

MASTERING MYTHS AND WANDERING WALLFLOWERS

Botanical illustrations, gardens and the "mastery of nature"

by

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In partial fulfilment of the degree Master of Philosophy in the Visual Arts (Illustration)

at

Stellenbosch University



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March 2009

Declaration

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Date:2009-03-02

Abstract

This thesis investigates the historical roots of botanical illustration. It argues that far from being simply scientific representations of plants and flowers, empty of artistic comment and only accompaniments to a scientific text, botanical illustrations assisted in presenting plants brought to Europe from the colonies, in ways that influenced the easy assimilation and appropriation of these plants into European culture.

The "mastery of nature", which implies an attitude of dominance by humans over nature, is discussed as symptomatic of the European colonial period. European acts and attitudes of dominance are manifest in scientific approaches toward botany, botanical illustrations and gardens. This thesis proposes that attitudes of dominance have resulted in humans being spiritually and physically separated from nature.

This thesis proposes that associations of botany, flowers and botanical illustrations with the feminine have assisted in human domination over nature. In much the same way as female is dominated by male, in a human sense, so plants and flowers were pictured as feminine – replete with feminine associations of subservience, weakness and vulnerability – making a human domination of the plant world possible.

The artworks produced in conjunction with this thesis, for the degree Master of Philosophy (Illustration), aim to promote a sense of human attachment to and identification with the plants painted, in opposition to the separateness from nature that is promoted by the "mastery of nature". While traditional botanical illustration, in service to modern science, promoted the supremacy of vision as a way of knowing nature, the artworks draw attention to the unseen issues around plants and the human spiritual connections with them. This thesis proposes that, in a contemporary context characterized by an environmental crisis, there is a new role to be played by botanical illustration: it is felt that botanical illustrations should emphasize human connections with the plant world, thus alerting humans to the necessity of nature for our physical, as well as spiritual, survival.

Opsomming

Hierdie tesis ondersoek die historiese oorspronge van botaniese illustrasies en voer aan dat botaniese illustrasies nie alleen wetenskaplike voorstellings van plante en blomme sonder artistieke inhoud was, wat “bloot” geskep is om 'n wetenskaplike teks te vergesel, nie. Hierdie tesis voer aan dat botaniese illustrasies daartoe bygedra het dat plante uit die kolonies voorgestel is op wyses wat dit maklik gemaak het om hulle op te neem in die Europese kultuur en daarvan deel te maak.

Die "heerskappy oor die natuur", wat 'n houding van oorheersing van die mens oor die natuur impliseer, word bespreek as simptome van die Europese koloniale tydperk. Europese dade en houdings van oorheersing kom na vore in wetenskaplike benaderings tot die botanie, botaniese illustrasies en tuine. Hierdie tesis doen aan die hand dat hierdie houdings van oorheersing teenoor die natuur gelei het tot 'n geestelike en fisiese skeiding tussen die mens en die natuur.

Hierdie tesis stel voor dat assosiasies van die botanie, blomme en botaniese illustrasies met die vroulike, die menslike oorheersing van die natuur bygestaan het. Op soortegelyke wyse as wat die vrou in 'n menslike sin deur die man oorheers word, is "vroulike" eienskappe van onderdanigheid, swakheid en kwesbaarheid aan plante en blomme toegedig, en so is die mens se “manlike” oorheersing van plante in die hand gewerk.

Die kunswerke, wat saam met hierdie tesis vir die graad Meester in Filosofie (Illustrasie) geskep is, is daarop gemik om 'n gevoel van menslike verbondenheid en vereenselwing met die plante wat geskilder is, te bevorder. Dit staan in teenstelling met die skeiding tussen die mens en natuur wat hierdie tesis aanvoer deur die "heerskappy oor die natuur" aangemoedig is. Waar tradisionele botaniese illustrasies (in diens van die moderne wetenskap) sig bevorder as die vernaamste manier om die natuur te ken, trek hierdie kunswerke die aandag na die onsigbare aspekte van plante en ook die mens se geestelike verbintenis met plante. Hierdie tesis doen verder aan die hand dat daar in die hedendaagse samelewing, wat gekenmerk word deur 'n omgewingskrisis, 'n nuwe rol op botaniese illustrasies wag. Daar word aangevoer dat botaniese illustrasies die mens se geestelike verbondenheid met die planteryk moet beklemtoon om daardeur ons as mense se aandag te vestig op die noodsaaklikheid van die natuur vir die mens se fisiese en geestelike oorlewing.

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Introduction

This thesis investigates botanical illustrations as tools of possession and power within the social and historical context of imperialism and colonization. The idea of "the mastery of nature", a term which implies the human attitude and behaviour of dominance over nature, is considered in the light of both botanical illustration and the garden. It is proposed here that botanical illustrations, together with the classifying drive characteristic of botany from the mid-eighteenth century onwards, played an important role in presenting plants – indigenous to the colonies – as objects which could be easily assimilated into and owned by, European cultures. Botanical illustrations thus aided in the European mastery over the natural phenomena of the colonies. It is also proposed that associations between femininity, on the one hand, and botany and botanical illustrations, on the other, played a role in facilitating the European domination of nature during the colonial period. Just as the feminine is dominated by the masculine in human terms, so plants and flowers, seen as feminine, could thus be easily mastered by the Europeans. Gardens, popular during the eighteenth and nineteenth centuries in Europe, are also investigated as evidence of the mastery of nature.

Nature and ownership

The seventeenth, eighteenth and nineteenth centuries saw the growing colonial expansion of Europe, during which time the relationship with nature and natural objects changed considerably. It became fashionable to own and collect exotic plants and other natural objects; and the study of botany grew increasingly popular. Interest in travel and news from foreign countries brought revelations about strange and exotic natural phenomena, completely different to anything Europeans had seen or heard before. This thesis investigates the inevitable re-evaluation of the European's relationship to nature that took place. Many scientific developments and discoveries changed the way in which nature was viewed and understood. During this time, nature became a commodity, something to be weighed in monetary terms. In Holland in the 1630s, the trade in tulips resulted in "tulip-mania". Fortunes were made and lost with the rise and fall in the fashion of this flower (Chadwick 1990: 132). The emergence of Enlightenment science saw an increasing confidence in European scientific abilities, which resulted in a superior attitude towards nature, one in which nature became a commodity, a resource and equitable with territories to be possessed.

Europeans strove thus to own not only exotic natural objects, but more especially the physical land-masses of the colonies. Colonial conquests promised new plants and commodities to trade with,

resulting in competition between the European powers to annex and own these lands, and in doing so took possession of the plant wealth native to them.¹ The battle to control and dominate, for example *Chinchona* (Peruvian bark), containing quinine – which was vital in the control of malaria – was especially important for countries who wanted to invade and annex lands where malaria was a threat.²

Chapter breakdown

Chapter One discusses our relationship with and understanding of nature. It traces the ways in which human perceptions of nature have shifted and developed from the Renaissance to the Enlightenment. The chapter describes how perceptions of nature changed radically in the face of the discoveries of new lands and natural environments, together with new scientific developments. Further, this chapter deals with ways in which new perceptions of nature, as inanimate and mechanical, sanctioned exploitative attitudes and actions to nature by Europeans.

Chapter Two contextualizes changing attitudes to nature within the social and historical context of the rise of Enlightenment science and discusses the impact of the "scientific revolution" on human conceptions of nature. Modern science's new emphasis on observable facts collected through the empirical observation of nature and through experimentation is outlined. It also explains how the European understanding of nature became increasingly understood in mathematical terms, which promoted the metaphor of nature as a machine. It is established that, although Modern science made strong claims as to its own objectivity and focussed on scientific facts, scientific knowledge was often used by European countries for their own economic advantage.³

Chapter Three introduces the concept of the "mastery of nature", which is an attitude of human dominance over nature. This chapter traces how, from the Enlightenment period onwards, manifestations of a more dominant attitude to nature became more apparent. Chapter Three defines and discusses the

¹ "Nineteenth-century European colonial expansion was characterized by both competition and co-operation among the powers ... the industrializing and imperialist nations of the nineteenth century – England, France, Britain, Germany, the Netherlands, and Belgium (and later the United States and Japan) – shared common interests against the rest of the world. Europe was achieving a global dominance, extracting and mobilizing the energy of the world for its own purposes" (Brockway 1979: 8).

² "Cinchona, the Andean fever-bark tree from which quinine is made ... had important demographic and political effects through the control of malaria it afforded The colonial penetration of Africa in the late nineteenth century by European powers was accomplished only after a cheap and reliable source of quinine was available" (Brockway 1979: 7).

³ In *Colonial botany*, Schiebinger and Swan explain that science played a huge role in supporting global trade; and that collections of natural knowledge added to the economic advantage of European countries: "Colonial botany – the study, naming, cultivation, and marketing of plants in colonial contexts – was born of and supported European voyages, conquests, global trade and scientific exploration. The expanding science of plants depended on access to ever farther-flung regions of the globe; at the same time, colonial profits depended largely on natural historical exploration and the precise identification and effective cultivation of profitable plants" (2005: 2).

roots of the "mastery of nature", and in particular the manifestation of this human tendency evident in curiosity collections, colonisation, botany, botanical illustrations and gardens.

It is established in this chapter that botanical illustrative conventions, developed in conjunction with Carl Linnaeus's (1707-78) system of plant classification, presented foreign plants in ways that enabled them to be easily assimilated into European culture.

Chapter Three explains that although the botanical illustrators' aim was to represent the plant as accurately and as realistically as possible, through the conventions of classification and botanical illustration, original identities of plants were open to transformation because they were presented without contexts. The ways in which flower and plant images became part of the European decorative culture is discussed as another means to possess and take ownership of these natural phenomena from the colonies.⁴ This appropriation of a foreign plant into a new culture is clearly shown in the fate of the tulip – originally from Turkey – which is still today viewed as a typically Dutch plant.⁵

Botanical illustrations are usually executed in conjunction with a scientific text, illustrating the parts of the plant that are necessary to recognize and classify the plant. This thesis will investigate modern science's claims of neutrality and objectivity⁶ and the ways in which botanical illustrations serve and undergird these claims.

Gardens planted in Europe from the seventeenth to the nineteenth centuries also display evidence of this European attitude of dominance over nature. The manifestations of this mastery will be discussed as is seen in the formal, as well as the apparently more "natural-looking" landscape, garden. It is proposed that the competition between garden owners to possess and cultivate from seed exotic and rare plants was perhaps a small-scale reflection of the competition between European countries to possess and own colonial prizes. This chapter establishes that the rigidity imposed onto nature in the formal garden, as well as the extreme artifice used to establish a picture of "naturalness" in the landscape garden, betray the gardener's intent to impose human control onto nature.

⁴ Flower images of flowers from the colonies were "cut-out" and transposed onto wallpaper, fabrics and embroidered by European women, thus these flowers were assimilated as their own and into Europe's decorative culture.

⁵ "During the 1630s the tulip, *first brought from Turkey to England* during the reign of Elizabeth I came under intense speculation. Between 1634 and 1637 fortunes were won and lost and 'tulip-mania' dominated economic news" (My italics.) (Chadwick 1990: 132).

⁶ In her essay, "The Loves of Plants", Londa Schiebinger claims: "Since the Enlightenment, science has stirred hearts and minds with its promise of a neutral and privileged viewpoint, above the rough and tumble of political life" (1996: 110).

Chapter Three also discusses the degree to which feminine associations typical to botany, botanical illustrations and plants played a role in supporting an attitude of dominance to nature during colonialism.

Chapter Four discusses the practical work executed in partial fulfilment of the MPhil degree in Visual Art (Illustration). The practical work should be understood within the historical context of botanical illustration and has been executed from the perspective of challenging accepted botanical illustrative conventions. This chapter proposes that botanical illustrations should fulfil a new function: that of creating an awareness of the human relationship with nature. While the "mastery of nature" is characterised by a perception of nature as distinctly "other" than human, the artworks aim to make use of plant images as metaphors for exploring human identity. The ways in which plants reflect the human experience of making sense of identity is explored in the artworks. It is the thesis behind these artworks that an affinity with and closeness to nature is necessary to counter the outcome of the "mastery of nature", which has resulted in a feeling of spiritual separation from nature on the part of humans. It is felt that botanical illustration should reflect human stories and associations with the plant world, in order to foster a greater affinity between humans and nature. This could result in more responsible actions with regard to the natural environment, especially in the contemporary context of environmental threats.

Theoretical foundation of this thesis

The theoretical framework of this thesis falls within the methodology of postmodernism, which involves the critical re-reading of history with a view to identifying dominant "grand narratives" and the systems of power that have kept these narratives and knowledge systems in place. "Grand narratives" is a phrase coined by French philosopher, Jean Lyotard (1924-98), in his essay, *The postmodern condition: a report on knowledge* (1979), to describe underlying stories that legitimize politics and culture through their discourse. This approach involves not accepting the past at face value, but critically interrogating it, taking into consideration underlying political and social motives and factors that influence our perceptions of history and "truth".

W. J. T. Mitchell (cited in Cosgrove and Daniels's *Iconography of landscape*) states that

[L]anguage and 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 (1988: 7).

In this thesis, botanical illustrations are treated as texts to be analysed and deciphered. It is argued that these plant representations, made in the context of colonization, served to support the dominant knowledge system of European superiority. The view that botanical illustrations are neutral and serve an "objective" science are deconstructed to show how these images, when placed within the context of our diverse and rich relationship with plants and nature, cannot possibly be neutral. The "objective" botanical knowledge that was collected through science was used largely to the advantage of the countries collecting the data.

This thesis makes use of the Deconstruction theories of French philosopher, Jacques Derrida (1930-2004), who proposes that dominant power systems are kept in place by language. Derrida claims that such systems rely on the exclusion of "the other". In *Positions*, Derrida explains

To "deconstruct" philosophy is thus to work through the structured genealogy of its concepts in the most scrupulous and immanent fashion, but at the same time to determine, from a certain external perspective that it cannot name or describe, what this history may have concealed or excluded, constituting itself as history through this repression in which it has a stake (1972: 6-7).

Linnaeus's naming system of plants employing Latin, as well as the naming of plants after Europeans,⁷ were ways of establishing European dominance, and at the same time excluded indigenous names of plants, thus denying the plants' indigenous roots, serves as an example of what Derrida terms excluding "the other".

In *Margins of philosophy*, Derrida speaks about the function of "binary opposites" and "deconstruction":

Deconstruction cannot limit itself or proceed immediately to a neutralisation: it must by means of a double gesture, a double science, a double writing, practice an *overturning* of the classical opposition and general *displacement* of the system. It is only on the condition that deconstruction will provide itself the means with which to intervene in the field of oppositions that it criticizes, which is also a field of non-discursive forces Deconstruction does not consist

⁷ Linnaeus encouraged the naming of plants after European botanists who first "discovered" the plant: "Generic names formed to preserve the memory of a botanist who has deserved well of the science I retain as a religious duty" (Stearn 1966: 285).

in passing from one concept to another, but in overturning and displacing a conceptual order, as well as the non-conceptual order with which the conceptual order is articulated.(1982: 329).

Here "binary oppositions" are used as the basis for the investigation into the dominance of humans over nature, as is seen in the "mastery of nature". This thesis seeks to deconstruct or "overturn" the binary opposites of man/nature, male/female and reason/nature, where the first term, "man", "male" and "reason", is the dominant and favoured term, and one relying on the suppression and dominance of the second term for its power. The "mastery" or dominance of nature is based on a perception of human superiority over nature, and the exclusion of nature as the "other". It will be argued that because nature is traditionally seen as feminine, the dominance over the female in the "male/female" binary opposite works in conjunction with the domination over "feminine" nature.

Mastering myths and wandering wallflowers

The term "mastering myths" used in the title refers to the myths or "grand narratives" that promoted European superiority through certain aspects of botanical illustrations, as well as myths which supported human superiority over nature. In his *Mythologies*, Roland Barthes (1915-1980), French literary critic and theorist, states that "myth transforms history into nature" (1972: 129) and "Ancient or not, mythology can only have a historical foundation ... it cannot possibly evolve from the 'nature' of things" (1972: 110). Barthes argues that certain ways of thinking which we assume to be natural or true, are historically and artificially constructed. The power of these myths rests on their claim that they are "natural", and therefore "right". Barthes states that in mythological speech, "pictures, to be sure, are more imperative than writing, they impose meaning at one stroke, without analysing or diluting it" (1972: 110). Botanical illustrations supported claims to scientific objectivity and the "scientific look" adopted by botanical illustrations concealed the European appropriation of plants from colonial countries. This myth of scientific objectivity aided in plants "wandering" from one part of the globe to another, and from one culture to form part of another.

Metaphors and myths

German philosopher Friederich Nietzsche (1844-1900) argues that a metaphor works in much the same way as a myth, being a device that convinces of, and backs up, truth, "What, therefore, is truth? A mobile army of metaphors, metonymies, anthropomorphisms; truths are illusions of which one has forgotten that they are illusions" (cited in Derrida 1982: 217). The metaphor is therefore an active entity which forces one to believe in its comparison. Nietzsche calls this figurative drive and our tendency to

use or believe in metaphors, the "will to power". In *Post-Structuralism and Post-Modernism*, Madan Sarup, discussing Nietzsche's argument that "our so-called 'will to truth' is the will to power because the so-called drive for knowledge can be traced back to a drive to appropriate and conquer" (1984: 51). Prior to the Renaissance, the dominant metaphor for nature was that of a feminine figure.⁸ During the Enlightenment, René Descartes compared nature to a machine, which resulted in a picture of nature as mindless and devoid of human attributes (Shapin 1996: 32). This notion of nature as machine, added to the former idea of it as "feminine", encouraged actions that exploited nature. As Nietzsche would term it: A metaphor embodies our human "will to power" over nature.

The use of metaphor to understand nature is analysed within the socio-historical situations within which these metaphors were used. Art historian, Erwin Panofsky (1892-1968), encourages a critical re-reading of the past and a study of the images used, specifically within the social and historical context in which they were produced. In *Meaning in the visual arts*, Panofsky defines iconography as "that branch of history which concerns itself with the ... meaning of works of art" (1955: 51). Panofsky differentiates between iconography and iconology: "[I]conography' is identified when we connect artistic motifs with themes or concepts; while 'iconology' is the 'reading' of these images correctly and interpreting what they stand for, this includes taking into account the historical and social context in which they were produced" (1955: 54, 56). This thesis attempts to place botanical illustrations within the cultural and social context in which they were produced. Panofsky points out that the interpretation of these "symbolical values ... are often unknown to the artist himself and may even emphatically differ from what he consciously intended to express" (1955: 56, 57). It is understood that while artists working as botanical illustrators may not have consciously represented political motives and agendas in their work, their illustrations did serve the interests of colonial European domination.

⁸ "A number of influential medieval texts and images personified the physical world and the principles that governed it as a female of great dignity" (Park 2004: 50).

Chapter One

Nature: A mobile concept

Introduction

This chapter discusses our understanding of nature as an idea that is culturally constructed: it reviews the ways in which perceptions of nature change and evolve over time. It looks specifically at perceptions of nature as a female figure within the Renaissance period and at how these perceptions shifted during the Enlightenment period, toward a predominantly mechanistic view of nature. The Romantic era's longing for a "return to nature" is seen to be at odds with the European desire to dominate and own the natural products and land of the colonies.

Natural perceptions

Our perceptions of nature, although appearing to be universal or inherent to us, are constructs that are anything but stable. In *Landscape and memory*, Simon Schama states that, "although we are accustomed to separate nature and human perception into two realms, they are, in fact, indivisible. Before it can ever be a repose for the senses, landscape is a work of the mind. Its scenery is built up as much from strata of memory as from layers of rock" (1996: 6- 7). Nature is thus perceived in ways we choose to see it.

Our perceptions of nature radically influence our actions towards the physical nature that surrounds us. Shifting perceptions of nature are what Roland Barthes identifies as historically determined.⁹ In his essay *Imperial landscape*, W. J. T. Mitchell writes: "Landscape is a natural scene mediated by culture. It is both a represented and presented space, both a signifier and a signified, both a frame and what a frame contains, both a real space and its simulacrum, both a package and the commodity inside the package" (1994: 5). These cultural constructs are often caught up in the stories we tell and the art we make with nature as subject: these writings and images reflect our attitudes towards nature.

⁹ In *Mythologies* (1972) Roland Barthes questions "the naturalness of things", proposing that most of what we accept as natural and the "truth" is in fact determined by a history of thinking in a certain way. These "truths" are myths – posing as truths. Barthes proposes that these natural "truths" are constructed rather than just existing. "The starting point ... was usually a feeling of impatience at the sight of the 'naturalness' with which newspapers, art and common sense usually dress up a reality, which, even though it is the one I live in, is undoubtedly determined by history I resented seeing Nature and History confused at every turn, and I wanted to track down, in the decorative display of *what-goes-without-saying*, the ideological abuse, which in my opinion, is hidden there" (1972: 11).

