Symbiosis

Jan Philip Raath
RTHJAN002

Documentation and commentary on the body of practical work submitted for the degree of Master of Fine Art. Faculty of Humanities. University of Cape Town. 2017

Declaration
This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work or works of other people has been attributed, and has been cited and referenced.

Acknowledgements

I would like to thank all the people who supported me and made this degree possible:

My supervisors, Stephen Inggs and Johann van der Schijff, who stood by this project and gave their continued support and insights.

Peter Jenks for his technical assistance and training in the digital fabrication workshop.

My partner Ronelle Eckard for all the late nights, assistance and being amazingly supportive throughout.

Pierre le Riche for his help and valuable input, as well as tolerating my mess in studio.

Anna Stielau for her insightful editing.

Candice Jezek for the catalogue design, layout printing and binding.

The support staff at Michaelis.

The Hiddingh Hall library staff.

My Parents Nelius and Estelle Raath for all their support and financial assistance through the years.

All my family and friends who supported me through this project.

And the following grants and scholarships for making this project financially possible:
The Masters Research Scholarship, the Jules Kramer Music & Fine Art Departmental Scholarship and the Jules Kramer Travel Bursary for the opportunity to visit the Venice Biennale.

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Introduction

This story begins in the late 1700's, a moment at which Western philosophy had decided that:

> Direct access to reality is impossible. Thinking can only talk about the way the human and the world correlate together.
> There is a crack in reality. Facts are given to us but their conditions of possibility transcend them.
>
> At this very same point, humans begin to deposit a thin layer of carbon in the Earth's crust, directly intervening in the reality to which they tell themselves that they have no access: this is the beginning of what is now called the *Anthropocene*[1], a period in which human history intersects with geological time (Morton, 2013: 19).

This epistemological shift described by Morton caused a break or, as Chris Drury puts it, created a 'False Dichotomy,' between human and nature (Drury in Brown, 2014: 73). This contradictory view of the natural world – removing humans, at least conceptually, from nature – caused indifference which has led to ecological crises and situations that seem to be beyond our control (Gast and Gevers, 2013: 10).

I believe art has the power to draw attention to this destructive condition and help shift the paradigm by creating valid new perspectives on the subject. Through exploring alternatives to accepted modes of living that contribute to this condition, or looking differently and more carefully at specific aspects of the world, artists dealing with nature have already managed to do just that in many cases. Art production allows for more freedom and experimentation in the approach to ecological issues as it does not have to follow the same constraints, rigid rules and guidelines as the sciences. Even though there are scientific studies and advancements that happen across multiple fields, the strict control that is necessary during tests and experiments does not allow for the freedom of approach that is characteristic of collaboration between arts and sciences.

Environmental[2] artists often transcend these 'narrow limits of specialization' by employing interdisciplinary strategies and working collaboratively across multiple fields (Matilsky, 1995: 5). This interdisciplinary,

[1] The Anthropocene is a contested term popularly used for the current epoch in Earth's geological time scale. Although officially the Holocene is accepted as the current epoch, there has been a push by scientists and environmental activists to acknowledge a new era in geological time due to the lasting influence that human activity continues to have on the earth. The term was coined by atmospheric chemist Paul Crutzen in 2000 (Stromberg, 2013).

[2] I use the term 'environmental art' as an umbrella that encompasses art production that focuses on the natural world. These modes of production include historically significant genres of art production such as land art and earthworks, which are predominantly occupied with the production of art in specific settings in the landscape and often on a large scale, and what has become known as eco-art, or multidisciplinary art production using non-traditional methods and materials to make work that actively engages and makes statements on ecological issues. The collaborative element in these types of art production is what draws them together in this field of research: land art and earthworks may operate in collaboration with architecture, building industries, and industrial landscapes, while eco-art facilitates a much wider array of interdisciplinary collaborations between scientists, activists, and increasing use of computerised technologies.

innovative mode of art production offers multiple entry points, making it possible for a wider audience to be reached (Weintraub, 2012: 5). Again, this strengthens the premise that environmentally-oriented art can be a valuable tool to navigate the complex divide between nature and culture..[3]

This document aims to further explore the use-value of environmental art, with an emphasis on its capacity to bridge the nature/culture dichotomy. The first chapter offers background information on the key concepts and theories that are crucial to the understanding of this project, such as *nature* and *culture*. It includes a discussion of the nature/culture issues that are central to the field of contemporary environmental art. The second chapter provides a concise historical context for contemporary environmental art and its origins. Although the relationship between humans and nature is as old as the human species, the focus here will be on Land art of the 1960's onward, as this can be seen as the conceptual starting point of the culture/nature debate in contemporary art production. Nature as subject matter in contemporary art is a wide and expansive field, encompassing gigantic and invasive earthworks; quiet and solitary works in nature that use only the materials found in an area, usually documented in the form of a photograph; works bordering on eco-activism often taking the form of protest art and community projects; carefully curated projects that tell a story of the natural world, and innovative collaborations between art and the sciences. Each one of these approaches holds merit in exploring, unpacking, and renegotiating the false dichotomy between nature and culture.

The third chapter is a discussion of my own work in the context of existing scholarship and production in contemporary environmental art. It contains an explanation of the larger body of work, as well as the individual sections and their unique characteristics. The final chapter puts forward my position in relation to nature and culture. It analyses the value of my environmentally-oriented art production and concludes with the findings and knowledge gained from the research journey.

[3] Culture can be defined as, 'The arts and other manifestations of human intellectual achievement regarded collectively; the ideas, customs, and social behaviour of a particular people or society; the cultivation of bacteria, tissue cells, etc. in an artificial medium containing nutrients; or the cultivation of plants' ('Culture,' 2017). There are thus numerous connotations to the word from biological to social. In the context of this project, however, the first two definitions are of particular relevance.

Nature/Culture

> And if a child's vision of nature can already be loaded with complicated memories, myths, and meanings, how much more elaborately wrought is the frame through which our adult eyes survey the landscape. For although we are accustomed to separate nature and human perception into two realms, they are, in fact, indivisible (Schama, 1995: 6).

