thomas Pringle's African Landscapes* (Bunn, 1994, p.128). He argues that colonial landscapes and the South

African landscape in particular, came to be perceived as “repositories of romanticism”. Bunn is concerned with the way in which an exotic landscape can become ‘naturalised’ in the hands and minds of European colonists, who in a sense ‘Europeanise’ the new landscape in their need for administrative control and domestic possibility.

I have attempted in this chapter to show, in a broad sweep, how in the second half of the last century, landscape became a fruitful terrain for critical investigation by art historians, students of literature and social theorists. They argue that landscape as a genre, particularly in the west has to a large extent functioned on behalf of the powerful and wealthy, being shaped but also shaping the culture within which it is practiced by ‘naturalising’ (Barthes, 1957) particular perspectives through the authority of a constructed view. Instead of the depicted landscape functioning as a ‘transparent window on the world’ (Mitchell, 1986), it was associated instead with ‘duplicity’ (Daniels, 1989) and vested interests. Charles Harrison put it succinctly, “Landscape.....has or has had a particular role to play in enabling the distinction between the power of picturing and the picturing of power that has been a characteristic concern of Modernist criticism” (Harrison, 1994, p. 203). With the nature of the attention, the shift in zeitgeist of the century, landscape painting was not a commonly practiced genre towards the end of the 20th Century (Corner, 1998).

Re-imagining Landscape: a network of connections and meanings

From such a post-modern perspective landscape seems less like a palimpsest whose ‘real’ or ‘authentic’ meanings can somehow be recovered with the correct techniques, theories or ideologies, than a flickering text displayed on the word-processor screen whose meaning can be created, extended, altered, elaborated and finally obliterated by the merest touch of a button (Daniels and Cosgrove, 1989, p. 8).

The contemporary discourse and practices around landscape occur within a remarkably wide range of disciplines. I cannot pretend to an insider’s grasp of the disciplines, nor have I found a comprehensive framework which holds them together. Even J.B. Jackson, who is considered the founder of cultural landscape studies, admits that after, “twenty five years (of) trying to understand and explain that aspect of the environment that I call the

landscape..... the concept continues to elude me” (Chaudhuri, 2002). Nevertheless there is an array of shared perspectives, with philosophers, theorists and writers not uncommonly cross referencing each other, building commonalities and enriching a ‘field’ – which has clearly been the focus of considerable speculation and thought for the last two or three decades. In line with the reflexive, ‘Gadamerian’ (Hertz, 1997) nature of my methodology, my excursion into this part of the literature has uncovered links that have as often as not been a surprise, yet have accretively enriched the project and my conception of landscape.

With the shift away from the genre in the art of the second half of the 20th century, it is all the more remarkable that from within that contemporary discourse of dissent and preoccupation with the ‘new’ (Abbs, 1987), that an unlikely, burgeoning interest in landscape actually has occurred. I would like to suggest that the emergence of land art in the late 1960s (Tufnell, 2006), with the work of Walter de Maria, Michael Heizer and Richard Long among others, has generated a renewed although quite different form of interest and interaction with the landscape.

Reflecting on the emergence of land art, James Corner remarks,

Here, landscape is both the venue (site) and material (medium) of artistic expression. Bound into the passage of time and natural process, the uniqueness of site and material circumstances makes landscape a more engaging and ephemeral phenomenon than that of distant scenery or pictures (Corner, 1999, p.15).

In deconstructing the elemental components which land art actually works with, Corner, a landscape architecture theorist, offers an altered way of seeing and conceptualising what landscape may be and what it might signify. This perception invites a conception of landscape in which the site itself can be understood as participant in a process of formation, with implications for our relationship to the earth as place. Corner’s conceptualisation of the earth as art medium implies a mode of participation in landscape which is quite distinct from formal, romantic, ideological or colonial concerns.

Referring to Richard Long’s intervention into the landscape, Denis Cosgrove, a cultural geographer, (1984) makes the point that the artist doesn’t merely look at the land, he *enters* it. Cosgrove sees this is a sign of hope for our future cultural relations with land. Tim Cresswell is a human geographer, who builds upon the notion of being *inside* as an important aspect of what constitutes a *place* as distinct from a landscape. He makes the point that a landscape is generally viewed from one spot and the implication is that the viewer is on the outside. ‘Place’

he suggests is a way of seeing, knowing and understanding the world more intimately, as an insider (Cresswell, 2004).

Mitchell develops the notion of the earth as art medium, within a broader conception of landscape, rather than land art exclusively. He suggests that landscape is itself, “.....a physical and multi-sensory medium, comprising earth, stone, vegetation, water, sky, sound and silence, light and darkness, prior to its secondary representation in another mediumand is already artifice in the moment of its beholding, long before it becomes the subject of pictorial representation.” (Mitchell, 1994, p. 14).

Although Mitchell is American, his work on landscape largely refers to England and English imperialism, landscape with a well documented and managed history. In an English or European context, the landscape has been shaped by centuries of building, planting, tillage and re-contouring. The artifice that can be seen is directly related to that history – even that part of the history which has been covered and lost to sight (Schama, 1995), contributes to the landscape; it is human agency which has shaped it.

Tswaing on the other hand, is located in Africa in a more sparsely populated part of the world, where manipulation of the landscape by humankind, has been more subtle and less thoroughly documented. Although Tswaing has a social history (Reimold et al, 1999), it is relatively recent, and it is peripheral to the magnitude of the impact site. In a landscape such as this the ‘artifice’ has connotations which suggest deep time, tumultuous geology and cosmic processes. Its ‘physical and multi-sensory’ qualities (Mitchell, 1994) however are profoundly present and relate essentially to the transforming action of the catastrophic impact on the one hand, and of time eroding its traces, on the other.

The new awareness of landscape as actual medium may well have first been expressed for contemporary art by land artists. Whether they consciously realised it or not however, there were known precedents in the ancient traditions of earth works in Peru, North America, Britain and China with their sacred and mythological meanings and overtones. Together with land art it would appear that this re-discovery of the land has provided a powerful impetus for contemporary art. It has been embraced and taken in new directions in the practice of a variety of artists more recently and in many different ways.

For instance, in South Africa, the artist Willem Boshoff has installed a number of works which make use of stones or wood from significant sites in disparate parts of the country. In his piece, *Psephos*, (1995), he collected stones from each of the nine provinces of South

Africa, mounting them behind glass, in boxes resembling ballot boxes, commemorating the first democratic election in the country the previous year. These small natural components from different landscapes, when individually selected, collected and then placed together in new configurations, take on iconographic associations which are rooted in cultural and historical memory derived from their various geographic locations. Yet neither the new symbolic content of the work, nor its newly transformed visual units eclipse their identity as actual geological fragments, elements of the South African landscape.



Fig. 5 Willem Boshoff, 2007, *Children of the Sky*, on site at Nirox Foundation, Magaliesberg. Courtesy the artist.

More recently Boshoff has engaged with large granite pieces or fragments from a specific location in Belfast, Mpumalanga. In *Children of the Stars* (2007), besides polishing the Belfast granite to resemble its previous igneous or molten state, and sandblasting a written text in several languages on the rock, the stone is left relatively unchanged. As the piece weighs 10 tons, and has an impressive scale, the work itself resembles a landscape. *Children of the Stars*, like most of Boshoff's work, is complex in its iconography. Of particular interest in this context is that it is intended to refer to meteorites which came from the stars, influencing the earth dramatically, and considered by many to have contributed to the eventual life sustaining qualities of the earth (Boshoff, 2007).

Mitchell identifies two major shifts in the approaches to studying landscape in the last century i.e. the largely Modernist, history of stylistic development and the essentially Postmodern, semiotic or interpretive mode. He calls for a new model which absorbs both the others, yet instead of asking, "what landscape 'is' or 'means', this model asks what it 'does' and how it works as a cultural practice" (Mitchell, 1994, p.1). His point is that landscape is an instrument of cultural power, a medium for expressing meaning, for communication

between 'Man' and 'Nature' (sic). A landscape that "mediates the cultural and the natural." (Mitchell, 1994, p. 15).

Landscape is a medium of exchange between the human and the natural, the self and the other. As such it is like money; good for nothing in itself, but expressive of a potentially limitless reserve of value. (Mitchell, 1994, p.5).

The notion of culture and cultural practice is one of the more difficult concepts to contain and describe. The question is picked up by several other writers who explore it in varying ways. Corner, who has a particular concern for the 'recovery' of landscape, describes it as a promising cultural enterprise, "...for it invokes less the recuperation and restoration of a passive artefact and more the extension and realization of landscape's hidden potential" (Corner, 1999, p. ix). He envisions a landscape which has the power to shape human culture due to its 'eidetic content' i.e. its 'capacity to contain and express ideas and so engage the mind' (Corner, 1999, p. 1). As an architect he clearly embraces interventions in the landscape, which inevitably have cultural as well as environmental implications. Corner however brings the environmental discussion within the cultural arena so that rather than viewing and dealing only with the symptoms of our troubled relationship with the environment as we usually do, he suggests that it is our, ".....cultural ways of being and acting in the world.....which lie at the very root of environmental problems in the first place....." (Corner, 1999, p. 4). In other words, he is proposing landscape as an agent of culture rather than a product of culture i.e. similar to Mitchell, what it *does*, rather than how it *appears*.

*...the landscape idea arises as an eidetic filter through which different cultures view their woods, mountains, waters, and fields, and gain a sense of social identity....
Landscape...relies upon a collective form of subjectivity... (Corner, 1999, p. 6).*

Cosgrove and Daniels also address the notion of landscape working as a cultural practice. Introducing the essays in *The Iconography of Landscape*, they state, "A landscape is a cultural image, a pictorial way of representing or symbolising surroundings" (Cosgrove & Daniels, 1988, p.1). Not just the representation, but each study of a landscape, they suggest deposits a further layer of cultural representation, so transforming its meaning (Cosgrove & Daniels, 1988). Viewed in this way, landscape is central to many of the realities of the present and it resonates with concerns and curiosities about heritage, identity, memory and time, both on an intimate and a global scale. Edward Said makes the point that people find

themselves currently undergoing the most rapid social transformations in history, "...ours has become an era of a search for roots, of people trying to discover in the collective memory of their race, religion, community, and family a past that is entirely their own, secure from the ravages of history...." (Said, 2002, p. 241).

Simon Schama reflects on how traces of this history are contained within the landscape; that we need to excavate, "below our conventional sight-level to recover the veins of myth and memory that lie beneath the surface." "Before it can ever be a repose for the senses, landscape is the work of the mind. Its scenery is built up as much from strata of memory as from layers of rock" (Schama, 1995, p.14, 7).

The temporality of landscape is the emphasis of the archaeologist Tim Ingold. "Human life is a process that involves the passage of time....this life-process is also the process of formation of the landscapes in which people have lived" (Ingold, 1993, p.152). He adds to what Schama is saying and suggests that the landscape doesn't merely tell a story, it *is* a story. "It enfolds the lives and times of predecessors who, over the generations, have moved around in it and played their part in its formation. To perceive the landscape is therefore to carry out an act of remembrance" (Ingold, 1993, p.152).

Respectful of Schama's experience of visiting his own family's original village in Lithuania where traces of their existence had disappeared, Edward Said suggests (2002) with the insight of experience, that geography can stimulate not only memory, but dreams and fantasy too. He points out that the geography of Israel has been mediated through poetry, painting, philosophy and music to create a symbolic homeland as well as a mythical no-man's land without inhabitants, waiting to be re-possessed. Having been born in Jerusalem in 1935 in that supposed no-man's land, he finds that myth a painful one.

At this stage of the 21st Century we find ourselves living on a planet with countless numbers of violated landscapes. Global warming caused by excessive carbon emissions released by human activity, is very much part of our new landscape of consciousness. The dawning awareness of the interrelatedness and fragility of the human relationship with the earth still needs to permeate contemporary culture. Having taken 4.5 billion years to become hospitable to our species, our history and our future are bound up with the earth's geography. In South Africa, the land, with its colonial and apartheid memory is decidedly reluctant to bury this past, as it manifests itself daily in racial, economic and cultural apartness, practice and ownership. In Gauteng, the effects of 200 years of mining upon the subsoil have re-emerged from the depths of the landscape, presenting a new and frightening prospect of how the landscape contains

within itself the traces and memory of the many and varied interventions it has been subjected to. The gravity and extent of acids and heavy metals draining into the soil and the water system from the network of mines which cover Gauteng, has only recently been recognised. We are only beginning to understand how even disused mines will continue to pollute the subsoil and water table, through acid formed by the continued oxidation of the abandoned, remaining rock. How this long term damage to the environment will impact on the future of cities and regions like Johannesburg and Krugersdorp is an open question.

A few artists, such as William Kentridge, have responded to the social narrative of the Johannesburg mining landscape. That narrative has recently taken on fresh connotations with the awareness of acid mine drainage. Not only does this consciousness provide new 'horizons' for landscape art; it is, as artistic practice can be, somewhere near the centre of contemporary awareness. Landscape is the context and intersection of a multiplicity of engagements, issues and questions concerning our conceptions of nature and culture; self and other; planet and cosmos; what was and what is – and also what might be, in our 'place'. Arguably, we have never been more in need of understanding these relationships. As Schama and Said show us, there are personal, cultural and political histories written in the land which require humility, time and renewed perspectives in order to be seen, integrated and acted upon. Paradoxically, we know more about the world about us than in any previous time and have access to unprecedented amounts of stored data. Yet we seem remarkably willing to entertain the prospect of touching the button on Daniels and Cosgrove's enigmatic word processor screen,⁶ which could obliterate memory.

Significant Artistic Influence

My walking and photographing as simple acts of apprehension took on another dimension when I was able to locate them and understand their significance within the sophisticated and developed practice of certain artists. **Richard Long** (b. 1945) is one of these. He emerged as a significant sculptor in the late 1960s (Seymour, 2005) and for a variety of reasons it has been meaningful to juxtapose the project against a backdrop of Long and his work. Together with the other land artists, Long's work has helped to develop what Rosalind Krauss described in 1979 as the 'expanded field of sculpture'. His contribution was unique, due to his decision to make walking part of his sculptural medium (Long, 2005). In its distinctly non

⁶ See page 15.

intrusive character, Long's work has been an important influence in my own undertaking, however different in both process and form. My circular walking, as a means to apprehend, was determined by the crater itself and has resonance with Long's employment of circles. He uses circles perhaps more than any other form, as site specific markers, in configurations of stones or constructions of other natural materials in the locations he has walked. On rare occasions the walks themselves are configured according to circular determinants e.g. *Concentric Days: Each day a meandering walk somewhere within and to the edge of each circle* (Scotland 1996). Although the viewer is tempted to interpret the circles symbolically, Long himself is reluctant to limit them to a specific meaning "It's a pure idea which can take the form of a walk, mud, wind, water, words, or stones....." (Conversation with Denise Hooker, Long, 2005, p.310).

While his work is both of and in the landscape, through its 'radical simplicity' (2006, Tufnell) it breaks both with landscape tradition and the American land artists who commonly employ earthmoving machinery and significant injections of capital towards the creation of their work. Long has been careful to distinguish his own artistic activity from theirs'.

My interest was in a more thoughtful view of art and nature, making art both visible and invisible, using ideas, walking, stones, tracks, water, time, etc, in a flexible way.... It was the antithesis of so-called American Land Art, where the artist needed money to be an artist, to buy real estate, to claim possession of the land and wield machinery. True capitalist art

Long, 1999, p.255.

I like the idea of using the land without possessing it

Long, in Tufnell, 2007, p.25.

I choose lines and circles because they do the job

Long, 1980, *Five Six Pick Up Sticks*.



Fig. 6 Richard Long, 2009, Circle constructed at Nirox Foundation, Cradle of Humankind.
Photograph, S. Sher, courtesy of Nirox.

Reflecting on walking as art, Rebecca Solnit (2001)⁷ suggests that it calls attention both to the simplest aspects of the act as well as to the most complex; the body and the earth against each other.

“.....the rich potential relations between thinking and the body, the way one person’s act can be an invitation to another’s imagination, the way every gesture can be imagined as a brief and invisible sculpture, the way walking reshapes the world by mapping it, treading paths into it, encountering it, the way each act reflects and reinvents the culture in which it takes place.” (Solnit, 2001, p.276).

Long’s walking is often, although not exclusively, linear i.e. from one point to another (Long, 2005). He uses maps as ‘important aids to make walking art’ (Malpas, 2005, p.84). My own walking is somewhat different to Long’s in that walking for me is a way of apprehending the site and is in itself circular. My photographic process is also an extension of my walking in that it continues the search for apprehension within the new medium. Using a long succession of photographic sequences, my work engages the shuttered memory of time, place and light, capturing the eroded and softened edges of a vast circular depression made by the catastrophic chance intersection of two trajectories, earth and a large meteorite, radically altering the landscape. Although our intentions are different, Long has opened conceptual possibilities in his work which invite artistic engagements with landscape such as my own. “His is a point of view that is both timeless

⁷ Rebecca Solnit is a writer whose work is grounded in rethinking urban and rural landscape, walking and in politics.

and also makes a great deal of sense in the world of planes and rockets and scientific discoveries, where the frontiers of space and time have been extended as never before” (Seymour, 2005, p.7).

Apart from Long’s focused concern with landscape, and with walking, the role of the photograph in his work is also significant. Mostly, although not exclusively, Long represents the walk visually through a photograph, either of a point along the walk or after having moved one or several components in subtle ways. The representation of the intervention through the photograph, a text or a map are the only means for viewers to engage with the work. Viewpoint, as with most land art is critical to the work. William Malpas (2005) proposes that the viewpoint for Long’s photographs is sometimes selected before he makes his outdoor sculptures, that they are made to be seen for a particular viewpoint. Malpas develops the idea, making the point that very few people will have seen an outdoor Richard Long artwork *in situ*. “Knowing a land artwork only from a photograph, one knows only *that* particular viewpoint and no others.” (p. 88)

The creation in my art is not in the common forms---circles, lines---I use, but the places I choose to put them in.

A good work is the right thing in the right place at the right time. A crossing place.

Richard Long, 1980, *Five Six Pick Up Sticks*.

As I have already indicated, the viewpoint which I finally chose is similarly critical to my work. I selected this viewpoint because it is the geographic centre of the crater, the point at which the team of scientists actually did their drilling and investigation. It is from this vantage point that I attempt to delineate the ‘whole’ landscape with my encompassing panoramic images.

Another significant part of my thinking and strategising has been played by the artist **Jan Dibbets** (b. 1941). Dibbets is a Dutch artist who like Long has an interest in the rehabilitation of landscape as a subject for contemporary art. (Tufnell, 2006). His work has taken him mostly into the flat, often featureless Dutch landscape; although he has also made work in other places and countries. Although his interventions are usually quite minimal, he is associated with Land Art; however he is equally associated with the emergence of Conceptual Art as a movement and particularly with its shift away from

reliance on the object (Israel, 2001). The concerns expressed in his work are largely around his interest in perspective, perception, illusion and space. His work is most often characterised by his 'Perspective Corrections', executed in the landscape between 1967 and 1969, in which he sought to correct the monocular camera vision of three dimensional space through drawing trapezoid or elliptical forms, to be read as squares and circles through the camera lens.

Lucy Soutter (1999) in her discussion of the role photography plays in Conceptual Art points out that viewers unfamiliar with Dibbets' work often read the photographs at first as if they are photomontages. Although the Perspective Corrections can appear at first like photomontages, Dibbets has actually made material interventions in the landscape even if he has only drawn on it with a rope. One piece, *12 Hours Tide Object with Correction of Perspective*, was a film made in 1969 and repeated in February 2009 in Rotterdam. In it a bulldozer is used to draw a trapezoid in the sand which is 'corrected' by the camera, read as a square on the television screen and ultimately washed away by the incoming tide. (2009, portscapes.nl/eng/jan-dibbets) The 'ambiguity of knowledge and perception' is at the heart of what Dibbets is expressing in these works (Dippel, 1972).