Looking back into Western history, it becomes easier to discern prevailing attitudes and thought-constructs regarding nature. Our ideas, and ways of picturing nature, though not perhaps obvious or discernable from our present perspective, reveal how our thoughts about nature have changed over time. Perceptions of nature shift in different social and historical contexts. Sometimes the ways in which these views are constructed are utilized to underscore political and ideological agendas.

Ideas, attitudes and ideological concepts – embodied and expressed in our perception of nature – are part of the consciousness of every generation, part of its "zeitgeist". Nature, aspects of nature and scenes from nature become symbols of ideological concepts, political ideas, national and personal identities, and spiritual concepts for people. Nature is crucial to our basic physical existence on earth (it provides us with food and shelter) and therefore it becomes a metaphor for existence, a way of understanding our place in the world. Nature is the substance around which we weave our human stories of being and purpose. It is this "imagined relationship with nature" (Cosgrove 1984: 15) that is so important in determining the way in which we interact with the physical substance of the idea.

Doing what comes naturally

Nature refers not only to the ideas we construct about what we see, but also to how we think things *should be*. If an action, moral decision or process is considered "right", we say that it is "natural" to behave in that way: in this sense, nature can be seen as having a "moral authority".¹⁰ In *The moral authority of nature*, Lorraine Daston and Fernando Vidal state that "humans use nature to think about the standards of the good, the beautiful, the just, and the valuable" (2004: 4). They continue that: "[A]uthority presumes voice, and centuries' worth of allegories, personifications, and hypostatized abstractions bear witness to the urge to give nature a voice that could exhort, reproach, and command" (2004: 14). We look to nature for standards as to how the world *should be*. It is interesting to note the point that Daston and Vidal make about this human tendency when they write:

[C]ritical attention has shifted from nature conceived as mute and tractable to those who claim to speak for nature: doctors, scientists, jurists, theologians, politicians, activists. Although there may be some excellent reasons for investigating these voices quite independently of their

¹⁰ In *Landscape and Ideology*, Ann Bermingham points out that this use of "Nature" as a "supreme social value" was increasingly used at the end of the eighteenth century: "In the eighteenth and nineteenth centuries almost all change was accommodated under the rubric of 'nature' and 'naturalness'" (1986: 1).

rhetoric of the natural, to unmask them as nature's ventriloquists does not explain why they go to the trouble. If nature is merely a dummy, whence its authority? (2004: 11-12).

The authority of nature, therefore, seems to have a very strong hold on human perceptions and it is this persistence of perceived authority, as well as our search to find and define what this authority says, which further reiterates the vital role of our attempts to make sense of our existence – an existence which seems inextricably linked to the natural world.

The changing face of nature

In her essay *Nature in person*, scientific historian, Katherine Park, traces changing attitudes to nature from the late Middle Ages to the Renaissance by studying images portraying nature. Even before these times, nature was understood to have an individual, feminine persona: "Eve", "Gaia" and "Isis" are all female figures associated with nature¹¹. Park observes that nature was viewed in medieval times as a "female figure of great dignity – majestic, clothed and energetic – who was delegated by the Christian God to shape individual creatures, and to maintain order in all such matters" (Park 2004: 51). In *Figure 1* we clearly see nature pictured as a strong, authoritative female figure. This clothed figure was replaced in the later sixteenth century by a new one, partly or completely naked, who had many breasts (see *Fig. 2*). Such imagery associated nature with fertility and nourishment (Park 2004: 51).

The increase in maritime travel from the fifteenth century onwards resulted in the discovery of previously unknown land masses. The European perception of familiar nature came into question as "other" natures challenged the ones they knew. Nature became further removed from the world of

morals, voluntary action, and human will Where medieval writers and artists personified nature as an articulate, speaking figure, their early modern counterparts saw her as both a valuable resource and an intrinsically enigmatic entity, whose teachings needed to be deciphered through human ingenuity and wit (Park 2004: 52).

Ideas about nature linked "her" more to the world of matter and perceived "her" as a source of materials. New images of nature in the later Renaissance show "her" as being naked instead of clothed and thus

¹¹ In *Earthcare*, Carolyn Merchant discusses ancient links between women and nature, "Gaia", the earth mother, "Eve", who is linked to gardening and agriculture, and "Isis", the Egyptian mother goddess, are examples of female personifications and ways of understanding nature (1995: 3-90).

open to observation and unprotected by any covering. In this sense, nature became more like impersonal matter and less like a person previously perceived as having feelings, moral ideas and power.¹²

The changing ways in which nature was perceived during the Renaissance paved the way for colonization and the act of taking possession of parts of the earth and nature; during the Enlightenment, humans and countries began to compete to *own* nature. The changing view of nature from a scientific perspective, as is seen in the seventeenth century writings of Bacon, Descartes, Boyle and Locke, promoted a picture of a less "human" nature, and made its prodding, pillaging, and taking ownership of nature more acceptable. (Changing views of "nature" during the period known as the "scientific revolution" will be discussed in more detail in Chapter Two.) This scientific view of nature as more machine-like and less human had its roots in the changing Renaissance figurations of nature.

Romanticism and a changing view of nature

During the nineteenth century, the Industrial Revolution was accompanied by increased urbanization, which resulted in people feeling estranged from nature. Romanticism, an approach that dominated European art and culture from about 1770-1840, is said to have been characterised by a longing for union with nature,¹³ which was evidenced in the Romantic poetry of Lord George Byron (1788-1824) and William Wordsworth (1770-1850), and the paintings of Caspar David Friedrich (1774-1840) and John Constable (1776-1837). The Romantic idea of the "sublime", which was an experience of the terrifying grandeur of God and the existence of the divine in nature, was part of the new interest in landscape paintings. In *Social formation and symbolic landscape*, Denis Cosgrove comments that "Romanticism succeeded in placing landscape and nature at the heart of cultural interest in nineteenth-century Europe" (1984: 234).

The popularity of landscape painting during the late eighteenth and early nineteenth century coincided with the enclosure of much of the English countryside. The term enclosure refers to land that was annexed for farming purposes, thus meadows and open fields were turned into farm land. This loss of

¹² In *Earthcare*, Carolyn Merchant gives a pertinent example which illustrates the results of these changing views of "Nature":

The image of the earth as a living organism and nurturing mother served as a cultural constraint restricting the actions of human beings ... As long as the earth was considered to be alive and sensitive, it could be considered a breach of human ethical behaviour to carry out destructive acts against it. For most traditional cultures, minerals and metals ripened in the uterus of the Earth Mother, mines were compared to her vagina, and metallurgy was the human hastening of the birth of the living metal in the artificial womb of the furnace ... Miners offered propitiation to the deities of the soil and subterranean world, performed ritual sacrifices, and observed strict cleanliness, sexual abstinence, and fasting before violating the sacredness of the living earth (Merchant 1996: 77).

¹³ "The Romantic ideal [was] of a return to nature" (Atkins 1990: 185).

natural landscape encouraged a longing to return to nature as it was in its previous state. In *Landscape and power*, Mitchell expresses his view that the popularity of landscape painting during this time was a reflection of England's desire to dominate nature. He argues that inherent in this creation of a picture of an ideal English landscape (as is seen in paintings by John Constable (see *Fig. 3*)) lies a focus on land ownership and a desire to make all land look "English". Mitchell states that "landscape is a particular historical formation associated with European imperialism" (1994: 5). It is possible that the longing for the natural landscape that England was losing to the enclosure system could perhaps be recaptured in the colonies England was trying to win at that time.

Although the art and poetry of Romanticism reflected a longing to return to nature, the reality was that at the same time there was extreme competition between European countries to annex land in the colonies. The picturesque landscape tradition, while suggesting a longing to return to nature, can also be seen as a longing to dominate it, because the nature portrayed usually "looks" European. During the time Constable was painting nostalgic and picturesque scenes of the British countryside in the early 1800s, Britain was actively and aggressively annexing other "natures" and extending her Empire.

British "hearts of oak"

The way in which British imperial dreams of power were linked to nature can be seen in the symbolism and growing status of the oak tree during British imperial expansion.¹⁴ The "oak" became a symbol of British strength, power and impenetrability. Neo-Classicist poet, Alexander Pope, writes in *Windsor forest*: "While by our Oaks the precious loads are born, / And realms commanded which those trees adorn" (Lines 31-32) (Davis 1966: 38). Britain's oak trees were used to build her ships, upon which her "precious loads were born" – loads to make her rich and ships which helped in the battle for naval supremacy in the Seven Year's War against France. By 1800, England had been virtually deforested from the use of wood to build her ships and was one of the least wooded of all north European nations (Daniels 1988: 43).

The "heart of oak" was the centre of the oak tree and was hard and impenetrable. It was seen as a symbol of British steel and strength. Thus we see a natural object becoming representative of British

¹⁴ For an in depth discussion of the use of the oak tree as a symbol of British nationalism, see Stephen Daniel's essay, 'The political iconography of woodland in later Georgian England', in *Landscape and iconography*. (Cosgrove & Daniels 1988: 43-81) as well as the chapter "Heart of oak and bulwarks of liberty?" in Simon Schama's *Landscape and memory* (1996: 153 - 174).

nationalist and imperialist ideals. The use of a natural object to symbolize colonial ambition made British dominion of the world seem natural.

Conclusion

Perceptions of nature change within different social and historical contexts and conceptions of nature are culturally constructed. During the Renaissance, changing views of nature from being a dignified female figure to a naked and more vulnerable one, paved the way for an increasingly exploitative attitude towards nature. Images of nature as naked and as a mere source of nourishment also made possible a less human conception of nature – which culminated in the Cartesian picture of nature as machine. Pictures and metaphors of nature influenced ways in which humans acted towards nature during the beginnings of exploration in the Renaissance period and later in the period of European colonisation. Nature's portrayal as a powerless entity which sanctioned human domination, ushered in an age in which the "mastery of nature" was increasingly apparent.

Although the Romantic period proposed a longing to "return to nature", landscape paintings and the poetry of Wordsworth and Byron coincided with a period characterised by aggressive British colonisation. It is understood that while it was perhaps not the intended aim of the painter of landscapes, to make all land look "English", the popularity of this genre of painting can be seen as a reflection of this desire.

Chapter Two The rise of modern science and changing views of nature during the Enlightenment

Introduction

The aim of this chapter is to sketch the historical background against which new ways of practising botany developed during the period characterized by European imperial expansion. This chapter discusses the rise of modern science during the Enlightenment, with a specific focus on ways in which new scientific practices and modes of thinking resulted in new ways of relating to nature.

New scientific approaches encouraged less reliance on the authority of the "ancients", ushering in the modern era characterised by individual empiricism and a reliance on the experimental method. The new modern approach effectively removed human elements such as stories and allegories from science, embracing instead objective facts. New scientific approaches and methods resulted in a picture of nature as passive, mindless and mechanistic; and effectively they positioned nature as an entity to be mastered.

A new approach to science

During the sixteenth and seventeenth centuries, ways in which science was practised underwent significant changes. From new scientific methods grew new attitudes to nature. Nature became increasingly understood as an entity to be ruled, exploited and dominated. Philosophers, such as Francis Bacon (1561-1626), Galileo Galilei (1594-1642), René Descartes (1596-1650), Robert Boyle (1627-1691) and Isaac Newton (1643-1727), were instrumental in changing the way science was practised and the ways in which nature was perceived.

Before the scientific revolution, natural history had been based largely on the authority of ancient texts, such as those written by the Greek and Roman natural historians, Theophrastus (ca, 372-287 B.C.), Pliny the Elder (A.D. 23-79) and Dioscorides (fl. A.D. 54-68) (Shapin 1996: 76). The "Aristotelian tradition" was the dominant intellectual framework in the sixteenth and seventeenth centuries in Europe. Ancient natural histories were not based on personal observations of natural phenomena and were "problematic copies of copies" (Shapin 1996: 76). The Renaissance was characterized by the revival of ancient learning and intellectuals devoted themselves to the reading and translations of ancient Greek and Roman texts.

Conrad Gesner's (1516-65) *Historia animilium* (1551-58) is an example of a Renaissance book based largely on information gleaned from ancient texts. William Ashworth discusses Gesner's book in his essay *Emblematic natural history of the Renaissance*, pointing out that the author includes in his apparently "scientific" work, "a barrage of folktales and myths"(1996: 20). Gesner's history includes mythological associations, folklore, language and literary associations of each animal. This approach to natural history changed radically in the modern era in which only provable facts were admitted to the canon of scientific knowledge.

Gesner's history of animals highlights ways in which the Renaissance approach to science changed during the scientific revolution. The new science placed high value on empirically observed and provable facts, the reliance on old information – as was to be found in the ancient, classical texts – was considered inaccurate and unreliable. Scientists had to observe with their own eyes, conduct experiments, and provide proof of what they saw. This meant that natural philosophers began to study the "book of nature"¹⁵ more intently for themselves. The study of science now required the active involvement of the body – especially the eye – and the idea of first-hand experience in terms of fieldwork was championed.

Associations, literary tales and magical elements were removed from scientific information on the premise that these elements were unobservable and therefore non-factual. In the *Order of things*, French philosopher and historian, Michel Foucault (1926-1984), reminds us that natural history, as we know it, is a recent invention:

Until the time of Aldrovandi ... to write the history of a plant or an animal was as much a matter of describing its elements or organs as of describing the resemblances that could be found in it, the virtues that it was thought to possess, the legends and stories with which it had been involved, its place in heraldry, the medicaments that were concocted from its substance, the foods it provided, what the ancients recorded of it, and what travellers might have said of it. The history of a living being was that being itself, within the whole semantic network that connected it to the world. The division, so evident to us, between what we see, what others have observed and handed down, and what others imagine or naïvely believe, the great

¹⁵ The idea of "the book of nature" is a Christian idea proposing that God had written two books – the Bible and the "book" of nature, which was the created earth. The Protestant Reformation that took place in the sixteenth century placed emphasis on each Christian engaging with Scripture on a personal level – and not relying on the mediation of priests and popes. The invention of the printing press in the 1450s made it possible to read the Bible for oneself. The same personal reading of the "Book of Nature", via direct, personal experience of this "divinely written text", was expected of scientists (Shapin 1996: 78).

tripartition, apparently so simple and so immediate, into *Observation*, *Document*, and *Fable*, did not exist (1966: 140).

The scientific revolution and the rise of modern science

The beginning of the scientific revolution is usually marked by Copernicus's revolutionary claim that the earth revolves around the sun,¹⁶ which was in direct opposition to the long accepted Aristotelian theory of a geocentric universe. In 1610, Galileo Galilei published *Sidereus nuncius* (*Starry messenger*), in which he announced the discovery of many new stars, never seen before, making up the Milky Way (McClellan & Dorn 1999: 224), and in 1613, he published *Letters on sunspots*, in which he reported his observations of irregularly shaped sunspots, varying from day to day in number and opacity and moving regularly across the disc from east to west (Shapin 1996: 15).

The discovery of new stars challenged the Aristotelian theory of a finite heavenly realm and Galileo's discovery of sunspots challenged the ancient idea of the perfection and incorruptibility of the sun.¹⁷ The observance of sunspots was also significant, firstly, because Galileo based his claim on mathematical calculations. The ancients had long considered mathematics as a way in which to abstractly describe the heavens, but they did not believe that it related physically to actual heavenly bodies. Secondly, Galileo claimed that the movement of the sunspots from east to west supported Copernicus's claim of a heliocentric universe.¹⁸

Copernicus's claims and Galileo's further discoveries resulted in a crack in the edifice of ancient knowledge. The authority of the ancients was further shaken by the increase in travel, which resulted in the discovery and appearance of new plants, animals and minerals that had not been described in the ancient texts.

The mathematization of nature

Modern science was characterized by a new reliance on mathematics as an accurate reflection of natural bodies and physical processes. Most modern natural philosophers did not agree as to whether

¹⁶ In 1543 Nicholas Copernicus published *On the revolutions of the heavenly spheres*, in which he proposed a sun-centred universe, with a moving earth rotating once a day on its own axis and orbiting the sun once a year (McClellan & Dorn 1999: 203).

¹⁷ "Heavenly bodies moved continuously and in circles, if they moved at all, uniform circular motion being the most perfect form possible Within that orthodox framework the sun could not conceivably have spots or blemishes" (Shapin 1996: 15-17).

¹⁸ Galileo's public agreement with Copernicus led to his trial by the Roman Inquisition and final imprisonment in 1633 (McClellan & Dorn 1999: 233-234).

mathematics was an abstract knowledge or whether it could be applied to actual physical entities and real physical processes (Shapin 1996: 58). However, in his *The mathematical principles of natural philosophy* (1687), Isaac Newton "offered as a model for a practice whose end was the lawful characterization of the mathematical regularities of nature – laws (as Newton said) 'deduced' from actual observed behaviour of bodies. The aim was physical *certainty* and the tool for achieving that certainty was mathematics" (Shapin 1996: 62-63). Mathematics became less abstract and hypothetical, and modern scientists relied increasingly on mathematical calculations to prove scientific theories (Henry 1997: 8- 9).

Empiricism and experimentation

The new emphasis on using mathematics to prove facts about nature and natural processes led to a new reliance on the experimental method and empirical observation. Galileo had based his theories on his personal observation of heavenly bodies through a telescope. Empiricism developed into a method of systematic experimentation, where evidence was sought through observation. Francis Bacon was a central figure in proposing an inductive approach to nature, in other words that any previous assumptions be abandoned and observations be made with an open mind. This perspective was in direct contrast to the Aristotelian approach of deduction: that understanding was achieved by studying "known facts" which had been passed down from the ancients.

Nature as a machine

As nature became increasingly understood and described in mathematical terms, it was portrayed as a machine. René Descartes' first account of nature as a mechanical system was published in *Le monde* (1633) (Henry 1997: 59). Aristotelian philosophy had maintained that natural motion could be attributed to the "natures" of natural objects (Shapin 1996: 29). Natural objects were thought to move in a similar fashion to humans and were attributed occult, animistic or soul-like attributes:

[H]uman beings offered a teleological – or goal-orientated – account of their movements. Why does the shepherd move towards his cottage? Because he forms a purpose to be where he wishes. Why do flames leap out of the fire? Because they aspire to be in their natural place. It is in just this sense that traditional physics on the eve of the Scientific Revolution had a human-scaled character (Shapin 1996: 29).

Descartes described nature as a machine that lacked active powers and was fundamentally inert, and that motion was caused by direct physical contact (Henry 1997: 57). He stated that "there exist no occult forces in stones or plants. There are no amazing or marvellous sympathies or antipathies, in fact there exists nothing in the whole of nature which cannot be explained in terms of purely corporeal causes totally devoid of mind and thought" (cited in Plumwood 1993: 104). Whereas nature was previously imagined to be an active entity with aims and purposes of its own, mechanical philosophers viewed nature as following natural, physical laws.

The scientific revolution: new ways of perceiving nature

In his book *The scientific revolution* (1996), Steven Shapin questions the existence of the scientific revolution. Shapin proposes, instead, that modern science was merely a new, culturally constructed way of viewing nature. He argues that philosophers and scientists themselves announced and proclaimed this period as new and revolutionary. Shapin proposes:

[A]s our understanding of science in the seventeenth century has changed in recent years, so historians have become increasingly uneasy with the very idea of "the Scientific Revolution" Many historians are now no longer satisfied that there was any singular and discrete event, localized in time and space, that can be pointed to as "the" Scientific Revolution There was, rather, a *diverse array of cultural practices aimed at understanding, explaining, and controlling the natural world*, each with different characteristics and explaining different modes of change (My italics.) (1996: 3).

The idea of nature as a machine differed greatly from seeing nature as a woman, replete with emotions, judgments and thoughts. Descartes announced that "there is no difference between the machine built by artisans and the diverse bodies that nature alone composes" (Shapin 1996: 32). In stating thus, he effectively rejected the idea of a "human-like" nature, a nature possessing goals, intelligence and emotions.

An "unadorned" style of scientific writing

The "flowery" and descriptive style of writing employed by the ancients was replaced by a new factual recording of observed findings, based on evidence. Bishop Thomas Sprat, the historian of the Royal Society of London, describes the ancients' style of writing as "the luxury and redundance of speech ... [the] trick of *Metaphors*, that produce beautiful deceit, the 'mists' brought on knowledge by the use of

tropes and figures invented by the ancients" (Stafford 1984: 35). To Sprat's mind, the Royal Society of London was instrumental in formulating a style of writing that was free from "verbal extravagance" and creating,

a close naked, natural way of speaking; positive expressions; clear senses; a native easiness: bringing all those things as near the Mathematical plainness, as they can: and preferring the language of Artizans, Countrymen, and Merchants, before that of Wits or Scholars In short, it is the genius of the English to be more concerned with the matter than with the finesse of what they say (Stafford 1984: 35).