Before examining art and its alternative ways of perceiving and being in nature, there must first be an understanding of what the current conception(s) of nature is/are. Timothy Morton (2013: 20) argues that the very concept of nature is limiting in that it always excludes something or is used to include a set of things selectively in order to bend to the will of human need and greed. Such a *set* is infinitely expandable to include literally everything from plants and animals, to the sun's rays and comets as well as 'spoons and traffic cones.' Morton (2009: 2) further warns that because of all this 'ideological intensity,' nature can ironically impede a 'proper relationship with the earth and its life forms.' Artist Herman de Vries prefers not to even use the term nature, precisely due to the loaded and malleable character of the word. He instead speaks of 'primary reality' (Brown, 2012: 73). For the sake of simplicity I will, however, continue to use the term *nature* to denote those parts of the world which are not 'directly' associated with human intervention (such as forests).[4] As demonstrated by Morton (2013: 19) in the opening quote to this document, the effects of humans on the natural world have a direct influence on everything, including things that are usually seen as separate from human spheres. The fact is that the beginning of the Anthropocene can be pinpointed with 'disturbing accuracy' on the geological time scale[5] through the carbon layer deposited on the earth's crust by human activities.

The way nature is perceived today is a constantly fluctuating concept influenced by a vast array of external and internal factors. It is different from what it was during the industrial revolution and the natural world is as much a product of 'nature' as it is of human cultural constructs, both physically and mentally (Soper, 1996: 26). Again, this varies from person to person, or group to group. A person living in the Peruvian Amazon has a very different relationship and cultural construct of nature than I have, living in a post-colonial, multi-cultural city at the tip of Africa. This project is then seen from my own cultural context, even though I try to incorporate other prominent points of view that shape the field around nature/culture.

Two contemporary conceptions of nature that resonate most with my practice are ecological thought and what Soper (1996: 22) calls a postmodernist view. The latter stems from an understanding of nature as an elitist and imperialist tool of division in the use of

[4] I use forests as an example as they are seen as naturally occurring unlike plantations, which are man-made 'forests.' I have already demonstrated that nothing is truly untouched by humans and our influence on the natural world.

[5] The Geological Time Scale is used to trace the history of earth and its inhabitants by looking at the different layers of rock formations in the earth's crust and their contents (University of California Museum of Palaeontology [UCMP], 2011).

land and natural resources. Ecological thought, in its application to rectify and stop environmental damage, uses a cultural construct of nature primarily from the position that natural disasters such as climate change threaten the existence of humans, as well as all other organisms and animals on Earth. These are in themselves socially-produced, cultural constructs (Smith, 1996: 50). They are valuable constructs as they focus attention on dire issues arising from the way humans act out their relationship to the natural world, particularly activities that excavate, overuse, and pollute the environment. Both schools of thought have major relevance and overlap in places, including in the idea that nature is as much a construct of culture as it is of physical, natural processes, and the idea of nature as a tool to impose imperial sovereignty on those who have less control over, or access to, land and resources (Ross, 1996: 29). Conversely, a romanticized view advocating 'back to nature' and 'back to the land' movements is often at the core of these arguments. A return to a physical, labouring relationship with the land can bring with it oversights of the divisions of power, leading to a critical opposition to ecology, and a form of Land Art understood as an 'elitist' occupation for a nostalgic Western middle class (Malpas, 2013: 19).

Joseph Beuys, a German conceptual artist working in the mid to late twentieth century, espoused a version of this narrative. He influenced the contemporary art world and political thought through his 'back to nature' approach to art-making. His ideal was to turn everyone into artists, designers, sculptors, or architects, building a 'social sculpture' (Weintraub, 2014: 67). Beuys' approach stems from an idealization, placing nature on a pedestal and keeping it out of reach of many who cannot access ecological discourse and artistic practices concerned with nature. This is sadly contrary to Beuys' core idea of social sculpture in which 'society as a whole becomes a work of art that also serves as a participatory public platform with the potential to reshape society' (Biddle, 2014). Paradoxically, this attitude, while intended to widen the borders of art, also creates exclusivity and singularity in its approach to ecology, setting up an unreachable goal of harmony between nature and culture.

Most of the current discourse around land use is a result of emancipatory ideals that came with postmodern thought (Lutzer, 2001). The idea of freeing land and resources from overuse and abuse goes hand in hand with the mobilisation of identities, including race and class, as sites for social agency and emancipation inaugurated by some postmodern and postcolonial thought. Inevitably these political issues will have to be tackled in a similar way to climate change, due to the close correlation between ecological concerns for environmental health and the current divisions of land use resulting from colonisation. As Félix Guattari suggests in *The Three Ecologies* (1989), it is the Achilles heel of traditional environmentalism to separate the natural, social, and individual aspects of ecology into separate entities.

In the body of work that this document frames, I choose to focus on dealing with anthropocentric 'domination' over the natural world, and specifically investigate contemporary, ecologically-oriented art production's place in this dialogue.

Land, Environmental, and Eco Art

> Nature is the art of which we are a part (Grande, 2004: 239).

Characterized by a duality between 'rational, mathematical, scientific precision and intuitive, emotional, religious feeling' (Malpas, 2012: 162), Land art invokes mythical and spiritual connections to 'sites' and landscape by projecting geometric shapes with universal significance onto these 'sites.' Moving away and criticising clinical galleries as being bourgeois, economically-oriented spaces was a key factor in the development of earthworks (Grande, 2004: 239). The grand scale of the works also made it impossible for them to be exhibited in a gallery and challenged the status quo. Site specific, remote, and incredibly resource-intensive, these works paved the way for future artists to develop new and increasingly multifaceted works outside in the landscape whilst simultaneously influencing the way that nature-based art was traditionally viewed in the gallery.

The move from gallery to landscape isn't the only aspect of environmental art to which Land artists contributed. An increasing awareness of the relationship between humans and nature started to develop in the ways that landscapes were approached in earthworks and Land art. Arguably the most well-known and influential Land artist is Robert Smithson. His formative work *Spiral Jetty* (1970) (Fig.1), situated in the Great Salt Lake of Utah, consisted of a huge quantity of basalt rock and sand used to displace the water at the edge of an abandoned quarry next to the lake in the shape of a giant spiral. Smithson's work was seminal in the development of Land art as well as in subsequent contemporary environmental art forms.

Apart from searching for the physical attributes of the site of *Spiral Jetty* (1970), such as pink algae, salt crystals, and the primeval qualities[6] invoked by this combination, Smithson also looked for 'industrially devastated landscapes' like abandoned quarries in his subsequent works, including *Spiral Hill* and *Broken Circle* (both 1971) (Fig. 2) (Beardsley, 1984: 23). The reason was to double these art works as land reclamation projects, thus allowing them to function both on an artistic and an ecological level, or, as Smithson puts it, 'art can become a physical resource that mediates between the ecologist and the industrialist' (quoted in Beardsley 1984: 23). Already at that time, Smithson realised that 'human interventions in the landscape are no more unnatural than earthquakes and typhoons' (Ibid).