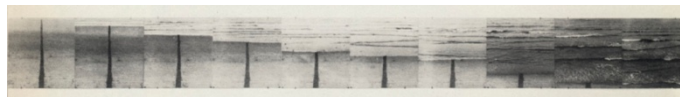


Fig. 7 Dibbets, 1969, *Flood Tide*. Copyright Jan Dibbets. Courtesy Hirschhorn Museum Washington

In an early work, *Flood tide*, (1969), Dibbets raked a line in beach sand, up to the water line at low tide. In a sequence of ten photographs he documented how the tide gradually washed the vertically raked line away, until only the horizontal line of the sea remained.

Dibbets' conceptual approach to landscape, and the centrality of photography to his process, are important sources in my own thinking, despite the formality of the problems which Dibbets seems to pose. His concern with perception in relation to the camera lens is similar to my own, in which the camera is never quite able to adequately represent all 360° of the crater. Dibbets' panoramas are especially pertinent for my investigation. In them he explores the 'geometry of landscape', by assembling a sequence of photographs of the same landscape, from slightly shifted viewpoints. An example is *Panorama Dutch Mountain* (1971), in which the camera angle on its tripod is changed 15° with each frame. The final piece is a montage. 'The distortion of the horizon – which becomes an arc instead of

a straight line – is actually closer to the reality of the earth as we know it to exist' (Dippel, 1972).



Fig. 8 Dibbets, 1971, *Panorama Dutch Mountain*. Copyright Jan Dibbets. Courtesy Tate.

The horizon is not a subject like other subjects, for it exists only through and in relation to our sense of sight...In the whole world what is more beautiful than a straight line? And the horizon is a straight line in three dimensions: it's an almost incredible phenomenon (Source: Press release, Jan Dibbets, "New Horizons", 2010).

De Wilde (1972) argues that Dibbets, being at heart a painter, is primarily concerned with the 'plastic' qualities of the final work. While the panoramas in particular do indeed have a strongly pictorial and perhaps even a painterly quality, it is hard to dismiss the conceptual focus in Dibbets' work on the process itself. Viewpoint is itself a subject of inquiry, as is also, in several works such as *Shortest Day*, (1970), the passage of time. All of this resonates with my investigation. Similarly, Dibbets has recently re-affirmed his long-held interest in exploring a single aspect of landscape with his 2010 'Horizons' exhibitions (Jan Dibbets, *New Horizons*, 2010).

My own joint interest in the surface of the earth and how events in deep space have affected it, find further congruence with Dibbets due to his interest in astronomy. In 1995 Dibbets created the imaginary Arago Meridian line through Paris with 135 bronze medallions, each one with the name of Arago, the physicist and astronomer whose meridian, 2°20'14" east of Greenwich, was regarded by the French as 0° longitude, until France reluctantly adopted the Greenwich meridian. The line runs through the 'mire nord' and the 'mire sud', two stone markers, at the Louvre and the Paris Observatory (Association Gira Sole Art, n.d., p.2). Astronomy is the science which provides the understanding of our position in the solar system and deep space, the ordered orbits of the planets, and the apparently random 'hits' of the earth by meteorites. These observations have had bearing on both Dibbets and my own work. It is astronomy which has revealed the great extent to which our solar system has been subjected to meteoritic activity – and how significant that has been in the earth's formation and condition.



Fig. 9 Dibbets, 1995. One of the 135 medallions from the *Hommage à Arago* along the 2°20'14" meridian (Wikimedia Commons). This particular medallion is near the Louvre pyramid. Copyright Jan Dibbets.

It may seem surprising to refer to **Paul Cezanne** (1839 – 1906), the post-impressionist artist whose work was so pivotal for Modernist painters in an investigation which is photographic, yet which has remarkable convergences, some of which were also crucial for the trajectory of painting into the 20th century. Cezanne's importance to artists at his time was underlined strongly by Picasso.

As if I didn't know Cezanne! He was my one and only master! Don't you think I looked at his pictures? I spent years studying them.....Cézanne! It was the same with all of us – he was like our father. It was he who protected us.....” (Picasso, 1943, quoted in Wechsler, 1975, p.78).

In the context of the current photographic project, Cezanne's work lends unexpectedly rich insights to the investigation. In his later work Cezanne gravitated to landscape, and mainly to a specific place, Mont Sainte-Victoire, in Provence, which he painted repeatedly for two decades. His process of working on a single landscape and returning to it repeatedly day after day suggests an accumulative and fugitive process of painting exactly what he saw today on top of what he saw yesterday, in an attempt to grasp simultaneously the actual nature of the landscape and the mobility of perception itself. This indicates Cezanne's intense quest for a solution which he despairingly felt he would never reach, “Will I reach the goal I've sought so long and hard?” (quoted in Brion-Guerry, 1977, p.73).⁸

⁸ From a letter written in 1906 to Emile Bernard, shortly before Cezanne's death. Quoted in Brion-Guerry, p. 73. From Rewald, 1937, *Correspondence*.

There are distinct links between my own attempt to apprehend the crater landscape by recording my experience successively through time and Cezanne's earlier, seminal quest, his shifting perspectives and his question. Like Meno's challenge to Socrates (Plato, *Meno*. 80, trans. 1892)⁹, the question itself is elusive. No matter how hard I try to match the different views and moments, each one is unique, its own, a collection of light waves and particles on their way elsewhere, and they cannot truly fit. Each image is discrete, each photograph an object caught in a state of becoming.



Fig. 10 Cezanne, 1885, *Mont Saint-Victoire*. Courtesy Cortauld Institute, London

The Mont Saint-Victoire landscapes often show Cezanne's characteristic parallel strokes which become clues to his quest to make sense of shifting, measured, multiple viewpoints. Paradoxically, on the one hand he abstracts the landscape, reconstructing it in relation to his flat canvas, while on the other hand committedly making sense of the shifting forms and planes accompanying his viewpoints, leading to an inversion or even deconstruction of a panoramic view. Many decades later there are many points of intersection with the work of Cezanne in this present investigation. The fixation upon a single landscape; the successive returning and reworking it; the frustration of goals not quite achieved, yet the commitment to a continued search; the shifting viewpoints and parallel lines, surprisingly like imperfectly aligned faultlines in the reconstructed sections of a panorama. Even Cezanne's distant interest in the geology of the mountain (2008, Lesh), has resonance with my investigation.

⁹ In the passage Plato has Meno ask Socrates, "And how will you enquire, Socrates, into that which you do not know? What will you put forth as the subject of enquiry? And if you find what you want, how will you ever know that this is the thing which you did not know?" I refer to Meno's question again in the section *Being Lost and the Inscrutability of Landscape*.

David Hockney (b.1937) also developed a late interest in landscape and his work intelligently brings to bear the lessons learned from cubism and its fractured notions of time, image and allusions to simultaneity. Hockney in the 80s and 90s, with the use of photography and photomontages, created complex unstable images of interiors, portraits and landscapes of his lived environment. Their faceted qualities evoke both Picasso and Cezanne, embracing the nature of recording the 'now', the immediacy of the perception and how each moment/image builds on the next. Hockney is concerned with achieving a sense of time in his photomontages. He describes the conventional photograph as being limited to a single moment, and suggests it lacks painting's intrinsic involvement with time (Melia, 1995). The multiple viewpoints in a work like *Merced River, Yosemite Valley* are a way of embracing the dimension of duration in the photographic work.

For copyright reasons this image has been removed from the online version. It can be seen at the following URL: http://www.hockneypictures.com/photos/photos_collages.php

Fig. 11 David Hockney, *Merced River, Yosemite Valley, Sept. 1982*. Photographic collage, edition of 20, 52 x 61". © David Hockney

My panoramas implicitly embrace time because each photograph is taken sequentially in time and in space. Instead of having multiple perspectives of a selected view, the individual photographs shift the view itself, in this case continuing for a full 360° until I return to the starting point. The shifting viewpoint, a 360° panorama taken at particular times of day also has noticeable changes in light even within a brief passage of time. The photographs of this fluid 'moment' are then contained within a single stitched image. This warrants consideration when reflecting on how meaning is altered through this process.



Fig. 12 *Constructed view from the North West crater wall*. The individual photographs were taken over a period of 13 minutes from 17h29 – 17h42 on 23 September 2008.

The constructed nature of reality implied by Cezanne, Picasso and Hockney is also suggested in my work. Being in a distinct moment in history however and unlike Greenberg and modernism's emphasis on flatness and paint, it has focused on the prevalence of the photographic in the present milieu. This includes the emergence of its visual artefacts, the tell tale cues to the artificial and constructed nature of the visual technologies which beguile us with their notions of accuracy, faithfulness and the documentation of a single moment in time.

In various ways then, time is central to this investigation: the pace of walking, the waiting, the repetition, selecting times of day and night, processing and returning again. All of these actions disrupt the attitude to time to which we have habituated ourselves in the 21st century, where speed is one of the indices which control the way we do what we do. On another level, time is an implicit part of my subject, in a place which bears the marks of a primeval catastrophe upon its landscape, by an object which itself is 4.5 billion years old (Patterson, 1956, Hurley, 1998) and which had been hurtling around the galaxy for an unquantified amount of time.

CHAPTER 3

Telescopic and Microscopic: Cosmic and Local

Meteorites and the Cosmic Landscape

I have spoken about the traditional view of landscape, how social and political forces have shaped both the landscape and how it is perceived. My work and its focus now telescope outwards to events beyond human time, to vast processes that shaped our planet and to catastrophic events which ultimately have left their mark on my own narrative.

My investigation starts with a choice of landscape and topic which were influenced by the relatively recently established knowledge that our planet has been impacted over its history by many meteorites, some of them very large, as in the case of the Vredefort projectile, which struck the earth 2023 million years ago (McCarthy and Rubidge, 2005).

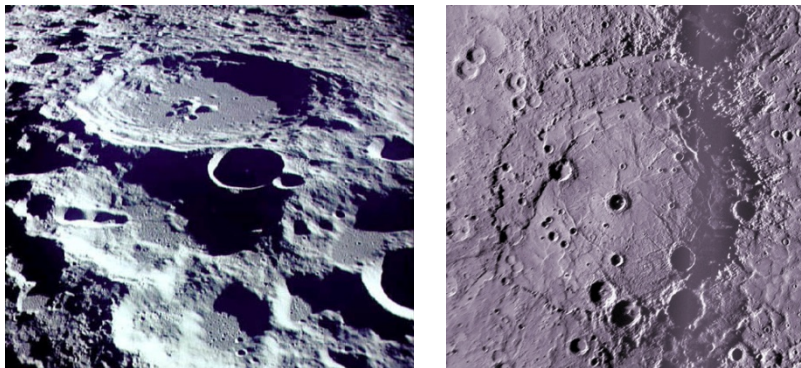


Fig. 13 Left: *Moon Craters*. Oblique view of the 'lunar farside', photographed from Apollo 11 during a lunar orbit, July 16 1969. NASA

Fig. 14 Right: *The cratered surface of Mercury*. The Rembrandt impact basin discovered by Messenger spacecraft during its second flyby of Mercury in October 2008. NASA

Our current understanding of these processes is at least partly due to the high quality imaging obtained over recent decades, of our moon and the other bodies within our solar system, taken from satellites and space missions. These images have made it clear that the solid bodies in our solar system are all "peppered" with craters, just as our moon is. So prevalent is the cratering

that it reveals what has come to be termed an “intense bombardment” from outer space (Reimold and Gibson, 2005, p. 31). In view of my themes of landscape and time being so informed by a known, yet previously contested (p.96), meteorite impact site, it is worth doing a brief excursion into the geological and cosmological context which informs the growing body of knowledge about meteorites and their relationship to the earth.

Looking at an image of the moon’s surface, at first sight the craters could be read as volcanoes. Reimold et al, (1999), point out however that samples of its rock taken for analysis by several Apollo missions have shown that although considerable volcanic activity has occurred, very few of the rock samples taken were igneous, derived from a molten process, the result of volcanism. So although some of the moon’s craters may be the result of volcanism, the majority of them are associated with meteorite impacts. Furthermore, unlike the earth, the moon has been inactive geologically for the past 3.2 billion years (Reimold et al, 1999). Reimold and Gibson point out that a similar bombardment would have taken place on earth in the early stages of the development of our solar system, and that due to its greater size and gravity, the earth would have attracted relatively more impacts than the moon. According to Reimold et al, 1999, it is currently widely believed among geologists and meteoritical scientists that the creation of the moon itself was the result of a “Mars-sized body” colliding with “Proto-Earth”.

In their discussion, Reimold and Gibson review the phenomenon of meteorite impacts in the context of ‘Catastrophism’ and ‘Gradualism’ the main competing theories of the earth’s formation (p.18-21). Impact ‘bombardment’, they suggest played a role in the earliest ‘phase of accretion of planetary material’ (p. 31) during the first several hundred million years of the earth’s existence. The effect of such impacts on the evolution of the earth has only recently attracted consideration. Unlike the moon’s or Mercury’s craters, the earth’s craters are by and large no longer visible, being covered, eroded or otherwise altered in some way, due to the earth’s dynamic environment: its weather, tectonic shifts, complex evolutionary processes that have manifest into the vast array of vegetation, insect, reptile, animal and human habitation, which affects the characteristics of the earth’s mantle.

McCarthy and Rubidge (2005), claim that this dynamic interaction of our planet with the cosmos through meteorites continues to this day, with the earth being subjected to a ‘constant rain of extraterrestrial material’ (p. 134). According to them, several tons of mostly small debris, generally travelling at between 10 – 70 km per second, enters our atmosphere daily.

Science's Invitation to Contemplation

The narrative thus far has been informed largely by Science. Indeed, it is the scientific knowledge about the site which has drawn me into this particular investigation. Science has progressively brought astonishing detail and authority to our perception of the world. In many respects our understanding and view, being empirically informed can never be the same again. Yet just as astonishingly, science also reveals how much more there is yet to know, despite leaps in our technologies for viewing and measuring the phenomena we experience. As John Barrow, Director of the Millennium Project at Cambridge University, puts it:

Scanning the past millennia of human achievement reveals just how much has been achieved during the last three hundred years since Newton set in motion the effective mathematization of Nature.....We could regard this Newtonian revolution as the discovery of a master key which opens doors faster with constant use. And although the pace of discovery has quickened dramatically in recent times, it will none the less continue to do so indefinitely. Our present pace of discovery of truths about seemingly fundamental things does not necessarily indicate that we are about to converge upon the spot where all the treasure lies buried. The process of discovery could continue indefinitely either because the complexity of Nature is truly bottomless or because we have chosen a particular way of describing Nature which, while being as accurate as we desire, is none the less at best always but an asymptotic approximation that only an infinite number of refinements could make correspond exactly to reality. More pessimistically, our human frame and its eventful evolutionary past may place real limits upon the concepts that we can accommodate. Why should our cognitive processes have tuned themselves to such an extravagant quest as the understanding of the entire Universe? Is it not more likely that the Universe is, in Haldane's words, "queerer than we can ever know?"

Barrow, 2007, *New Theories of Everything*, p.2,3.

Science has historically brought with it a curiosity and audaciousness which at its best is also tempered by a humility and sense of mystery in the face of the overwhelming complexity and scale of things. Events over incomprehensible timeframes; the unlikelihood of life either emerging or surviving such violent catastrophes; the earth's tenuous positioning amidst a cosmos of awesome forces – in which humankind nevertheless has such remarkable ingenuity, creativity and arguably, responsibility. These become the backdrop to my investigation of the Tswaing meteorite impact crater, located as it is, just a few kilometres north of the city of

Pretoria, yet inviting reflection on the origins and processes which have been part of the creation of the earth and even life itself. Unlike native geological processes which have occurred on earth as part of its formation, meteorites are, as Willem Boshoff describes them, “Children of the stars” which have visited us from the cosmos.

Joel Primack is one of the originating authors of the theory of Cold Dark Matter, which proposes that most matter in the universe is invisible and is not made up of the building blocks which comprise the visible universe. In their book, *View from the Centre of the Universe*, He and Nancy Abrams attempt to present an understandable picture of a 21st century cosmology which is able to find common ground with a wide range of different disciplines in their response to a 14 billion year old ‘history’. The authors have a concern that a scientific understanding of the universe should not simply be an instrumental one. Hence the title of their book, in which they present a ‘meaningful’ cosmology that integrates science and a notion of spirituality, informed by a sense of our place in the universe. A cosmic perspective suggest Primack and Abrams, “reveals that the Big Bang powers us all, galaxies and humans alike, in different ways on our respective size-scales.” (p.209)

In his paper, *Cosmology and Culture (1997)*, Primack quotes the Czech poet-president Vaclav Havel who in a speech given in 1994, stated that science was currently more of a source of disintegration than one of integration and meaning. Instead of therefore rejecting science, Havel appeals to his listeners, “Paradoxically, inspiration for the renewal of this lost integrity can once again be found in science.....a science producing ideas that in a certain sense allow it to transcend its own limits..... Transcendence is the only real alternative to extinction.” Primack builds upon this idea with the challenge to science to interpret its cosmology in language meaningful to ordinary people, so that its elemental stories are understood. This need for science to enter into the mythology of contemporary life, not merely for instrumental purposes but as an enrichment of culture, holding the mystery of the known and the unknown, is intrinsic to my attempt to comprehend a landscape that defies apprehension. It resonates too, albeit from a different context, with what Mitchell, (1994), writing specifically about landscape, refers to as landscape’s ability to act as a “medium of exchange between the human and the natural (p.10).’

Tswaing, Place of Salt, Index of Time, Container of Memory

The notion of landscape, as a cosmic canvas or drama, played out over incomprehensibly deep time, with inconceivable violence, yet offering a window of reflective opportunity, is at the heart of my choice of site, my engagement with it and my response.

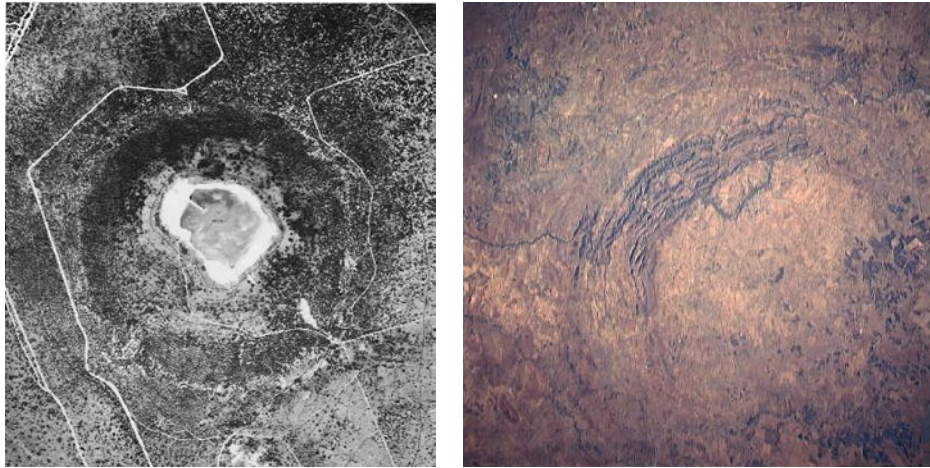


Fig. 15 Left: *Aerial view of the Tswaing Impact Crater* (Partridge, 1999, cover image).
Courtesy Council for Geosciences, Pretoria.