Thus a plain writing style was favoured by scientific institutions for scientific documents, a writing style which purported to be neutral and free of subjective viewpoints.

Claims for objectivity and neutrality

This new method conducted science relying on objective observations and facts. Stafford speaks about Francis Bacon's claims to objectivity, which he expounded in the *Advancement of learning* (1605), *Novum organum* (1620) and *De augmentis scientiarum* (1623):

In these treatises ... Bacon announces a philosophical program to revolutionize the whole of science The systematic search for the novel and the refusal to accept pre-established meaning was inherent in his call for the collaborative progress of science through co-operation - the modern, non-individualistic ideal of research. Searchers and discovers, *no matter what their nationality*, were all believed to contribute to a *common goal* of describing the world (My italics.) (Stafford 1984: 37).

Bacon proposed that science served no particular nation's agenda; instead it served the advancement of science, which was to be used for the common good of [hu]mankind. "For Bacon," Henry explains, "natural philosophy should not be an ivory-tower pastime for recluses, but a major collaborative effort for the good of the 'commonweal', 'a kind of royal work' carried out effectively by a department state with its own royal governor" (1997: 87).

These arguments for the neutrality and universality of science enabled much scientific activity with nationalistic and economic agendas to continue unhindered and unquestioned. In *Literature, science and exploration in the Romantic era*, Fulford, Lee and Kitson argue that "explorers often travelled in order to

spread British dominion over new lands and seas. When science codified explorers' journeys, it acquired authority" (2004: 6). Science partnered with travels of discovery to new lands, thus justifying these journeys that often ended in the European country annexing lands and their natural products for themselves.

The results of experiments and observations were often used by governments for their own economic gain. Shapin states that one of the main aspects in which knowledge about the natural world changed was, "[this] aspiration to use the resulting reformed natural knowledge to achieve moral, social, and political ends, the condition of which was agreement that the knowledge in question truly was benign, powerful, and above all, *disinterested*" (1996: 13). While modern science made very strong claims for a neutral and objective viewpoint, scientific endeavours and organizations received financial and moral support from government and royal quarters.¹⁹ In the context of colonial botany, scientific knowledge collected during voyages of discovery did not therefore provide factual and objective data that was entirely "disinterested".

The "death of nature"

The writings of Francis Bacon expressed the notion that nature should be scientifically investigated, and the results were to be used for the enrichment of human life: in *Novum organum* (1620) Bacon states: "But the real and legitimate Goal of the Sciences is the endowment of human life with new Invention and riches" (1893: 45-46). Nature was thus to be used for human gain. Nature became objectified in that Europeans conducted experiments on nature, with humans as subjects.

In *Earthcare*, feminist writer Carolyn Merchant proposes that the mechanical view of nature has contributed to what she calls "the death of nature" (1996: 86). In his book *The masculine birth of time*, Bacon further reiterates this idea of nature as being in service to humans: "I am come in very truth

¹⁹ "Francis Bacon, lord chancellor of England and court counsellor to Queen Elizabeth I and King James I, in making a joint case for the reform of learning and the expansion of state power It was *taken as a responsibility of the state, and the state church, to monitor and to manage belief in general Knowledge was to be effectively brought under the administrative competence of the state*" (Shapin 1996: 127-129) (My italics.). Shapin mentions that the Florentine Accademia del Cimento (established 1657), the Royal Society of London (established in 1660) and the Parisian Académie Royale des Sciences (established in 1666) all enjoyed a degree of princely and state patronage; and that the Parisian society was well integrated with central government, its members receiving royal stipends and the royal treasury purchasing scientific instruments. While the Royal Society of London perhaps did not enjoy such "official" government support, the society was advantaged through the connections of its president from 1778 to 1820, Sir Joseph Banks. In *Literature, science and exploration in the Romantic era*, Fulford, Lee & Kitson comment that "by 1778 Banks had the scientific authority and the political influence, as the president of the Royal Society and as confidant to the King and his ministers, to initiate explorations that aimed to increase imperial profit as well as to further scientific knowledge, he became the shadowy orchestrator of a campaign of exploration designed not just to map but also to colonise the remotest parts of the world More than any other Briton, Banks had the combination of authority and imagination to hitch scientific exploration to colonial expansion" (2004: 10-11).

leading you to nature with all her children to bind her to your service and to make her your slave" (cited in Merchant 1996: 82).

Learned societies

Learned bodies and scientific institutions became important meeting places for scientists and for the sharing of ideas. As science gained popularity, together with the development of the printing press, it became easier to share knowledge and discoveries. Reynolds credits the rapid communications systems that developed in Europe at this time as an important reason for the development of natural history:

Newsletters, then newspapers, scholarly letters then scholarly journals; institutions organised and maintained permanently where trained men could gather and weigh and find meaning in reports and experiences touching geography, geology, climatology, zoology, botany, and so on – all these and many more things were factors in the rapid and exclusively European exploration of the earth (cited in Brockway 1979: 61).

Amateurs, as well as professional scientists, joined learned societies that grew increasingly in number from the beginning of the nineteenth century. The oldest and most influential of these societies in England was the "Royal Society of London for Improving Natural Knowledge", founded in 1660 (Brockway 1979: 63). The Linnaean Society, which focussed on botany, was founded in 1788. Many other societies, including the Geological Society of London (1807), the Royal Astronomical Society (1831) and the Royal Horticultural Society (1804), to name but a few, were established in the early 1800s in Britain (Brockway 1979: 63 - 66).

The rise of the experimental method also played a role in the formation of collaborative groupings of natural philosophers and practitioners of various natural sciences in more or less formal associations. Learned societies, such as the *Accademia del Cimento* (founded in 1657) and the Parisian *Académie Royale des Sciences* (1666), were formed around the idea that experimentation required collaboration (Shapin 1996: 131).

Botanical gardens, like Kew Gardens, also played a role in organizing and streamlining specifically botanical studies, and were places where collaboration between botanists was encouraged. The colonial period saw a proliferation of botanical gardens established by European countries the world over²⁰ and

²⁰ Brockway states that "a network of government botanical stations (radiated) out of Kew Gardens and stretched from Jamaica to Singapore to Fiji" (1979: 6,7).

an estimated sixteen hundred gardens existed in Europe at the end of the eighteenth century (Brockway 1979: 74).

Botany and the scientific revolution

The scientific revolution emphasized empiricism, and the avalanche of new plants that flooded Europe due to the increase in travel during the seventeenth and eighteenth centuries, had a profound effect on the growth of botany as a branch of natural science. With new emphasis on the personal observation of the "book of nature", botany grew all the more into a specialized field of study, enthusiastically practised by professionals and amateurs alike. It is said that between 1550 and 1700 the number of known plants quadrupled (Schiebinger 1996: 112). The many new exotic plants were strange and unrecognizable to the eyes of Europeans and a system was needed whereby to organize and make sense of them.

Many natural philosophers had been working on systems of plant classification, but the taxonomic system that was eventually accepted was developed by Carl Linnaeus, Professor of Botany at the University of Uppsala, Sweden. Linnaeus believed that God had ordered nature and that that this order needed to be uncovered by humankind. Linnaeus outlined his classification system in *Systema natura* (1735) and *Fundament al botanica* (1736), which classified plants according to the number of sexual organs of the flower (Miller 1996: 8). Linnaeus's system gave plants two Latin names, the first designating the genus of the plant and the second the species. This system of "binomial nomenclature" became widely accepted, largely due to its simplicity:²¹ Linnaeus's system could be readily applied to the easily discernable outer parts of any flower, regardless the plant's country of origin.

The gathering of world-wide botanical knowledge and the collection of this knowledge in Europe resulted in institutions like Kew Gardens being able to work on acclimatizing and experimenting with plants, analysing which were most beneficial and lucrative. Louise Brockway describes Kew Gardens as "a control center which regulated the flow of botanical information from the metropolis to the colonial satellites, and disseminated information emanating from them (1979: 7). In the case of Kew Gardens we can clearly see the practical "mastery of nature", in that England used scientific knowledge – which was gathered as part of scientific endeavours – for her own economic benefit.

²¹ Linnaeus's system was more easily applicable than the previous "diagnostic phrase names (a brief description which simultaneously functioned as a proper name)" used by botanists, which were sometimes half a page long and also varied from author to author (Koerner 1996: 149).

Joseph Banks and the role of Kew Gardens in British imperialism and colonisation

Joseph Banks played a fundamental role in co-ordinating centres of scientific accumulation – like Kew Gardens – and used this information for the building of the British Empire. Banks was the President of the Royal Society of London from 1778 to 1820. He was "a friend of the King and had strong contacts with leading political figures" (Miller 1996: 22). In his essay, *Agents of empire*, David Mackay says of Banks: "[H]e believed that science, and botany in particular, could be applied in ways which would materially benefit Britain" (1996: 49). Mackay expounds, describing Britain as,

... an industrial center, drawing raw materials from its machines, as well as tropical consumer products, from the colonies. Where its own colonies lacked particular plant types, collectors could be sent out to rectify the problem by drawing on the natural history of other countries. In this way raw cotton, vegetable dyes, naval stores, medicinal drugs, and foodstuffs could be acclimatized in British dominions, ensuring regularity of supply and cheaper production costs (1996: 49).

Writing on Kew Gardens, Brockway discusses its role in assisting the British government in making the colonys' plant wealth profitable:

Decisions taken at Kew Gardens ... had far-reaching effects on colonial expansion: if the botanists could suggest where to find a plant that would fill a current demand; how to improve this plant through species collection, hybridization, and new methods of cultivation; where to cultivate this plant with cheap colonial labour; how to process this product for the world market; then the botanists may be said to have had a major role in making a colony a viable and profitable part of the Empire (1979: 7).

Conclusion

Modern science fundamentally changed ways in which nature was perceived. The mechanical philosophy of nature changed perceptions of nature in European minds; "nature" became more detached from human nature. This thesis proposes that a dehumanized way of perceiving nature aided in legitimizing new exploitative actions towards it, where nature was increasingly seen as a resource to be exploited and used for the good of [hu]mankind. Modern science boldly claimed the superiority of its ways of attaining truthful, objective facts. Much scientific knowledge that was gathered, especially botanical knowledge, was in fact used for the economic benefit of colonizing European countries. These

exploitative actions are symptomatic of the European "mastery of nature." Science moved away from a holistic view of nature, and in so doing, shifted perceptions of nature for centuries to come.

Introduction

As has been established in the previous chapter, during the Enlightenment period, the notion of nature as machine resulted in a less human conception of nature. This opened up a chasm between humans and nature as Europeans began to see themselves as separate and different from nature, and as a result, began to treat nature as mere matter and a resource for financial gain. The "mastery of nature" is a term that refers to this dominant attitude towards nature.

This chapter discusses how this superior attitude to nature manifested in various different ways in the eighteenth and nineteenth centuries. Curiosity collections, botany and Linnaeus's system of classification, European colonization, "economic botany", botanical illustration and European gardens are discussed in the light of this mastery over nature. It is proposed here that botanical illustrations played a major role in picturing plants from the colonies in ways that caused European eyes to read them as plants part of and owned by European culture. The "mastery of nature" is dealt with specifically within the context of the Enlightenment, Romanticism and within the context of European colonization. Links between the oppression of women and the "mastery of nature" are established here. The plant world, botany and botanical illustration, as fields with particularly feminine associations, are seen to work in co-operation with the oppression of nature, due to perceptions of nature as feminine. It is further established that these feminine associations worked together to normalize European domination and the mastery over the plants of the various colonies.

This chapter also analyses European gardens that were popular during the eighteenth and nineteenth centuries in the light of Europe's imperial objectives, and shows how the European attitude toward nature is manifest in approaches to gardening. The French formal garden betrays an intense desire to impose onto nature strict control, while the English landscape garden is discussed as a garden that hides the massive human intervention necessary for producing such gardens. Both, it is established, betray a desire for human "mastery" over nature.

Origins, nature and manifestations of the "mastery of nature"

The "mastery of nature" and feminism

In *Cultures of natural history*, Jardine, Secord and Spary propose that the predominating image in modern Western society is of a nature that is "passive and disempowered" and a "slave and victim of human agency" (1996: 4). The "fissure" or chasm between humans and nature, and the conception of nature as "passive and disempowered", is the subject of Feminist author's, Val Plumwood, book *Feminism and the mastery of nature* (1993). She discusses links between the oppression of women and the domination of nature. Plumwood maintains that the "mastery of nature" stems from our dualistic views of humans and nature being, as Derrida would term it, binary opposites. Plumwood proposes that other dualisms such as reason/nature, mind/body and female/male have also contributed to the "fissure" between humans and nature. These dualisms work together to naturalize our domination over nature.

Plumwood builds on Derrida's concept of hierarchies and power systems, which rely on binary opposites to establish power. In *Positions*, Derrida describes the strategy of a binary opposition as such:

[I]n a classical philosophical opposition we are not dealing with the peaceful coexistence of a *vis-à-vis*, but rather with a violent hierarchy. One of the two terms governs each other ... or has the upper hand. To deconstruct the opposition, first of all is to overturn the hierarchy at a given moment. To overlook this phase of overturning is to forget the conflictual and subordinating structure of opposition (1972: 41).

Derrida proposes a "deconstruction" of binary opposites and a critical re-reading of history in order to discern dominant systems of power, exposing which parties they suppress and exclude.

From ancient times, humans have referred to nature as having a gender, specifically as "mother nature" and "her".²² It is this femininity with which nature is traditionally imbued that Plumwood feels has assisted in the "naturalization" of human's domination over nature. Simply said: the male's dominance over the female, in human terms, was transported into a human dominance over nature. This dominance seems "natural" for the very reason that nature is seen as feminine.²³

²² In *Earthcare*, Carolyn Merchant discusses ancient links between women and nature, citing the examples of "Gaia", "Eve" and "Isis"(1995: 3-90). "Gaia", the earth mother, Eve, who is linked to gardening and agriculture, and "Isis", the Egyptian mother goddess, are examples of female personifications and ways of understanding nature (1995: 3-90).

²³ In her essay "Is female to male as nature is to culture?", Feminist writer Shelley B. Ortner links female suppression with her image as being "close to nature" (while the male is associated with "culture"). She writes that "my thesis is that women is being identified with, or, if you will, seems to be a symbol of, something that every culture devalues, something that every

For the purpose of this thesis, it is proposed that the links between botany and botanical illustration, on the one hand, and femininity, on the other, are related to this concept of domination. Botany and botanical illustration have traditionally been promoted as activities suitable for "ladies of leisure".²⁴ The association between women and botany also stems from women's traditional role as midwives, which was closely linked to herbal healing.²⁵ In *Visions of empire*, Martin Kemp reiterates the association between women, plants and botany:

[O]ne of the conspicuous subplots shared by stories of art and books of botany is the regular association of the cult of plants with the role of women. Flora, the goddess of flowers, Pomona, her counterpart for fruit, and Hesperides are ineluctably feminine ... the garden, particularly the ornamental enclosure ... can even be identified as a predominantly feminine refuge (1996: 212).

Although few women played a role in painting botanical illustrations to assist scientific classification (Linnaeus's reliance on the sexuality of plants for classification was deemed unsuitable for a lady²⁶), many women painted botanical pictures as a hobby.²⁷ In a contemporary context, the idea that botanical painting is an art form more suited to women persists.²⁸ This thesis proposes that the association of botany with femininity perhaps assisted in the human domination over the plant world during the period of colonization. Just as women were dominated by men in human terms, plants, and especially flowers, were pictured as having traditional feminine qualities of prettiness, beauty and fragility. The feminine characteristics of flowers perhaps imported notions of subservience and vulnerability into a Western understanding of plants, thus allowing or sanctioning typically male acts of domination over these plants. Bacon also presented feminine-nature as one that should be controlled and subjugated. Bacon spoke of nature as female, being "bound into service", put "in constraint" and enslaved to the natural

culture defines as being at a lower order of existence than itself. Now it seems that there is only one that would fit that category, and that is 'nature' in the most generalized sense" (1972) (Robinson 2001: 20).

²⁴ "Eighteenth-century society condoned botany as a fitting pastime for middle-class ladies because it took them out into the air and taught them a certain intellectual discipline" (Schiebinger 1996: 110).

²⁵ "[This attitude rested in part on] botany's historical affiliations with herbal healing – a realm in which women had traditionally been active in their role as midwives" (Schiebinger 1996: 110).

²⁶ "The discovery of the tender sexuality of plants resulted in a good deal of anxious prudery amongst those charged with educating the young, particularly the young ladies for whom botany had once seemed a suitably innocent pursuit" (Kemp 1996: 221).

²⁷ Arabella Roupell's (1817-1914) studies of Cape flowers were eventually published anonymously under the title *Specimens of the flora of South Africa* "by a Lady" (1849)(Arnold 1996: 66). Emily Thwaites (c. 1860-1906) is another example of an artist who "painted for the pure joy of painting" (Arnold 2001: 43).

²⁸ "Gradually, throughout the nineteenth and twentieth centuries, female botanical artists replaced and now far outnumber males, probably helped by the Victorian promotion of flower painting as a ladylike pursuit, while a man might believe it to be an insufficiently macho occupation" (Stevens 2005: 11).

philosopher: "It is no good to clutch at her without laying hold of her Nature must be captured and her secrets, like her inner chambers, penetrated" (cited in Henry 1997: 92).

In Linnaeus's system of sexual classification, we see how he imported traditional notions of human sexuality into the plant world. He saw the sexual parts of plants in human terms. Linnaeus recorded in *Praeludia sponsaliorum plantarum* (1729) ('Preludes to the betrothals of plants') that the anthers were the testes, the pollen the seminal fluid; the style, the vagina; the pericarp, the impregnated ovary and the seeds, the eggs (Schiebinger 1996: 165-6). Linnaeus's male and female parts of plants are also referred to as "husbands" and "wives", which suggests the traditional notion of a woman having a husband to whom she was subservient in the plant world also. Schiebinger points out that Linnaeus's system rested on a male hierarchy, the number of stamens (male parts) determined the plant's class, while the number of pistils (female parts) determined its order. In terms of the taxonomic structure, class stands above order. Thus, Linnaeus determined that the male parts of the plant would determine its status (1996: 171).

A reasonable master?

Plumwood disagrees with writers such as Carolyn Merchant who pinpoint the scientific revolution (especially Descartes' mechanisation of nature) as the main cause of humans' viewing nature as separate from themselves (1996: 73-74). Plumwood proposes that the roots of humans' dominant attitude towards nature go as far back as Plato and Aristotle (1996: 74-103). She argues that it is not the masculine identity as such that is the dominator, but the "master" identity – the identity of the dominator on which mastery hangs: "This identity is expressed most strongly in the dominant conception of reason, and gives rise to a dualised structure of otherness and negation, which I argue corresponds to that of classical propositional logic" (1993: 42). The scientific revolution was characterized by an increasing reliance on reason. Reason, as a dominant concept, works together with the suppression of nature by humans. Plumwood goes on to say that:

[T]he concept of reason provides the unifying and defining contrast for the concept of nature, much as the concept of husband does for ... wife, as master for slave Reason in the western tradition has been construed as the privileged domain of the master, who has conceived nature as a wife or subordinate ... the continual and cumulative overcoming of the domain of nature by reason engenders the western concept of progress and development (1993: 3).

Exploitation of the earth's natural resources in the name of progress, development and scientific reason, which increased from the seventeenth century onwards, can be seen as an example of the dominance of human reason over nature.

Natural theology and the theory of evolution

The changing ways in which nature was viewed after the rise of Enlightenment science were further impacted on in the nineteenth century with Charles Darwin's theory of evolution.²⁹ The Victorian era was characterized by the concept of "natural theology", which held that artists and naturalists alike felt they could draw close to the deepest spiritual truths, and to God, through a relentless, empirical naturalism (Fuller 1988: 20). Darwin's writings on evolution challenged traditional ideas of God as creator of the earth. The effect of this on the way people thought about nature, in the midst of prevailing thoughts about natural theology, must have been profound. In *The iconography of landscape*, Peter Fuller argues that with God no longer seen as the creator of nature, reasons to esteem and respect nature dwindled. He refers to Gregory Bateson who "pointed out how the erosion of the concept of divine immanence was leading men and women to see the world around them as mindless, and hence not worthy of ethical or aesthetic consideration", which in turn led them to see "themselves as set apart from nature". Bateson argues, "once the illusion that the world was the handiwork of God had been jettisoned, then the whole base of aesthetics needed to be re-examined" (cited in Fuller 1988: 25). Fuller suggests that "we need secular equivalents of the religious illusion" (1988: 25).

In this sense, Darwin's theory further contributed to a human separation and alienation from nature. Perhaps because the religious reason to treat nature with respect no longer existed, humans felt freer to exploit natural resources, without fear of retribution or a sense of responsibility to steward nature wisely. Certainly, the present-day environmental crisis is evidence of a general disregard for nature.