Many of the Earthworks created during this period go against the grain of contemporary thinking about ecology due to their often invasive excavations. Michael Heizer's *Double Negative* (1969-1970) (Fig.3) and Smithson's *Spiral Jetty* (1970), for example, both used land-moving machinery in processes reminiscent of mining. Heizer's famous piece used bulldozers to excavate two 15 metre deep, 13 metre wide and 457 metre long trenches, displacing 244,800 tonnes of earth to create something that Heizer described as 'nothing […] yet still a sculpture.' Even at the time, criticism was levelled at earthworks as they were seen as destructive processes that do not positively contribute to the natural environment (Kastner and Wallis, 1998: 29).

[6] In a video interview with Smithson conducted while flying over the spiral in a small plane, he mentions the primeval qualities that the combination of salt, water, and basic organisms such as algae hold. He likens it to the 'cosmic soup,' a common evolutionary theory explaining the evolution of living organisms on earth from this nutrient rich concoction (Smithson, R. et al., 2016).

Figure 2. Robert Smithson, Broken Circle/Spiral Hill (1971), green water, white and yellow sand flats/earth, black topsoil, white sand. Emmen, Holland.

Figure 1. Robert Smithson, Spiral Jetty (1970). Basalt rock, salt crystals, earth, water. Great Salt lake, Utah, USA.

Figure 4. Chris Drury, Carbon Sink (2011). Beetle killed pine logs and coal. University of Wyoming campus, Laramie, USA.

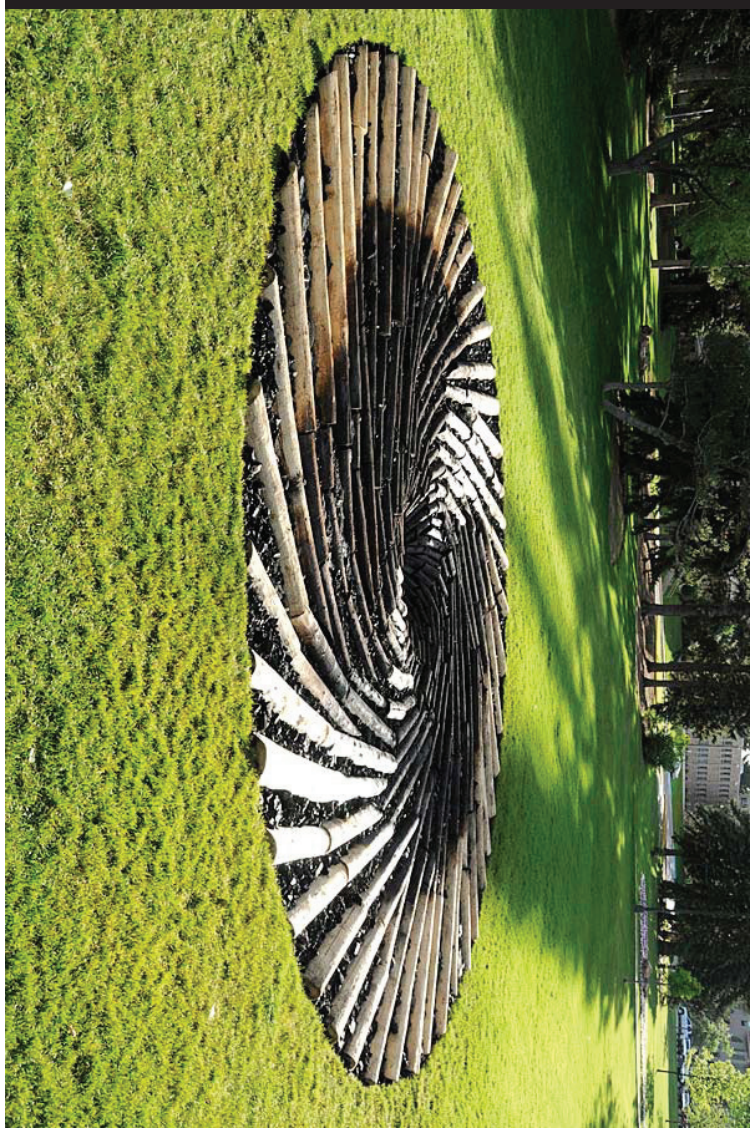

Figure 3. Michael Heizer, Double Negative (1969-1970). Displacement of 240,000 tons of rhyolite and sandstone. Mormon Mesa, Overton, Nevada, USA.

Figure 6. Herbert Bayer, Mill Creek Canyon Earthworks (1982). Sculpted Earth, pathways, water, lawns. Kent, Washington, USA.