Fig. 16 Right: *View from space of the Vredefort Dome*. Only the North West collar of the central uplift area is still visible. NASA

As it happens, both the Vredefort Dome and the Tswaing Impact Crater are located within easy reach of Johannesburg. At 2.2 billion years, the Vredefort Dome is accepted as the oldest and largest visible example of a meteorite impact on earth, its circular form however is really only visible from satellite imagery. The Tswaing crater on the other hand, being relatively recent, still has the visual coherence of a circular crater. Being therefore both young and well preserved it is very rare (Brand and Reimold, 1999). Reimold & Gibson (2005) having done much of the research leading to the understanding of the Vredefort Dome's meteoritic origins, now a world heritage site, have written what is probably the seminal volume on it. Both of them worked in the Wits University department of Geology and Reimold was intimately involved in researching the geology of the Tswaing crater as well. Three of the published papers within the conclusive interdisciplinary 'Memoir' edited by Prof Tim Partridge (1999), following the crucial drilling expedition are co-authored by him.

With satellite imagery and sophisticated research technologies and methods, sites like the Tswaing impact crater are able to reveal more of their 'story' than has been previously known. It is only in the last few decades that general agreement has even been reached about the frequency, extent and role of meteoritic activity and other catastrophic events in the evolution of the earth and other planets in the solar system (Reimold et al, 1999). Despite being located in present day South Africa and having had names which express the cultures and habitation of the site in the recent past, Tswaing, being one of a relatively small number of known impact sites on earth, invites a consideration which goes beyond the local landscape to that of the planet, its relationship to the cosmos and our place within that relationship.

Any geological site is inherently concerned with time in view of the enormity of the timeframes involved in the formation of the earth. As a meteorite impact crater, Tswaing confronts one with that deep geological sort of time because we actually know, within a reasonable margin, that this impact occurred 220 000 years ago. Inevitably this invites an awareness of the yet deeper geological and cosmological timeframes in which such an event is perceived as being recent. Referring to Mitchell's view of landscape as 'already artifice in the moment of its beholding...' (Mitchell, 1994, p. 14.), Tswaing is an artefact of a catastrophic event which bears witness to a 'history' of such catastrophes, mostly much older, as with the Vredefort structure which was 'formed' over 2 billion years ago and therefore slowly transformed to a trace of the earlier artefact.

With such information available, despite the many unanswered questions, 'local' can be applied not only to the landscape but to the earth itself, which at 4,5 billion years is relatively young within the cosmos. Current consensus across several scientific disciplines supports the notion of an expanding universe, having a beginning around 14 billion years ago. Primack and Abrams (2006) present an insight into the changing perceptions and conceptions of the universe over time and the place of humankind in those conceptions. They point out that although modern science in its analytical atomisation of facts from contexts has contributed to a dislocated view of ourselves, humankind is inextricably linked to the stars. Even the heavy elements which comprise our own bodies were all made within stars, having been transformed from their original hydrogen and helium (p.96).

Stardust is thus part of our genealogy. Our bodies literally hold the entire history of the universe, witnessed and enacted by our atoms.

Primack & Abrams, p. 99

The horizonless aerial view of the Tswaing crater and the view from space of the Vredefort Dome both challenge the way we perceive these landscapes and especially our notion of ownership of the land (Turner, 1979). These are 'artefacts' of the cosmic processes which have formed our planet. They are the heritage of all people in that they paradoxically, through their catastrophic impacts on the earth, have contributed substantially to the existence of conditions which are hospitable to life.

Geological Context and Questions

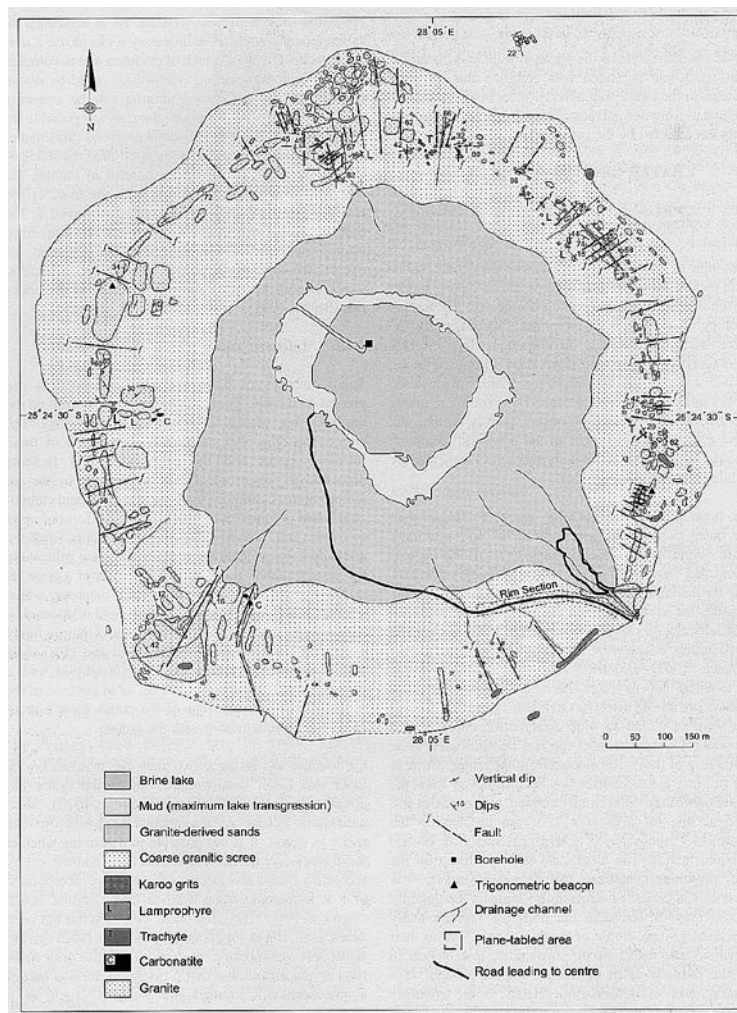


Fig. 17 *Geological map of the Tswaing Impact Crater.* The area in the centre is a saline lake with T.C. Partridge's drilling site near its centre. The lake is surrounded by mud which in turn is surrounded by coarse sandy material, followed by loose rock sloping up the crater wall (Brandt and Reimold, 1999, p.18). Courtesy Council for Geosciences, Pretoria.

Geologically, Tswaing happens to be in a remarkable place. It is located within the Bushveld Complex, a unique and very large structure comprised of three distinct layers of igneous rock having been formed by three distinct geological events. The complex stretches over an area of 400km x 300km and is the largest such structure in the world, dated at 2 060 million years ago, yet with each of the layers being indistinguishable from each other in time. At their widest point their combined thickness is 8km in depth. While layering of igneous rock is well understood, McCarthy and Rubidge (2005) make the point that it is the enormity of scale of the Bushveld Complex which makes it unique, with the series of events seemingly having occurred at the same or a similar time, by an event which is not yet understood¹⁰ but whose effects clearly exceeded the Tswaing impact considerably. It is some of this layered material which has been upturned on the rim of the Tswaing crater.

The first detailed geological investigations of the crater were done by P. A. Wagner in 1922 towards the thesis of his D.Sc degree with the University of Cape Town (Partridge, 1999). Wagner concluded from his research that the crater was 'cryptovolcanic' in origin i.e. he considered it to be volcanic but there was not enough conclusive evidence. Since the 1930s there had also been a body of opinion that considered the crater to be meteoritic but similarly without enough evidence. For a long time it had been thought that drilling into the interior of the crater would provide the solution to the dilemma and in 1973 a borehole was sunk by the Pratley Manufacturing and Engineering Company to a depth of 172m. The core recovery however was not good enough to allow for any firm conclusions (Brandt & Reimold, 1999). With the controversy over the crater's origins unsettled plus the strong likelihood of being able to gain ancient climatic information, there were compelling reasons for attempting a further drilling operation. This was done under the direction of T.C. Partridge in 1988 -1989 and a variety of drilling techniques were used in order to preserve the stratigraphy of the drill core on this occasion.

The two main arguments for this project were a.) that the crater sediments, undisturbed since formation of the crater, should provide a unique source of palaeoclimatic and palaeoenvironmental information of the mid-latitudes of the Southern Hemisphere, and b.) that only drilling could provide conclusive evidence of the processes that led to the formation of the structure....(Brandt & Reimold, 1999, p.11).

¹⁰ One of the several theories attempting to explain the Bushveld Complex phenomenon is that the rapid melting required for the events could have been triggered by the impacts of large meteorites (McCarthy & Rubidge, 2005).

The drilling operation went down to a 200m depth with samples being given to a multi-disciplinary team of scientists who investigated fossilised diatoms, pollens, phytoliths and sediments to obtain an almost complete climatic record of the past 200 000 years (Partridge, 1999). In the geological analysis, at first only the deeper granite materials from the bottom of the drill core, plus selected samples from the crater rim were investigated, without finding impact-diagnostic data. Eventually in 1991 when sandy breccia from the intermediate depths were studied microscopically, they presented large numbers of shock metamorphosed quartz and feldspar grains as well as glass and melt fragments – unique and unequivocal indicators of impact cratering events (Brandt and Reimold, 1999).

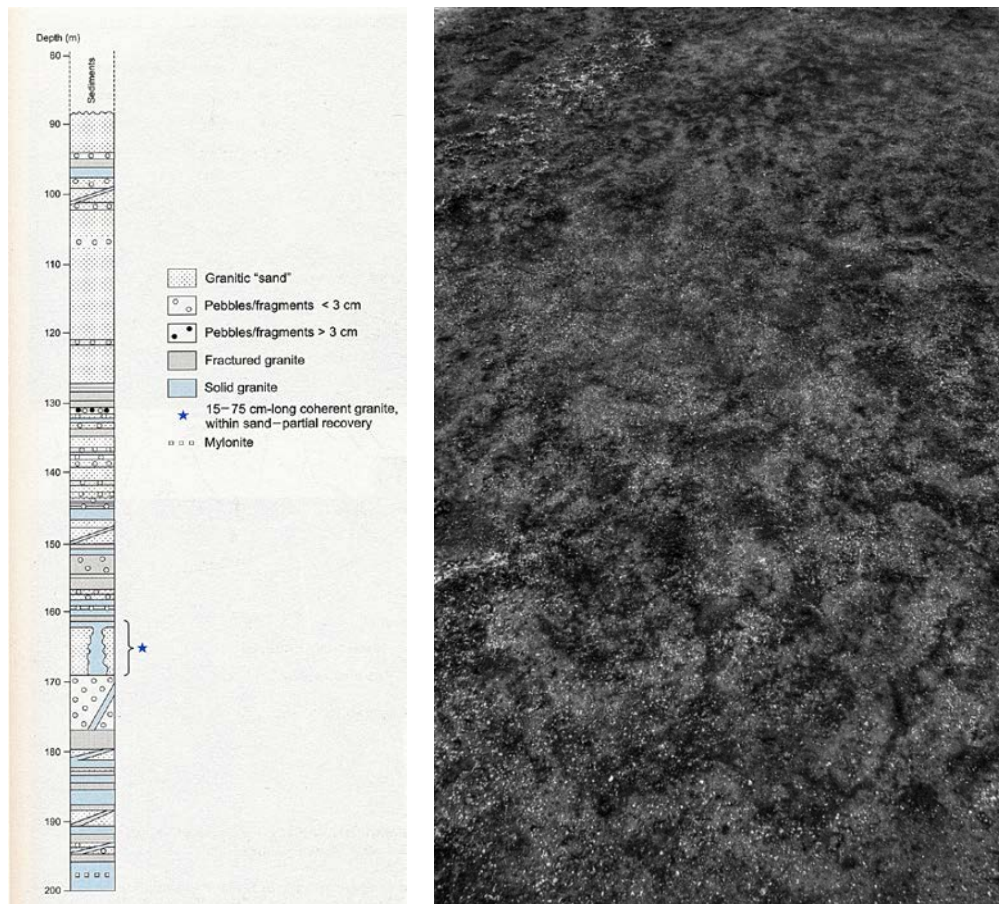


Fig. 18 LHS. *Stratigraphy of the 1988/1989 drill-core* (Brand and Reimold 1999, p.11). Courtesy Council for Geosciences, Pretoria.

Fig. 19 RHS. *Detail of the muddy edge of the saltpan which occupies the crater floor.* Photographed during the 2nd excursion to Tswaing in June 2008.

It is tempting to think that we now understand Tswaing because we know what caused it, and because we now know that meteorite impacts have been part of the history of the earth's evolution. Similarly we know, over a period of many thousand years, when there were wetter and drier years, and so we are able to trace the salinity of its water by the type of life forms that were fossilized in the stratigraphy. Even the gaps in the fossil record allow assumptions about brief periods in which conditions were hostile to fossil formation. All this provides an unprecedented level of information simply not apparent to the ordinary onlooker, nor to those who may have inhabited the site during its long history. This knowledge was not even available to science a brief two decades ago. Our understanding however, remains incomplete and questioning persists. What about the meteorite itself? What was its trajectory and where did it come from? What is the likelihood of such an event occurring today? And more in line with this investigation, how do we apprehend our planet's stable, yet dynamic relationship within a cosmos in which we are so critically positioned for life and yet so vulnerable to seeming chance? Tantalizingly, the landscape reveals some of its mysteries to our appreciative and penetrating gaze, yet it withholds many more. Looking at the crater landscape the mind inevitably focuses outward and inwards simultaneously. Out into deep space and the origin of the meteor, inwards to the geological strata that would receive the impact and be reshaped by its catastrophic force.

Location, Description and Older History

The Tswaing crater is situated North West of Pretoria at approximately 25° 24'S and 28° E (Brandt et al, 1994). It is a near-circular structure with a diameter of 1,13km from one end of its upturned rim to the other. At its highest the rim of the structure is 119m above the floor and 60m above the surrounding grassy bushveld. The rim is covered by granite which has been tilted upwards, "as can be seen from the numerous fractures in the rocks that were originally oriented subhorizontally.....but are now steeply oriented." (Reimold and Gibson, 2005, p. 96) This is further covered by a breccia¹¹ layer of fragmented pieces which is understood to be ejecta¹² material. None of this geological data is however unique to an impact site; it could just as well have been caused by volcanic activity; this underlines the importance of interpretation not only when considering notions of landscape but also when trying to read the landscape as 'artefact' (Mitchell, 1994).

¹¹ 'Material consisting of angular fragments, usually of different sizes, held together by a fine-grained matrix (cement). Fragments have usually been somewhat rotated against each other.' (Reimold et al, 1999)

¹² Ejected at the time of the crater formation.

Not a great deal is known about the older anthropology of Tswaing and not all of what I have found is adequately referenced. Habitation prior to the impact is unknown because the impact would have obliterated all traces of life. Subsequent to the event Tswaing may have been visited as a significant source of salt. Levin (1999) suggests that until comparatively recently Tswaing would have attracted large herds of game because it was the most important salt lick for the area. Reimold, Brandt, de Jong and Hancox, (1999) refer to relatively small and varied shapes of scrapers and stone tools, which indicate a Middle Stone Age human presence, of 150 000 to 30 000 years ago. Fragments of decorated ceramic vessels have also been found on the crater floor and been identified with the ceramics of Sotho/Tswana speaking people of the later iron age i.e. 800 to 900 years ago. This was a cooler and drier period in the South African interior, referred to as the 'Little Ice Age', and thought to have lasted from 1300 to 1800 (Boeyens, 2003). Although no well defined settlement as such has been found in the immediate area, the presence of large quantities of ceramic fragments on the western crater floor suggests activity related to salt and its processing during this period (Reimold et al, 1999).

From the beginning of the 19th Century, the history of human activity in and around the Tswaing landscape is better known. In the 1820s an Ndebele empire was established north of the Vaal River, which gradually displaced the Sotho/Tswana speakers of the area. With the arrival of the Voortrekkers in the 1830s, the interactions between different groups of people became more complex. The whole of the area was gradually colonised and carved up into large farms requiring quantities of cheap labour, the provision of which was partly serviced through the practice of 'inboekseling' or indentured child labour (Delius, 1983).

Simon Schama's reflections on how landscape and memory are bound together, provide an appropriate backdrop for considering this narrative as well as the more recent one from the 20th Century. Just as the Western notion of landscape is 'shaped'¹³ by culture and a way of looking (Schama, 1995), so the narrative of history, despite its invisibility, is contained in the land and adds reflexively to the strata of memory and meaning within the site.

Instead of being yet another explanation of what we have lost, it is an exploration of what we may yet find (Schama, 1995, p.14).

¹³ The word landscape is derived from the Dutch 'landschap' where the meaning of the suffix is "to shape" (Chaudhuri, 2002).

Recent History

A borehole sunk in 1896 by F.H. Hatch, revealed that the pan was primarily a soda pan, rather than a saltpan. Within a few years, a company, South African Alkali Ltd Processing obtained the rights to extract both the sodium carbonate (Na_2CO_3) and the salt, which they did on an industrial scale for most of the period from 1912 to 1961. They used a wide range of technologies, with varying success, in their attempts to exploit different layers of the material covering the crater floor (Reimold et al, 1999). From as early as 1913, migrant labour from Malawi and Zimbabwe was being used, presumably due to the nature of the work and the inadequate remuneration.

Tswaing in the 20th Century happened to be located alongside one of Apartheid South Africa's infamous attempts to divide people according to race and ethnicity. In addition to the profound effect on the social, economic and cultural life of South African society, Apartheid had a significant effect on the geographical landscape, reminiscent of the stratified and divided 18th century English landscapes which John Barrel (1980) speaks of, although in this case the lines were drawn according to race and forcibly implemented. As Cosmos Desmond¹⁴ (1968), put it at the time, there was a 'sorting out of people' and a 'sorting out of land' (p.42). In a white dominated South Africa where land ownership for blacks was severely restricted, the Native Trust and Land Act of 1936 had 'released' portions of land for incorporation within 'African tribal areas'.

Winterveld, adjoining Tswaing, to the west, was one of the farms which were sold off to black owners for small scale farming and rose to prominence years later as one of the more prominent settings in which Apartheid's engineering played out in the landscape. From the 1960s, with forced removals¹⁵ from Pretoria taking place, Winterveld began to take on the ambivalent role of a dumping ground and a sanctuary for the homeless. It continued to have this role, during the systematic forced removals of the 70s and 80s. In 1977 it was incorporated into the newly created Bophuthatswana 'homeland' and in 1983 the Bophuthatswana 'government' decided to expel all non-Tswanas from Winterveld, regardless of whether they were employed or not (Horn, 1997). This decision met with considerable resistance, so was

¹⁴ Cosmos Desmond was a Catholic priest, who played an important role by bringing to public attention, the reality and circumstances of forced removals. His book, *The Discarded People*, documents the removals which took place throughout South Africa in the 1960s.

¹⁵ Forced removals formed part of a strategy for enforcing laws such as the Natives (Urban Areas) Consolidation Act of 1945, the Group Areas Act of 1950 and the Prevention of Illegal Squatting Act of 1961 (Horn, 1997).

implemented through a programme of harassment. The worst incident occurred on 26 March 1986 when Bophuthatswana police opened fire on a crowd of 5000-10000 people gathered in the open air at a protest meeting, called in response to a recent wave of detentions and police brutality. Eleven people were killed on that day (sahistory.org). “The interplay between location site, events and human agents that determined the transformation of this settlement captured the imagination of the South African public and at the same time tortured the collective consciousness” (Horn, 1997. P.117).