The mastery of nature and the collecting of "curiosities"

The commodification can be seen in the collecting of natural objects that were displayed in "curiosity collections" and *Wunderkammern* (see Fig. 4), which became fashionable in Europe during the sixteenth century. This practice of collecting was begun by apothecaries, doctors and various medical faculties at universities across Europe, as they began to collect *materia medica* – plants that were used in

²⁹ Charles Darwin published *The origin of the species* in 1859 in which he explained his theory of evolution based on natural selection.

medicine.³⁰ The growth in travel and trade caused a proliferation of strange and exotic *naturalia*, as well as *artificialia*, which were duly acquired by European collectors. During the sixteenth century, many intellectuals and affluent men began to display these objects in rooms called *Wunderkammern*. These rooms were literally filled from top to bottom with strange, conversation pieces. The practice of collecting became the vogue amongst the social and educated elite and through the possession of rare, collected objects, people acquired reputations as learned and cultivated men (Findlen 1994: 3).

These curiosity collections, displayed in rooms and cabinets, became microcosms of the world, and demonstrated the owner's dominance and mastery over this "mini-world". Findlen speaks of the "domestication of nature", referring to the fact that nature was brought in from the "wild" and contained in a safe place: within the home (1994: 155). Nature was thus removed from its context: strange and baffling new natural objects seemed tame within the context of a study or a cabinet. The close proximity of these objects also neutralized their impact. Collectors no longer needed to embark on dangerous travel expeditions, but could "see" and "know" the nature of distant colonies by viewing curiosity collections. These viewed within a domestic space positioned humans in a safe place for observation and power, where he/she could safely express wonder.

Curiosity collections were, in a sense, also a preamble to classification. The need to "make sense" of diverse objects was mastered by collecting them and placing them next to each other, under one roof, and within a human context. Classification became precisely this: a collection of everything, placed one beside the other and organized through the visual comparison of outer features.

Botany and the "mastery of nature"

Linnaeus's system of plant classification aided in the "mastery of nature" by disregarding the indigenous names for the plants collected from the colonies. In her Master's thesis *Opening the curiosity box*, Karen Stewart points out that Linnaeus's system replaced indigenous names of plants with new Latin names: "[B]ecause Linnaeus' rules banned local names for plants, all connections with the plant's place of origin were severed Hence, the way in which botanical nomenclature developed 'othered' indigenous knowledge" (2007: 34).

³⁰ "The introduction of natural history into the medical curriculum of the Italian universities arose from the growing demand for practical demonstrations of *materia medica* to train physicians to recognize the materials out of which medical compounds were made At the beginning of the sixteenth century, physicians considered the study of nature to be peripheral to their medical training; a half a century later it was no longer superfluous ... While the observation of nature occurred in the course of travel and in the museums, it also took place in the university botanical gardens that gathered together plants from all corners of the earth for the perusal of medical students taking the new courses in *materia medica*" (Findlen 1994: 249, 256).

Linnaeus supported the use of Latin as a universal language. In his *Botanical Latin*, William Stearn states that Latin is the "property of no one nation or linguistic group" (1996: 9). But Latin was as far removed from the languages of indigenous people of the New World and other colonies, as English or French would be! William Stearn admits too that Latin was the "generally understood language of educated men"(1966: 7). While this re-naming was said to turn botanical names into a "universal language", the majority of people could not read Latin or understand it.

An interesting example of this would be the South African "bird-of-paradise" flower – which falls under the genus *Strelitzia*. Sir Joseph Banks named this flower *Strelitzia reginae* in honour of Queen Charlotte, who, before her marriage to George III, had been Queen Charlotte-Sophia of Mecklenburg-Strelitz, a small German duchy. Thus, a South African plant was renamed, tying it (via Latin) to two foreign geographical places – Britain and Germany – not from whence it originated (Stewart & Stearn 1993: 13).

Botanists were frequently sent with explorers on voyages of discovery in order to bring back knowledge of the plant life in new countries. Although they tried to bring back as many living examples of plant life as they could, many of these plants did not survive the long ship journeys until the invention of the "Wardian case" (a portable greenhouse) in the nineteenth century.³¹ Collected plants were dried, pressed and pasted onto herbarium sheets, which were brought back to Europe to be classified. Herbarium sheets were then filed in herbariums, libraries and centres of botanical study. Many botanists were aided by botanical illustrators who made drawings and paintings of plants, depicting specifically the parts of the plant necessary for classification.³² These illustrations were used in conjunction with the herbarium sheets to classify new plants.

In *Science in action*, Bruno Latour discusses the ways in which Europeans (on voyages of exploration) collected information about new countries, bringing back knowledge and depositing it into "knowledge banks" in Europe. This knowledge, housed in Europe, made subsequent journeys to the country of origin easier. Latour calls these trips back and forth and the gathering of such knowledge "cycles of accumulation", and the places in Europe where this knowledge was housed and re-worked "centres of

³¹ In 1823 Nathaniel Ward invented the Wardian Case, "a closed, glazed box that protects living plants from unfavourable conditions" (Harris 2005: 188).

³² "It very early became established practice for artists to accompany voyages of exploration and colonization ... [I]n 1585 Richard Hakluyt the Elder tried to persuade the organizers of an expedition to North America that a 'skilful painter is also to be carried with you, which the Spaniards used commonly in all their discoveries to bring the descriptions of all beasts, birds, fishes, trees, townes etc' ... the botanist Tournefirt took Claude Aubriet with him on a botanical exploration of the Near East because 'without this help of drawing, 'tis impossible any account thereof should be intelligible'." (Saunders 1995: 68).

calculation" (1987: 215 -257). He argues that this collected knowledge was used by European countries to dominate places from a distance. Information about inhabitants, cultures, nature and actual land masses was collected and brought back in the form of travel journals, measurements of latitude and longitude, isolated articles of culture, dried plants, drawings and herbarium sheets. Thus actual natural, "breathing" parts of nature were simplified, abstracted and transformed into mobile formats. Latour describes cartography as a way of making land easier to dominate: "[B]y coding every sighting of any land in longitude and latitude (two figures) and by sending this code back, the shape of sighted lands may be redrawn by those who have not sighted them" (1987: 224). Posing the rhetorical question, "How large has the earth become in their [the map masters] chart rooms?", he answers revealingly:

No bigger than an *atlas* the plates of which may be flattened, combined, reshuffled, superimposed, redrawn at will. What is the consequence of this change of scale? The cartographer *dominates* the world The balance of forces between the scientists and the earth has been reversed; cartography has entered the sure path of science; a centre (Europe) has been constituted that begins to make the rest of the world turn around itself (Latour 1987: 224).

Natural land masses were thus abstracted and reduced to a manageable format in maps. Linnaeus's classification system works in much the same way, reducing plants to a name, a herbarium sheet, a drawing, and a place in a system. Linnaeus's system classifies plants from a distance, from a centre in Europe, like Kew Gardens, and enables Europeans to know the plant from that distance. The classification process *transforms* the plant into a format that makes it easy for it to be known in Europe, without actually needing to see the plant. E.C. Spary, in *Of nutmeg and botanists*, talks about this transformation, saying that from the point of "origin" to the point of "consumption", "the unit of botanical analysis was subjected to many operations and transformations that simultaneously endangered and constructed its identity. In part, identity was stabilized through the mastery of classification" (1996: 188).

The "distance inherent in sight"

Linnaeus's system of classification relies mainly on the sense of sight: what you see on the outside of the plant determines the classification of the plant. Antony Gormley, a contemporary sculptor, argues that our human feeling of being detached from nature is caused by this reliance on the sense of sight to "know" nature: "Nature is within us. We are sick when we do not feel it. The sickness of feeling separate

from the world is what is killing it The *distance inherent in sight* has made us treat the 'outside' as different. The dominance of reason depends on the continued externalisation of the world" (My italics.) (Gormley 1995: 124).

This "distance inherent in *sight*" (my italics) refers partly to the emphasis on empirical observation and the elevation of the sense of sight that was characteristic of the Enlightenment.³³ Gormley feels that sight is not as accurate a sense as the mechanical philosophers would have us believe, and that this reliance on sight *only* cannot result in our knowing and gauging the full, organic reality of nature and, in this sense sight "distances" viewers from natural phenomena. Classification using outer features causes us to see plants only in terms of external surfaces.

Foucault has criticized classification based purely on outer, visual aspects: "The plants and animal are seen not so much in their organic unity as by the visible patterning of their organs. They are paws and hoofs, flowers and fruits, before being repository systems or internal liquids" (Foucault 1966: 149). This statement alerts us again to what Linnaeus' system ignores: the inner workings of the plant and the non-visible array of associations – verbal, literary and cultural – that accompany humans relating to plants:

At the institutional level, the inevitable correlatives of this patterning were botanical gardens and natural history collections. And their importance ... does not lie essentially in what they make possible to see, but in what they hide and in what, by this process of obliteration, they allow to emerge: they screen off anatomy and function, they conceal the organism, in order to raise up before the eyes of those who await the truth the visible relief of forms, with their elements, their mode of distribution, and their measurements (Foucault 1966: 150).

Reduced to the written word

Plants were also simplified, or reduced to written descriptions by Linnaeus' system of classification. In *Universal languages and scientific taxonomy in the seventeenth century*, Slaughter argues that trying to describe natural objects in a universal language – in this case a written language (as opposed to an one which encourages reliance on memory) – has caused natural objects to be de-contextualized. She comments that pinning the natural object down in terms of its outward structure, by means of language

³³ "No seventeenth century modernist's maxim seems more self-evidently sound than this: rely not on the testimony of humans but on the testimony of nature ... prefer the evidence of your own eyes and your own reason to what others tell you. Here is the root of modern *empiricism*, the view that proper knowledge is and ought to be derived from direct sense experience" (Shapin 1996: 69).

and drawings, does not accurately reflect the living, breathing natural being, as it is in its original context:

Like language, nature can be apprehended as a series of separate isolated items, detached from the "action" and processes of life, from the living environment. The difference is the difference between the birds in their natural habitat – including the sky, the weather, the trees, the songs they are singing, the berries they are eating, the way they are moving, associated with this time and this place – and the same birds in a museum case (Slaughter 1982: 40).

The act of naming and describing in a written format de-contextualises natural objects. This naming is based largely on visual features of the plant, and contributes, Antony Gormley feels, to a spiritual distance, which is inherent in the elevation of sight to the only way of knowing natural organisms. Plants were transported from one country to another as "descriptions", and this contributed to their de-contextualization.

The "mastery of nature" and colonization

The mastery of nature can be seen in the imperialist actions of many European countries during colonization. The confiscation of land from the original inhabitants was legitimized by the view that people, as well as the natural features of foreign lands, were neither tamed nor civilised, but were savage, uneducated and unconverted. This entitled the "reasonable, rational" colonizer to exert power over the "natives" and their territory. The act of colonization attempts to appear as natural as possible. By perceiving other countries as savage, and in need of civilisation and religious conversion, the colonizing country could legitimate its claim to the territory and inhabitants of the other; their duty was to bring about improvement. "Civilized" countries thus presented their domination as a civilizing, saving project, masking the appropriation that was really underway.

Assumed by Europe to be "*terra nullis*", these parts of the earth were open for the taking and for annexation. The concept of land ownership was at that time a recent one, most landowners having for centuries inherited land, but with the collapse of the feudal system in Europe and the rise of a wealthy middle-class due to the Industrial Revolution, nature/land could now be bought. "Under industrial capitalism the value of land was layered as it, together with nature and natural processes, became subject to exchange values" (Cosgrove 1984: 231-232). Not only did this new view of nature make legitimate the owning of private property, on a grander scale, it propelled colonization.

Colonial botany

Plants played a major role in the economies of European countries during colonization.³⁴ Information about plants in the colonies, collected by scientists, was a way in which European governments ascertained which colonies contained what plants, so that they could be exploited by the prospecting country. In *Colonial science*, Daniela Bleichmar states that:

Recent research has demonstrated the importance of trade for early modern science and the links between empiricism and commerce. This is particularly significant in the case of New World plants, which entered the European repertoire as natural commodities Interest in New World nature was inextricably linked to interest in its commercial exploitation. Political domination, profitable trade, and competition among European powers were the starting points for the colonization of this new natural world (2005: 83).

European powers used the knowledge gained from scientific classification to their own ends and, by that means, put into practice Bacon's statement that "Knowledge is power".³⁵

As part of the race to identify which colonies were most profitable, it became of paramount importance that merchants and explorers documented plants accurately so that botanists could easily identify lucrative plants. Merchants returning from their travels to new, foreign countries brought with them knowledge of these distant lands.³⁶ Londa Schiebinger notes this change in focus, from looking for mineral riches in the colonies to the search for plant riches, by referring to plants as "green gold" (Schiebinger 2005: 119). At the end of the eighteenth century, sugar was responsible for the largest amount of revenue imported into Europe from America, and Peruvian bark (a source of quinine) was the most valuable (Schiebinger 2005: 119).

³⁴ In *Science and colonial expansion*, Louise Brockway says of the British Royal Botanical garden's role in the economy of Britain: "Kew Gardens played a major part in the development of several highly profitable and strategically important plant-based industries in the tropical colonies" (1979: 6).

³⁵ In *The revolution of science*, Andrew Hall comments that, "Bacon ... perceived and taught a great truth about knowledge itself: that knowledge is power. In other words, whereas the object of mediaeval scholastic philosophy had been a passive reconciliation of man and nature, the Baconian philosophy taught that man should actively explore nature and, having discovered its secrets, exploit them for his own purposes" (Hall 1983 : 190).

³⁶ Harold J. Cook, in *Global economics and local knowledge in the East Indies*, remarks that: "For the hard-headed merchant and other men trying to plan to their advantage, the foundation of true knowledge lay not in debating general premises or conclusions but in accumulating precise and accurate information As one economic historian of the European trading companies put it, 'The supply of accurate information must have been the first things expected of a clever merchant'" (2005: 100-101).

Botanical illustrations and the "mastery of nature"

A new realism

Botanical illustrations were not always drawn from life. Before the sixteenth century, illustrations were crude simplifications of plants, and copies of copies of old drawings. Often the same drawing was used to illustrate more than one plant (see *Fig. 5*). During the Renaissance, detailed botanical woodcuts showed increasingly more accurate depictions of plants, such as in the printed books of German botanists, Otto Brunfels (ca. 1488-1534) and Leonard Fuchs (1501-1566) (see *Fig. 6*). The change in the way science was practised highlighted the importance of direct observation and thus plants were depicted in a more realistic manner.

A climate of empiricism

As has been evident from the seventeenth century onwards, empiricism played an important part in how science was conducted. Botanical artists aimed for an unadorned "mirroring" of nature. Botanical illustrators were expected to present plants accurately and were judged as reliable "witnesses" who stood in for those who could not travel to observe these plants themselves. In *Linnaen botany and Spanish imperial biopolitics*, Lafuente and Valverde discuss this belief that botanical illustrators were accurate witnesses, who stood as proxy-witnesses for eyes back in Europe:

What distinguishes geographers or botanists from archivists is that the naturalists also serve as "witnesses", experts who study their objects *in situ* and who "bear witness" to their appearance in the field. All this lends authority to travellers' observations and representations, and convinces those who commissioned them of the truth of their representations. When travellers return home they, as well as those who sent them, share the belief that the papers – inscribed with the representations of nature – can lead to exact knowledge of nature despite the distance separating nature from the metropolis (2005: 134).

This thesis proposes that botanical illustrations made during the period of European colonial expansion were not accurate representations of reality; that they represented plants in ways that transformed them, but that European eyes read these illustrations as accurate and true depictions of reality.

Science and the "mark of truth"

Botanical artists were, as William Blunt reminds us, "servants of Science"³⁷ and paintings were made to purposefully show parts of the flower that were essential to classification. In *Visions of empire*, Phillip Miller reiterates that the exploration of lands became more scientifically charged towards the end of the eighteenth century: "[H]istorians of Pacific exploration and imperial development have noted and emphasized the increasing scientific impetus to Pacific exploration from circa 1760" (1996: 4). Botanical illustrations, as opposed to decorative flower paintings, became associated with science's claims for objectivity and for observing and reporting only the facts.

In comparison to previous less accurate representations of plants, these new realistic images must have been impressive. The power of these botanical images, seen in the light of how their realism must have reinforced science's claims of objectivity, cannot be underestimated. In *The mastery of nature*, T.D. Kaufmann states:

Artists from the fifteenth to seventeenth centuries carried out a "conquest of reality". Through the discovery of techniques of pictorial illusionism and new media, including the mastery of perspective and oil paint, they gradually developed means to achieve an ever more convincing imitation of the natural world (1993: 3).

In botanical illustrations that accompany scientific texts, plants and flowers are presented passively dissected on white paper and are labelled and classified by scientific experts, which gives them scientific validity. Botanical illustrations tended to carry what William Hunter has termed "the mark of truth" (Kemp 1996: 199).

Visualization of the colonies

Paintings of newly discovered lands played an important part in the European perception and idea of the colonies. In *Painting as exploration*, Bleichmar speaks about the importance and status of botanical illustrations during voyages of discovery:

³⁷ "[T]he botanical artist finds himself in a dilemma: is he a servant of Science, or of Art. I can only conclude that he must learn to serve both masters" (Blunt 1950: 3) While William Blunt claims that the botanical artist serves both Art and Science, Blunt's understanding of "Art" is perhaps limited to only the formal aspects of the discipline, and not the aspects of "Art" that include content and meaning. I have to conclude therefore that traditional botanical illustrations probably serve "Science" more than they do "Art".

[A]ll expeditions produced numerous images as part of their stated goals. At home or abroad, European naturalists used images in their daily work, and wrote abundantly about them in their journals and correspondence. Pictures deserved special mention in the inventories of collections shipped back to Europe, and frequently received the most attention when crates were unpacked (2006: 81).

It is important to imagine the role that visual imaging must have played during this period of discovery. In an age that did not have photography, pictures and representations of these new lands were most probably studied intently upon arrival in Europe. These representations were perhaps the only visual evidence of certain countries visited, and must have seemed definitive. These representations made claims (because they served objective modern science) as to their accuracy in representing nature in an unadorned style, and having been done by impartial and objective witnesses. Thus, what was seen in these representations was taken to be the truth.

De-contextualization through representation

Although botanical illustrations claimed to be accurate representations of reality, as Slaughter points out, "any form of representing the (natural) object necessarily abstracts" (1984: 44). The convention of placing the plant on a white page may at first look like a way of isolating and focussing the viewer's vision on only the single plant, and on those parts of the plant which determine its place in the classification system.³⁸ The actual country where this plant comes from is not represented and thus the plant is presented as a plant in space and in transit, available to be re-planted elsewhere.³⁹ This illustrative convention resulted in plants being severed from their contexts and environments.⁴⁰

³⁸ Barbara Stafford speaks about "the insistent empiricism that underlay the explorers' method of perception" and that this way of looking was coupled with seeing an "unedited nature". The result of experiencing such strange and unfamiliar nature must have caused bewilderment to these travellers. Stafford goes on to say, "The structure of a specifically scientific way of seeing-as defined by its practioners – can be distinguished from other eighteenth-century visual modes. The scientific observer looks at, not over what he explores. The eye is intently engaged by the aggressive identity of a particular object with respect to which the beholder takes up a position" (Stafford 1984: 40). Scientist-explorers thus focussed their vision on details, perhaps in an attempt to process the onslaught of unfamiliar visual information. This way of looking thus also contributed to presenting, in this case – plants, in isolation on a white page.

³⁹ Contemporary botanical illustrators have started to address this imbalance. South African botanical illustrator, Thalia Lincoln's study of the *Mimetes hottentoticus* (see *Fig.7a*) places this plant, endemic to the south-western and southern Cape, squarely within its natural environment and near the recognizable tip of Cape Point, showing it within the context of the country it is indigenous to. Auriol Batten, another South African illustrator usually places her plant studies, done in colour, on a pencil background showing the environment in which they grow (see *Fig.7b*).

⁴⁰ Jacobs comments on Weiditz's depiction of a water lily in Otto Brunfel's herbal (1530-36): "The plant was taken out of the water, and the roots were cleansed. What therefore we see depicted is a water lily without water – isn't this a bit paradoxical? All relations between the plant and its habitat have been broken and concealed. And yet this is regarded as the first herbal with illustrations 'true to nature'; Weiditz was a pupil of Dürer's and no doubt had learnt from the master the motto about nature: *Wer sie heraus kann reissen, der hat sie* – to tear out of nature is to possess her" (cited in Saunders 1995: 125).