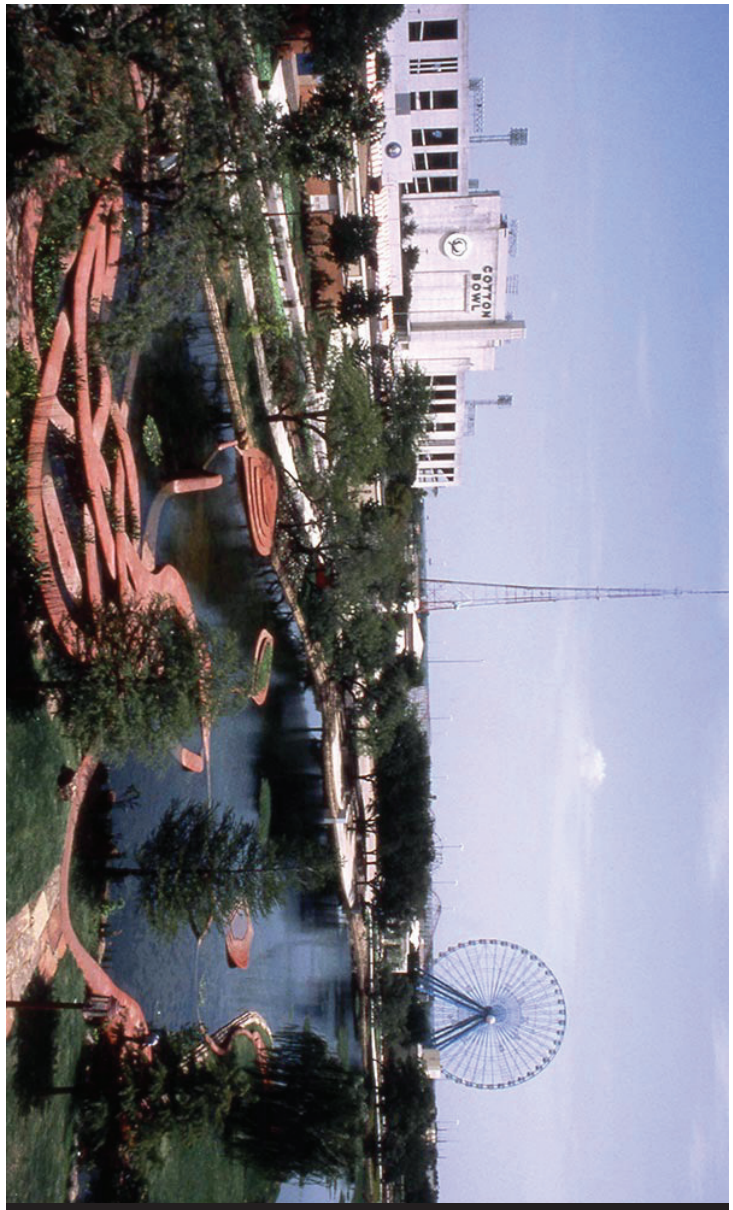

Figure 5. Patricia Johanson, Fair Park Lagoon (1981). Bioremediation of previously degraded Leonhardt Lagoon. Terra cotta-coloured gunite sculptures/pathways, indigenous plants. Dallas, Texas, USA.

Due to these destructive processes the implementation of large-scale earthworks was short-lived, even though they played a crucial role in pioneering the development of contemporary ecological art. Considering the negative impacts that these works have on the natural world, similar ways of working – although not quite on the same scale and magnitude – are still provocative and valuable in certain instances. An example of this would be Chris Drury's *Carbon Sink* (2011) (Fig. 4). The work was intended to engage climate change and global warming issues and consisted of pine logs and coal arranged in a spiral pattern that turned into a vortex in the centre. The intention was for nature to eventually take its course with the work. However, it was removed from the grounds of the University of Wyoming after pressure from financial backers who had interests in the coal industry. Clearly the work was successful in eliciting a political response (Brown, 2014: 74).

In contrast, other forms of earthworks from the 1970's onward were created to be longer-lasting and more culturally beneficial, such as Patricia Johanson's *Fair Park Lagoon* (1981-86) (Fig. 5). Employing a restorative process she 'revitalized' a once 'thriving wetland habitat' into a healthy, accessible work of cultural and natural significance that used the plant and animal life of the ecosystem as inspiration for the architectural design of the bridges, walkways and benches in the park (Kastner and Wallis, 1998: 158).

Herbert Bayer's *Mill Creek Canyon Earthworks* (1979-82) (Fig. 6) also employs this strategy, considering the need for both environmental remediation and the cultural use of natural landscape. Through its elegant geometric shapes incorporated into this once devastated landscape, the work not only offers an enhanced outdoor experience to the public. It has also 'been successful in protecting the town of Kent from destructive floods,' as well as aiding in the rebuilding of salmon habitat (Weintraub, 2012: 61). Both of these latter examples double as recreational parks that can be enjoyed by anyone regardless of their significance as artworks.

Although this mode of environmental art production shows clear benefits with both environmental and cultural relevance, it is also not without its flaws. Alan Sonfist's *Time Landscape* (1965-present) (Fig. 7) (described later in this document) received harsh criticism due to its correlation with the ideals of 1960's 'preservationist' ecology, or attempts to return certain wilderness areas to the way they were before any colonial interventions took place (Kastner and Wallis, 1998: 33). This is a fraught concept, as has already been noted in the previous section of this document, in that the influence of the human species goes far beyond what is comprehendible. Besides, the idea of restoring the landscape to a state before colonial influence does not account for the influence of indigenous cultures who occupied the land previously, or whatever might have happened before that, and so forth. The value of Land art and Earthworks lies in the way that artists started to draw attention to ecological issues, and in many instances developed techniques to remedy those issues in ways that the scientists of the time could not.

Figure 7. Alan Sonfist, Time Landscape (1978). Indigenous plant life, soil, rock samples. Greenwich Village, New York, USA.

Moving on from its heyday, Brown (2014: 72) juxtaposes these large-scale earthworks against more subtle approaches to the natural world that have become more prevalent in contemporary nature-based art such as ‘observing, collecting and manipulating nature’s forms in ways that leave only temporary or imperceptible traces.’ Parts of my own work are produced in this way, through collecting materials from forests that, upon investigation, will not radically alter the ecosystem that I take them from, or collecting amounts of organic matter that should not harm the populations of organisms or their relationships to other organisms.

The Spiral Shrine/Library

> […N]umbers can go into infinity while objects are finite. Numbers are the vitality of the world (Holman, 2014).

The body of work this document frames is based on the premise that art production can act as a valuable asset in the advancement of an ecologically and morally sustainable way of living, by looking carefully and differently at aspects of everyday life and presenting the results of this exploration to an audience who would ideally be open to interpreting and learning from the work. In order to successfully bring this ideal across to the viewer, I decided to formulate the visual elements of the work in a specific way. The reason for this formulation is twofold. Firstly, the idea to create a library or a shrine felt apt due to both of these fulfilling the purpose of disseminating knowledge. Secondly, a spiral shape was chosen due to the universal significance of this shape in nature. The word 'shrine' has its origin in the Latin word *scrinium*, which, according to the Oxford English Dictionary, means 'a chest for books' (2017). The link between the shrine and a library thus felt natural and led to the creation of *Spiral Shrine/Library.*

The work investigates aspects of nature and culture, presenting them in ways that brings a new perspective to things that are easily overlooked or taken for granted. Being unable to focus on the natural world in its entirety, my own lifelong fascination and mystical attraction to forests made it easy to narrow down the area of the natural world on which I wanted to focus. The entire structure is based on the use of wood as a natural art-making material. It delves deeper into the inner workings of the ecosystems in forests and plantations and aims at broadening my concept of these ecosystems and the relationship that I have with them as an artist. The link between the library, the shrine and books as products of wood is again strengthened through this focus.

As technologies change, old methods are left by the wayside and often resurrected for purpose of novelty and to fill niches left by advancement.[7] The *Spiral Shrine/Library* acts simultaneously as an exploration of symbiotic relationships between old and new technologies and of the potential that these relationships hold for developing new understandings of the nature/culture divide. The merit in re-exploring old technology in relationship with new technologies lies in the potential to create hybrid ways of art production. These would be efficient in execution and conscious of the natural materials employed. This is an ideal that Joseph Beuys also advocated in one of his last lectures in 1986. His 'living archive' narrative suggests that the old should be utilised in contemporary thought and art in order to create new forms of thinking that build on the past (Biddle, 2014).