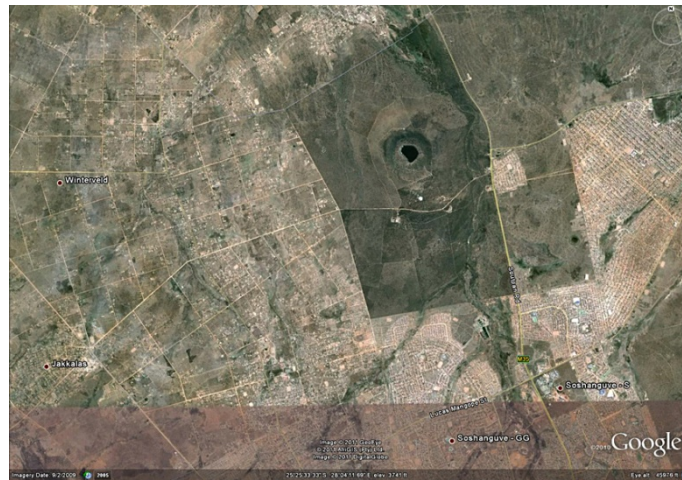


Fig. 20 *Satellite image of Tswaing Impact Crater with Winterveld to the West (left) and Soshanguve in the South and South East (Google Earth, 7/2/2011). The dark eccentric rectangular form is a nature reserve which surrounds the crater.*

Being located in the midst of such remnants of Apartheid social geography, Tswaing is literally surrounded by this fragmented landscape. Winterveld abuts the nature reserve (see previous page), directly to the west, while Soshanguve does so on the South East of the crater. Soshanguve is a settlement which was established to accommodate non-Tswana speakers in this supposedly ethnically separate region. Its name derived from the mix of the ‘other’ people i.e. Sotho, Shangaan, Nguni and Venda speakers who didn’t belong in Bophuthatswana.



Fig. 21 *Thursday night 7th August 2008, 19h10*. The crater pan illuminated by the moon; the sky by the high mast security lighting of Soshanguve,

Because my own time in the crater was generally on the ‘edges’ of day and night, I spent many hours in the crater at night. This nocturnal experience slowly altered my perception of the site. Firstly, being present for the extra-ordinary transformations within the landscape during these liminal times, as a ‘normal’ part of the daily ritual of darkness transforming into light and vice versa. Then night in the Tswaing nature reserve, instead of yielding the clear views of the galaxy which one might expect so far away from any big city, ironically turns milky with of all things, light pollution from the high mast surveillance floodlights which dominate the nights in South African townships. Although it is not possible to see Winterveld or Soshanguve from within the crater, it is their light which defines the night time experience of the site.

Unlike the land artist Andy Goldsworthy’s beneficent experience of the night (Malpas, 2006), a night on the edge of Soshanguve provides a powerful set of juxtapositions which together emphasise the otherness of this landscape. On the one hand is the moonlit glow of the pan at the base of the crater, on the other is the visual echo of a society until recently characterised by surveillance and control. The intrusive glare of the security lighting, both witness and instrument to the disruption, displacement and control enacted in the South African landscape. Inevitably, not just the memory but the effects of that control and surveillance now undone, continue to translate the effects of that original ‘impact’ upon a society still uneasy, with outbreaks of xenophobia and endemic violence within its very fabric

Much more significant than the path itself was the experience of being out in the trees at night.....A place is so different at night – it is like being somewhere else. Perception, feeling and senses are changed by darkness. A different range of emotions and senses is released.

Goldsworthy, discussing Night Path (2002) in Malpas, 2006.

Chapter 4

How to Talk to a Landscape

Walking as a Subversive Activity

...crushed under the anxiety to produce, where bodies are not in the world but only indoors in cars and buildings, and an apotheosis of speed makes those bodies seem anachronistic or feeble. In this context, walking is a subversive detour, the scenic route through a half-abandoned landscape of ideas and experiences (Solnit, 2001, p.12).



Fig. 22 *In the Vredefort Dome Environs 1*. The characteristic ‘humpback’ hills in the area are the eroded remnants of the central ‘uplift’ that occurred as a result of the catastrophic event 2,2 billion years ago. The 90km wide dome would have been the central part of a crater with a diameter around 250km (Gibson & Reimold, 2008).

When I first began this investigation it was through walking in the central uplift area of Vredefort Dome, carrying a chair and my photographic equipment. My quest at the time was for a particular view of the place in which chair and place acted upon each other in such a way as to transform the viewer’s response to both. A gradual subversion of the concept began quite early, as I shifted my attention to the smaller, more contained Tswaing site and eventually abandoned the chair, the index of my presence, in favour of the pure implied presence of the photographic record. My walking at the outset was concerned with view, whether it was from a particular point or at a particular time. It took time and walking to recognise and acknowledge the significance that walking itself has had in my process of engagement.

Although I drove to the site, walking was the only way to encounter it and of course walking invites an engagement at a different pace, which includes smells, temperature, fears of varied ilk, never entirely absent in South Africa – as well as a different rhythm in which not only visual qualities alter but thinking meanders along lesser known paths (Thoreau, 1862). As it turned out, walking subverted my conceptions still further as I came to encounter the site, entering into it and beginning to know it in some measure as place (Cresswell, 2004).

In this circular landscape, walking mostly although not exclusively on the path along the crater ridge, there is no beginning or endpoint; the circle turns on itself. The diameter of the crater is 1,13km with the meandering path along its circumference being about 3,5km. Of course I was still concerned with viewpoint, time of day and how the site changed in relation to these. The pace of walking however, the repetition, around its relatively small scale, the sense of being where so many others over time had walked; herders, hunters, anthropologists, geologists, astronomers, all contributed to an altered sensibility towards what I was doing. Solnit, using a walking metaphor (p.4), suggests that cross country walking is done by amateurs who in a sense trespass on everyone else's fields. In retrospect I acknowledge that I have done that unashamedly and each of those 'fields' has played a role in disrupting my original quest as well as enriching the hermeneutic questions and process which developed through what became an extended cross country walk.

A path is a prior interpretation of the best way to traverse a landscape, and to follow a route is to accept an interpretation, to stalk your predecessors on it as scholars and trackers and pilgrims do. To walk the same way is to reiterate something deep, to move through the same space the same way is a means of becoming the same person, thinking the same thought. It's a form of spatial theatre, but also spiritual theatre.....

It's this that makes pilgrimage, with its emphasis on repetition and imitation, distinct amid all the modes of walking (Solnit, 2001, p. 68).

The relationship between walking and thinking has been well documented (Solnit, 2001, 1967, Thoreau, 1862, Rousseau, 1778, 1992) and although it may be assumed that the act of walking is a substantial part of the process of getting to a location, landscape art has typically been more concerned with the location rather than the walk to it. Even in work such as Hiroshige's (1831 – 4) series *53 Stations of the Tokaido Road*, which celebrates a

500 km journey in which walkers are seen at each of the stations, it is the view at each station that Hiroshige represents.



Fig. 23 Ando Hiroshige, 1852. From *The Fifty Three Stations of the Tōkaidō*: From LHS: Station 5, Hodogaya, Station 6 Totsuka, Station 7 Fujisawa. Courtesy Tate (Tate E-Edition)

Pilgrimage in contrast to other forms of walking, has the potential for embodiment of idea in the physical act of walking, through a reconciliation of the spiritual and material experience. Discussing Christian pilgrimage, Solnit, whose writing articulates very broadly around landscape and walking, suggests there is within that pilgrimage tradition a symbiosis between journey and arrival, as in mountaineering.

To travel without arriving would be as incomplete as arriving without having travelled. To walk there is to earn it, through laboriousness and through the transformation that comes during a journey. Pilgrimages make it possible to move physically, through the exertions of one's body, step by step, toward those intangible spiritual goals that are otherwise so hard to grasp. We are eternally perplexed by how to move toward forgiveness or healing or truth, but we know how to walk from here to there, however arduous the journey. (Solnit, 2001, p. 50).

While I never consciously conceived of my circular ritual as pilgrimage, along the way a transformation of sorts took place. This involved the recognition firstly, that my photography, for all its complexity, failed to represent the landscape adequately. A parallel recognition was that the circular process, with its walking, waiting, selecting,

shooting en masse, processing the images, selecting again, assembling, returning, walking..... was in itself a unique conversation with the landscape. The extended notion of walking which this process led to, while subverting my teleological concern with arriving at a destination and indeed getting lost, happened to facilitate an engagement with apprehension that more or less assumed a symbiosis between journey and destination. This sort of walking became crucial to my investigation.

*A walk expresses space and freedom
and the knowledge of it can live
in the imagination of anyone, and that
is another space too.*

*A walk is just one more layer, a mark, laid
upon the thousands of other layers of human
and geographic history on the surface of the land.....*

*....A walk traces the surface of the land,
it follows an idea, it follows the day
and the night.*

Richard Long, *Five Six Pick Up Sticks,
Seven Eight Lay Them Straight*

While walking had been associated with sculpture in works by Carl Andre such as *Lever*, 1966 and *Joint*, 1968 (Lippard, 1983) the subversion of the canon to conceive of walking itself as art is most commonly associated with Richard Long (Krauss, 1979). Long draws the routes he walks on the maps he uses, suggesting a similar relationship between pen and paper as with walker and landscape (Solnit, 2001). He conceives his walks however as sculpture (Moorhouse, 2002), which implies that although the walks have starting points and endpoints, they are fundamental encounters with land, movement and place in which the act of walking has significance in and of itself. Reflecting on walking as art, Solnit suggests that it calls attention both to the simplest aspects of the act as well as to the most complex; the body and the earth against each other.

“....the rich potential relations between thinking and the body, the way one person’s act can be an invitation to another’s imagination, the way every gesture can be imagined as a brief and invisible sculpture, the way walking reshapes the world by mapping it, treading

paths into it, encountering it, the way each act reflects and reinvents the culture in which it takes place” (Solnit, 2001, p.276).



*Fig. 24 Four Days And Four Circles
A Four Day Walk Along Dartmoor From South To North
Walking For Eight Hours Each Day in Each Circle
England 1994*

Long, 2005, p.99. Courtesy the artist, copyright Richard Long.

Whether it was the 1-2km per hour pace, the meandering yet circular path and its repetition at different times of day, the being in place – or whether it simply played its part in the larger hermeneutic question.....In a utilitarian minded culture, walking is a dangerous thing to do.

Being Lost and the Dynamics of Inscrutability

Walking submerged me into the landscape, and camera in hand I documented it from various points at various times, returning repeatedly to obtain more information in order to ‘deal’ with it more fully. Despite the rich and mounting documentation, on many levels the landscape confounded me as it continued to withhold and obscure more than it revealed. This imprint of deep time, remnant of a distant catastrophe, yet still a current possibility, with its memory of cosmic and geological formation, traces of history, lived experience, artistic and scientific practice and endeavour.....was yet so elusive. The same theme is echoed in the literature of some of our foremost South African authors and

poets. In Louis Leipoldt's poem, *Die soutpan*, he warns us, "Hier praat die veld 'n onverstaanb're taal". (Here the veld speaks an incomprehensible language) (Kannemeyer, 1980, Quoted in Coetzee, 1988, p. 167). This inscrutable quality of landscape acts as a clue to my sense of frustration in apprehending the crater about which I have accrued so much information. Jeremy Cronin, in *To Learn How To Speak* (1983) articulates a similar perspective.

*To learn how to speak
With the voices of the land,
To parse the speech in its rivers,
To catch in the inarticulate grunt,
Stammer, call, cry, babble, tongue's knot
A sense of the stoneness of these stones
From which all words are cut....*

Van Wyk Smith, 1990, p.134.

In the Meno dialogue referred to previously, Plato has Meno, a visitor to Athens, ask Socrates the difficult question, "How will you go about finding that thing the nature of which is totally unknown to you?" (Plato, *Meno*, 80). My stated aim of apprehending the impact landscape, despite the complex erosive processes of time, acknowledges both the futility and the satisfaction of engaging with an unanswerable question. My aim relates directly to the dilemma which Meno's question presented to Socrates. This question has come to be known as Meno's Paradox in the literature of philosophy (Day, 1994). In *A Field Guide to Getting Lost*, Solnit (2005) introduces a discussion of 'lostness' as a worthwhile and positive state through Meno's paradoxical question. She refers (p.6) to the sociologist and writer Walter Benjamin, who discusses how to be lost in a city. "In Benjamin's terms, to be lost is to be fully present, and to be capable of being in uncertainty and mystery." Solnit suggests that Benjamin is referring to a chosen surrender, "a psychic state achievable through geography."

This ability to be open, to accept paradox and perhaps mystery may seem foreign to a project with as many links in the scientific domain. Yet scientists themselves point out that despite enormous leaps in our knowledge as well as our technologies for aiding our perception, even what we see is extremely limited (Bronowski (1974), Primack & Abrams (2006). Primack, referred to earlier as one of the authors of the current theory of cold dark matter, suggests that symbols are the only way we can visualize a universe where over 99% of its contents is invisible. It is telling that this astrophysicist refers to Jung's description of symbols as 'bridges thrown out towards an unseen shore' as aids to help us represent reality (Primack and Abrams, 2006, p.9).

J. Robert Oppenheimer, the director of the Manhattan project¹⁶, is quoted as having remarked, “live always at the edge of mystery - the boundary of the unknown” (Solnit, 2005, p. 6).

Apart from the paradox of seeing so much and yet so little, we also confront the paradox of control. To the positivist mindset of the 20th Century it seemed that technology would in due course be able to control the environment. This however seems more remote in a 21st Century of rampant consumption with its associated engulfing pollution, global warming, devastating tsunamis and catastrophic earthquakes. Technology may be able to insulate some on our planet from the power of the environment, but in case we had been lulled into anthropocentric triumphalism, we are reminded in a post-Fukushima world of the paradox of human power, stalked by our own impotence.

Despite the exponential growth in knowledge and technology over the past half century, with more answers to many scientific, health and economic questions, we still live in a world with conflict and poverty and we still ask all the big questions about origins and purpose, nature and culture. Answers are often inadequate, temporary or limited, while questions drive curiosity and creativity. If my question is unanswerable because the landscape is inscrutable, perhaps like Walter Benjamin, there is more value in being in uncertainty and mystery than is generally recognised.

The Hermeneutic Circle: An Interpretive Rationale

...history does not belong to us, but we belong to it. Long before we understand ourselves through the process of self-examination, we understand ourselves in a self-evident way in the family, society and state in which we live. The focus of subjectivity is a distorting mirror. The self-awareness of the individual is only a flickering in the closed circuits of historical life. That is why the prejudices of the individual, far more than his judgments, constitute the historical reality of his being. (Gadamer, 1975, p 245).

Our task is to extend in concentric circles the unity of the understood meaning... (Gadamer, 1975, p.259).

¹⁶ The Manhattan Project was a secret military project, designed to produce the first US nuclear weapon. It was created in 1942 out of fear that Nazi Germany would build and use a nuclear weapon during World War 2. Scientists, engineers and mathematicians from both the US and Europe participated, including Albert Einstein, Enrico Fermi and Robert Oppenheimer. (NuclearFiles.org) (<http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/pre-cold-war/manhattan-project/>)

There is a polarity of familiarity and strangeness on which hermeneutic work is based...The place between strangeness and familiarity that a transmitted text has for us is that intermediate place...The true home of hermeneutics is in this intermediate area (Gadamer, 1975, p.262, 3).

Circling and returning became a metaphor for the process being followed in the crater landscape. During five excursions to the same site, staying there for three to four days each time, walking and awaiting the rising sun, accompanying it on its way into night – as it appeared to circulate over the crater; shooting the night sky from the edge of the pan; struggling to overcome the impoverished tonal range of digital photography; employing slide film, print film and ultimately reverting to digital imagery; countless software and computing hurdles, all complicit, resisted giving adequate form to the project.

Stimulating as it was to be shooting the crater in the first and last light of day, in moonlight, bitter winter nights, ashen soil, spring mornings with emerging green shoots; walking in and around the circle of the crater, I was never satisfied that I had apprehended the unique landscape adequately. Shaped so utterly by a single event yet obscured by the passage of two hundred thousand years – which doesn't begin to take in the 4.3 billion years prior to impact as well as recent history, all part of the story of this landscape. The question of how to read it continued to elude me. The landscape's elusive history is folded in on itself, difficult to grasp by visual means alone. Although my context and frame of reference was different to the artists and poets which J.M. Coetzee referred to, their concern with the hermeneutics of the landscape was pivotal.

Paradoxically, the cyclical and elusive process itself emerged as a dialogical ritual which began to lend form and content to the project. The hermeneutic or interpretive conversation, initiated through walking, photographing, processing and returning, moved considerably further through my dialogue with written texts. On the one hand these reinforced the enigma of the task; however they also brought fresh perspectives through the varied lenses which each writer and discipline brought to the project.

Gadamer's (1960/1998) philosophical construct of the hermeneutic circle provides the theoretical grounding for the synthesized approach that ultimately provided the theoretical ground for my investigation. Gadamer argued that understanding and interpretation are bound together and that interpretation is always an evolving process, thus a definitive interpretation is

likely never possible (Gadamer, 1975). He understood hermeneutics as a process of co-creation between the researcher and participant, in which the very production of meaning occurs through a circle of readings, reflective writing and interpretations (Lavery, 2003). This dialogical character of a circle of interaction, in which I engage with the work of pertinent artists, writers and ideas as well as with other disciplines, provides enriched and altered perspectives with a potential enrichment of meaning for the project as a whole.



Fig. 25 August morning, looking through grass from the edge of the pan.

Hermeneutic research demands self-reflexivity, an ongoing conversation about the experience while simultaneously living in the moment, actively constructing interpretations of the experience and questioning how those interpretations came about (Hertz, 1997).

Both on site and off, the hermeneutic process in due course took on as much interest theoretically and conceptually within the investigation as the landscape itself. In this manner a web of concentric perspectives has been constructed and spun, linking different fields and perceptions into reflexive relationships, which no longer promise a single interpretation or conclusion. Building on Heidegger's argument that hermeneutics is no longer a matter of textual interpretation but rather an interpretive mode of being in the world (Macey, 2000), a final interpretation for Gadamer is not actually a likely or desirable outcome.

Even the temporal distance, rather than obscuring the site, has enabled the contemporary research to reveal so much of the cosmic and geological story. Gadamer argues that 'texts' produced in earlier times can productively be understood anew in the present. Through the dialogue of our inescapable prejudices (sic) and understandings with contemporary

frames of reference, a productive hermeneutic process is possible that extends our interpretive 'horizon'.

Time is no longer primarily a gulf to be bridged, because it separates, but it is actually the supportive ground of process in which the present is rooted. Hence temporal distance is not something that must be overcome..... In fact the important thing is to recognise the distance in time as a positive and productive possibility of understanding. It is not a yawning abyss, but is filled with the continuity of custom and tradition, in the light of which all that is handed down presents itself to us. Here it is not too much to speak of genuine productivity of process.....Temporal distance has obviously another meaning than that of the quenching of our interest in the object. It lets the true meaning of the object emerge fully. But the discovery of the true meaning of a text or a work of art is never finished; it is in fact an infinite process. (Gadamer, 1960, 1975, p.264, 5).

While the landscape has frustrated my attempts to apprehend it, the process itself, the walking and waiting; building images; the frustration and rewards of returning to the same place; cosmological and geological timeframes; the rich breadth of readings, have all contributed reflexively back into the process as well as to the growing concepts. Although Gadamer clearly includes works of art as texts, I have been employing the term 'text' far more broadly through my reading of landscape. While this is surely an extension of Gadamer's intended scope, it seems reasonable in the light of the multiple references by scholars, not simply to the recognition of the interpretive interaction between landscape and viewer, but to the power which that interpretive lens appears to wield (Mitchell, 1994, Harrison, 1994, Schama, 1995, Cosgrove, 1984, Daniels, 1989, Meinig, 1979, Chaudhuri, 2002).

At the very least, it seems right to acknowledge that it is our shaping perception that makes the difference between raw matter and landscape...(Schama, 1995, p.10).