Mobile plants: "Cut and pasted"

The fact that plants were depicted on white backgrounds enabled them to be visually cut out and transposed onto wallpaper designs, embroidered onto dresses, and readily planted into European gardens. Many plants from the colonies were seamlessly absorbed into European culture, and their own roots were mostly forgotten. Bleichmar comments:

As was standard in Europe at that time, the illustrations present a nature that is always green, always in flower, static in its lushness, de-contextualized geographically in the white page as well as temporarily from life cycles. This de-contextualization can be interpreted as more than a simple iconographic tradition: it represents the end point of the process through which nature was domesticated, rejecting the outdoors in favour of the indoors, the field in favour of the page (2006: 90).

In the above quotation, Bleichmar points out that these illustrations present plants that are perfect, flowering, green and lush. In *South African botanical art*, Marion Arnold refers to this botanical illustrative convention:

Although botanists probably consider truth to appearance a primary requisite for "good" botanical art, truth is a relative term. To express the individual personality of the plant takes more than mere skill: what is seen must be balanced with what is known. In order to portray what is known, truth in the form of diseased leaves or malformed stamens of a specimen may have to be suppressed if the artist is to render the characteristics of the species In effect, scientific truth is not absolute. Art casts the deciding vote in determining the conventions utilised in plant portrait painting, and naturalism serves to idealise a plant and render a type (Arnold 1996: 65).

It is an accepted convention when illustrating a plant not to include any faults, diseased leaves or flaws. Arnold states that although strong claims are made for "truth-to appearance", it is rather an idealized (even romanticized) version of the plant that first meets the eye, but it is not an accurate representation of what the plant truly looks like in, say, a decaying state. With the incredible emphasis placed on empiricism during this period, the audience "back home" assumed they were seeing the truth – but botanical illustrators had an artistic licence to produce plants that were almost artificial in their splendour.

Second-hand views

Some botanical illustrations were produced by artists who had not witnessed the plants first hand. Saunders says that these artists, not having the privilege of a first-hand experience at viewing the plants, would have to "concoct a complete portrait of the subject" (1995: 73). Sir Walter Hood Fitch (1817-92) was a prolific and skilled illustrator who specialized in using herbarium specimens as reference material to represent mostly exotic plants. He claimed: "Sketching living plants is merely a species of copying, but dried specimens test the artist's ability to the uttermost; and by drawings made from them would I be judged as a correct draughtsman" (cited in Saunders 1993: 76).

One of the most well-known botanical artists of the late eighteenth and early nineteenth centuries, Franz Bauer (1758-1840), was the resident artist at Kew Gardens for nearly fifty years. Bauer did not journey to the colonies and never saw any of the plants he painted *in-situ*. Many of the plants he illustrated were cultivated from seeds in the gardens at Kew, or he painted them from dried plants on herbarium sheets (see *Fig. 8*). Bauer thus witnessed these plants either in a dried state or growing within a British context only. The scientific credibility of botanical illustrations rests heavily on the assumption that these plants were painted by first-hand witnesses. Yet, both Bauer and Fitch had to use their imaginations and creativity to re-create a reality of their own imaginings.

A scientific "look" and claims of truth

Bauer became an expert in using the microscope to paint small parts of plants. Botanical illustrations with microscopic depictions were lent an air of scientific validity. The microscope and telescope made claims for scientific accuracy of vision, which worked with Latin names, labels and dissections to give the botanical illustrations a "look" of scientific validity. Painting parts of plants in dissected form, laid next to the main flower on the paper, was a way of objectifying the plant and changing it by making it look less and less like it would in its growing state (see *Fig. 9*). Findlen comments that, "[d]issecting yielded the meaning of an object through dismemberment. At the end of an anatomical demonstration, a living creature became a series of observations, illustrations, and disembodied parts that bore little resemblance to the whole it once had been" (1994: 221). This disembodiment of the plant was a way of objectifying it, with the master human scientist (and the viewer of the picture) presiding over it.

Barbara Stafford speaks of the ways in which science made claims to neutrality and actuality during this era, saying that science employed a specific style of claiming truth. Stafford feels that this style appears

transparent, "and does not call attention to itself, nor do similes thrust themselves upon our notice" (1984: 47). Stafford argues further that "the discovery of truth was assisted by the style. Although the matter to be communicated is paramount in an aesthetic of information, the seemingly unmediated, 'artless' form of its transmission is instrumental in producing the effect of verisimilitude" (1984: 47). It is because this "effect of verisimilitude" that botanical illustrations make claims to, and the scientific impression of botanical illustrations, as well as their close association with scientific classification, which helped to reinforce this claim of an objective, truthful representation.

Florilegia

Florilegiums are books containing flower paintings that fulfil a decorative rather than a scientific function. They were popular in the early seventeenth century and although these flower paintings do not claim to serve science, they were celebrations of ownership and possession by garden owners, especially of a pride in owning rare exotics that filled seventeenth-century flower gardens. Florilegiums were commissioned by wealthy patrons to serve as a record of the rare and exotic flowers in their gardens. Flowers were increasingly grown for their decorative qualities, making the collection and cultivation of flowers fashionable. Plants and flowers became symbols of wealth, as well as an indication of intellectual engagement (Saunders 1995: 41). The florilegium embodied the luxury of ownership that was characteristic of the imperial period.

A symbol of the garden itself, the florilegium was most often divided into the four seasons of the year, and therefore exhibited all the flowers in the garden in perfect bloom, simultaneously. The garden thus became mobile and transportable, and the amount of people whom one could show it off to increased. These books were incredibly costly to produce and the production, as well as the ownership of all the flowers displayed, spoke volumes about the owner's wealth and status.

Flower books used as inspirations for embroidery designs and other decorative pursuits also fall under the category of florilegia. The florilegium came about not only due to the profusion of new, colourful and unusual exotic plants, but also due to the growing fashion for floral motifs and plants used as decorative elements on clothing and materials (See *Fig. 10* & *Fig. 11*). The use of plants and flowers as decorative motifs also spoke volumes about the economic power of the European countries that were

able to source such plants and bring them back to Europe. Floral decorative images were thus not only symbols of European power but also of the affluence of the wearers and owners.⁴¹

Gardens as sites of the "mastery of nature"

Gardens have a rich symbolic and physical heritage as places of spiritual contemplation, refuge and retreat from the world. Historically they have been associated with heaven and with "Paradise", from the Garden of Eden in the Judeo-Christian tradition as a *hortus conclusus* (an enclosed garden) to the Islamic tradition of heaven as a garden: "the reward of the faithful will be to dwell in a garden with 'spreading shade ... fruits and fountains and pomegranates ... and cool pavilions'" (Cunningham 1996: 41). Gardens, however, are places of paradox. They purport to be a refuge, away from all that is human-made and artificial into nature, yet they are just that – human-made. Our ideas about gardens are precisely that; ideas and cultural constructs assuming a physical form. Changing trends in garden designs reflect our changing thoughts about nature.

In *Garden, nature, language*, Simon Pugh analyses what a garden symbolizes, exposing as naïve our thinking that in a garden we are "close to nature". Pugh argues that the very fact that a garden is human made, should warn us that we are in an environment that is culturally constructed.⁴²

Mastery and manipulation

During the sixteenth and seventeenth centuries in Holland, cultivators of tulips tried to improve on nature through their manipulation of tulips, in order to produce unusual colour combinations. Goldgar, remarking about tulipmania and the lengths traders and cultivators would go to manipulate tulips, writes of gardeners and the improvement of nature for financial gain:

Not only did [they], then, give their endorsement to the idea that man's art could triumph over the processes of nature, but they consciously conceived of what they were doing in these terms
.... These gardeners were not mere spectators to the wonders of nature, but active participants in

⁴¹ In *Reading and writing with nature*, Murkerji comments that, "The art of accumulating and arranging plants was the heart of the garden Images of the same flora and fauna even appeared inside houses embroidered on fabric for dresses, upholstery and draperies. They testified to the power both of the European economic empire and of those who could control such a range of plant life" (Murkerji 1990: 657).

⁴² Pugh, in this study, moves from the casual enjoyment of a garden to a growing discomfort, "This book is a point in a journey from a mindless, regressive, immersion in the pleasures of the garden to an unease about what the garden represents and why. The pleasure I receive from the garden is 'indescribable', an unquestioning ease that seems to slip in behind the censoring mechanism of an otherwise puritanical, analytic approach to culture" (1988: 1).

changing it, for, as Jan van der Groen wrote of gardens in 1699, "nature can, through art, be shifted, decorated, put into good order, and made ornamental and pleasurable (2004: 329).

Gardens as sites for collection

Collecting exotic plants and seeds grew out of the practice of collecting curiosities for *Wunderkammerns* and "curiosity cabinets". "Curiosity collections" already reflected the human trend of wanting to own natural objects, and display that ownership.⁴³ In a similar way, formal gardens were contained spaces and small worlds where many diverse indigenous and exotic plants were collected and grew together, even though they came from many different reaches of the globe. Plants in garden "collections" were moved out of their natural context and into European domestic settings. In the *Moral authority of nature*, Daston and Vidal make an interesting point in terms of semantics, pointing out that the word "naturalization" first entered language in the sixteenth century and referred to

extending to an alien the rights and social position of a native born subject or citizen, or to adopting a foreign word or custom on equal footing with what was native ... by the eighteenth century, it was applied metaphorically to imported plants and animals successfully cultivated in new surroundings ... why use the term "naturalize" in conjunction with expressly local conditions, when nature stands for what holds everywhere and always? (2004: 3-4).

The implication is that what was natural was not equated with what was endemic to that specific country: what was natural was European.

French formal gardens

French formal gardens were designed according to strict geometric patterns, reflecting modern European scientists' beliefs that an underlying mathematical structure was present in nature. This geometry was imposed onto groupings of plants and trees. Using topiary, trees were cut into neat, geometrical forms (See *Fig. 12*). The geometrical shapes evident in formal gardens reflect mathematical ideas that were prevalent in astronomy during the scientific revolution.⁴⁴

⁴³ Daston and Park comment that: "The ownership of rare and unusual objects served to reinforce social, political, and religious hierarchies. Why was the case? In part, of course, the answer lay in their expense. Not all scarce objects were costly, but all costly objects were scarce, and they could therefore be used as a symbol and (to a select audience of the rich and powerful) a display of wealth" (2004: 88).

⁴⁴ Claudius Ptolemy's (AD 90 -168) system of co-ordinate geometry applied to the heavenly realm was re-discovered in the fifteenth century (Harley 1988: 282) and, while the ancients had thought Ptolemy's system to be hypothetical (Henry 1997:

The use of mathematical principles to explain the workings of the physical world had already been applied in areas such as trade, navigation, surveying and cartography, all of which had become important in colonization and exploration (Henry 1997: 14-15). There are, perhaps, links between geographical mapping and the ways in which the formal garden's layout was planned on paper. In *Maps, knowledge and power*, J.B. Harley states that "boundary lines on the map were a medium of appropriation" (1988: 285), and further, "it is true that in political geography and the history of geographical thought the link is increasingly being made between maps and power – especially in periods of colonial history" (1988: 277). The ways in which the formal garden was planned, using many geometrical boundary lines, can be seen to contain echoes of political mapping. In *Reading and writing with nature: social claims and the French formal garden*, Chandra Mukerji comments on French garden designers who wrote about their ideas:

Geometry was a central concern to most of these writers. The beauty of the garden lay in the geometry of its design, the proportions with which the beds were laid out The geometry of the garden had to be a central abiding concern of designers, for it was here that the value of nature could be expressed (1990: 662).

The formal garden was planned on paper and in much the same way as maps were ways of claiming land, plans for formal gardens claimed the land and showed ownership in the imposition of boundary lines, borders and shaped flower beds. Formal, geometric gardens thus displayed the increasing confidence of Europeans in their ability to understand, tame and dominate nature.

A God-like perspective

These elaborate French gardens were designed to be seen from an elevated viewpoint – from the balcony of the main house. Mukerji feels though that "French formal designs were really designed to be seen from a bird's eye view ... views from elevated spots like the house were only the best earthly approximations of that heavenly perspective" (1990: 660). *Figure 13* shows a design of an English formal garden. The implication is that these gardens were actually meant to be viewed from a heavenly, God-like perspective – from right above them. The garden owner (who was usually a man) perhaps wanted to call up similarities between God lording over his creation, and himself, lording and ruling

9), Copernicus and Galileo both applied geometry and mathematics to their astronomical theories as a practically applicable way of understanding physical nature and processes.

over his property. From the elevated view of a balcony, the formal garden could also have resembled the land shapes and boundary lines on a map.

The rigid, geometrical garden design was also a way of speaking about the owner's power, social position and ability to rule his property. Murkerji comments that the land acquisitions of Parisian financiers, who "rapidly bought up property around Paris in the seventeenth century" (1990: 672) betrays that these men were not seeking land to invest in, or make profit from, but to improve their status. He writes:

[T]hey were seeking territories with which to make social claims. They wanted titles and holdings that would improve their status, not their wealth, the latter they acquired elsewhere. They wanted to translate economic power into political and social power, and for this they needed territories to express their prowess (1990: 672).

French formal gardens became ways of claiming social power during a period in France where social position was becoming unstable. Social positions became less clearly defined and were upset by the economic change and growth of capitalism. In other words, people who had never been rich before, suddenly were, and needed to find ways to be upwardly mobile (Murkerji 1990: 655). Gardens and their rare exotic plants reflected the economic reach and power of the new international capitalist trading system.

Louis XIV: the "Sun King's" garden at Versailles

The gardens and palace at Versailles are legendarily impressive. This garden is typical of a French formal garden of the time (see *Fig. 14*). At the time of King Louis XIV's (1638-1715) accession to the throne, even *his* social position as king was unstable.⁴⁵ He used his garden at Versailles to make a statement about his power and position over the land under his control.

The gardens at Versailles saw a "new nature" shaped by the hands of the head gardener of the *Jardin du Roi*, Comte de Buffon (1707-88). The head gardener's superior attitude to the nature of the garden under his care is reflected here in his own words:

⁴⁵ Murkerji claims that, "the legitimacy of the French monarchy itself was not firm So even the monarch himself was engaged in a process of making social claims about the monarchy when he built his great palaces and dramatic gardens" (1990: 656).

Brute nature is hideous and dying; I and I alone can render her pleasant and living. Let us drain these marshes, bring to life these stagnant waters, by making them flow, forming them into streams and canals Let us set fire to this useless growth, these old, half-decayed forests, then cut away what the fire has not consumed. Soon, in place of the reed and water-lily, from which the toads make their poison, we shall see the ranunculus and the trefoil, sweet and healthful; herbs A new nature will be shaped by our hands (cited in Murkerji 2005: 31).

As the French increased their territorial claims and extended their reach to new colonies, the gardens in Paris reflected these aggressive actions of dominance over nature. Louis XIV had special promenades built throughout his parks which were meant specifically for accompanying ambassadors on walks through his garden, walks that were intended to intimidate and impress. The geometric patterns and layout of Versailles, compounded by its many boundary lines and the centrality of borders to different sections, resulted in a garden design that "had the rhythms of a political map in which territorial units and their defined boundaries were the central feature" (Murkerji 1990: 673). The orderly and breathtaking garden at Versailles symbolically reflected Louis XIV's imperial objectives and military power. The geometric lines, the rigid linearity and the vast extent of exotic plants became a reflection of his military dominance over French colonies, which included Canada, India and Mauritius, amongst others.

Orangeries and glasshouses

Mastery over foreign plants was also seen in the use of orangeries and glasshouses to ensure that plants not suited to the European climate would survive the cold winters of the North. These structures ensured that exotic plants would thrive and be naturalized on European soil. Tender, exotic plants that were successfully cultivated on French soil also made statements about French power and command over nature. The rare exotics spoke about the extent of French reach and power into colonial lands. Plants and fruits grown in hothouses and orangeries became symbols of status and spoke of the garden owner's ability to grow such products: oranges, lemons and pineapples were especially important status symbols. For instance, *Figure 15* shows the royal gardener to Charles II, John Rose, presenting him with the first pineapple grown in England, in about 1670.

French formal gardens were symbolic of French intelligence, military strategy and precision. But in the Seven Year's War (1756-63), Britain defeated France and severely curtailed France's maritime power. The French formal garden fell from grace, making way for the English landscape garden.

The English Landscape garden

The fall from popularity of the formal garden in England began as early as the 1730s, making way for the English Landscape garden, which espoused a new passion for unstructured nature. This garden was far less structured than the formal garden – and was spearheaded by garden designer, Lancelot "Capability" Brown.⁴⁶ The stiff rigidity of the formal garden became less popular and a taste developed for a garden emulating sweeping, open landscapes. Barbara Stafford, in *Voyages into substance*, believes that the fall of the formal garden had much to do with the "expanding sensible universe" discovered through travel (1984: 5). The formal garden was too pretty and contrived in comparison with the rough wilderness of the newly-discovered world. Stafford refers to François le Vaillant who, in *Voyage dans l'interieur de l'Afrique* (1790), "denigrates the English garden, saying that its streams, artificial hummocks, pretty paths, decaying bridges, and constructed ruins blight the spirit and tire the eye, particularly when one has witnessed the naturally verdant fields of South Africa's Pampon-kraal" (Stafford 1984: 5). The move away from the aggressive taming of nature, as seen in the formal garden, was reflective of human's waning fear of the outside world, as this world became more and more familiar through travel.⁴⁷

The rise of an Empire

The change in tastes for gardens altered as Europeans travelled further afield and extended their reach of power into more and more lands. In *Science and colonial expansion*, Brockway traces Britain's increasing dominance as an imperial power:

Bombay and its pepper trade passed to England in 1662 as part of the dowry of the Portuguese princes, Catherine of Braganza, when she married Charles II. Jamaica was taken from Spain by an English fleet sent out by Cromwell, and its accession ratified by the Treaty of Madrid in 1670. France lost Canada in the settlement of the Seven Year's War (1763); meanwhile, having diverted ships and troops to Atlantic theatres, France was decisively beaten in India by the

⁴⁶ In a statement, perhaps very similar to the one made by the Comte de Buffon quoted earlier, Lancelot "Capability" Brown, in *The late improvements at Nuneham* (1787), addresses "Nature", betraying a similar attitude of superiority, "Observe all these changes, and candidly own/ I have cloath'd you when naked, and when o'erdress'd/ I have stripped you again to your bodice and vest" (Jarrett 1978: 67).

⁴⁷ Janet Browne comments in her essay, *Botany in the boudoir and the garden: the Banksian context*, "Landscape designers and owners of large estates appeared willing to believe that the outside world – the world beyond the garden – far from being corrupted and fearsome, as was thought of in the seventeenth century and earlier, might in fact be admirable and worth incorporating – through visual trickery – into their domestic haven. Fear of the wilderness was gone. The overwhelming urge to discipline and train plants into clipped hedges and tortured topiary derided by Pope disappeared" (1996: 169).

British. With the French out of the way, Britain was the sole foreign power in India. France lost another colony in the settlement in the Napoleonic Wars, when Mauritius with its spices and sugar cane went to the British France's ally in the Napoleonic Wars, the Netherlands, lost Ceylon (1796), and South Africa (1814) to the British For the rest of the nineteenth century ... Britain and Holland quite amicably shared the rich trade of the Indies (1979: 57).

This extract traces just how active Britain was at acquiring territories during the time in which the landscape garden became popular. This thesis proposes that the changing tastes in gardens reflected a change in the way in which nature was viewed by the conquering British Empire.

Landscape gardens and the idea of the "picturesque"

The period of Romanticism resulted in an increased focus on landscape during the nineteenth century in Europe (Cosgrove 1984: 234). Central to this was the idea of the perfectly framed view of nature known as the "picturesque", which refers to a landscape that is "worthy of being painted" (Tansey & Kleiner 1996: 948). The "picturesque" view of nature is thus a constructed human picture of nature. Landscape gardens were designed so that picturesque views were framed during walks through the garden, and less pleasant views obscured.

Enclosures and the changing face of landscape

In late-nineteenth century England, the enclosure system caused open fields and meadows to be annexed as farming land. The enclosed land had the appearance of being bordered and divided into rectangles, thus making the land appear more structured, and less natural. The Industrial Revolution also saw a huge amount of the population move to cities to work in the new steam-powered factories. The penchant for a natural landscape garden can be seen then as heightened by a longing for the lost natural landscape of the English countryside which fell away through enclosures.

An Imperial landscape

In *Imperial landscape*, Mitchell postulates that there is a link between the popularity of landscape painting evident in England at roughly the same time as Britain grew as an imperial power, and thus, also at the same time as the taste for English natural gardens developed. He posits the idea that "landscape is a particular historical formation associated with European imperialism" (1994: 5) and that:

Empires move outward in space as a way of moving forward in time And this movement is not confined to the external, foreign fields toward which the empire directs itself; it is *typically accompanied by a renewed interest in the re-presentation of the home landscape, the 'nature' of the imperial center* At the same time as English art and taste are moving outward to import new landscape conventions from Europe and China⁴⁸, *it moves inward toward a reshaping and re-presentation of the native land*. The Enclosure movement and the accompanying dispossession of the English peasantry are an internal colonization of the home country, its transformation from what Blake calls 'a green & pleasant land' into a landscape, an emblem of national and imperial identity (My italics.) (Mitchell 1994: 17).