The methods used in the construction of the structure ranged from hand carpentry, which has a very personal relationship with wood, to the efficiency of production and design offered by computer programs and CNC routers. Other processes contained in *Spiral Shrine/Library* that similarly combine old and new technologies include analogue and digital photography, as well as hand and digital printing. At

[7] A good example of this is fine art printmaking, where redundant reproduction techniques are given new life and new levels of skill are obtained, surpassing knowledge of the techniques before they were discarded in favour of new, more efficient processes.

Figure 8. Mario Merz, Travolo a spirale in tubolare di ferro per festino di giornali datati il giorno del festino (1976). Aluminium, glass, fruit, vegetables, branches, beeswax, newspapers, neon numbers. Dimensions variable.

its core, all the content has the gaze on nature that I have as a human observer, trying to grapple with the idea of reuniting myself and my work with the natural world while still using new technology to effectively implement new ideas in my art production – in other words, trying to fit back into nature and creating a new symbiosis without lamenting about going back in time or resetting the world to factory settings.

The spiral holds both spiritual or mystical qualities and mathematical, geometric, and scientific qualities in its relation to nature. It is a form that is found everywhere in the universe: the spiral arms of our galaxy, the weather patterns rushing over the earth's surface and the formation of certain plant cells are some of the more prominent examples. The sequence of numbers that account for the logarithmic spiral 'has asserted profound philosophical, cultural, and ecological significance since the Pisan monk, Leonardo Fibonacci, discovered it in the thirteenth century' (Weintraub, 2012: 98). Interconnectedness is thus a unifying theme that holds the work together.

Spirals have been used extensively in environmental art. Robert Smithson's *Spiral Jetty*, discussed earlier, relates to my own *Spiral Shrine/Library* not in its grand scale and direct presentation in a landscape but in the idea that it acts as a mediator between ecology and industry via the means of art. Mario Merz, an Italian artist who was closely associated with *Arte Povera* movement, also used the spiral extensively in his work. His work often contains mystical qualities and ritualized subject matter. Perhaps of greater relevance in both execution and concept to my own work, he used the spiral as a display system to juxtapose various objects. As the title implies, his installation *Travolo a spirale in tubolare di ferro per festino di giornali datati il giorno del festino* (1976)[8] (Fig. 8) consists of a glass spiral table containing fruits and vegetables juxtaposed with a grid of newspaper stacks, each accompanied by a Fibonacci number in neon light. The spiral and the fruits 'materialize the abstract principle of nature's reproductive capacity inherent to the Fibonacci series' and the newspaper stacks 'embody an industrial form of proliferation used to disseminate human observations' (Weintraub, 2012: 98-100).

The visual elements in his work relate more directly to my own than Smithson's *Spiral Jetty* in that the main component is a spiral display, which draws a comparison between 'natural' geometric shapes (the spiral) and rigid Euclidian geometry (the newspaper grid). The natural is also used to invoke connotations of ritual and mysticism. On the other hand, the rigid geometry of the newspapers is used to contrast the human-made with the natural, particularly in how these objects are used to disseminate knowledge. Merz' fascination with numbers, and specifically the Fibonacci sequence, remained a large part of his work throughout his career. He used the sequence as a 'metaphor for the ultimate power and abundance of nature' (Holman, 2014: 381). This is something that also forms a large part of my own incentive to use the spiral as the focal point of this project.

[8] Roughly translated as 'Iron tubular spiral table with newspapers dated the Day of the Feast.'

The 10 Sections of the Spiral

Throughout the research process I have looked at a number of different ways that artists approach the concept of nature, as well as developing and playing with several of my own conceptions of nature[9] through visual art practice and discourse. The *Spiral Shrine/Library* has been split into 10 sections, each referencing one of these modes of production and a view of nature outlined earlier in this text. In addition, the contents were carefully chosen to form a unifying whole using various devices and materials that deeply connect with one another both biologically and conceptually. An example is the reference to mushrooms throughout the work. The mushroom itself is only a fruit of the larger subterranean body of the fungus, which is made up of strands of mycelium running through the ground and forming relationships with other organisms, such as tree roots. This is extended as a metaphor of interconnectedness in *Spiral Shrine/Library* through the way each of the materials relate to one another. Trees form symbiotic relationships with mycelia that enhance their growth and in turn provide the requisite shade for the undergrowth. This produces the perfect climate for other species of fungi, shelter for animals and insects, and – important to the fungi – the optimum environment for their own reproduction. It also offers the sculptor better and stronger wood. When examining the materials present in *Spiral Shrine/Library,* it does not take long to figure out how and where each element fits into the bigger picture.

These sections make up the different stages of my journey through this research project, and the various roles I took on in order to successfully navigate the field. Each section has been given a name that relates to the position the observer takes when initially looking at the objects. In most cases I used my initial observations or the activity that I was busy with as an entry point to further explore the materials of each section.

The juxtaposition of fractal and Euclidian geometry is present throughout the *Spiral Shrine/Library* and is manifested in different ways. Fractal geometry represents natural landscapes and Euclidian geometry, cultural landscapes. Benoit Mandelbrot[10] (1977: 1) aptly describes this sentiment:

> Why is geometry often described as 'cold' and 'dry'? One reason lies in its inability to describe the shape of a cloud, a mountain, a coastline, or a tree. Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line.

I use the comparison between those natural shapes that were 'left aside as being formless' (Mandelbrot, 1977: 1) by standard geometry as a tool to visually map out the nature/culture divide, as well as show how these geometric systems – and by extension,

[9] My own worldview has been widely influenced by the cultural references of the West and it was only later in my youth when I started to actively diverge from this way of thinking and being. Through connecting with people from other cultures and being able to immerse myself in natural surroundings more often due to increased mobility, I was able to start shaping a new worldview that related more directly with my physical surroundings.

[10] Benoit Mandelbrot is the mathematician responsible for giving fractal geometry a name and using this natural 'chaotic' geometry in applications where measurement was previously impossible, such as successful equations for the surface area of human lungs, tree foliage, mycelial networks, etc.

Figure 10. Chris Drury, Poison Pie (2000). Amanita Muscaria spore print on black card with radiating lines of handwritten text in white in listing all the poisonous fungi and their effect on the body. 82 x 82cm. Private collection.

Figure 9. Chris Drury, Mushroom Wheel (2001). Mixed media, hand written text and a mushroom spore print on paper, mounted on board in 12 segments. 260cm in diameter. 3cm deep. Private collection.

the contrasting ways of thinking that they represent – could work together symbiotically in a remediation[11] process.