In the critical eye, landscape painting went from an inspired and inspiring documentation of the wonders of the natural world, to a "a way of seeing." an ideologically and psychologically revealing statement about our relation to the world around us, to a way of not seeing, of masking and occluding the unsavory truths about our relations to each other and to the land we supposedly share (Chaudhuri, 2002, p.11).

CHAPTER 5

Conclusion and Reflections

*Tiger got to hunt,
Bird got to fly;
Man got to sit and wonder, 'Why, why, why?'
Tiger got to sleep,
Bird got to land;
Man got to tell himself he understand.*

Kurt Vonnegut, Jr., 1965, p.115

Returning to the Beginning: Concentric Circles of Understanding



Fig. 26 *In the Vredefort Dome Environs 2*. Each of the images at this stage included the chair.

Having begun my investigation walking with a chair as a visual intervention in the landscape, the focus shifted to the construction of panoramic representations of the circular landscape of the Tswaing meteorite impact site, through the use of a camera. For the greater part of a year the thrust of my activity concerned on the one hand, questions of location and time, mediated by walking in and around the site, as well as the

possibilities and limitations of cameras, computers, software and the photographic process.

It was my circumambulatory movement in the crater, the panning of the camera, the processing in the city and returning to the site repeatedly to do it again, which led to a keen awareness of the circularity of the process I was engaged in. This awareness was carried through into the recognition of how my readings in art history, criticism, cosmology, geography and geology also participated within this concentric process, by contributing links, associations and content that retrospectively and accretively brought significant lenses and perspectives to bear on the project and the photographs.



Fig. 27 360 ° stitched visualization of the Tswaing crater, two days after the equinox. 23 September 2008, 5.45am.

Returning to the beginning then, re-looking, reconsidering and reconstructing has occurred throughout the project. To arrive at a conclusion however that presents a final or fully realised perspective on it however, as Gadamer intimates above, is foreign to a process which is inherently never finished. Nevertheless I will try to illuminate and draw together some of the strands and evocations which have come to inform the conceptual ground of the project, while indicating how the horizon that is seen from that starting point has altered.

Multiple Readings and Voices

...any landscape is composed not only of what lies before our eyes but what lies within our heads (Meinig, 1979 p.1).

In a variety of ways the project has affirmed the potency of landscape as a fertile 'ground' for contemporary artistic investigation. The notion of 'landscape' within such a statement is necessarily quite open. It includes an extremely diverse range of interest and artistic practice. This includes work which engages the landscape as medium, as format, as place or as the subject of symbolic, historical, political, cultural, architectural, ecological,

geological or cosmological representation. In his essay, *The Beholding Eye: Ten Versions of the Same Scene*, Donald Meinig argues that viewers of any scene bring particular ideas of viewing, of landscape and of that place with them into their act of beholding. He suggests also that what they *do* to any place, recognizing that it is people who 'shape' landscape, will be determined by those ideas.

Within the hermeneutic circle however, interpretations can be informed by other interpretations and these viewpoints with their pre-judgements can reflexively engage with other perspectives, enriching notions and extending horizons. In other words, there is within the hermeneutic circle an implied acceptance that a poly-vocal understanding is likely to reveal a more tonally rich picture of what is actually a complex and often conflicting set of ideas and viewpoints.

Una Chaudhuri, recognising the lack of precision, even 'fuzziness' in current usage of the term landscape, observes that the imprecision is not an index of cultural insignificance. "On the contrary, the instability and ubiquity of the term reflects the cultural need for this concept, making it powerfully generative for many fields..." (Chaudhuri, 2002, p.12)

In no way do I imply that the images I have made reflect an 'informed' interpretation, or even representation, through association with the hermeneutic process. Rather, the images become metaphors of that process, having themselves undergone an analogous process, similarly circular, similarly complex and also requiring me to return to the site repeatedly. As stated earlier, it was actually the physical encounter with the site through walking and photography which led into the theoretical analytic process. It begs the question: How do we apprehend the landscape?



Fig. 28 NW Section 3 of the blackened crater wall after the winter burning, September 2008

Time and Memory

We now know...”that time and reality are closely related. For humans, reality is embedded in the flow of time” (Ilya Prigogine, in Oelschlaeger, 1991, p.324).

.....the landscape tells – or rather is a story. It enfolds the lives and times of predecessors who, over the generations, have moved around in it, and played their part in its formation. To perceive the landscape is therefore to carry out an act of remembrance, and remembering is not so much a matter of calling up an internal image, stored in the mind, as of engaging perceptually with an environment that is itself pregnant with the past (Ingold, 199, p.152).

Time is an intrinsic part of landscape and similarly of the project and my photographic work. As a meteorite impact crater, Tswaing draws attention to the cataclysmic cosmic and geological processes which have occurred over deep time, paradoxically making the earth hospitable to life. In my panoramic photographs of the crater, time is embraced in the actual sequences of the photographs, assembled as they are out of multiple images taken over a brief period of time from a single axis point - their composite structure deeply evocative of time. Read through a cosmological or geological lens the time written into the landscape stretches beyond the 220 000 year old impact event, out into millions and indeed, 4.5 billion years of formation, catastrophe and geological history (McCarthy and Rubidge, 2005).

The archaeologist Tim Ingold has a profound interest in how the landscape holds memory and meaning. The quotation above comes from his paper, *The Temporality of Landscape*, in which he explores the relationship which landscape has to time. He is one of several thinkers and writers from a variety of disciplines who in recent years have turned their attention to landscape as a container for ideas, histories, stories and culture, helping us to better understand how memory is written into and bound up with the landscape.

In her novel *Fugitive Pieces*, Anne Michaels embraces this understanding through the experiences of Jacob, a 10 year old holocaust fugitive, who buries himself in the ground daily, while fleeing during the night. The ground, the rocks and their capacity for memory become the backdrop to the story as Jacob is discovered by Athos, an archaeologist who also has a remarkable, knowledge and reverence for the temporality of the landscape. Throughout is the subtle acknowledgement of parallels between the subterranean, hiddenness of rocks with the sub-conscious, buried quality of large swathes of our memories.



Fig. 29 NW section 2 of the blackened crater wall after the winter burning, September 2008

I learned the power we give to stones to hold human time.....Limestone that develops slowly under pressure into marble – Athos describing the process made it sound like a spiritual journey (Michaels, 1997 p.32).

The present, like a landscape, is only a small part of a mysterious narrative. ..It is no metaphor to witness the astonishing fidelity of minerals magnetized, even after hundreds of millions of years, pointing to the magnetic pole, minerals that have never forgotten magma whose cooling off has left them forever desirous. We long for place; but place itself longs. Human memory is encoded in air currents and river sediment (Michaels, 1997 p.48, 53).

So too Tswaing holds deep time, not only in its cratered form but in the metamorphosed and upturned rock, the fossilised plants and bacteria, the interest and commerce it has attracted, the events that have surrounded it.

Landscape and Culture

Out of this expanding contemporary debate has come a compelling call for a significant reformulation of social theory based on a radical change in the ways we look at, conceptualize, and interpret not only space itself but the whole range of relationships between space, time, and social being: between human geography, history, and society. (Edward Soja, 1989, p. 318).

W.J.T. Mitchell asks readers of *Landscape and Power* to shift their understanding of landscape away from that of an object to be viewed, or even a text to be read. Instead, he suggests that landscape be considered as a process, “.....by which social and subjective identities are formed.” (Mitchell, 1994) In this way, as he puts it, ‘landscape’ can be understood as a verb rather than as a noun. He follows this up by arguing that landscape has the potential to work as ‘cultural practice’ and in effect, as an instrument of cultural power.

For a long time I wondered what Mitchell meant by these enigmatic remarks, hoping that I hadn’t oversimplified what appeared to be offering an alternative and indeed refreshing way of seeing and reading. To a large extent, particularly in his essay, *Imperial Landscape*, Mitchell’s emphasis is on power relations and especially how the imperial aspirations and actions of colonisers, knowingly or not, brought a cultural perspective to the colony, depicted in landscape painting in particular. Such a view of landscape inevitably brought cultural assumptions and impositions as well as cultural blindness and occlusion with it. As Ann Bermingham (Mitchell, 1994) and David Barrell (1980) point out, this instrumental, acculturating power of landscape was not limited to the colonies but effectively imposed a particular view of the land and what should rightly be pictured in it, upon Victorian England too. Raymond Williams argued convincingly that this bias should be exposed by the “real history..... the common history of a land and its society” (Williams 1975, p. 120-121).

This largely Marxist perspective has contributed greatly to the understanding and reading of landscape. It has influenced critical discourse in many disciplines, and it has also evolved, as cultural geographers, artists, ethnographers and writers have embraced it, with different focal points and readings. However this description, while relevant, fails to capture sufficient of the enigma in Mitchell’s writing on landscape and culture. Mitchell builds upon his notion of landscape as verb, making the point that although landscape can be represented through a variety of media, it needs to be understood firstly as a prior representation, in its own right. “Before all these secondary representations, landscape is itself a physical and multisensory medium (earth, stone, vegetation, water, sky, sound and silence, light and darkness, etc.) in which cultural meanings and values are encoded, whether they are put there by the physical transformation of a place in landscape gardening and architecture, or found in a place formed, as we say, ‘by nature’” (Mitchell, 1994, p.14).

On one level it is obvious that the landscape is an artefact of a long and complex geological and cosmological process. On the other hand Mitchell is saying that there are cultural meanings and values encoded in this naturally formed artefact. This disrupts any 'neat' view on landscape and culture and in some ways poses more questions rather than providing answers - which may actually generate more understanding than answers ever could.

As Soja suggests (above), there are polyphonic voices and lenses which can be brought to the process of viewing, encountering and interpreting landscape, which rather than neglecting 'real history' or uncomfortable questions, invite a more nuanced, open and generative notion of culture and landscape. Following this argument, my panoramic images of the Tswaing crater, do not edit out the surrounding social history, which colours in one way or another every landscape in South Africa. Rather, they aim through their circular, reflexive and dialogical process and form, to apprehend a more open notion of landscape and of culture; one that is able to generate an inclusive sense of place which is able to look at the present with honesty and some transparency, accepting a past that includes a deep sense of pain and even catastrophe, while finding ways to fashion a cultural landscape with cohesion and hope. The unanswered questions yet again draw me back to the beginning. Like a meditative cycle, a prayer repeated over again, the hermeneutic wheel turns.

....the individuality of places is a fundamental characteristic of subtle and immense importance to life on earth, that all human events 'take place', all problems are anchored in place, and ultimately can only be understood in such terms. Such a view insists that our individual lives are necessarily affected in myriad ways by the particular localities in which we live, that it is simply inconceivable that anyone could be the same person in a different place (Meinig, 1979. P.8).

Art and Science as Complementaries

As OUR PLANET hurtles through space and time we are enveloped by cosmic history. What informed stargazer has not meditated on the significance of time as photons from the Andromeda Galaxy, some two million years in transit, register faintly on retinal tissues that see meaning in such sensation. These intergalactic travelers trigger a consciousness not yet in existence when they began their journey. Even one hundred years ago they fell on blind eyes, for in the past century no one had the slightest idea of the realm of the

nebulae. More staggering is the realization that those photons from M31 are only yesterday's news on a cosmic time scale, for astronomers now study quasars that stretch time beyond twelve billion years. And with our ears we hear almost the beginning of the process that is reality, for Earth is bathed in the cosmic reverberations of the Big Bang (Oelschlaeger, 1991, p.328).

What I am going to tell you about is what we teach our physics students in the third or fourth year of graduate school..... It is my task to convince you not to turn away because you don't understand it. You see, my physics students don't understand it either. That is because I don't understand it. Nobody does (Feynman, 1986, p.9).

This project raises significant questions about the relationship between art and science. As I explained earlier, it was the new scientific data and specifically their interpretation which was the magnet, attracting me to the site of the meteorite impact. Interpretation or hermeneutics is at the heart of this project and it is evident that it is equally important to both art and science. A mere 20 years earlier and the scientific reading of the Tswaing landscape would have been quite different¹⁷. Reimold's analysis demanded a fresh interpretation from the cryptovolcanic one which had prevailed for so long. It is of note too that T.C. Partridge's drill core was disseminated to a multi-disciplinary team of researchers, dealing with climate, geology, limnology, geochemistry, meteoritic studies, history and archaeology (Partridge, 1999). Multi-disciplinary perspectives provide considerably richer information and frames of reference in both the scientific and artistic domains. It is clear to me that the scientific contribution has been indispensable in this project, it has been part of the fabric, in multiple insights, perspectives and references as well as ultimately in the meaning which accrued as the project's hermeneutic circle grew.

In 1942, the philosopher Susanne Langer proposed that the arts, as symbolic systems were 'ways of knowing'. She argued against the limiting bias that discursive reason was the only route to achieving knowledge. Rudolf Arnheim (1969), built upon this proposition with his notion of 'visual thinking' which played a significant role in developing

¹⁷ Until Reimold's (1999) analysis of Partridge's drill core, the most comprehensive geological study of the Tswaing crater had been conducted in 1922 by Percy Wagner for which he was awarded his D.Sc degree from the University of Cape Town. Wagner concluded that the crater had cryptovolcanic origins and this view had generally prevailed (Partridge, 1999).

understanding in the area of the psychology of art and perception, as well as helping to re-conceptualise the field of art education. Arnheim proposed that “Visual perception is visual thinking” (p.14). He took the concept further by suggesting that most thinking inherently involves some form of visual perception. More recently, Eliot Eisner has advanced these ideas in relation to curriculum design, towards a notion of the arts as forms of cognition with unique roles to play in the development of mind (2002).

Art and science involve questioning, investigation and analysis. They may have very different processes and ways of configuring their data but they both demand a carefully considered synthesis of that data. And they both participate in the hermeneutic quest of making sense of things.

In his *Art and Visual Perception* (1974) Arnheim suggests that, “All perceiving is also thinking, all reasoning is also intuition and all observation is also invention” (p.5). This suggests several interesting overlapping processes associated with the arts and sciences. Intuition is more often associated with artistic intelligence, yet clearly without intuitive reasoning and experimentation there would have been minimal advance in science. Similarly, the inventive quality intrinsic to observation points to imagination and creativity, which is certainly not the exclusive realm of the arts.

It is intriguing that although science is generally assumed to value certainty more than ambiguity, there are increasingly more areas in scientific knowledge which tolerate ambiguities such as the ability of matter to behave as both a wave and a particle. Richard Feynman’s audacious challenge in the quote above is remarkable in its imaginative response to the contradictory behaviour of measurable phenomena. He is attempting to explain the theory of quantum electrodynamics, for which he jointly received the Nobel Prize for physics, to a lay audience. He ends this first of four lectures saying, “The theory of quantum electrodynamics describes Nature as absurd from the point of view of common sense. And it agrees fully with experiment” (Feynman, 1986, p.6).

Richard Rorty suggests that conversation is, “the ultimate context within which knowledge is to be understood” (Rorty, 1979, 389). Rather than conversing exclusively with those whose discourse is already familiar, multi-disciplinary conversations, including conversations between art and science invite the prospect of enriching perspectives. I am reluctant to suggest that this is what ‘should’ be taking place. There seems little doubt however that those who participate in

collaborative work or conversations are challenged in their thinking and dreaming.¹⁸ As Kopano Ratele put it, referring to the collaboration between artists and scientists on the *Life of Bone* exhibition recently, “To become part of a culture, discipline, or project, bones need interpreters, paleontologists, painters, sculptors, kin. Stories must be told about them” (Brenner et al., 2011, p.12).

Landscape too, is such a terrain, in which and around which both artistic and scientific insights have significant voices. Those are conversations which are worth having and which are likely to enlarge our horizons.

Completing the Circle, Reflecting on Horizons



Fig. 30 *Inside the Crater*. 1st excursion to the Tswaing crater, 13 May 2008.

Yet again I return to my point of departure. The image above includes the chair which accompanied me on my walks at the outset. The horizon behind the chair looks like a hill, yet it is also a section of an eroded crater wall, formed by the impact of the meteorite which struck this spot 220,000 years ago, ± 52 years (Brandt and Reimold, 1998). From the centre of the circular crater it is 562 m to the horizon - quite contained for a landscape. My investigation of this nearby horizon has however taken me on a conceptual journey in which the landscape itself and the notion of landscape have both been seen from multiple viewpoints and with very different horizons.

¹⁸ The Life of Bone exhibition was held at the Wits University Origins Centre in July 2011. The exhibition documented the perspectives and responses of a group of artists and scientists to three significant, fossilized skulls.

Returning to the original question of how to read the landscape and to J.M. Coetzee who framed it on behalf of the poets he was writing about, there is no simple answer. Gadamer says that each viewer brings with them a set of experiences, expectations and prejudices. Similarly each discipline that I have engaged with has contributed a perspective, with insights – and different horizons, filtered by writers who choose the topography they wish to dwell upon.

The photographic project converged on a viewpoint quite close to that original position of the chair i.e. the location at which the geologically revealing drill core was extracted. From that point, inclusive 360° ‘photographs’, were constructed through a process which mediated the encounter as well as the photographic visualisation. It too altered the horizon of the project. It was essential however to also view the Tswaing impact crater from overhead in order to gain a broader context of understanding. From the air, the horizon is more inclusive and when reading it from a Landsat image, there is no horizon. The only edge is that of the Earth itself.

*The horizon is, rather, something into which we move and which moves with us.
Horizons change for a person who is moving (Gadamer, 1960/1976 p. 304).*

In Gadamer’s notion of the hermeneutic circle, interpretation is dialogical. Horizons are metaphors for the boundaries and breadth of our thinking. Mostly he refers to the cultural situatedness (Chafetz, undated) of horizons. In this project the metaphor has been extended to include the boundaries of landscape as a concept, as well as disciplinary boundaries and those of my photographic process. The question of how to read the landscape remains elusive, despite the remarkably generative power it has had to disrupt complacency and extend thinking and art concerned with landscape. Not knowing may well be just as compelling as knowing.

I’m not sure that there is an epiphany in coming back to where I started, although I am very conscious that it is not the same horizon which I see. For this I am grateful.

*We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time*

T.S. Eliot, 1936, *Little Gidding*

APPENDIX 1

The Technical and Photographic Journey

One Thing Leads to Another

I did not plan to use photographic techniques or computer manipulation of the images when I set out on my creative inquiry. My search was rather one of finding a particular viewpoint and a particular moment in time and light, from which to embrace the whole. This was done largely by scheduling walking and waiting times on the edges of day and night and by arresting those particular times in the arcs defined by the 360°. The intention was to physically assemble the images with the seams being visibly part of the construction. As with so much of the project, this too evolved as the seamless offerings of newer computer software invited a different approach where stitched imagery could evoke sweeping possibilities and potential encounters with the landscape.



Fig. 31 *Collage of House and Garden*. Taken in a full 360° arc, the 3 rows each comprise 13 photographs

Essentially I was trying to develop a strategy to represent the 360° inner rim of the crater despite the fact that the light qualities around the circular field conflicted with each other. This was so especially during twilight and in the early morning, when the light was in other ways most appropriate for photography. The reflected light from the rising or setting sun would illuminate the far side of the crater, while leaving the side nearest the sun in deep shadow. To further complicate things, the light itself, so particular at these times, changes very quickly.

The technical problem then, having decided that the images were to be panoramic, was in short: how to shoot information-rich 360° panoramas at different times of the day and night,

without wide angle or other distortions, and to repeat the process above and below the horizon line with consistent exposures which nevertheless provided reasonable information in both the highlight and shadow areas. The photographic act became that of 'shooting' a series of images encompassing the full 360° field, repeating this with raised lens to capture the next level of the rim and finally lowering the lens for the tier below the horizon.