The new representation of English nature, and interest in nature, can be seen in the popularity of landscape paintings of Gainsborough, Turner and Constable. English nature was also re-shaped in the reconstruction of formal gardens into landscape gardens. The English longed to make their countryside appear more natural and longed for a look that embodied an absence of human intervention – where pure, unadorned nature flourished. Ironically, as has already been noted, these gardens required just as much human intervention as did formal gardens, if not more.

This paradox of an apparent lack of human intervention lies at the heart of the landscape garden: it presents itself as nature wild and untamed, but this appearance of naturalness is achieved through human design. For example, landscape gardens attempt to eradicate any visible boundaries between the garden-owner's property and the surrounding nature using 'ha-ha's,⁴⁹ and serpentine lakes emulated natural lakes with their curved shapes. Although the landscape gardens did not advertise the human intervention necessary to produce such a natural look, the lakes were built; and hills were constructed (to obstruct unpleasant views) and removed (to include pleasant views). Sometimes entire villages were removed if they spoiled the vista from the garden.⁵⁰ The gardener thus went to great lengths and considerable deception to make the garden appear quite natural.

⁴⁸ Mitchell further proposes that this interest in landscape in the imperial country is a trend, citing the fact that "Chinese landscape painting ... flourished most notably at the height of Chinese imperial power and began to decline in the eighteenth century as China became itself the object of English fascination and appropriation at the moment when England was beginning to experience itself as an imperial power" (Mitchell 1994: 9).

⁴⁹ Ha-ha's were, "a simple ditch that deceived viewers into the belief that there was no rigid boundary between grounds and the larger setting. The ha-ha drew, or apparently drew, the whole of the surrounding countryside – fields, woods, cattle, horses, sheep, plantations, and hills – into the garden landscape. Outside land was metaphorically turned into an extension of the house and grounds. As Walpole said in his study, *The history of the modern taste in gardening*, this 'capital stroke' or 'simple enchantment' allowed one to leap the fence and see all nature as a garden" (Browne 1996: 167).

⁵⁰ In *Landscape and ideology*, Ann Bermingham points out "Throughout the eighteenth century landscape gardens grew more extensive. Not only did they absorb village commons within their boundaries, but occasionally whole villages that stood in the way of a prospect or an improvement were destroyed and rebuilt elsewhere" (1986: 11).

Conclusion

A superior attitude to nature was part of European colonialism and had its roots in changing attitudes to nature, which were influenced by the increase of trade that accompanied journeys of discovery and exploration. As natural phenomena became commodities to trade with and desirable as objects to be owned, attitudes towards nature became more and more exploitative.

The domination over nature and the oppression of women are clearly linked, as seen in the light of nature's feminine associations. Plants, botany and botanical illustration all have feminine undertones and associations. This femininity played a role in the domination and exploitation of the plant world by Europe during the colonial period. Linnaeus' nomenclature furthered notions of male superiority through the incorporation of male domination into his classification system, as well as supporting the Europeanization of plants through his use of Latin to re-name plants, forgetting the plants' indigenous names. By changing the plants identity – through providing new names for them – into words that sounded at once familiar and framed in the expert language of science, the plants were thought of in the minds of the Europeans as more familiar, more European.⁵¹ Linnaeus's classification system changed living parts of nature into abstract formats, flattening them into drawings, Latin names and herbarium sheets. Living, breathing plants were changed into formats which were easy to manoeuvre, manipulate and imagine as easily dominated.

Darwin's theory of evolution also played a role in the formation of a more exploitative attitude toward nature during the nineteenth century, an attitude which further enlarged the chasm between human nature and nature.

Botanical illustrations claimed to represent plants witnessed in far-away countries accurately and faithfully but conventions employed by botanical artists, such as depicting the plant on a white background and painting an idealized version of the plant, presented these plants as de-contextualized and abstracted versions of the living plant. In *Seeing and understanding: a commentary*, Reill states that botanical illustrations can never claim to represent a living, complex plant accurately:

Why is this so? Why can't we accept at face value that in depicting a plant the self-conscious botanical illustrator of the late eighteenth or early nineteenth century strove to show, to

⁵¹ Bleichmar states that botanical paintings in this period were functional in the act of "seeing", which was closely connected with knowing and owning. She states, "Images of plants and animals were more than pleasant, secondary by-products of exploration: they were instruments of possession" (2006: 82).

paraphrase Ranke, *wie es eigentlich gewesen*, how it actually was? Of course, the answer is that the illustrator has to use conventions of representation and in doing so, no matter what the medium, enter into a world that encompasses far more than the desire to render as faithfully as possible a true, "objective" view of something as simple (or complex) as a plant. For ... there is no such thing in the botanical world as a simple object that does not conjure up a world of meanings and associations, ranging from the evident to the archaic. The representations of plants are capable of enruing and deeply-seated responses, "which persist across quite divergent cultural periods" (1996: 294-5).

Reill points out what Foucault and others have reiterated; that plants (and nature in general) cannot be separated from the human world of association, meanings, literary connections and "deeply seated responses" (1996: 294-5). Modern science classified nature by observation of the surface features of the plant. By recording only what you see, the plant is flattened into a format that presents a plant divorced from human association and the oral history that surrounds it.

The de-contextualisation of the plants was important because these plants could then be easily re-contextualised and possessed by Europeans. This repossession was effected by planting these plants in their gardens, by cultivating them in seed form and by artificially naturalizing them in the colder European climate with the aid of glasshouses and orangeries, so that they became European plants.

Botanical illustration carries with it associations of femininity – from the subject matter it depicts to the women who painted the pictures. Plants are thus possibly pictured in botanical illustrations as easily overpowered (like women) by the European eyes which observed them. In this sense, botanical illustrations aided in the mastery over plants. Botanical illustration's links to scientific claims of truthfulness caused the ways in which these plants were depicted to be read as the "truth".

In the formal garden, nature was visibly tamed and subdued; in the creation of the natural landscape garden, human intervention was disguised, yet both gardens were symptomatic of the European domination over nature. This masking of human intervention in the landscape garden could be reflective of the way in which Britain was dominating various colonies in the New World at that time. Britain wanted to make this dominance seem natural, and did not want to draw attention to its aggressive appropriation of land. Marilyn Frye discusses the conditions for effective colonisation:

[F]or efficient subordination what's wanted is that the structure not only appear to be a cultural artefact kept in place by human decision or custom, but that it appear *natural* ... it must seem natural that individuals of the one category are dominated by the individuals of the other and that as groups, the one dominates the other (cited in Plumwood 1993: 41).

Through establishing the binary relationship between civilised/savage⁵², the British Empire made it seem inevitable that it, a civilised nation should take possession of the native peoples of the colonies and improve their land by ruling over it. The landscape garden's seemingly natural domination over nature was reflective of Britain's "natural" domination over her foreign colonies.

⁵² Plumwood says, further: "[T]he period of colonial conquest in the west from the fourteenth century onwards brings to the fore civilised/primitive as a variant of reason/nature and of reason/animal ... and the rise of science brings to the fore subject/object dualism" (1993: 44).

Introduction

The aim of this chapter is to discuss the practical component executed in partial fulfilment of the requirements of the Master of Philosophy (Illustration) degree, and to place these artworks within the context of the theory discussed in this thesis. This chapter discusses the thought processes, aims and intent behind various aspects of my practical work. The artworks produced draw from the genre of botanical illustration. They do not aim to fulfil a scientific function, but attempt to reinvent botanical illustration by focussing on aspects of the painted plant or flower that link these with the complex relationship between humans and nature. In an attempt to bridge the distance between the human world and plant world, the artworks highlight the associations, symbolism and metaphorical content plants hold for humans. In these artworks, plants are used as vehicles to explore personal issues of identity, placement and belonging.

My artworks, rather than being subordinate to a scientific text – as botanical illustrations traditionally are⁵³ – are accompanied by words and annotations which are supportive and descriptive of the visual images: The visual images thus assume a greater importance than the accompanying words. Within a Fine Art context, botanical illustrations are usually not considered serious art works. Marion Arnold, comments in her essay, *Petals and stigmas*, on the "negative reception of plants and flowers in particular" in the art world, pointing out that "in the High Art world plant portraiture has been stigmatized and marginalized, despite (or perhaps because of) its popularity with the public at large" (2001: 146). Arnold goes on to say that "botanical art and illustration have been allowed to remain in the realm of Science, under-researched by art historians, undervalued by art theorists and critics, uncollected by art institutions, and seldom exhibited in art galleries" (2001: 148).

This thesis proposes that such negative stigmatization is also related to the female attributes surrounding the image of botanical illustration. My artworks show, therefore, an awareness of botanical illustration's associations with the feminine, and the role that this has played in the subordination of the plant world by humans. The employment of traditional women's work in the form of embroidery in my work is an attempt to draw attention to botanical illustration's strong feminine undertones; and the role that this has possibly played in relegating botanical illustration to the wings of "non-serious" art. My artworks are

⁵³ "In many instances the text/image relationship is weighted in favour of the writer: the artist is not seen as a collaborator of equal stature with the botanist, but rather as the subordinate player whose sole purpose is to serve science in the printed form" (Arnold 2001: 146).

based on the precept that the link between botanical illustration and femininity should not necessarily result in its inferiority. My work thus seeks to establish links with nature, making it seem less "other" in relation to human nature.

Botanical illustration: a post-modern art form?

My paintings are to be read within the context of traditional botanical illustration, but at the same time these artworks seek to extend beyond the rigid boundaries of this discipline. They attempt to redefine its parameters in order to produce artworks which are relevant in a contemporary, post-modern context. Artworks with nature as subject matter have a new relevance in a society increasingly aware of impending environmental threats. It is in this light that my artworks hope to forge an awareness of nature's role in human survival on earth.

Botanical illustrations in a contemporary context are no longer used by botanists to classify plants, which are now classified according to their DNA, while photographs (being cheaper and quicker to produce than botanical illustrations) are most often used in field guides for plant identification. Roy Strong in *Contemporary botanical masterworks: a passion for plants* suggests:

[N]o longer, or rarely are these [botanical illustrations] the wonder of discovery. Rather they are passionate delineations of the beauties of the natural world under threat. Earlier artists took up their brushes to record what had not been seen before. So often it is a case of recording what may never be seen again (cited in Sherwood 2001: 7).

Botanical illustration has thus a potentially pivotal role to play in an environmental re-awakening and the fostering of an awareness of the importance of plant preservation.

It has been argued that botanical illustrations, within the context of modern science, aided in presenting plants indigenous to the colonial countries as devoid of context – ready to be assimilated into European cultures – and that botanical illustration functioned to uphold European superiority in various ways. This viewpoint is a far cry from the traditional notion that botanical illustrations function only to represent plants in order to aid in the process of classification.

While each plant has been painted true to life (just as they would in traditional botanical illustrations), the paintings also aim to refer to my personal associations and human imaginings about each plant. This approach fits in with the pre-Enlightenment practice of viewing natural science as inclusive of human

elements, such as allegory, literary references, parables and proverbs referring to the animals or plants. Thus, a more holistic understanding of these botanical images is fostered, where these plants and flowers play an important role in the exploration and understanding of identity in relation to a geographical setting. It is the argument of this thesis that the accurate representation of plants automatically carries with it a host of associations that we as humans have with these natural objects, their true-to-life representation can therefore not be divorced from our human understanding of them.

Beginnings

My paintings began with a fascination with the detailed description of plants found in botanical illustrations. In a post-modern context, painting the world realistically and true-to-life, is sometimes considered unchallenging. In *The art of describing: Dutch art in the seventeenth century*, Svetlana Alpers discusses this point:

[T]here is a long tradition of disparaging descriptive works. They have been considered either meaningless (since no text is narrated) or inferior by nature. This aesthetic view has a social and cultural basis. Time and time again the hierarchy of mind over sense and of educated viewers over ignorant ones has been summoned to round out the argument for narration with a blast at art that delights the eyes. Narration has had its defenders and its explicators but the problem remains how to defend and define description (Alpers 1983: xxi).

It is precisely the quality of "art that delights the eye" that appealed to me in botanical illustrations. In a post-modern context (which does not abound in descriptive painting), that which is show-cased in botanical art works stands out. The work of contemporary botanical artists Brigid Edwards (see *Fig. 16*), Barbara Oozeerally (*Fig. 17*) and Mariko Imai (see *Fig. 18*) makes a strong visual impact. These works show plants described very closely, revealing the tiniest details. Alpers goes on to discuss representative painting:

The instance of a real-looking, but still in some aspects false, representation is situated right on the borderline between reality and artifice, which, on the evidence of their eye-fooling pictures, intrigued the Dutch. Far from minimizing the importance of images, it suggests how much they depended on them (Alpers 1983: 23).

In *Contemporary aesthetics and the neglect of natural beauty*, R. W. Hepburn comments on the tendency of twentieth-century society not to look at, or give attention to, the natural world (1984: 9).

The conclusion may be drawn that one does not give attention to what one does not have estimation for, Hepburn comments:

Open an eighteenth-century work on aesthetics, and the odds are it will contain a substantial treatment of the beautiful, the sublime, the picturesque in nature. Its treatment of art may be secondary and derivative, not its primary concern. Although the nineteenth century could not be said to repeat these same emphases, they certainly reappear in some impressive places, in Ruskin's *Modern painters*, for instance – a work that might have been entitled, no less accurately, "How to look at nature and enjoy it aesthetically". In our day, however, writings on aesthetics attend almost exclusively to the arts and very rarely indeed to natural beauty (1984: 9).

Hepburn goes on to argue that this "neglect of natural beauty" stops humans from examining "an important and richly complex set of relevant data" (1984: 11). Art plays an important role in how nature appears to us, and whether we look at it at all. Contemporary American botanical artist, Francesca Anderson, makes the point that botanical illustration has an important role to play in creating awareness of the natural environment. Anderson maintains:

Now that scientific identification is disclosed by DNA sampling ... traditional botanical art may seem redundant. I do not believe this is the case, and that botanical art is more relevant now than ever before By celebrating the beauty found in nature, it brings an appreciation of botany and nature to a public that is increasingly removed from the natural world ... hopefully, the public may be so moved to protect what it sees in the art ... the understanding of the interdependence of the species is the challenge of today. It is the challenge in science, as it should be in botanical art Botanical art is a force positive and not arcane, but its message must be clear, articulate and relevant. (Francesca Anderson, personal correspondence, 16 March 2007.)

Thus, a true-to-life depiction of plants might result in the public being "moved to protect what it sees in art".

New beginnings

My work has visually recorded a selection of eight flowers, which is an attempt to describe parts of the nature that surrounds me. Each flower has been accurately painted using aquarell. These images are, as

Alpers has said, "situated right on the borderline between reality and artifice" (1983: 23) and take up a tense space between an illusion of a three-dimensional, real object – but being false and "fooling the eye", as they are really two-dimensional images.

Plants were removed from their environments and contexts so that each plant could be focussed on individually, with a singularity of vision. The first three flowers painted (see *Fig. 19a*, *Fig. 20a* & *Fig. 21a*) were dissected and the halves were observed and painted through a microscope. This dissecting began as a residue from botanical illustrative practice (where the flower is sometimes halved to clearly discern the stamens and pistils), and flowers were cut in half to minimise the distortion of focus when observed under a microscope. The microscope enabled the tiniest details of each plant and their complex inner structure to be observed and translated into paint. This intense inspection and contemplation of the plant resulted in an intimate knowledge of its delicate structure. Each follicle and hair was translated onto the paper surface where I sometimes painted the plant in grey scale and not in its natural colours.

A considerable length of time was taken to complete each painting. I was not always sure about my process and it was not until I was well into the series that I realised I was dissecting each plant before painting it. This practice was aesthetically driven as I found the insides of the plants fascinating. This dissecting revealed an unfamiliar view of the plant and painting the insides provided a visual vehicle through which to tackle botanical illustration in a fresh and innovative way.

The tendency to cut the plants before painting them became a deliberate practice after I felt that the cutting was in a manner linked to my theoretical work, where I argue that plants were severed from their original contexts and replanted in new lands, where they were subsumed into new European cultures. This "cutting" of plants from one culture and "sewing" into another culture seems a violent act. The flowers painted were cut in half with dissecting knives and, in the case of the more robust proteas and pincushions, with electric saws.

While this observation of the insides of each flower was a practical as well as visual decision, the painting of the *inner* workings of each plant could be seen as the antithesis of Linnaeus's emphasis on the outer visible aspects of each plant. The cutting of plants and painting their insides became a way of drawing attention to the inner, non-visible aspects of the plants.

The microscope partly inspired the circular format of the paintings and is indicative of the subjectivity of vision. I have painted each plant part realistically but in many instances the paintings have become

unrecognizable as plants, which could perhaps result in a re-evaluation of plants that we think we know well. *Figure 21a* shows a small part of a pin-cushion which has been dissected and squashed between two glass slides. Without my conscious effort, this painting exhibits a macarbeness, which is something far removed from the pretty flower that a pin-cushion is. The use of the microscope also alludes to the scientific search for truth through observation and the importance of empiricism during the Enlightenment. By painting the insides of the plants, I hope to indicate that my search for the "truth" is more of a spiritual and intuitive nature.

While the microscope influenced the use of a circular format, this idea began as a reference to the portholes of a ship through which Victorian ladies travelling to unknown countries with their husbands and families on colonial voyages surveyed their worlds.⁵⁴

While the plants are painted true to life, and are accurately depicted, there are sections which have been summarized and have become an abstract pushing around of paint. The paintings (hopefully) draw the viewer in to observe these inner workings/intricacies of the plants, which I feel resemble landscapes (replete with their own foliage and organic shapes). The painting is therefore an illusion of the plant – which seems quite real – but it is in fact a two-dimensional, sometimes abstract image.

The "mastery of nature": a human separation from nature

This thesis discusses that, in conjunction with post Enlightenment science, botany and botanical illustration have helped to create a separation and distance between humans and the plant world. In the following quote, Foucault highlights the ways in which the new scientific approach to natural history differed from how natural historians had described animals and plants during and before the Renaissance. Foucault notes what Jonston's *Natural history of quadrupeds* (1657) leaves out

The whole of animal semantics has disappeared, like a dead and useless limb. The words that had been interwoven into the very being of the beast have been unravelled and removed Natural history finds its locus in the gap that is now opened up between things and words – a silent gap, pure of all verbal sedimentation Things touch against the banks of discourse because they appear in the hollow space of representation (1966: 141).

⁵⁴ One of these ladies was Arabella Roupell, travelled to South Africa with her husband Thomas Boone Roupell in 1842. The botanical paintings she made which were subsequently published by Sir William Hooker, Director of Kew Gardens under the title: *Specimens of the flora of South Africa "by a Lady"* (1849) (Arnold 1996: 66).

Botanical illustrations and natural history have thus tended to ignore what the animals mean to human beings.

Nature and human identity are interwoven and nature functions to create a sense of belonging and placement on earth for humans. Human associations with, and stories about, nature are present in our culture, whether we recognise them or not. Schama's *Landscape and memory* explores the idea of the "persistence of myths" about nature through generations and particularly the importance of these natural myths in the formation of national identities. Schama, speaking about the "nature myth", that he feels is still very much a part of our western culture, says: "our entire landscape tradition is the product of a shared culture, it is by the same token a tradition built up from a rich deposit of myths, memories, and obsessions" (1996: 14). Schama proposes that "instead of assuming the mutually exclusive character of Western culture and nature, I want to suggest the strength of the links that have bound them together" (1992: 14). The ways in which we perceive our surroundings – as typical of the countries and places we occupy – are interwoven with memories and myths which cause us to feel "at home" in certain environments.

Botanical images of plants are important not only in service to botany, but they also act as triggers for repositories of associations that humans have with plants and the accumulation of inbuilt responses to natural images.

The garden as dwelling place

The more time we spend in a place, albeit a humanly constructed garden, the more we see ourselves in the land – and the more we are reminded of our past spent there: our memories attach us to the nature that surrounds us. Our visual surroundings become part of the fibre of our existence and our own personal history and memories and, if we leave these places, a strange homesickness or nostalgia for them persists.

The azalea used in *Azalea: an alien at home in my garden*, was sourced from my garden (see Fig. 22a). In his essay, *Places and dwellings*, John Lucas (1988) analyses the poem *Michael* by William Wordsworth, which was written during the Romantic period. Lucas quotes Charles James Fox, who wrote a letter to accompany the collection of poems, *Lyrical ballads* (1802), in which he remarked of the shepherd "class of men" whom Michael belonged to that, "Their little tract of land serves as a kind of permanent rallying point for their domestic feelings, as a tablet on which they are written which makes

them objects of memory in a thousand instances when they would otherwise be forgotten" (Lucas 1988: 87). The importance of land and the loss of land that was experienced by many shepherds, like Michael, was due to the enclosures (already mentioned). What is significant from Fox's quote is his idea of how a piece of land begins to feel like home to the people who spend time there; the land becomes "a tablet" on which the memory of them, as well as their own memories, are written. Painting some of the flowers in grey scale (reminiscent of black and white photos) could perhaps be seen as a way of referencing the nostalgia of the past and the memories nature holds for us.