Section 1: The Mycologist

The field of mycology is rich with new knowledge development that holds possibilities to enhance and remedy many aspects of life. From curing cancer to neutralizing oil spills to changing our perceptions of reality, there is a fungus that will do the job (Stamets, 2005: 19-27). The ability of fungi to form symbiotic relationships with other organisms and the possibility of extending these to remedy ecological issues makes it a perfect analogy for the potential impact environmental art can have.

Chris Drury has used mushroom spore prints in his work in reference to his own relationship with nature. Many of these appear in personal works or calendars such as *Mushroom Wheel* (2000-2001) (Fig. 9), where diary entries radiate from the centre following the lines of the mushroom spore print. His work Poison Pie (2000) (Fig. 10) employs the same visual strategy, centrally radiating the names of all the poisonous fungi found in Britain (Gooding, 2002: 85). This piece highlights the potential fatality these mushrooms can cause, thereby challenging the romantic notion of the non-human natural world.

I view the use of spore prints in the *Spiral Shrine/Library* as a visual entry point and signifier of potentiality. The spore prints I have made are of *Psilocybe Cubensis*, a psychedelic or hallucinogenic mushroom that holds the potential to radically alter human perception, at least for a limited time, as well as playing an important role in nature as a *Saprophyte.*[12] The cross section of oak wood that accompanies the glass plates with the spore prints further hints at this symbiotic potential that unfolds in the *Spiral Shrine/Library.*

Section 2: The Apophenic

This section highlights humanity's inability to separate pre-conceived cultural ideas of nature from pure experience when entering forests and plantations. The tendency to read images and shapes into what are otherwise random patterns and materials, also known as apophenia, is in my opinion one of the reasons why humans are unable to have meaningful and unhindered relationships with nature. The constant drive to make sense of the world through the projection of images trapped in the mind negates the experience of what is really in front of the viewer.[13] This phenomenon needs to be overcome in order to affect changes that will, in turn, assist in navigating the nature/culture divide.

The apophenic process constantly comes to the fore throughout *Spiral Shrine/Library.* The spore prints in

[11] Remediation in this sense refers to 'the action of remedying something, in particular of reversing or stopping environmental damage' ('Remediation,' 2017)

[12] A Saprophyte is a fungus responsible for breaking down plant material and playing its part in producing new, nutrient rich soil, from which plants then grow to complete the cycle. They are also 'typically the first to grow on a twig, a blade of grass, a chip of wood, a log, a stump, or a dead insect or other animal' (Stamets, 2005: 21).

[13] A good example of the human minds apophenic capability is the Rorschach test.

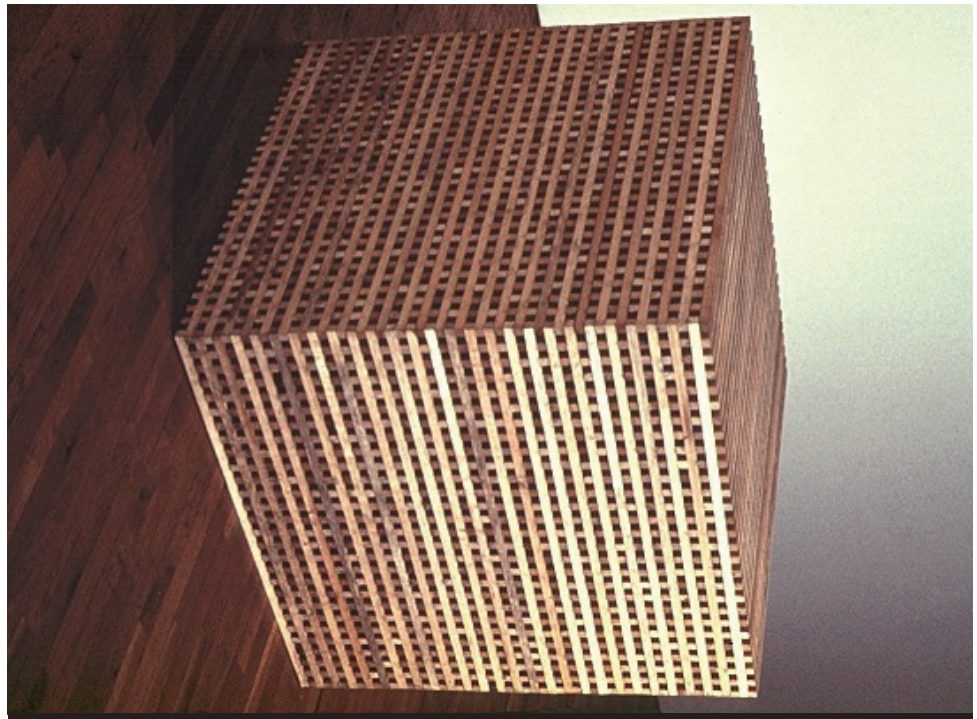

Figure 11. Jackie Winsor, Fifty-Fifty (1975). Wood and nails. 101.6 x 101.6 x 101.6 cm. Gift of Irving Stenn, Jr.; through prior bequest of Marguerita S. Ritman, Ben W. Heineman, Oscar L. Gerber Memorial Endowment, 2008.

the first and fifth sections, for instance, resemble an iris; something that visually connects to the human body but in no way relates directly to the actual nature and value of the spore prints. As an extension of this, the objects found in this section resemble mushrooms but are actually pine cones, carefully collected for this resemblance. This section acts both as a symbol for apophenia and as a reminder that nature also plays tricks on us.

Section 3: The Mystic

Nature-based art production is often endowed with an air of mysticism, perhaps due to the alternative approaches and ritualised processes it embodies in certain instances. Jackie Winsor invokes such ritualistic connotations in her work *Fifty-Fifty* (1975) (Fig. 11). The deceptive simplicity of the large, cubic shape is diminished upon closer inspection. The work consists of thin wooden slats painstakingly fastened with 20 000 nails (Liss, 1997: 19). The simplicity of the cube is played off against the grid-like, intricate and obviously labour-intensive process through which it was created. The experience of viewing this work also extends the notion of ritual. 'Moving around the cubes — quietly circling from a distance, slowly drawing closer, peering inside, stepping back — becomes a ritualised viewing process and, like many primal rituals, facilitates a transference of energies between physical presence and spiritual essence' (Ibid).

The wooden dodecahedrons in this section of *Spiral Shrine/Library* also contain a ritualistic aspect, both in their production – through carefully gluing together multiple pieces of planed wood slats, then cutting the precise angles of the shape with a hand saw – and their function as objects of chance, due to their resemblance to twelve-sided dice. The dodecahedron is made up of twelve pentagonal surfaces that together form a three-dimensional object.[14] They relate to the complexity represented by the Fibonacci sequence and show how humans simplify shapes and forms to fit the limitations that we set for ourselves. When chance is distilled to be an option out of twelve possibilities, the odds are acceptable, but when the odds are innumerable and unknown they are generally discarded as chaotic.