The Camera and Shooting in 360°

There were two questions which I had when I started shooting 360°. What focal length would lend itself best to seamless assembly with minimal distortion? What exposure could accommodate all 360 degrees? As the project proceeded, other questions of course surfaced. Photography has always been a technical process, whether the chemistry of the darkroom, the possibilities and limitations of light, time, shutters, lenses and film or ultimately in this case, the problem of achieving a broad tonal range with digital equipment.

Focal Length

My first attempts were with wide angled lens settings, between 18mm and 26mm¹⁹. The advantage of using a wide angle setting is that the resulting image, as its name suggests, includes a wider field, which therefore requires fewer photographs in the assembly. The drawback however, is that wide angle lenses inevitably distort to some extent, especially in the foreground. Although 39mm is relatively subtle in both width and distortion, it nevertheless caused problems when it came to lining up and stitching adjacent images, which did not do justice to the 360° field. In due course I discovered that 35mm on a digital SLR²⁰ provided good results for stitching and with occasional variation that was my focal length of choice.

¹⁹ In order to understand these focal length settings on a digital camera it is generally more helpful to convert them to their 35mm equivalents. For the digital cameras I was using i.e. a Minolta Dynax 5, a Sony A100 and a Nikon D300, multiplying the digital settings by a factor of 1.5 gives their 35mm equivalent. That means that using an 18mm or 26mm lens would be the same as 27mm and 39mm lenses on a conventional 35mm camera. The reason for this discrepancy is because most digital cameras do not have a sensor which is as large as the 35mm format of a conventional film camera. Depending on the digital camera, the factor may be larger or smaller. 35mm sized sensors are available in higher end professional cameras and their lenses would function in the same way as with conventional cameras.

²⁰ SLR is a single lens reflex camera. 35mm on a digital SLR equates to 50mm with a conventional 35mm camera. On the occasions that I used a conventional film camera as in fig. 33 on p. 69, its 50mm standard lens was ideal.

Exposure and related issues

In my first attempts I simply left the camera on automatic exposure. However, the variations that resulted from one end of the circuit to the other, made it impossible to assemble the individual photographs into a unified whole. Using manual settings and readjusting for each shot was slightly better, due to the greater control but there were still large variations from one end to the other. Throughout this early period it was difficult to find direct information either from books in the library or from available lecturers. The internet became my most useful source of reference, requiring however considerable sifting and selection.²¹

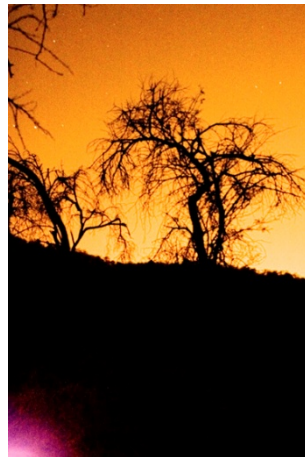


Fig. 32 Flaring in the bottom left corner caused by a faulty light sensor in the camera.

The general wisdom that emerged from this internet research was to take an average of the light readings, set the camera to that reading and stick with it through the 360°. That became my modus operandi for most of the work in the early stages and it lent a consistent quality to the overall assembled image except that there were generally areas which were then significantly underexposed and others which were significantly overexposed. In both cases there was simply an absence of data in those areas so that even editing selectively afterwards

²¹ Apart from the sites which dealt with specific software applications, helpful websites that I returned to were: <http://www.luminous-landscape.com/tutorials/>, and www.digitalphotopro.com.

There were also websites specialising in particular issues such as night photography, (www.nightfolio.co.uk) and panoramic photography, (<http://www.panoguide.com>)

i.e. by burning or dodging, could not reveal much content. In the case of the dark areas, what emerged as well, was considerable amounts of 'digital noise'²².

Depending on the camera I was using, these digital artefacts were more or less obtrusive. It so happened that the camera that I used for the first 3 excursions to Tswaing, a Minolta Dynax 5D digital SLR, had a faulty sensor which apart from normal digital artefacts, generated purple flaring which became visible in the bottom corner of all the underexposed frames. None of this became clear until months of work and data accumulation had taken place. The reason for the delay in recognising the problem was that in the early months the panoramas were assembled using very reduced images as I did not have access to a computer that was capable of stitching so many full sized photographs together. The digital artefacts were simply not apparent at that stage. As I spent more time working with the images however I came to recognise that the artefacts were actually part of the 'language' of the digital process, contributing meaningfully to the integrity of the images and their visual qualities.

Dynamic Range

The problem of loss of data due to the limited dynamic range²³ of digital cameras only became apparent after the previous challenges had been reasonably resolved and a certain level of competence achieved. On one of my excursions I took film as well as digital images. I shot two rolls of slide film and two rolls of print film as pilot experiments, to compare with the images my digital camera provided on the same occasion. I learned from the pilot that print film has a visibly wider tonal range than slide film, while slide film has more dynamic colour. Although they both had a wider tonal range than my digital SLR, in order to digitise them and stitch them they still needed to be scanned, which would present another layer of mediation and filtering. The digitised film images at this stage had acquired a certain filmic richness of surface, yet there

²² Digital noise is the equivalent of grain when shooting with film. Unlike grain, digital noise lacks the visual interest which grain has due to the way it fades into and out of the image. Grain also has a texture which is not unlike an etched aqua tint surface, which is also a controllable, interactive surface. Digital noise is not devoid of interest. It is perhaps more analogous to static. Richard Penn (Wits MAFA student, 2008.) has exploited this to some extent in his work.

²³ Dynamic range concerns the tonal range. Film is able to reveal a richer range of tones both in the lower and higher registers than digital cameras can. An averaged exposure setting, which it was necessary to employ, would exacerbate this problem significantly because the setting is nowhere near the tonal extremes. In this situation, film would be more sensitive, but not sufficiently for the required margins.

was a loss of detail²⁴ as a result of the scanning process. So while each component photograph had richer tone than their digital equivalents, it was not enough to allow for the extremes of light which I was frequently encountering. On rare 'moments' such as the particular late afternoon in September in the image below, the light was unusually even through the 360° field.



Fig. 33 *Looking into the saltpan from the NW crater wall, section 1.* Taken with Fujicolor Pro 400H, scanned into digital format and assembled.

The solution that surfaced pointed to the use of 'bracketing'²⁵ for each shot, which in turn pointed me back to digital photography. Bracketing provided me with a choice of images to combine. In the initial stages of the strategy's evolution, I selected the most appropriate image from each trio for integration within the 360° visualization. This however meant that I still lost a substantial amount of the documented information with the results mostly being rather limited, and I had to wait for my computing and software knowledge to catch up with the photography. It was months later that I discovered software²⁶ capable of digitally blending the three images within a single, tonally and information-rich 'photograph'.

Accepting digital photography's dubious benefit of being able to shoot multiple images at no cost other than the requirement of dealing with the many results, the strategy

²⁴ Even though I went to a reputable laboratory in Johannesburg who had more than one scanning machine which they were willing to experiment with for my purposes, these were ultimately 'cheap' scans. Professional quality scans of 35mm slides and negatives were possible, however they were extremely expensive and with the quantity of images that I needed, that was not a reasonable option. One of the film panoramas nevertheless made its way into the body of final work. It was shot on Fuji Pro400H, using a Fujica AX-3 SLR with a standard 50mm lens.

²⁵ Bracketing implies shooting multiples of each photograph for reasons of exposure, white balance or other reasons. In my own case, I took three images for each photograph i.e. an underexposed, an overexposed and a 'correctly' exposed image. With traditional film this would be prohibitively expensive, but with digital photography, the time available for processing is the only limiting factor in such a method.

²⁶ The software which I used for blending the three bracketed images into a single image was Photomatix. Although applications such as Photoshop are able to do something similar, Photomatix allows considerably more control of the blend. It also allows the user to configure its settings so that the processing of an entire 'tier' or row within the 360° arc can maintain those tonal settings

embraced exposure bracketing at this point and the later series of panoramas were stitched from three blended exposures, each approximately 1 exposure 'stop' apart.²⁷ I used this process for all the images in my final excursion to Tswaing, with the result that those composite images have a richer tonal range than film could typically achieve.

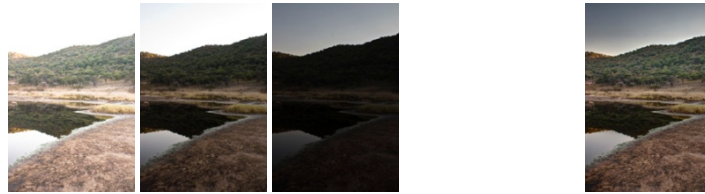


Fig. 34 *Bracketed photographs of the same spot on the edge of the crater pan. The RH image is a blend of the other three. I chose to blend in a manner which afforded the most detail and tonal range.*

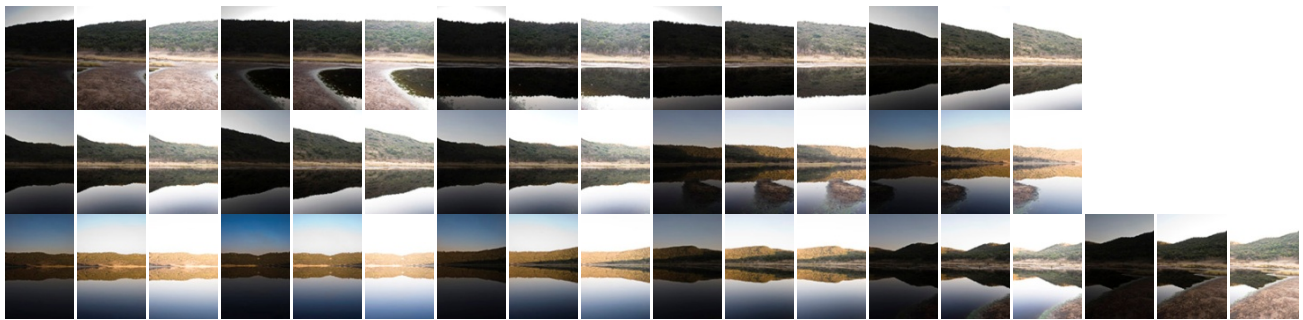


Fig. 35 *48 bracketed photographs encompassing the horizon line when rotating the camera through 360°. When blended, each trio becomes a single image, resulting in the 16 photographs below, which constitute the circle of the horizon.*

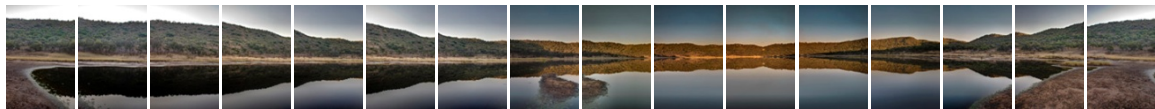


Fig. 36 *The 360° horizon line*

²⁷ An exposure stop is the unit of measurement for setting either the aperture of a camera lens or the shutter speed. After blending the bracketed exposures into unified images with 'Photomatrix', the stitching itself, after first employing more 'dedicated' applications, was done using Photoshop, which was more intuitive than any other of the applications I came across. Photoshop allowed for interaction with its own 'decision making' during the stitching process. None of the other stitching applications I had explored, offered an accessible way of doing this.

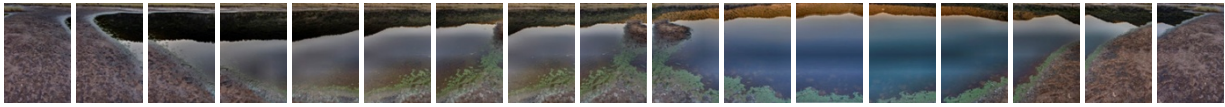


Fig. 37 *The foreground 'tier' comprising 17 photographs was the result of blending a further 51 bracketed photos which are not shown here. The camera lens was oriented below the horizon line for this row.*

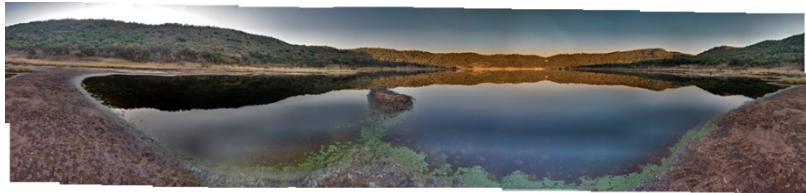


Fig. 38 *Digitally stitched composite of the two rows of blended photographs above and on the previous page. The image is therefore constituted from 99 bracketed originals.*

Nodal Point

Light entering the lens of the camera converges on either the film or alternatively on the sensor if the camera is digital. In a panorama, that point of convergence (or nodal point) needs to be the axis around which the 360° arc rotates. Failing that, the arc will be eccentric and there will be other forms of distortion or poor fit when trying to assemble the whole. This is less of an issue with landscape panoramas than for architectural or close-up photographs. Also, the Minolta I was using appeared to fit onto the tripod very close to its nodal point and it did not seem to generate significant problems when I used the appropriate focal length. So although I was aware of the issue, I did not need to consider this variable particularly, until the faulty sensor made it necessary to change cameras later in the year. It became an unavoidable issue when I started using a Nikon, with its larger body, which situated the sensor further back from the pivotal point at the centre of the tripod. This required a bracket to be contrived, allowing the camera to be slid forward and backwards,

During that process I became interested in exploring distorted relationships, especially as the project concerns an impact site, where dislocation and distortion of the geology had taken place on a substantial scale. Those distorted panoramas however looked far too contrived and they reinforced my quest to represent honestly and richly what was actually present.

Software and Computing

The 'stitching' process that I was embarking on was only possible with digital 'post processing'. In other words, whether I was shooting with film or digitally, a computer and software were necessary to 'stitch' or assemble the images together. Apart from needing to become fluent with the software options, it turned out that there were uniquely demanding problems in store for me, which to my surprise took me near the edge of what still photography and personal computers are currently capable of. Testing several specialist panorama 'stitching' software packages was the starting point. These are generally available as trials which print with watermarks until licensed. I made a number of successful and less successful trial panoramas, mostly of my garden, in order to investigate a representative range of the available software applications²⁸.

Because I was wanting to shoot the entire 360° field, the variations in lighting from one 'end' to the other frequently caused the software to get it 'wrong' unless the conditions were ideal. And ideal conditions were unlikely to occur in the crater other than at brief moments such as twilight – and even then, the light in the east is different to that in the west. Furthermore, transient light such as twilight, alters surprisingly quickly and even in the 3-4 minutes it takes to shoot the 360° field, the light can change significantly. The photographs I was taking at this stage were Raw²⁹ images which when translated into a Tiff format were 17Mb each. To add to the complexity, the panoramas I was trying to construct were two and even three tiered, sometimes taken in vertical format rather than horizontal. This meant that in a single panorama, allowing for 25% to 30% overlap between images, there could be three tiers of anything from 16 – 20 images per tier i.e. around 50 in a composite piece. The varying light, the inevitable distortion in parts, and the complexity of the task gave plenty of cause for both the software and the computer to struggle with what it was given to 'digest'.

²⁸ Stitching software that I investigated with varied results included – Calico, Hugin, PanoTools, PT Viewer, PTGui, PTMac, Panoweaver and Autopano. These are all 'dedicated' applications which require considerably less computer resources than are needed for using Photoshop. However due to the varying light conditions in the 360° field, all the applications misread components, and I needed an application that allowed interactive involvement in the stitching process.

²⁹ Raw images are uncompressed and are minimally processed by the camera. They contain the closest record to the photographed scene and as such are an equivalent to a negative in film. They are not however in a form which can be used by a graphics application, so they need to be converted to another format such as Tiff. Reichman, <http://www.luminous-landscape.com>



Fig. 39 *Stitched image with distortions.* The image above is made up of the two rows of blended images from p.70. It was constructed using a trial version of 'Calico', an automated, software application. Although with its distortions and visible seams it is visually interesting, fidelity seemed more appropriate for the investigation.

Interactivity, or participation in the stitching process was therefore essential. Although some of the trial applications claimed to allow adjustment, this proved quite inaccessible and difficult to control, while minimal support was available from their websites when problems arose. I had been hoping not to use Photoshop for this task because as it is an application with such broad capabilities, that it is very demanding on computer memory and processing resources. With so many images being stitched, it would be even more onerous for a computer to run it. On the other hand it did offer an interactive working space.

Photoshop's assembly tool unaided, was not as good as that available from more dedicated applications. On the other hand because of the tool's accessible method of interaction during the stitching operation, it was the most appropriate to use. The drawback was that stitching turned out to be an especially demanding processing task - with the unfortunate result that my computer was unable to cope with it³⁰. In order to bypass Photoshop's Ram and processor demands I meanwhile worked with extremely reduced file sizes³¹ while I explored its capabilities.

Ultimately it looked as if I would need something like a super-computer to achieve what I was trying to do. For a brief period this was supplied by a generous Apple computer dealership, *Digicape*, who took an interest in what I was doing and lent me an extra-ordinary computer to work with for 10 days. The computer was a MacPro which had dual quad core processors i.e. 8 processors and 10 Gb of Ram. While it coped well with the task, it was interesting to note on its 'Activity Monitor' that Photoshop was never able to access more than about 3,5Gb of the

³⁰ Crashed and frozen computers, borrowed computers, consultations with geeks, provide another layer of history to the process of stitching such a number of large images together.

³¹ My own computer managed to process images which were scaled from their 17Mb to email size i.e. about 250Kb. However this was not enough information to print a rich image.

Ram. This is one of the limitations of 32bit³² software - and I was aware that a 64 bit version of Photoshop was going to be released late in 2008, but only for the Windows platform at that stage.

The good news from those 10 days was that my panoramas were possible. However, it was also clear that I needed longer-term access to the necessary technology, so there was little choice but to have a capable computer assembled. I had learned a lot about what Photoshop required in order to function well and I felt at that stage that if I could find a reliable and professional person to listen to my needs I could achieve similar results with a much more affordably configured PC, which fortunately I was able to do. Providing an extra hard drive as a dedicated 'scratch' disc, for the large amounts of information which Photoshop continually needs to 'write and read', means that the application doesn't need to hunt for places to do that writing. This makes the entire system more efficient. Also, having access to more of the available Ram through the use of 64 bit software would allow Photoshop to interact with that memory much more quickly, making the system yet more efficient. Using these principles and the 64 bit version of the application, I was able to work with a well cooled but less highly specified PC³³ which has coped with the processing demands of the large composite images.

Having said that, it also became clear that 3-tiered panoramic constructions tended to excessive distortion in the foreground, resulting in unconvincing stitching. As a result most of the final panoramas have been constructed from 2 tiers - an horizon row and one above it. The computer coped well with these.

³² The distinction between 32 bit and 64 bit applications is important particularly for processor and memory intensive tasks. 64 bit applications, when run on a compatible operating system, are not limited by the typical 4GB ceiling. They are able to access and use far greater amounts of installed memory, making intensive tasks more possible and also making better use of the computer's components (Chavez & Blatner, 2009).

³³ The critical specifications for the computer that was constructed were:
Antec housing - a well designed casing which would reduce the likelihood of overheating
1 x Intel Quad CPU Q9550 2.83GHz
8GB RAM
500GB Main Drive
320GB Scratch Drive
Windows Vista 64 bit Operating System
ATI Radeon HD 4800 series graphics card

Editing of the Images

Popular digital photography typically uses a JPEG format in which the camera software makes a variety of critical decisions on the photographer's behalf. This even occurs when manual settings are used, if the JPEG format is retained. Raw format photography on the other hand, assumes that each of the photographs will be manually processed and that decisions will be made regarding light and dark, contrast, white balance, colour balance, possible filters and sharpening. All of this is the equivalent of normal darkroom practice. In some cases a certain amount of burning and dodging is also done. This basic photographic editing was done with Photoshop before the images were blended in Photomatix and before they were assembled. Tonal decisions are again made when setting up Photomatix for each session of blending. Thereafter the panorama itself is edited in Photoshop to achieve an integrated image that holds together. If this doesn't quite work, the entire process may need to be repeated. The 10 main images that I arrived at by the end of the year therefore were the product of quite a convoluted process, from taking the photographs, processing them, reducing them at first in order to assemble small panoramas, understanding what machinery would be able to assemble full sized work, assembling them, editing the assembled pieces, re-assembling some of them by first blending the bracketed images and then editing the re-assembled image.