My garden has a strong family history. It has been planted and tended by four generations of women from my husband's family, has a wall built by Italian prisoners of war who lived on the farm and has been worked by generations of farm workers. The garden is part of all of our lives – we have all spent *time* there. The garden is thus a place of planting, living and dying, of both plants and people, and I have now become part of this life-cycle. Through my paintings I have considered the concept of what it means to be rooted to the earth, like a plant, and how this affects one's identity. *Figure 23a* shows a pincushion which is in a decaying state, a reference to the end-phase in a plant's life, a phase seldom recorded by botanical illustrators, and emphasizing the importance of depicting the full life-cycle of a plant.

The azalea obtained from my garden was pressed before it was painted (see *Fig. 22a*). Pressing flowers is a craft practised mainly by women. Flowers pressed between the pages of a book become repositories of memories and the azalea painting calls attention to memories that are lodged within the farmhouse's garden. Although a garden is a culturally-constructed idea, laden with implications of human ideas imposed onto nature, yet, the living plants surrounding me have and will become part of my life as I spend time living near this garden, and as I plant and uproot in its earth. My life will be spent here, and this garden will become part of my memories, as I become increasingly rooted to this spot of earth.

An environmental and existentialist crisis: a new role for botanical illustrations

The human conception of our separateness and "otherness" from nature, as discussed in this thesis, has led to a sense of human alienation from nature, which in turn has influenced humans treating nature as "other", and possibly less valuable than human nature. This thesis proposes that this attitude has contributed to a modern-day environmental crisis and the perception of nature as "other" has also contributed to a spiritual separateness from nature. Plumwood proposes that this separateness has

contributed to what she calls an "existential homelessness." She maintains that when humans define themselves as separate from nature, this leads to an alienated account of human identity:

[I]n [it] humans are essentially apart from or "outside of" nature, having no true home in it or allegiance to it. They stand apart from it as masters or external controllers of nature The key to *existential homelessness* and to our denial of our dependence on nature is the dualistic treatment of the human/nature relationship But the failure to conceive ourselves as essentially or positively in nature leads easily into a failure to commit ourselves to take care of the planet and to encourage sustainable social institutions and values which can acknowledge deeply and fully our dependence on and ties to the earth (My italics.) (Plumwood 1993: 71).

Our perceptions of nature as "other" have resulted in an alienation from nature, a nature which in many ways defines who we are as humans and is fundamental to our physical survival on earth. The familiarity of the nature that surrounds us, in our specific countries, places and homes, often provides a sense of comfort and belonging on earth.

Although my paintings attempt to depict the outer visible features of the plants accurately, they also allude to the complex relationships and stories we tell about them. These paintings are my personal response to specific plants and my subject choices were based in part on an instinctive desire to paint certain plants, trusting that through this intuitive approach, sub-conscious myths and ideas about these plants, which are part of my culture and thought patterns, would filter through. This focus on the familiarity of these plants fosters a sense of attachment to nature.

Pinned-cushions and painted proteas

The chosen subject matter for my series of paintings are mostly fynbos plants. The *Waratah* (Fig. 24a) and *Azalea* (Fig. 22a) are the only alien plants depicted. Although decisions to paint each plant were motivated mainly by the visual appearance of the plant, I was drawn to painting fynbos plants because of a personal affinity with these plants. These plants are indigenous to the Boland and their depiction was a reflection of my "rootedness" to this geographical area.

In addition to the eight paintings of flowers, the final collection of artworks contains eight embroidery works (see Figs. 25 - 32), which were versions of one of the painted pincushions (see Fig. 33a). Both embroidery and botanical illustration carry with them associations of women's work and crafts. During

the nineteenth century, embroidery and painting were considered part of a lady's education. Chadwick comments:

[D]uring the second quarter of the century, the teaching of drawing and painting to women was included with skills like embroidery, lace-making, dancing and music The association of women with these areas of production ... fueled charges that art by women was "mediocre" (1990: 168).

My embroidered series is based on variations of the pincushion, a flower whose name evokes a tie with needlework. Florilegiums were often used as sources for flower images used in embroidered pieces by European "ladies of leisure" from the sixteenth century onwards.⁵⁵ My embroidery pieces are not decorative in function. Rather they comment on the use of flowers and plants as inspiration for decoration in Europe during the colonial period.

The act of piercing the watercolour paper with needles is in direct contrast to the very delicate, "feminine" result of the finished sewn product. This dichotomy between the delicate appearance and violent piercing, which is in a sense hidden by the decorative result, is perhaps reflective of the hidden violence that occurred when plants were removed from the colonies, brought back to Europe and absorbed into European decorative culture.

Both the pretty, "neat" front version of these embroidered paintings, as well as their less beautiful reverse sides are displayed in the final installation of these artworks. The reverse threading, although not neat and a traditionally resolved image, in some instances begins to resemble maps, traces and trade routes. The reverse of *Pinned-cushion* (see *Fig. 27*) is reminiscent of braille, encouraging the experience of this artwork through touch rather than relying on sight.

My painting and embroidery is thus a conscious parody of practices and pastimes typical to Victorian women. The artworks attempt to reveal the insides of plants, in the case of the paintings, and the unseen by showcasing the reverse stitching in the embroidered paintings.

⁵⁵ "The embroiderer could always transfer her designs from a herbal or printed pattern book by pricking and pouncing the outline herself..." From the chapter *The Elizabethan embroider* in *The embroiderer's story- needlework from the Renaissance to the present day* (Beck 1995:29).

The "women question" and crafts

In her Master's thesis, *South African botanical art: a study of nineteenth- and twentieth-century imagery*, Tamlin Blake comments that "it is important to note ... that although many women are enjoying the growing support offered to botanical art, many are probably ignorant of the history of women artists, and would not see themselves as feminists or see their art as possessing any quality of political agency" (2001: 25). The use of typically feminine embroidery and botanical illustration in my artworks carries with it an awareness of the historical bias afforded to men in the area of botany, and the ways in which botanical systems like Linnaeus's imported notions of male superiority into botany, thus making female inferiority seem natural. Although botany was a field of science considered especially suited to women, they were not involved in the important aspects of botany, such as classifying plants. Rather, they were allowed, at best, to make gardens, collect plant samples and make illustrations that accompanied important scientific texts.⁵⁶

Important to feminism is the "historical bias against crafts vis-à-vis High Art" (Atkins 1990: 77), and feminist art during the 1970s was characterised by the inclusion of women's arts and crafts, such as needlework, that had traditionally been relegated to the realms of "low art" (Atkins 1990: 77). The "Pattern and Decoration" movement in the 1970s first brought needlework, quilting and embroidery into the realms of Fine Art (Atkins 1990: 120). In *A history of modern art*, Arnason speaks about the ways in which these crafts and traditional women's work were "elevated in the artistic hierarchy along with the emerging power of women ... such patterned, decorative ... art gained esteem for its content, its value, that is, as witness to the courageous determination of long-disenfranchised segments of humanity to satisfy innate aesthetic needs, despite unremitting exclusion from the mainstream of cultural experience" (1969: 615). Arnason hereby claims that the "content" of a craft such as needlework, used in artworks, is the historical marginalization this craft represents. In this sense, my use of embroidery work speaks of the exclusion of women artists from mainstream "High Art", as well as their exclusion from important facets of botany.

⁵⁶ Londa Schiebinger, in her essay "Gender and natural history", comments that "in the seventeenth and eighteenth centuries, Europeans who described nature were almost exclusively male While it is true that ladies of the middle and upper classes botanized actively, they primarily collected and dried plants, perhaps corresponded with leading botanical figures and prepared illustrations for publication. They were not taxonomists, nor among those shaping the future course of science When prescribed for women, botany was to provide pleasure and instil virtue ..." (1996: 163-4).

Handmade

The accompanying embroidered wording of the painting featuring the *Albania* plant (see *Fig. 19b*) is a portion of a bible verse which in its entirety reads: "My frame was not hidden from You when I was being formed in secret (and) intricately and curiously wrought (as if embroidered with various colours) in the depths of the earth (a region of darkness and mystery)" (Psalm 139: 15) (Amp.). Painting the insides of plants reminded me of this verse that contains the reference to embroidery. Both embroidery and the use of aquarell to describe the plants are very delicate, labour-intensive processes. The painstaking hand-labour that has gone into both paintings and embroidered pieces is important for two reasons. The first is a personal affinity for, and belief in, the importance of art that is handmade. In a post-modern context, the making of artworks does not always involve the labour of the artist's own hands; and original, conceptual ideas are usually enough to constitute an artwork. It is a personal conviction that time spent making the artwork marks a portion of the artist's life and is a memorial and trace of the artist's life. The following quotation refers to the revival of painting that occurred during the 1970s and 1980s, which followed minimalist modernist painting, as is seen in the work of Neo-Expressionist artists such as, Philip Guston, Francesco Clemente and Anselm Kiefer. Art critic Douglas Crimp observes:

The revivalism of current painting ... depends of course on reinvesting these strokes with human presence; it is a metaphysics of the human touch. "Painting's quasi miraculous mode of existence is ... by its mode of facture ... *through the hand*: this is the crucial point". This faith in the healing powers of the hand, the facture that results from the laying on of hands. (Cited in Taylor 1992: 13.)

The "laying on of hands" which happens when painting, I believe, results in an impartation of oneself onto the paper. As these paintings are invested with many hours of my time, the paintings are therefore infused with, and mark, my existence.

Secondly, these paintings, as the embroidered annotation accompanying the painting featuring the *Catharmis* (see *Fig 20b*) attests, are symbolic of my belief that I too, am "hand made". Peter Fuller is quoted in Chapter Three saying that "we need secular equivalents of the religious illusion of creation" (1988: 25). The belief that I, as well as the plants painted, am handmade and "intricately woven together in my mother's womb" forms part of the symbolic content of all the artworks concerned and these plant

paintings are symbolic of my personal ideas about my identity as constructed by a creator. Both these paintings visually display the intricate inner workings of these plants.

Themes of location and dis-location in the work of Leora Farber

Leora Farber, a contemporary South African artist, uses plants and flowers as metaphors for human experiences. Her work also makes reference to the Victorian womanly pastime of embroidery and sewing. In her exhibition *Dis-Location/Re-Location* (2007), Farber explores her feelings of displacement and belonging in relation to living in the postcolonial city of Johannesburg, specifically as a white, middle-class, Jewish female of British descent. Farber exhibits photographs in which she assumes the persona of Bertha Marks, British wife of Sammy Marks⁵⁷, and explores Bertha's experience of South Africa as an immigrant, planted in African soil, during the Victorian era. Wendy Jacobsen comments in the exhibition's catalogue: "Like many of her colonial contemporaries, Bertha tried to retain her English customs and values in an alien environment but, Farber's work suggests, not without an ambivalence brought about by the tension between displacement and belonging, alienation and accommodation" (2007: 1). Bertha acts as a symbol through which Farber explores her own similar feelings of displacement, as the descendent of British-Jewish immigrants to South Africa.

In *The ties that bind her*, photographs show Bertha (modelled by Farber) mirrored in front of a Victorian Dressing table, cutting open and inserting a cameo of an English rose under the skin of her bosom (see *Fig. 34*). In the final photograph, "the cameo, the pearl choker and necklace that she wore in the first two scenes have assumed the shape of typical West African cicatrisation, as the pearls appear to have grown into her skin" (Van Rensburg 2007) (see *Fig. 35*). For Farber, the rose becomes a symbol of Bertha's trying to keep her British, "English rose" identity so desperately that she wounds herself to "re-insert" the identity she feels she is losing in her new African context. The inevitability of change in a place like Africa is shown when the pearls she wears literally sink under her skin and change to become African jewellery. Bertha is irrevocably changed by her experience of living in Africa as Africa literally "gets under her skin."

⁵⁷ Sammy Marks was a Jewish entrepreneur who moved to South Africa and made his fortune in the mining industry. Bertha and Sammy married in 1884, their marriage possibly being an arranged one. They lived at "Zwaartkoppies", where Bertha, a keen gardener, cultivated a formal English rose garden from seeds shipped over from England from nurseries in Kent (Jacobsen 2007).

Grafting and cutting in the work of Leora Farber

In another photographic series entitled *Aloerosa*, Farber again uses plants as symbols of personal struggles with identity. *Aloerosa*, as the title suggests, implies the grafting or fusing of two cultures. *Aloerosa* shows Bertha/Farber sewing an aloe into the flesh of her arm (see *Fig. 36*). The aloe takes root and begins to grow (see *Fig. 37*), eventually overwhelming Farber/Bertha so that all of her that is left is her bodice lying discarded in the African veld (see *Fig. 38*). The aloe symbolizes Africa and the otherness that Bertha is struggling to assimilate. This assimilation process involves wounding and cutting, as Bertha attempts to graft the African aloe into her "English rose" skin.

Grafting refers to the process whereby a piece is cut from a living plant and fixed into an incision made in another plant, in order to form a new growth. Derrida expounds his understanding of grafts in *Dissemination*, which refers to the way in which a text is grafted into by other bits of thought and text (1981: 355-358). Defining graft Derrida writes:

It is the sustained, discrete violence of an incision that is not apparent in the thickness of a text, a calculated insemination of the proliferating allogene through which the two texts are transformed, deform each other, contaminate each other's content, tend at times to reject each other, or pass elliptically one into the other and become regenerated in the repetition, along the edges of an *overcast seam* (1981: 355).

In *On dissemination*, Jonathon Culler speaks about Derrida's ideas of grafting as incorporating "processes of insertion and strategies for proliferation" (1983: 134). Culler talks about grafts that "will succeed, bear fruit, disseminate" (1983: 134-5). The process of grafting thus fuses two different elements producing new and unique off-shoots. In Farber's exhibition, the grafting and fusing of the two cultures – South African and British – symbolized by the aloe and rose respectively, fuse to produce new off-shoots. Bertha's identity is transformed through her exposure to the South African culture and through the painful cutting off from her old English traditions in order to fit into the new African culture and continent. This grafting process produces the fruit of a new hybrid identity, one which is neither purely British nor purely South African, but a fusion of the two.

Bertha applies the cutting and piercing involved in embroidery to her own body, in often gruesome images of self-imposed violence. Farber makes visible Bertha's unseen feelings of being "cut off" from

her British culture and the painful process of assimilating the new foreign culture. Stitching, piercing and grafting become tools of change in Bertha's intimate, macabre performances.

In the catalogue to the exhibition *Trade routes: history and geography*, Colin Richards speaks about the idea of "grafts" in a South African cultural context, maintaining that the "melting pot" of cultures in South Africa is a result of the grafting together of various cultures, which has resulted in new and interesting cultures and identities. Richards writes about graft as "a figure that could capture the state of our socially entangled objects and spaces of culture" (1997: 234). Highlighting the pain that is involved in the cutting and severing process, and the loss that precedes cultural fusion, Richards comments that:

"Graft" inescapably involves contact and exchange. Such exchange commonly takes place across "difference", in a material situation inflected by specific interests. "Graft" requires cultivation and time; the *work* of culture. It can be regenerative, reparative, and even redemptive. But not always. Before contact, a "graft" involves cutting. The cut is not simply a boundary, an edge or two, but a deep, even traumatic incision, an inscription. In cutting into and across "difference", "graft" enjoins the discourse of "hybridity" without disavowing the violence and the desire which underpins cultural fusion (1997: 234-5).

My own work also deals with cultural hybridity as a result of a fusion between my English identity and the dominantly Afrikaans culture I live in. My work shows my experiences of tensions between these different cultures within my own being. These are reflected in the plants which were cut in half before I painted them. The cultural tensions I experience are also spiritual ones, in which I sometimes feel "dislocated" and out of place on earth, longing for another spiritual home. The wording accompanying the painting of *Protea Susannae: circumcised heart, cut, severed, separated ...* refers to this spiritual cutting and separation (see *Fig. 39b*).

The piercing of the Arches paper with a needle during the embroidery process can also be linked with cutting – both in terms of the sharp point of the needle and in the act of sewing together something that has been cut asunder. The embroidery onto paper was on one level an act mirroring the embroidery work done by Victorian women who used herbals and other botanical drawings as inspiration for their embroidery. Embroidery, in a similar fashion to botanical paintings done by these "ladies of leisure", carries with it an over-coding of feminine restriction – embroidery was a realm of artistic craft where women could express themselves, an area which was acceptable in Victorian culture. My re-enactment of this practice carries with it these feminine associations. The embroidery work is repetitive, manual

labour. This embroidery work is therapeutic and this hand-labour is imbued with a type of healing. Sewing is also an act of bringing together, joining, thus an act of restoration.

Plants as metaphors of self

Proteas and pincushions in my series speak of being planted and taking root in the geographical area I live in. The plants became metaphors of self and the insides of the plants became symbolic of the inner landscape. The appearance of the *Protea Susannae's* (see Fig. 39a) insides, as well as the *Albania's* (see Fig. 19a), fit in well the embroidered phrase paired with the Albania painting: "intricately and curiously wrought (as if embroidered with various colours)", as the intricate inner details of both plants are depicted. The inner working of the flowers have become a metaphor for a personal internal landscape.

In my paintings, plants act as carriers of meaning and content. Proteas are robust and boldly beautiful. Their ability to survive through veld fires and the heat of the Boland appealed to me. They are also not delicately beautiful (as flowers mostly are) but are strong and resilient. Proteas and pincushions provided very personal and associative memories for my move to Paarl- and I identify with these hardy fynbos plants which are able to survive harsh circumstances and thrive on them.⁵⁸ Fynbos is indigenous to this area – these plants "belong" in the area, while I initially felt more like an alien plant in Paarl, struggling to acclimatize to the new environment, yet still I felt an affinity with the fynbos plants as typically *South African* flowers.

A propelling force in the execution of the practical work has been one of sensing that my personal identity is intricately linked to the nature that surrounds me. This feeling of being "at home" in areas is linked to time spent in such places. Having lived in London for a year, I became aware of a nostalgia and longing for the familiarity of the South African landscape and how I linked the natural landscape to feelings of being "at home", and of feeling alienated and displaced in London.

While feeling rooted in South Africa, I also experienced dislocation and a feeling of being an exotic while living in the Boland area, which is culturally different and strange to what I am comfortable with. Although I experience a deep affinity with South Africa as home, I also sometimes feel like an outsider in the town where I live, similar to a plant planted into the soil of a foreign country.

⁵⁸ Wherever Southern African Proteas are found, they are generally prone to repeated veld fires. The Proteas have underground rootstocks which are able to send up new stems after the upper parts of the plants have been burnt. Other Proteas, such as many of the Cape species of *Protea* and *Leucodendron*, employ a fire protection strategy known as "serotiny", whereby the seeds are stored in a hard, woody cone which opens up after a fire (Paterson-Jones 2000: 116).

My choice of the eight painted and eight embroidered flowers can be seen as a catalogue of a collection – in much the same way as garden owners used to catalogue their collections in florilegiums. My florilegium is not a statement of possession, as these illustrated books traditionally were, but a reflection on becoming rooted to the area in which I live and the importance that nature plays in my feelings of rootedness.

Pushing the boundaries of botanical illustration

The work of the American botanical artist, Francesca Anderson, by her own admission is "pushing the boundaries of botanical art" (Personal correspondence, 16 March 2007). Her work is clearly not traditional botanical illustration, although her depictions of plants are true to life. In her series on sunflowers, her drawings show these flowers personified, with a pulsating life energy of their own, these plants almost breathe (see *Fig. 40 & Fig. 41*). Anderson comments: "There is a fleshy, sculptural physicality to these sunflowers that appeals to me. Sunflowers are textural, massive and hefty You can feel their weight, even the pollen is heavy and thick They lift their faces to the light and hang their heads in death" (Sherwood 2001: 34). Anderson admits that her sunflowers have human attributes as they grow towards the light and "hang their heads in death". Her pictures depict personified flowers that tell stories. In *Sunflower series No. 2*, we see a writhing, growing plant, reaching towards the bright, glaring light (see *Fig. 40*). The world this flower lives in has an other-worldly quality, the stamens in the centre of the flower stand alert, to attention, like myriads of soldiers in an apocalyptic setting. Anderson's flowers allude to stories behind them and are not just straightforward copies of flowers.