Section 4: The Holistic

This section is a synecdoche, connecting elements from all the sections of the spiral. It contains models and prototypes of a number of other sections as well as a model of the spiral itself. The whole within a whole, microcosm in a microcosm, acts as a humbling reminder that the human species and planet Earth are just a blip on the radar of an infinitely expanding and mostly unknown universe.

[14] The pentagon is relevant here due to its close association with the golden ratio and the Fibonacci spiral. When the lines of a pentagon are extended until they meet to form points a pentagram forms. Again, when the vertices of the pentagram are joined, another pentagon forms. This can be repeated infinitely, but more interesting is the fact that when the lines are measured in a receding order they differ in length from each other according to a factor that is precisely that of the golden ratio (Livio, 2003: 35).

Figure 12. Willem Boshoff, The Tree of Knowledge - Broken Garden (1996-1997). Shredded paper, shattered wood fragments, glue. 300 x 300 x 15 cm. BHP Billiton Art Collection.

Section 5: The Carpenter/Sculptor

The section contains two shelves, one with a cityscape made from decomposed woodblocks (caused by brown rot, or cubic rot, fungus) collected in forests, and the other composed of neatly planed and finished woodblocks collected from the off-cut bins at a local carpenter. Both of these distinctly different visual representations are in fact the same species of wood: oak.

Willem Boshoff works in this mode by incorporating aspects of conservation as well as historic and contemporary methods of recording knowledge in his series *The Tree of Knowledge* (1996-1997). Boshoff states that the series 'commemorates the tree in its sacrificial form – the book' (Boshoff in Siebrits, 2007). In *The Tree of Knowledge - Broken Garden* (Fig. 12) he arranged broken and splintered pieces of wood and torn recycled paper in a rigid grid referencing the process by which trees are broken and battered to form writing material (Ibid).

Similarly, the work in this section references the breakdown of trees. However, instead of only looking to what humans do to trees and how the wood is 'sacrificially' used, the gaze is also turned to what nature and other organisms do to wood. The process of natural decomposition is then juxtaposed with the process of preserving wood for construction. The same sculpting methodology is used in both of the works. In each case the material itself dictates the placement of each piece of wood. It is immediately noticeable how the decomposed woodblocks' pattern differs from the preserved blocks: the one is naturally fractal and the other, rigidly geometric.

Section 6: The Horticulturalist

Gardening can be seen as a symbiotic relationship between plants and humans. Plants can be carefully selected and nurtured in optimum growing conditions to the direct benefit of the plants, the humans tending to them, and other animals and organisms that move into the newly created ecosystem. The inseparability between nature and culture becomes apparent when we look at the natural world through the eyes of a gardener or horticulturalist. Buster Simpson's *Host Analog* (started 1991) (Fig. 13 & 14) highlights the interdependence between humanity and nature, something that is mostly taken for granted or obscured due to the false divide between the two (Brown, 2012: 82).

Simpson's work makes use of a dead tree cut into eight sections and displayed in an ark. The intention was for the indigenous seedlings from the forests surrounding Portland, Oregon, to use this dead Douglas fir as a 'host.' By doing this, Simpson aimed to create a connection between the inhabitants of the city of Portland and the indigenous plants inhabiting the neighbouring forests. This proved futile, however, as the 'host' was invaded by urban plants from the area. Simpson decided not to intervene and *Host Analog* thus became 'not only an exploration of death and rebirth in nature and a demonstration of mutualistic ecologies, but also an interplay of different forms of invasion and hospitality' (Brown, 2012: 82).

This section of *Spiral Shrine/Library* is converted into a garden that contains pine trees (Pinus Radiata). This specific type of pine tree is the same species found in most of the plantations where I gathered my

Figure 13 & 14. Buster Simpson, Host Analog (1991). Stainless steel irrigation, basalt, old growth (windfall) logs, city water, porcelain enamenl signage. 5.,2 x 27,4 x 9,1 m. Oregon Convention Center,

inspiration, mushrooms, and other materials. This section works as a cross-pollination with the adjacent section 6, containing the spore prints of mushroom species that only grow in direct symbiosis with trees.

Section 7: The Forager

> Mushrooms can feed you, kill you or cure you. They break down dead matter back into soil in which new life grows. As such they symbolize life, death and regeneration (Drury, 2014).

When foraging for potentially edible food, a relationship with the natural world is developed through learning the qualities of plants and fungi. Learning how to live off the land can be a potentially beneficial way of re-immersing oneself into the natural world and bridging the gap between culture and nature.

Like section 1, Section 7 contains spore prints taken from foraged mushrooms. These are known as mycorrhizal fungi.[15] The mycorrhizal fungi found in pine plantations as well as indigenous forests around the Western Cape offered the specimens for the spore prints in section 7. They extend the metaphor of potentiality referred to in my discussion of section 1. This also functions in combination with Section 6 and the pine trees it contains. Given the right parameters, these spores have the potential to germinate and grow in symbiosis with tree roots, even though it is improbable that the fungus will ever bear fruit (mushrooms) in this 'captive' state. The cultivation of these types of fungi has never proven successful. This acts as a reminder that, even though humans have the ability to cultivate and care for nature in certain aspects, there are limits to what they are capable of achieving without the help of nature.

[15] 'Mycorrhizal mushrooms (myco means 'mushroom'; rhizal means 'related to roots') […] form mutually beneficial relationships with pines and other plants.' Most plants actually have mycorrhizal partnerships and in many cases are actually key to the thriving and survival of many plants and trees due to the ability of the mycorrhizal mycelia to transport nutrients to the roots of the plants and trees (Stamets, 2005: 24).

Figure 15. Mark Dion, Neukom Vivarium (2006). Mixed-media installation, greenhouse structure. 80 feet long. Olympic Sculpture Park, Seattle, Washington, USA.

Section 8: The Botanist

Section 8 is an extension of section 6 and 7. In this section I further explore the relationship between fungi and plants and the capacity of humans to facilitate these biologically symbiotic relationships. I collected specimens of pine cones, tree stumps, and other organic matter – all of them playing host to various fungi and lichens – and transferred these to terrariums. The experiment led to new understandings of just how fine the balance is between an ideal environment for growth and certain demise.