Editing of the View

Shooting was done from various views around and in the crater as I got to walk in the area. Panoramas were constructed from all these views. By the end of the 4th excursion to Tswaing, there were two locations which seemed to represent the crater and the investigation the most appropriately. One was the view when standing on the northern crater wall, looking into the crater. The other was located in the pan, at the significant point of the drilling operation by TC Partridge in 1998³⁴. Although the view into the crater was photographically more inviting, technically more achievable and generated the more attractive results, it became increasingly clear that the view from the centre was the conceptual magnet of the project. Not only was the critical scientific work done at that spot but it was as close to the centre of the crater that I was able to get to, allowing the possibility of being completely surrounded by the crater wall. For a circular hermeneutic investigation, the view/s from the centre converged and diverged in significant ways from this point.

³⁴ Refer to p.40-42 for detail on the significance of the borehole.



Fig. 40 *Camera on stilts*. Photographing down the residual borehole left by T.C. Partridge's drill core

The final excursion to Tswaing focused exclusively on the hole left by the drill core, expanding the range of data available at different times of the day and year, from that centre of things. Ultimately that point became the conceptual epicentre of the investigation.



Fig. 41 *View through the lens of the camera into the borehole*. The surrounding earth is a granite-derived sand

Printing

Critical to the printing process is the requirement that the tonal and colour information on the computer monitor is consistent with the final output on paper. Printing has largely been done using the Epson 7800 at the Wits School of the Arts, on Epson Premium Gloss PGPP250 paper. My preliminary results, despite the high quality printer proved quite disappointing. I clearly needed a more accurately calibrated colour 'space' in which camera, computer settings, printer, inks and paper type are carefully aligned. Furthermore, I hadn't understood how much more time would be needed with each image in order to bring them to print readiness. This was

especially the case because of the tonal challenges which had dogged me throughout the project and had already demanded a great deal of attention.

With the help of Carmen Jerrard of Fine Print Large Format Printing, her Epson 9800 and her considerable expertise, it was also apparent that stronger results were attainable. She printed a series of quite successful small scale panoramas, of between 50 – 75cm, which was very encouraging. A 360° horizon is a long and potentially very narrow field, so those small scale prints were all under 10cm wide. They needed to be printed on a much larger scale; however to print so many large format images with Carmen was financially rather daunting and the printing project went into limbo while I turned my attention to the process of understanding and articulating the project's conceptual heart in written form.

In the interim WSOA acquired the services of an expert technician in the person of Daniel van Flymen, who was able to accurately calibrate equipment and give informed advice regarding print readiness processes. What this meant of course was that my technical journey was by no means over and my 'dark room' had to keep pace in order to achieve reasonably print ready images. Daniel helped me both to develop my own skills in getting the images print ready, as well as coaxing more richness from some of the images himself. There remain a significant amount of digital and light artefacts in the final prints. In this highly process-based investigation which has taken so many circular turns these artefacts have become part of the content and fabric of the imagery.

From an original body of ten large panoramic pieces, during this latter part of the process I reconstructed as well as deconstructed several of them in order to reveal more of the process that was involved. I also spent time revisiting imagery which never quite 'made it' into panoramas for various reasons, yet which contribute to the investigation. Apart from their visual qualities, the panoramas of this single landscape vary from each other in time and viewpoint, while actually containing shifts in both of those within each assemblage. This is consistent with the shifting conceptual horizon of the project itself.

The central work on the exhibition is a large sepia tone, taken during my final three days at the crater in October 2008. It is a single horizon line, shot on October 14 over a ten minute period, beginning at 18h18. It will be placed within a cylinder hanging at eye level, the circular representation of the crater within it requiring the viewer to enter within the circle. It obliges one to reflect on Creswell's (2004) notion of *place* being something which one experiences from the inside. The problem of achieving a substantial enough sized space for this piece proved quite daunting, with structural solutions alternating between Perspex and plywood. Its scale

was initially limited to the Epson 7800's maximum paper width of 61cm. This would have yielded a circumference of 5,016 m with a diameter of 159,6 cm, which on consideration would not have been large enough for the gallery space. As a result, this particular image needed to be printed at a commercial printer, on 90 cm wide paper. This yielded an image 7,4 m long, which was printed in three sections with overlaps, to result in a circumference of 7,2 m and a cylindrical diameter of 2,29 m, making it consistent with the 2,3m width of five of the other larger pieces on the exhibition. The diameter of the 'place' will hopefully allow more than one person at a time to have a reasonably generous immersion within the surrogate circular landscape.



Fig. 42 *Tswaing meteorite impact crater, 18h18 – 18h27, 14 October, 2008*. The image intended for the central hanging piece. It is constituted from 75 vertically orientated, bracketed photographs, blended into a final row of 25, stitched and transformed into monochrome. The same image is counter-intuitively placed on the outer surfaces of the cylinders on p.1.

7. REFERENCES

- Abbs, P. (1987). *Living Powers: The Arts in Education*. New York: Falmer Press.
- Agnew, J.A., & Duncan, J.S. (Eds.) (1989). *The Power of Place*: Boston: Unwin Hyman.
- Anells, M. (1996). Hermeneutic Phenomenology: Philosophical Perspectives and Current Use. *Journal of Advanced Nursing*, 23 (4), 705 -713.
- Arnheim, R. (1969). *Visual Thinking*. Berkeley: California University Press.
- Association Gira Sole Art. (n.d.). *Penta Ispra Project*. Retrieved September 30, 2011, from http://girasoleart.paulsmits.com/wp-content/uploads/2008/02/GSA_Pentalspra07_EN.pdf
- Athanassog1ou-Kallmyer, (2003). *Cezanne and Provence: The Painter in His Culture*. Chicago: University of Chicago Press.
- Barrell, J. (1980). *The Dark Side of the Landscape: The Rural Poor in English Painting*. Cambridge: Cambridge University Press.
- Barrell, J. (ed.) (1992). *Painting and the Politics of Culture: New Essays on British Art 1700-1850*. Oxford: Oxford University Press.
- Barthes, R. (1957/1972). *Mythologies*. London: Cape.
- Berger, J., & Mohr, J. (1969). *A Fortunate Man*. Harmondsworth: Penguin.
- Berger, J. (1972). *Ways of Seeing* London: Penguin.
- Bermingham, A. (1994). System, Order and Abstraction: The Politics of English Landscape Drawing around 1795. In W.J.T. Mitchell (ed.), *Landscape and Power* (pp. 77 – 101). Chicago: University of Chicago Press.
- Bermingham, A. (1986). *Landscape and Ideology. The English Rustic Tradition, 1740 - 1860*. Berkeley: University of California Press.
- Boeyens, J.C.A. (2003). The Late Iron Age Sequence In The Marico And Early Tswana History. *South African Archaeological Bulletin* 58 (178): 63-78.
- Boshoff, W. *Willem Boshoff Artist: Children of the Stars*. Retrieved January 1, 2011, from http://www.willemboshoff.com/documents/artworks/children_of_the_stars.htm.

- Brandt, D., & Reimold, W.U. (1999). The Geology and Geophysical Signature of the Pretoria Saltpan (Tswaing) Impact Structure. In T.C. Partridge, *Memoir 85: Investigations into the Origin, Age and Palaeoenvironments of the Pretoria Saltpan*. Pretoria: Council for Geoscience.
- Brenner, J., Burroughs, E., & Nel, K. (2011) *Life of Bone: Art Meets Science*. Johannesburg: Wits University Press.
- Brion-Guerry, L, (1977). The Elusive Goal. In W. Rubin (ed.) *Cezanne: The Late Work*. New York: Museum of Modern Art.
- Bronowski, J. (1974). *The Ascent of Man*. London: BBC.
- Bunn, D. (1994). Thomas Pringle's African Landscapes. In W.J.T. Mitchell (ed.) *Landscape and Power* (pp. 128 – 124). Chicago: University of Chicago Press.
- Chafetz, J. (n.d.). *Rushdie and Me: The Possibility of Interpretive Pluralism in Gadamerian Hermeneutics*. Stanford University School of Humanities & Sciences, Department of Philosophy. Archive Vol.8. Retrieved 26 August 2011 from http://philosophy.stanford.edu/apps/stanfordphilosophy/files/wysiwyg_images/chafetz.pdf
- Chatwin, B. (1988). *The Songlines*. London: Pan.
- Chavez, C., & Blatner, D. (2009) *Real World Adobe Photoshop for Photographers*. Berkeley: Peachpit Press.
- Clark, K. (1949/1976). *Landscape into Art*. London: John Murray.
- Coetzee, J.M. (1988). *White Writing*. New Haven: Yale University Press, Radix.
- Corner, J. (Ed.) (1999). *Recovering Landscape: Essays in Contemporary Landscape Architecture*. New York: Princeton Architectural Press.
- Cosgrove, D. (1984). *Social Formation and Symbolic Landscape*. London: Croom Helm.
- Cosgrove, D. (1985). Prospect, Perspective and the Evolution of the Landscape Idea. *Transactions of the Institute of British Geographers, New Series, 10(1)*, 45-62.
- Cosgrove, D.E., & Daniels, S. (1988). *The Iconography of Landscape*. Cambridge: Cambridge University Press.
- Chaudhuri, U. (2002). Land/Scape/Theory. In U. Chaudhuri & E. Fuchs, *Land/Scape/Theatre* (pp. 11-29). Ann Arbor: University of Michigan Press.

- Crampton, W., & Elden, S. (Eds.) (2007). *Space, Knowledge and Power: Foucault and Geography*. Aldershot: Ashgate.
- Cresswell, T. (2004). *Place: A Short Introduction*. Oxford: Blackwell.
- Daniels, S. (1989). Marxism, Culture and the Duplicity of Landscape. In R. Peet and N. Thrift, *New Models in Geography: The Political-Economy Perspective*. London: Unwin Hyman.
- Daniels, S. and Cosgrove, D. (1993). Spectacle and Text. In J. Duncan & D. Ley, (Eds.), *Place/ Culture/ Representation* (pp. 57 - 77). London: Routledge.
- Danto, A.C. (1981). *The Transfiguration of the Commonplace: A Philosophy of Art*. Cambridge, Mass.: Harvard University Press.
- Danto, A.C. (1997). *After the End of Art: Contemporary Art and the Pale of History*. Princeton: Princeton University Press.
- Danto, A.C. (2002). From Philosophy to Art Criticism. *American Art*, Vol.16, 14 - 17.
- Day, J.M. (1994). *Plato's Meno: In Focus*. London: Routledge.
- Dekkers, G. (1981). *Planned Landscapes: 25 Horizons*. Amsterdam: Meulenhoff/Landshoff.
- Delius, P. (1983). *The Land Belongs to Us*. Johannesburg: Ravan.
- Delmont, L. and Dubow, J. (1995). Thinking Through Landscape: Colonial Spaces and their Legacies. In *Panoramas of Passage: Changing Landscapes of South Africa* (pp. 10-18). Johannesburg: Meridian and University of the Witwatersrand.
- Desmond, C. (1968). *The Discarded People*. Braamfontein: Christian Institute of South Africa.
- Dippel, R., & DeWilde, E. (1972). *Jan Dibbets. Catalogue of Exhibition*. Amsterdam: Stedelijk Museum.
- Duncan, J. & Ley, D. (Eds.) (1993). *Place/ Culture/ Representation*. London: Routledge.
- Eisner, E. W. (2002) *The Arts and the Creation of Mind*. New Haven: Yale University Press.
- Eliot, T.S. (1974) *Collected Poems 1909 – 1962*. London: Faber and Faber.
- Evernden, N. (1981). The Ambiguous Landscape. *Geographical Review*, 71(2), 147-157.
- Erickson, J. (2003). *Asteroids, Comets and Meteorites: Cosmic Invaders of the Earth*. New York: Facts on File.
- Feynman, R.P. (1985) *QED: The Strange Theory of Light and Matter*. Princeton: Princeton University Press.

- Finding the No-Parallax Point.* (n.d.) Retrieved May 26, 2008, from <http://www.johnhpanos.com/epcalib.htm>
- Freeland, C. (2002). *But Is It Art?: An Introduction to Art Theory.* Oxford: Oxford University Press.
- Fuchs, E., & Chaudhuri, U. (2002). *Land/Scape/Theater.* Ann Arbor: University of Michigan Press.
- Gadamer, H.G. (1975). *Truth and Method.* (G. Barden & N. Cumming, Trans.). London: Sheed and Ward.
- Gibson, R.L., & Reimold, W.U. (2008). *Geology of the Vredefort Impact Structure: A Guide to Sites of Interest.* Pretoria: Council for Geoscience.
- Greenberg, C. (1965). *Art and Culture: Critical Essays.* Boston: Beacon Press.
- Greenberg, C. (1989) On the Role of Nature in Modernist Painting, in C. Greenberg, *Art and Culture*, (pp. 171–174). Boston: Beacon Press.
- Greenberg, C. (1960) Modernist Painting. *Forum Lectures (Washington, D.C.: Voice of America).* Retrieved September 11, 2011, from <http://www.sharecom.ca/greenberg/modernism.html>
- Hallett, R. (1984). Desolation on the Veld: Forced Removals in South Africa. *African Affairs*, 83, 301-320.
- Harrison, C. (1994). The Effects of Landscape. In W.J.T. Mitchell (ed.) *Landscape and Power* (pp. 203-240). Chicago: University of Chicago Press,
- Harrison, C., & Wood, P. (eds.) (2003). *Art in Theory, 1900-2000: An Anthology of Changing Ideas.* Oxford: Blackwell.
- Heaney, S. (1990). *New Selected Poems 1966 – 1987.* London: Faber and Faber.
- Hertz, R. (1997). Reflexivity and voice. In S.M. Lavery, Hermeneutic phenomenology and phenomenology: a comparison of historical and methodological considerations. *International journal of qualitative methods* 2(3), 1-29.
- Horn, A.C. (1997). How Many People Live in Winterveld? What a Proper Census Should Show. *Urban Forum*, No. 1 March, 117-132.
- How to use Panorama Tools and PTGui to Produce a Printable Panorama.* (n.d.) Retrieved, May 26, 2008, from <http://www.johnhpanos.com/pttute.htm>

- Huffman, T. N. (2008). Climate change during the Iron Age in the Shashe-Limpopo Basin, southern Africa. *Journal of Archaeological Science*. 35, 2032-2047.
- Ingold, T. (1993). The Temporality of Landscape. In *World Archaeology*, Vol. 25 No. 2, p.152-174.
- Israel, N. (2001). Jan Dibbets. In *Artforum*, April 2001.
- Jan Dibbets "New Horizons"* (2010). Retrieved October 14, 2011, from http://www.gladstonegallery.com/release_dibbets_2010.htm
- Jay, M. (1993). *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought*. Berkely: University of California Press.
- Kannemeyerer, J.C. (1980). *Versamelende Gedigte*. Cape Town: Tafelberg.
- Krauss, R. (1979). Sculpture in the Expanded Field. In *October*, Vol. 8. (Spring, 1979), 30-44.
- Laverty, S.M. (2003). Hermeneutic phenomenology and phenomenology: a comparison of historical and methodological considerations. *International journal of qualitative methods* 2(3), 1-29. Retrieved 25/12/2009 from http://www.ualberta.ca/~iiqm/backissues/2_3final/pdf/laverty.pdf
- Leveling a Panorama Image with PTGui*. (n.d.) Retrieved May 26, 2008, from <http://www.iohnhpanos.com/levtut.htm>.
- Leveson, M., & Paton, J. (1985). *Voices of the Land*. Johannesburg: Donker Poetry.
- Levin, G. (1999). Historical Aspects. In T.C. Partridge (Ed.), *Memoir 85: Investigations into the Origin, Age and Palaeoenvironments of the Pretoria Saltpan* (pp. 3-5). Pretoria: Council for Geoscience.
- Long, R. (1980). *Five Six, Pick Up Sticks, Seven Eight Lay Them Straight*. London: Anthony D'offay.
- Long, R. (2005). *Walking the Line*. London: Thames and Hudson.
- Longan, M.W. (2008) Playing with landscape: Social process and spatial form in video games. *Aether, The Journal of Media Geography*, Vol. 11, 23-40.
- List of Major Massacres* (n.d. South African History Online. Retrieved February 7, 2011, from http://www.sahistory.org.za/pages/governence-projects/apartheid-repression/major-massacres_1950-1989.htm

- Liukkonen, P., & Pesonen, A. (2008) *Arnold Hauser (1892-1978)*. Retrieved 16 December, 2010, from <http://kirjasto.sci.fi/hauser.htm>.
- Macey, D. (ed) (2000). *Dictionary of Critical Theory*. Penguin: London.
- Malpas, W. (2005). *The Art of Richard Long: Complete Works*. Maidstone: Crescent Moon.
- Malpas, W. (2006). *Andy Goldsworthy in Close-Up*. Maidstone: Crescent Moon.
- Manhattan Project*. (n.d.). Nuclear Age Peace Foundation. Retrieved September 30, 2011, from <http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/history/pre-cold-war/manhattan-project/>
- Meinig, D. W. (1979). The Beholding Eye: Ten Versions of the Same Scene. In D.W. Meinig (Ed.), *The Interpretation of Ordinary Landscapes* (pp. 33-48). Oxford University Press: New York.
- Melia, P. (1995). *David Hockney*. Manchester: Manchester University Press.
- McCarthy, T., & Rubidge, B. (2005). *The Story of Earth and Life: A Southern African Perspective on a 4.6-Billion-Year Journey*. Cape Town: Struik.
- Michaels, A. (1997). *Fugitive Pieces*. London: Bloomsbury
- Mitchell, W.J.T. (1986). *Iconology*. Chicago: University of Chicago Press.
- Mitchell, W. J. T. (Ed.) (1994). *Landscape and Power*. Chicago: University of Chicago Press.
- Moorhouse, P. (2005). The Intricacy of the Skein, The Complexity of the Web: Richard Long's Art. In R. Long, *Walking the Line* (pp. 29-43). London: Thames and Hudson.
- Novotny, F. (1977). The Late Landscape Paintings. In W. Rubin (Ed.), *Cezanne: The Late Work* (pp. 107-112). New York: Museum of Modern Art.
- Oelschlaeger, M. (1991). *The Experience of Wilderness*. New Haven: Yale University Press.
- Partridge, T. C., (Ed.) (1999). *Memoir: Investigations Into the Origin, Age and Palaeoenvironments of the Pretoria Saltpan*. Pretoria: Council for Geoscience.
- Patterson, C. (1956). Age of Meteorites and the earth. *Geochimica et Cosmochimica Acta*, 10(4), 230-237.
- Photographing Stars as Points of Light, Not Star Trails*.(n.d.) Retrieved July 9, 2008, from http://www.nightfolio.co.uk/night_photography_stars
- Primack, J. R., & Abrams, N. E. (2006). *The View from the Center of the Universe: Discovering our Extraordinary Place in the Cosmos*. New York: Riverhead.