The work contains organisms and functions which are not seen every day in a gallery or artist's studio. These samples of organisms and biological matter have been displaced from their native environment. This experiment was intended to see what happens when parts of these ecosystems are displaced and forced to live in a new environment. There, they are placed under scrutiny from an external observer who regulates the amount of necessary water and air by means of the rudimentary technology of a basic terrarium jar. It is interesting to observe how some of the fungi thrived in the new environment while others withered away, making way for the spores of new fungi to germinate and populate the substrate, and a few persisted and continued their 'natural cycle' seasonally until they fulfilled their duty of breaking down the substrate into soil, seemingly unhindered by the displacement.[16]

Mark Dion approached this experiment in a very similar way, but on a much larger scale in his *Neukom Vivarium* (completed 2006) (Fig. 15). Due to similar sentiments in the reasoning behind the work, I think it is useful to quote Dion's statement regarding *Neukom Vivarium* at length:

> I think that one of the important things about this work is that it's really not an intensely positive, back-to-nature kind of experience. In some ways, this project is an abomination. We're taking a tree that is an ecosystem – a dead tree, but a living system – and we are re-contextualizing it and taking it to another site. We're putting it in a sort of Sleeping Beauty coffin, a greenhouse we're building around it. And we're pumping it up with a life support system – an incredibly complex system of air, humidity, water, and soil enhancement – to keep it going. All those things are substituting what nature does, emphasizing how, once that's gone, it's incredibly difficult, expensive, and technological to approximate that system – to take this tree and build the next generation of forests on it. So, this piece is in some way perverse. It shows that, despite all of our technology and money, when we destroy a natural system, it's virtually impossible to get it back. In a sense, we're building a failure (Dion et al., 2007).

[16] I have had some of these terrariums for over 5 years, ample time to have an idea of how they change and develop.

Figure 16. Mark Dion, An Archeology of Knowledge (2011). Mixed-media installation. Brody Learning Commons, the Sheridan Libraries & University Museums, Johns Hopkins University, Baltimore, Maryland, USA.

Dion's work is executed with a large budget that allows for the proper regulation of variables in order to facilitate the continued life cycle of the organisms contained in the tree stump. Although my experiment is very humble and has varying results, the comparison between the two is what I find of value here. If the fine natural balances are disturbed to a tipping point, the technologically advanced methods followed in Dion's *Neukom Vivarium* will likely be the only way to preserve certain parts of important life cycles on earth. In comparison, the rudimentary technology used in my experiment only has a limited success rate. Considering that most humans only have access to basic technologies, this becomes at best a worrying notion.

Section 9: The Artist/Scholar

The need for reflection and analysis is a crucial part of navigating the nature/culture divide. In the end, the impact that an art research project will have hinges on the way it is presented. The study desk symbolizes such a place of reflection and the careful thought that went into the production of *Spiral Shrine/Library*. Mark Dion's fascination with the ways things are displayed and how meaning is created through the curation of objects has been a key influence on the project. The resemblance of the study section in *Spiral Shrine/Library* to display systems that we might find in natural history museums or botany labs is a reference to Mark Dion's various works that employ and critique the strategy of meaning-making through display.

Dion's *An Archaeology of Knowledge* (2011) (Fig. 16) looks critically at artefacts, objects, artworks and documents that are found in the collections of John Hopkins University. Although in its entirety the work does not relate directly to nature, it is still a very relevant reference in that it investigates *how* things are looked at and how the display of things can alter the way we look at them in relation to one another (Dion, 2014).

Section 10: The Environmentalist

In reference to the genre of Land art, this section is an extension of the spiral into the actual landscape. An area was identified where indigenous yellowwood trees once grew in dense coastal forests, but where now only barren land, ravaged by fire, drought and soil depletion, remains. In section 10 the spiral has conceptually been extended by an additional nine sections, represented by nine yellowwood trees planted in the actual landscape. The only link to the area is an obscured lithographic map containing contour lines. The bureaucracy of obtaining permits to plant trees, as well as the difficulties in approaching private land owners, influenced the decision to obscure the area where the spiral is extended, yet with clever investigation and some skill the area could be identified and the tenth tree remaining in Section 10 of the spiral (in the gallery) can be planted to complete the next sequence in the landscape. The contours of a landscape are like fingerprints. Hopefully over the course of the next few decades or so the spiral in the landscape will be able to grow to its full potential in order to supply habitat for other organisms and

Figure 17. Alan Sonfist, Time Landscape, southern end. (1978). Indigenous plant life, soil, rock samples. Greenwich Village, New York, USA.

creatures.

The sentiment can be likened to Alan Sonfist's work *Time Landscape* (1965 - present) (Fig. 17) in New York City. Through careful research into the natural history of New York City, his work offered one of the first sculptures that 'truly raised questions about our urban environment' (Grande, 2004: 239). The relevance of this work in terms of its meticulous presentation and representation of plants that would have been growing wild all over the landscape where New York City now stands had a lasting effect on everyday perception and way the city is seen. The elevation of this work to a national landmark and subsequent implementation of similar works in other areas further roots its impact on the natural/cultural landscape for future generations (Sonfist, Becker and Rosenblum, 2004: 237). Sonfist's use of orthographic maps to demarcate areas where new 'natural/cultural landscapes' are planned correlates with the use of topographic maps in my own work. Although my spiral tree extension does not relate to the urban landscape, it tries to achieve a similar goal of ecosystem enrichment and the possibility of questioning the currently degraded condition of the landscape in which the trees are planted.

Conclusion

> It is perhaps the purpose of art to enhance our awareness of the true nature of things (Gooding, 2002: 6).

I try to make sense of the world and navigate complex concepts and ideas within my cultural frame of reference and beyond through the collecting of natural materials and the creation of artworks. The artists discussed in this project are not people who fall into line or follow blindly. Instead, they take certain positions in order to navigate complex environments and grapple with intricate environmental problems that endanger both nature and culture. As far as possible they try to transcend the narrow limits of problematic realities and offer alternative ways of looking at the same issues. Some of these are valid and some of them are silly and misguided, but the fact is that valuable effort is being put into grappling with these issues.

The urge to restore nature to a previous iteration or a prelapsarian Eden is at the cusp of the romanticised conception of nature, and dangerously idealistic. It is a very strange ideal to be yearning to move back to the past. The world is not simply a computer that can be reset to factory settings. I feel the idea of preserving what is left of the natural world as it is now is more admirable if tackled alongside searching for, and experimenting towards, a new conception of nature that will not run into the same problems as our current models. The idea is not to lament what used to be, but to put all effort into looking much closer at symbiotic relationships between nature and culture, and using these as examples of how to utilise what is available to the advantage of creating better and more sustainable futures for all living creatures.

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