- Primack, J. R. (1997) *Cosmology and Culture*. Center for Theology and the Natural Sciences Bulletin, 17(3), 9-15. Retrieved from http://physics.ucsc.edu/cosmo/primack_abrams/COSMO.HTM
- Reff, T, (1977). Painting and Theory in the Final Decade. In W. Rubin (Ed.), *Cezanne: The Late Work* (pp. 13-54). New York: Museum of Modern Art.
- Reichman, M. Understanding Panoramic Stitching Using Photoshop. Retrieved, July 2008, from <http://www.luminous-landscape.com/tutorials/stitching.shtm.l>
- Reichman, M. Understanding Raw Files. Retrieved September 2011, from <http://www.luminous-landscape.com/tutorials/understanding-series/u-raw-files.shtml>
- Reimold, W. U., & Gibson, R. L. (2005). *Meteorite Impact: The Danger From Space And South Africa's Mega-Impact: The Vredefort Structure*. (2nd ed.). Johannesburg: Chris van Rensburg.
- Reimold, W. U., Brandt, D., De Jong, R., & Hancox, J. (1999). *The Tswaing Meteorite Crater : An Introduction to the Natural and Cultural History of the Tswaing Region Including a Description of the Hiking Trail*. Pretoria: Geoscience Council.
- Rorty, R. (1979). *Philosophy and the Mirror of Nature*. Princeton: Princeton University Press.
- Rosenberg, H. (1970). *The Tradition of the New*. London: Paladin.
- Rousseau, J.J. (1783/1992). *The Reveries of the Solitary Walker*. Indianapolis: Hackett Publishing. Retrieved from <http://www.archive.org/details/confessionsijro2rousgoog>
- Said, E. (2002). Invention, Memory and Place. In W.J.T. Mitchell (Ed.), *Landscape and Power*. (pp. 241-259). London: University of Chicago Press.
- Sarhangi, R., & Martin, B. D. (2000). *The Circle: A Paradigm for Paradox*, Online Journal of Visual Mathematics, Vol. 2, No. 1, 1-7. Retrieved from <http://vismath.tripod.com/pap.htm#n21>
- Schama, S. (1995). *Landscape and Memory*. New York: A.A. Knopf.
- Seymour, A. (2005). Foreword. In R. Long, *Walking the Line* (pp. 7-10). London: Thames and Hudson.
- Soja, E. (1989). Modern Geography, Western Marxism, and the Restructuring of Critical Social Theory. In R. Peet & N. Thrift (Eds.), *New Models in Geography: Volume Two*. London: Unwin Hyman.
- Solnit, R. (2005). *A Field Guide to Getting Lost*. London: Penguin.

- Solnit, R. (2001). *Wanderlust: A History of Walking*. London: Verso.
- Soutter, L (1999). *The Photographic Idea: reconsidering conceptual photography*. *Afterimage* 26(5), 8-11.
- Stewart, B. (1979). *A Guide to Japanese Prints and Their Subject Matter*. New York: Dover.
- Stiles, K., & Selz, P. (1996). *Theories and Documents of Contemporary Art: A Sourcebook of Artists' Writings*. Berkeley: University of California Press.
- Thoreau, H.D. (1862). Walking. *The Atlantic Monthly*, Vol. 9, (56), 657-674.
- Thoreau, H.D. (c.1967). In Wildness Is The Preservation Of The World. In *Henry David Thoreau*. San Francisco: Sierra Club.
- Tufnell, B. (2006). *Land Art*. London: Tate Publishing.
- Tufnell, B. (2007). *Richard Long: Selected Statements and Interviews*. London: Haunch of Venison.
- Valentine, G. (2001). Whatever Happened to the Social? Reflections on the 'Cultural Turn' in British Human Geography. *Norwegian Journal of Geography*, 55, 166-172.
- Van Wyk Smith, M. (1990). *Grounds of Contest: A Survey of South African English Literature*. Kenwyn: Jutalit.
- Vonnegut, K., Jr. (1965). *Cat's Cradle*. London: Penguin.
- Wechsler, J. (ed.) (1975). *Cezanne in Perspective*. Englewood Cliffs: Prentice-Hall.
- Williams, R. (1975). *The Country and the City*. St Albans: Paladin.

Permissions and Sources of Images

Most of the images in the dissertation are my own. Reduced images of significant work by other artists have been used where they contribute to the text. My understanding of the principle of 'fair dealing' in South African copyright law is that it is permissible to use those images in the printed version of the dissertation. The version which is published online by the university however presents a copyright problem and one image has needed to be replaced by a URL in that version of the document.

The following organisations and artists granted permission to use specific images from representative collections and publications in both the printed and online versions of this dissertation. Except for Willem Boshoff who gave me verbal permission, my correspondence with them follows after p. 89.

Museum Africa gave permission to use Willem Coetzer's, 1949, *Voortrekker Monument Inauguration*. Fig. 3, p. 6.

Willem Boshoff gave me permission to use the image of *Children of the Sky*, 2007, situated at the Nirox Foundation. Fig. 5, p. 18.

The Nirox Foundation allowed me to photograph Richard Long's, 2010, circle of stones made during his residency in that year. Fig. 6, pp. 23.

Jan Dibbets gave permission to use *Flood Tide*, 1969, *Panorama Dutch Mountain*, 1971 and the image of the medallion from *Hommage à Arago*, 1995. Figs. 7, 8 and 9, pp. 25, 26 and 27 respectively.

The Tate Gallery gave permission to use their online reproduction of Jan Dibbets, 1971, *Panorama Dutch Mountain* and the three reproductions from Hiroshige's *The 53 Stations of the Tōkaidō*. Figs. 8 and 23, pp. 25 and 46 respectively.

The Cortauld Institute gave permission to use the reproduction of Cezanne's, 1885, *Mont. Saint Victoire*. Fig. 10, p. 28.

The Council for Geoscience gave permission to use the aerial photograph of the Tswaing crater, fig. 15, the geological map of the crater, fig. 17, and the Stratigraphic Representation. Figs. 15, 17 and 18, pp. 34, 36 and 38 respectively.

Richard Long gave permission to use *Four Days And Four Circles A Four Day Walk Along Dartmoor From South To North Walking For Eight Hours Each Day in Each Circle England 1994*. Fig. 24, pp. 49.

David Hockney No.1 Trust gave permission to use *Merced River, Yosemite Valley, Sept. 1982*, in the printed version. Fig. 11, p. 29.

Non Copyright and Expired Copyright Images

NASA have allowed relative free access to their image library. Specific details and conditions of use of the images follows this page. The following images are sourced from NASA:

Fig. 13, p. 30. Oblique View of the lunar farside, photographed from Apollo 11 during a lunar orbit, July 16 1969. Retrieved April 25, 2010, from <http://hpyerphysics.phy-astr.gsu.edu/hbase/solar/mooncrater.html>

Fig. 14, p. 30. Mercury's Rembrandt impact basin discovered by Messenger spacecraft during its second flyby of Mercury in October 2008. Retrieved October 15, 2011 from http://science.nasa.gov/science-news/science-at-nasa/2009/30apr_mercury/

Fig. 16, p. 34. View from space of the Vredefort Dome. Retrieved October 15, 2011 from http://science.nasa.gov/science-news/science-at-nasa/2009/30apr_mercury/

Wikicommons and Wikipedia have assembled images by artists for whom copyright has either expired or has not been asserted. Except where photographers have exercised copyright these are generally copyright free. The following images were sourced from Wikipedia:

Fig. 4, p. 8. Monet, 1875, *Les dechargeurs de charbon*. Musée d'Orsay, Paris. Retrieved Oct 19, 2011, from http://en.wikipedia.org/wiki/File:Monet_men_unloading_coal.jpg

Fig. 9, p. 26. Jan Dibbets, 1995, *Hommage à Arago*. Retrieved Nov 14, 2011, from http://en.wikipedia.org/wiki/File:Arago_medallion_Paris.jpg

Acknowledgement of all images is made in the caption on the relevant page.



Hi Stanley,

That is fine.

Cheers,
Linda Chernis
Curator of Images - Museum Africa

Tel. 011 833 56 24 ext 229
Fax. 011 833 56 36
Email: lindac@joburg.org.za
121 Bree Street, Newtown, Johannesburg
PO Box 517, Newtown 2113
Website: www.joburg.org.za/culture/museums-galleries/museumafrica

"Stanley Sher" <Stanley.Sher@wits.ac.za>

2011/10/20 02:06 PM

To: <lindac@joburg.org.za>

cc:

Subject: permission to use an image in a dissertation

Dear Linda

Following our conversation, I would like to formally request permission to use the scanned version which I have of Willem Coetzer's 1949, *Voortrekker Monument Inauguration* in my MAFA dissertation. I'm doing the degree with the Wits School of the Arts.

The Wits library now also publishes all theses in PDF format on their website, and it is this in particular, for which I need permission.

Should the dissertation become commercially viable in the future I understand that I would need to request a license and a high resolution image.

With thanks
Stanley Sher
Arts and Culture Division
Wits School of Education
(011) 717-3287
stanley.sher@wits.ac.za

Stanley Sher

From: Caroline Luce [cluce@gladstonegallery.com]
Sent: 27 February 2012 16:34
To: Stanley Sher
Subject: Re: permission to use a Jan Dibbets image in a dissertation

Dear Stanley,

I hope you had a nice weekend. I am happy to let you know that Jan Dibbets has approved your request to use the images in your dissertation. Please accept this email as permission to reproduce the images you have requested. Please note that caption details for the all photos should read:

Copyright Jan Dibbets

Specifically, for Flood Tide, the caption should read:

Copyright Jan Dibbets
Courtesy Hirschhorn Museum Washington

Please do not hesitate to contact me if you require further assistance.

With kind regards,

Caroline

Caroline Luce
Press Liaison
Gladstone Gallery
515 West 24th Street
New York 10011
T. 212 206 9300
F. 212 206 9301
cluce@gladstonegallery.com

This message is intended only for the use of the addressee and may contain information that is privileged, confidential and exempt from disclosure. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this e-mail in error, please notify us immediately by return e-mail and delete this e-mail and all attachments from your system.
Thank You.

On 2/24/12 10:58 AM, "Stanley Sher" <thesheremail@gmail.com> wrote:

What a relief to hear from you Caroline!

You're offering me far more than I've been asking for. For the small sizes I've printed in the dissertation, the images I have will do. Of course I would love to have a better version of *Flood Tide, 1969*, but the issue is permission – simply to use the impoverished version I have in the attachment. If you or Jan Dibbets can provide a better one, that would be incredible – however all I need is the music of his and your gallery's affirmation within the next few days.

Thanks for your gracious response to my rant.

Regards

Dear Mr. Sher,

You are welcome to make use of images from Tate's website for educational and non-commercial purposes, and provided that any images remain used in that context (eg MAFA publication by your University), then I see no issues.

However please note that Tate does not hold underlying copyright in the work of Jan Dibbet, nor does Tate own any works by Hiroshige, or hold copyright in photographs of Hiroshige works. Therefore I am not in a position to advise you on whether the use of these works might qualify as 'fair dealing'.

Best regards

Andrew

Andrew Tullis

Copyright Manager | Tate

T: + 44 (0) 20 7887 4930 F: + 44 (0) 20 7887 8943

Please note that any information sent, received or held by Tate may be disclosed under the Freedom of Information Act 2000.

From: Stanley Sher [<mailto:thesheremail@gmail.com>]

Sent: 18 October 2011 14:28

To: Picture Library

Subject: using an image in a dissertation

Dear Tate Licensing Services

I would like to use several images which I downloaded from your website, within the context of an MAFA dissertation.

The low res images I've downloaded are fine for my purposes because they will be very small in size on their A4 pages.

They are: Jan Dibbets, 1971. *Panorama Dutch Mountain*

and

Ando Hiroshige, 1852.3 of *The 53 Stations of the Tōkaidō, 05 Hodogaya, 06 Totsuka, 07 Fujisawa. (Tate E-Edition)*

I am assuming that to print them in the 3 or 4 copies of my dissertation falls within the notion of 'fair dealing' and should not require specific permissions. Also the Hiroshige prints are beyond the 70 year threshold.

The grey area however is that my institution, The University of the Witwatersrand in Johannesburg SA publish all theses on their library website i.e. in PDF format. It is this for which I need permission.

I would be most grateful for such permission to use these images exclusively within both of the contexts above.

With thanks
Stanley Sher

From: Dare, Louisa [<mailto:Louisa.Dare@courtauld.ac.uk>]
Sent: 26 September 2011 05:04 PM
To: Stanley Sher
Subject: FW: permission to print an image from the collection

Dear Stanley Sher,

Thank you very much for your enquiry below.

It will be fine for you to reproduce the Courtauld owned work in your dissertation. Should your submission be more widely published in the future then please don't hesitate to contact us again for a written contract and a publishable image.

Best of luck,

Louisa

Courtauld Images (SCTE Ltd)

The Courtauld Institute of Art
Somerset House, Strand, London WC2R 0RN

Tel: + 44 (0)20 7848 2879

Fax: + 44 (0)20 7848 2589

images@courtauld.ac.uk

www.courtauld.ac.uk

(Monday to Thursday)

Coming soon to The Courtauld Gallery:

The Spanish Line: Drawings from Ribera to Picasso

13 October 2011 – 15 January 2012

The Courtauld: 75 years opening minds to art

Dear Stanley,

You are entirely free to use any material sourced from Memoir 85.

The only provision is that you prominently acknowledge the CGS as the source of all material used.

Kind regards

Danie

DJ Barnardo
Manager: Information & Collections Management
Council for Geoscience
e-mail: barnardo@geoscience.org.za
Telephone: 012 841-1072

From: Council for Geoscience [<mailto:webmaster@geoscience.org.za>]
Sent: Thursday, October 20, 2011 8:08 AM
To: info; Webmaster
Subject: Contact email (www.geoscience.org.za)

Somebody sent you an email using the contact form on your website. This is what he entered:

Name: Stanley Sher

Phone: 011 7280398

Mobile: 083 2732705

Email: thesheremail@gmail.com

Message: I would like to request permission to use three images from one of your publications within my MAFA dissertation which will be submitted to WitsUniversity. Due to the fact that Wits now publishes a PDF version of every thesis on its library website it is now necessary to obtain permission. The three images are from Memoir 85 edited by TC Partridge. I will provide further details once I'm in contact with the appropriate person.

The following lines contain information which has not been entered by the user, but was collected by the server.

Date: 2011/10/20 08:08:11

Form URL: http://www.geoscience.org.za/index.php?option=com_dfcontact&Itemid=560

User agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:7.0.1) Gecko/20100101 Firefox/7.0.1

Host: 8ta-151-35-172.telkomadsl.co.za

IP: 41.151.35.172

Port: 50984

Stanley Sher

From: Katz, Charmaine [ckatz@hofv.com]
Sent: 23 February 2012 12:31
To: 'thesheremail@gmail.com'
Cc: Carey-Williams, Matthew
Subject: RE: permission to use a Richard Long image in a dissertation

Dear Stanley,

We have checked with Richard, and it is completely fine for you to use this image, as it is for educational purposes. However, before you publish this online on your university's website, the image needs to be cleared by DACS, who handle all of Richard's copyright.

If you send an email to Ruth at ruth.busby@dacs.org.uk stating that you have spoken to the gallery and we have approved your use of this image, then they should clear this for you.

Do let me know if you need anything else.

Kind regards,

Charmaine Katz
Executive Assistant to Matt Carey-Williams
Haunch of Venison

6 Haunch of Venison Yard
London W1K 5ES

T +44 (0)20 7495 5050
F +44 (0)20 7495 4050
E ckatz@hofv.com

From: Carey-Williams, Matthew
Sent: 23 February 2012 08:03
To: 'thesheremail@gmail.com'
Cc: Katz, Charmaine
Subject: Re: permission to use a Richard Long image in a dissertation

Dear Stanley,

My EA, Charmaine, will come back to you directly regarding this. CK - ask Ben to check with Richard.

Thanks,

Matt

From: Stanley Sher [<mailto:thesheremail@gmail.com>]
Sent: Thursday, February 23, 2012 07:44 AM
To: London_hov
Cc: Carey-Williams, Matthew
Subject: FW: permission to use a Richard Long image in a dissertation

Dear Haunch of Venison

THE DAVID HOCKNEY NO. 1 U.S. TRUST

DAVID HOCKNEY, TRUSTEE
7508 SANTA MONICA BLVD., LOS ANGELES, CALIFORNIA 90046
FAX: 323/850-1651 EMAIL: REPRO@HOCKNEYPICURES.COM

TO: WITS UNIVERSITY SCHOOL OF EDUCATION
27 ST. ANDREWS RD. PARKTOWN
JOHANNESBURG, GAUTENG 2193
SOUTH AFRICA

DATE: 9/30/2011

ATTN: STANLEY SHER

RE: DISSERTATION "ENCIRCLING
THE LAND: PHOTOGRAPHIC
VISUALISATIONS OF THE
EXPERIENCE OF A
LANDSCAPE"

TERMS: REPRODUCTION RIGHTS FOR ARTWORK BY DAVID HOCKNEY OWNED BY THE DAVID
HOCKNEY NO. 1 U.S. TRUST

1. ONE TIME NON-EXCLUSIVE WORLD REPRODUCTION RIGHTS FEES:

BLACK & WHITE INSIDE USE	\$100.00 PER IMAGE
COLOR INSIDE USE	\$200.00 PER IMAGE
BLACK & WHITE COVER USE	\$750.00
COLOR COVER USE	\$1,500.00

*FEE WAIVED
ONE TIME
REPRODUCTION
ONLY*

2. PAYMENT FOR RIGHTS FEES ARE DUE BEFORE PERMISSION IS GRANTED AND/OR BEFORE THE RELEASE OF PHOTOGRAPHIC MATERIAL. ALL PAYMENTS MUST BE IN U.S. DOLLARS, MADE PAYABLE TO: **THE DAVID HOCKNEY NO. 1 U.S. TRUST**. PAYMENTS MUST BE MADE BY A BANK DRAFT DRAWN ON A U.S. BANK; OR BY WIRE TRANSFER TO: CITY NATIONAL BANK. ACCT #:112-993-452. ROUTING #:122016066 (PLEASE MAKE SURE YOUR BANK DOES NOT DEDUCT THEIR WIRE FEES FROM THE TOTAL AMOUNT DUE TO DAVID HOCKNEY.) PLEASE USE YOUR COMPANY NAME ABOVE AS REFERENCE ON YOUR WIRE; OR WE ACCEPT ALL MAJOR CREDIT CARDS. IF PAYING BY CREDIT CARD, PLEASE PROVIDE THE TYPE OF CARD, NAME PRINTED ON THE CARD, CARD NUMBER, AND EXPIRATION DATE.

3. CREDIT ACKNOWLEDGMENT:
DAVID HOCKNEY
"MERCED RIVER, YSOEMITE VALLEY, SPET. 1982"
PHOTOGRAPHIC COLLAGE
EDITION OF 20
52 X 61"
© DAVID HOCKNEY

4. WHERE THE IMAGE IS TO BE REPRODUCED ON THE COVER OF THE PUBLICATION, WE REQUIRE BEFORE PRINTING, A FINAL COLOR PROOF WITH TYPE SET CREDIT LINE FOR APPROVAL BY THE ARTIST.

5. ALL PHOTOGRAPHIC MATERIAL LOANED MUST BE RETURNED TO THE ABOVE ADDRESS. IF MATERIAL IS NOT RETURNED, YOU WILL BE INVOICED FOR THE FOLLOWING REPLACEMENT COSTS:

BLACK & WHITE PRINTS (ALL SIZES)	\$16.00
8X10 COLOR TRANSPARENCY	\$40.00
4X5 COLOR TRANSPARENCY	\$30.00

6. WE REQUIRE 1 COMPLIMENTARY COPIES OF THE PUBLICATION. ALL COPIES ~~SHOULD~~ BE MAILED TO THE ABOVE ADDRESS.

✓ SSher
SIGNED IN AGREEMENT

✓ 4/10/2011
DATE