Anderson also states that botanical illustration is not redundant because it forms part of the "literature of nature": botanical illustration is thus interwoven into the history of plants (Personal correspondence, 16 March 2007). Her use of the word "literature" calls attention to writing that is non-scientific and imaginative; recalling novels, stories, memories, poetry, metaphors and myths. Anderson recognizes that nature is a potent vehicle which carries much of the non-factual imaginings of humans.

By focussing on the human attributes of my flowers, I hope to encourage stories behind the flowers and focus on the ways in which the stories of our lives are tied in with the nature that surrounds us. Perhaps *Sunflower series No. 5* (see *Fig. 41*) alerts us to an impending environmental crisis. This approach is markedly different to the Modernist way of viewing plants as divorced from human stories and allegories.

Rory McEwan's *Ginkgo leaf, East 61st Street, New York* (see Fig. 42) shows a single leaf painted on vellum. McEwan's painting breaks slightly with botanical tradition in that he too introduces a human element into this scientific illustration. McEwan's title does not only tell us the name of the leaf, but also adds where this leaf was picked up – on 61st Street in New York. This information sets in motion a story beyond this painting. The title hints at a very urban environment in which this solitary leaf was sourced and to my mind makes a comment on a modern day experience of nature within an urban setting.

The embroidered wording accompanying each of my paintings functions in much the same way and breaks with botanical illustrative conventions, which traditionally convey only scientific information in illustration titles. The accompanying wording hints at my personal thoughts about the plants and the stories behind them.

Identity: cut and dried

The text accompanying *Leucospermum cordifolium: identity cut and dried* (see Fig. 33b), links this collection of artworks with one of its main themes of identity. This wording is a variation of the well-known phrase describing something that is clearly defined and easily categorized: if something is "cut and dried", it means it has no ambiguities, is straightforward and easily definable. In my work, identity is nowhere far from easily definable. All the flowers that have been painted have been cut, and some of them have been pressed and dried.

I decided to suspend the sixteen circular paintings in rows of four, one row in front of the other, forming a rectangular shape. The paintings hang at eye level in the middle of the gallery space, making viewers read both sides of the paintings, as they meander through the hanging "flowers". In effect, these wallflowers have moved to center stage. As these paintings are a catalogue of flowers, the experience of walking through the exhibition resembles walking through a garden. The paintings are sandwiched between perspex discs, which are suspended from the roof. The visual and physical lightness of the perspex-framed discs – that blow about in the breeze – speaks of the lightness and the fragility of these flower-like objects. The edges of the paper have been torn (instead of being neatly cut) in order to contribute to the overall organic "feel". The exhibition space is small and intimate, encouraging personal contact and interaction with the artworks that fill the space.

Conclusion

The practical work for this thesis considers the relationship between humans and nature. Their "mastery over nature" has caused a severe fissure between humans and nature. My paintings attempt to bridge this gap by focussing on similarities between humans and nature. These works are symbolic of my own personal thoughts relating to the plants I have painted, as opposed to the traditional scientific aims of painting a plant realistically solely for identification purposes. The painted flowers are vehicles through which I have explored issues of personal identity and belonging. The way the plants were depicted meant that they were not always recognizable as plants, thus they became metaphors for my musings.

The severing or cutting of the plants, and the exposure of their inner workings, became an important symbol for pointing to the unseen elements I attributed to these plants. The process left the plant vulnerable and open to analysis and study, and while the insides of these flowers were painted as true-to-life as possible, parts of the paintings sometimes resembled an abstract "playing with paint", and visually became mini-landscapes, where leaves, plants and organic images can (with a little imagination) be discerned.

The idea of my paintings, the plants being painted, and myself being "handmade" is also an important part of the work. When something is handmade, the creative ideas, preferences and lifeblood of the creator are infused into the created objects. In the same way, I believe that these paintings (and the embroidered paintings) are infused with my being. The insides of the painted plants depict the way in which they have been intricately woven together and hand-stitched; and stand as metaphor for me of the way in which I, too, have been hand-stitched and handmade.

The artworks are meant to challenge the genre of traditional botanical painting, which is still very much imbued with a modernist approach to nature, and which does not allow for personal interpretations of nature in the artworks. These paintings do not solely depict the outward visible aspects of the plants, but aim to infuse the images with a personal and holistic approach to nature. The embroidered annotations play an important part in making visible the personal ideas that have informed the paintings.

The artworks draw attention to the stigmatization botanical illustration carries because of its close links with femininity. The use of feminine embroidery work alludes to the marginalization of women as represented by this craft, the historical marginalization that women experienced in botany during colonization, as well as the way which nature's persisting image as feminine has contributed to an ongoing human domination over nature.

The garden as a place of conscious human contact and interchange with nature, was a center around which I contemplated my relationship with the nature that surrounds me. The garden, as a repository of memories and a place of exchanges with nature, inspired contemplation about how our human lives are similar to the life-cycles of plants. The garden became an idea around which the different flower paintings could form a unit in the final presentation of the artworks in the gallery space. In the same way that my garden is a piece of land upon which my life and memories are and will be written, the flower paintings in the series form a self-portrait, with each painting containing personal memories, thoughts and ideas. In the final presentation, the hanging paintings work together as a piece of land – and as a garden displaying various aspects of my life.

Final Conclusion

The purpose of this conclusion is to draw together the various arguments that have been made throughout the thesis. The final conclusion also aims to state what contributions this thesis has made to this particular area of research and what other avenues of investigation this study might lead to in art theory and botanical illustration.

The ways in which botany was practised and botanical illustrations were executed during European colonialism presented and packaged plants in ways which supported European superiority over nature. The scientific revolution changed scientific practice and perceptions of nature. From the Renaissance the dominant image or picture of nature changed from that of a female figure to a picture of nature as an inanimate machine. Human responses toward nature changed accordingly. The rise of modern science coincides with more exploitative actions and attitudes towards nature.

New ways of practising science included an emphasis on empirical observation and the collection of factual, objective data. Stories, allegories, myths and human elements, very much part of natural history during and before the Renaissance were removed from science as the new emphasis on objective facts came to the fore. The colonial period saw modern science collecting much data from different natural environments, but these facts resulted in nature becoming further and further removed from human nature.

Data collected through modern science was used for the economic benefit of the European countries conducting the research. The colonial period saw a proliferation of new plants flood Europe as discoveries of new lands increased. While modern science was practised with an emphasis on a factual and objective collection of knowledge, centres such as Kew Gardens used this data to manipulate, control and utilize the knowledge gained for the economic advantage of the European nations.

New conceptions of nature as inanimate and mechanistic sanctioned new attitudes of superiority towards nature. Whereas before, nature had been treated carefully from a respectful distance, scientific thought of the time reflects how these attitudes changed to a new "penetration of Nature's secret chambers", as Bacon so tellingly put it.⁵⁹ Nature was aggressively investigated, dissected and experimented on, and as

⁵⁹ Bacon stated: "It is no good to clutch at her without laying hold of her Nature must be captured and her secrets, like her inner chambers, penetrated" (cited in Henry 1997: 92).

Europeans grew more familiar with the previously undiscovered natural phenomena, this resulted in increasingly superior and confident attitudes towards nature.

"The mastery of nature" is clearly seen in the commercialization of nature from the seventeenth century onwards. *Naturalia* were collected to form part of collections of curious natural objects. These "curiosity collections" served to further familiarize humans with strange, previously unknown natural phenomena.

Both botany and botanical illustrations served to underpin European superiority during the colonial period. New botanical Latin names assisted in reinforcing the European ownership of these plants, as their original, indigenous names were discarded. The Latin names were at once familiar to Europeans. The European mastery over the plants of the colonies is further seen in the botanical illustrations that were used alongside botanical systems of classification. Botanical illustrations pictured plants dislocated from their environments and portrayed on white backgrounds. European eyes read these plants not as part of the environment of the colonies, but as images of the European culture. Furthermore, botanical illustrations only depicted perfect specimens, ignoring other stages of the plant's life-cycles. While such illustrations claimed to be truthful reproductions of these plants as they really were, the perfect blooms depicted were in reality merely a partial depiction of the entire reality of these plants. Europeans readily cut these flowers from the white page and printed them onto materials, embroidered them onto clothing and used them in wallpaper designs. In this way, flowers from the colonies became part of everyday life in European households and part of European decorative culture and history.

The links between femininity, botany, plants and botanical illustration have contributed to their subjugation and oppression by humans. Nature's association with femininity reinforced ideas regarding the inferiority of women, thus easing the natural dominance over nature.

Gardens are an outward manifestation of human thoughts about nature, and the formal garden, popular in Europe until the mid-eighteenth century, shows an intense "mastery" over nature by Europeans, as is evidenced in the neatly trimmed and shaped topiary trees and the geometrically shaped flower beds. The formal garden is symbolic of an increasingly confident attitude towards nature by Europeans, as well as a new scientific belief in the underlying geometry present in nature. As Britain expanded her empire, her formal gardens on home soil were replaced by more natural-looking gardens. Although these gardens appeared natural and un-contrived, they were created through a massive upheaval of the landscape. Both gardens bear testament to a desire to master and manipulate nature.

This thesis has proposed that this new penchant for natural landscape could be construed as a mirror of Britain's attitude and actions during the building of her empire, and while the landscape garden suggests Britain's longing for a Romantic return to natural nature, her actions of aggressive dominance towards the natures of the colonies are in direct contrast to Romantic thought. The landscape garden and the love for the English picturesque landscape scene were at odds with the way in which places such as Kew Gardens were manipulating and controlling the plants from the colonies.⁶⁰

The "mastery of nature", as is evidenced during the colonial period and till the present day, has resulted in a distance between nature and humans. Yet, nature is necessary for human physical survival on earth. This thesis proposes that it is also necessary for spiritual survival, as humans make sense of their existence through their relationship with nature. Nature also provides a sense of home, in that humans see themselves as belonging in certain natural surroundings – and feeling out of place in others. Our feelings of belonging and rootedness are woven into the physical nature that surrounds us, and those natural landscapes we have an affinity for.

The artworks discussed in Chapter Four have attempted to pioneer a new approach for botanical illustration: one involving the inclusion of a personal interpretation of the plants in previously purely scientific works. The paintings aim to focus on similarities between plants and humans and to close the gap between humans and the natural world. The artworks show plants that have been dissected. The exposed insides, which have been painted, point to the "inside", spiritual aspects that these plants hold for humans. The embroidered paintings convey an awareness of the femininity of nature, which has contributed to the mastery of nature by humans. Embroidery, as a typically female craft, has been employed as a comment on the subjugation of both women and nature.

The artworks produced contemplate ways in which plants contribute towards our spiritual and physical survival on earth. Each painted flower is complemented by wording which has been embroidered onto paper. These words are hints to the personal symbols these plants hold for me.

Botanical illustrations, which focus on similarities between plants and humans, can possibly contribute to a closer more symbiotic relationship with nature, where humans are forced to recognise the spiritual importance nature holds for survival on earth. It has been established that ways of picturing nature, as a

⁶⁰ "[A] vast trawl of plants came from the newly explored lands to London and Kew, where [Joseph] Banks turned the royal gardens into a centre for classification and cultivation Banks helped pioneer what is now known as economic botany. His network of botanic gardens that spread across the empire allowed plants to be taken from one colony and then cultivated under specific scientific supervision so that they could be transported to another colony" (Fulford, Lee & Kitson 2004: 13).

female figure during the Renaissance and as a machine during the Enlightenment, fundamentally affected human actions towards nature. It is hoped that, by weaving human stories into botanical illustrations, artists will make their fellow humans recognize, once more, the important part nature plays in making sense of human existence. In a climate of environmental crisis, it is hoped this approach will result in a more responsible treatment, and appreciation, of the environment.

Appendix A: Transcript of e-mail conversation

Correspondence with Francesca Anderson, contemporary botanical artist

---Original Message---

From: Victoria du Toit[mailto:victoriagain@yahoo.com]

Sent: 07 March 2007 10:03

To: Anderson, F <francesca@francescaanderson.com>

Subject: Enquiry from Master's student, South Africa

Hi Francesca,

I am a Master's student completing my degree in botanical illustration at the University of Stellenbosch in South Africa. My thesis is investigating botanical illustration – I saw your pen and ink drawings in Shirley Sherwood's "A Passion for Plants" and I am very interested in your comment that you would like to "push the envelope of botanical illustration" (Your comment in the "10 Finalists of the American Artist Floral competition). Your illustrations are really beautiful – I am interested in your sunflower drawings which are really "illustrative" and tell stories.

I have written a thesis proposal in which I endeavour to study artists like yourself who are working in a botanical style but are commenting maybe on larger/other issues. Do you have any essays/thoughts written down on the subject that I could read? Are there any other artists you can suggest I look at? (Artists who are also "pushing the envelope of botanical art"?)

I am busy with paintings of fynbos plants (like proteas) which have been dissected – I am then observing them under a microscope and enlarging them. I am interested in botanical illustrations that are innovative and different, paintings relevant in our contemporary society. I'd love to hear your viewpoints - is there a future for this genre?

Kind regards,
Victoria du Toit

On 16 March 2007, at 13:00pm, Anderson, Francesca <francesca@francescaanderson.com> wrote:

Dear Victoria,

What a pleasure to hear from you, and I am very flattered that you are interested in my theoretical ideas on the botanical art genre. But first, I must warn you that I am a complete technophobe, and find typing almost unbearable, so please bear with me. Also this is not a good email for us. It is over run with spam messages that I don't know how to get rid of, so I don't check it out all that often, Please change to francescaanderson51@hotmail.com.

As you know, the genre of botanical art is historically associated with plant identification. Now that scientific identification is disclosed by DNA sampling, and photography so often used in field guides, traditional botanical art may seem redundant.

I do not believe this is the case, and that botanical art is more relevant now than ever before. Botanical art, is part of the literature of nature. By celebrating the beauty found in nature, it brings an appreciation

of botany and nature to a public that is increasingly removed from the natural world. Hopefully, the public may be so moved to protect what it sees in art.

Because botanical art is a human process, it is an important cultural and individual expression of how we perceive ourselves in the environment. Is it important to pay attention to the flora of a certain area? Also, a good illustration can convey much more information or plant morphology than a photograph or written description.

Moving beyond identification of species, the understanding of the interdependence of species is the challenge of today. It is the challenge in science, as it should be in botanical art.

I am working on a series of scratchboard drawings of randomly chosen bits of ground, They are very complex and challenging. I rarely use photographs, so time is a big factor, as weather, wind and animals move through the site. I am continually confronted by the futility and arrogance of me trying to "capture nature". I am forced to compromise, organize, edit and ultimately surrender to the visual complexity and vibrant panoply of life that I witness. My little piece of turf fascinates, frustrates and humiliates me in its grandeur. I am so perceptually limited to so much of what is happening, and yet so much a part of the action.

I find it incredible that there is a controversy on whether pollinators be included in botanical art, or how much variation in shading can be seen under a magnifying glass, or how close a watercolour copies the monocular image of a photograph. Botanical art is a force positive and not arcane, but its message must be clear, articulate and relevant. Botanical gardens and museums around the world should display botanical art that help save the world.

Hope this ranting is of some use to you, good luck on your thesis, I would love to know more about it, if I can be of any help, just let me know,

Yours,
Francesca

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*Fig. 1. Nature forging infants to replace the humans taken by Death, Jean de Meun, *Le Roman de la rose*, New York, Pierpont Morgan Library. (Park 2004: 55).*



*Fig. 2. A Life Devoid of Virtue is Worse than Death, Jean-Jacques Boissard, *Emblematum liber* (Frankfurt am Main: Theodor de Bry, 1593), Emblem II. Typ 520.96.225. Department of Painting and Graphic Arts, Houghton Library, Harvard College Library. (Park 2004: 67).*



Fig. 3. John Constable, The Haywain, 1821. Oil on canvas, 4'3" x 6'2". National Gallery, London. (Tansey & Kleiner 1926: 953).



Fig. 4. The museum or “Wunderkammern” of Ferrante Imperato, *Dell’historia naturale* (Venice, 1672 ed.) (Findlen 2004: 39).



Fig. 5. A double-page spread from the *Grete Herbal*, London, 1526. This illustrates how botanical illustrations were “copies of copies” from other ancient texts, resulting in the illustrations becoming no more than rough symbols of a plant. (Saunders 1995: 21).



Fig. 6. Leonard Fuchs, *Chilli peppers*, from *New Kräuterbuch*, Basel 1543. (Sherwood 2005: 38).



Fig. 7a. Thalia Lincoln, *Mimetes hottentoticus* (1975). Coloured pencils on Bristol board (Arnold 2001: 157).



Fig. 7b. Auriol Batten, *Eucomis autumnalis* (1986). Watercolour and pencil: reproduced in A. Batten, *Flowers of Southern Africa* (Sandton, 1986). (Arnold 2001: 142).

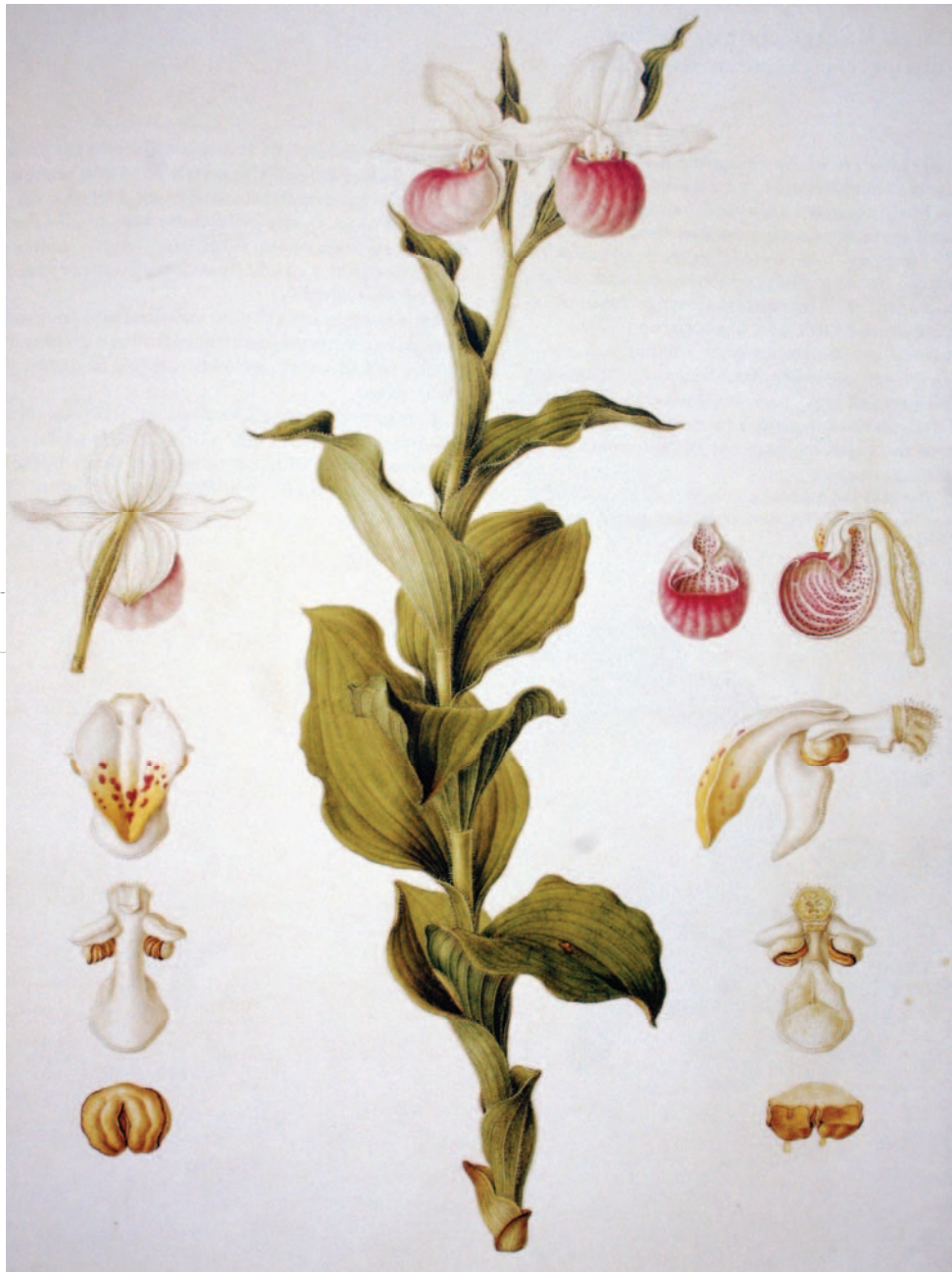


Fig. 8. Franz Bauer, *Cypripedium reginae* Walter. This orchid was one of the first to be described in colonial flora and was named after Thomas Walter in 1788, when he first published the name and description of the flower in his *Flora Caroliniana*. This orchid is indigenous to North America, southern Canada and the northeastern United States. Bauer got this specimen from Lady Joseph Banks' garden. (Stewart & Stearn 1993: 72).

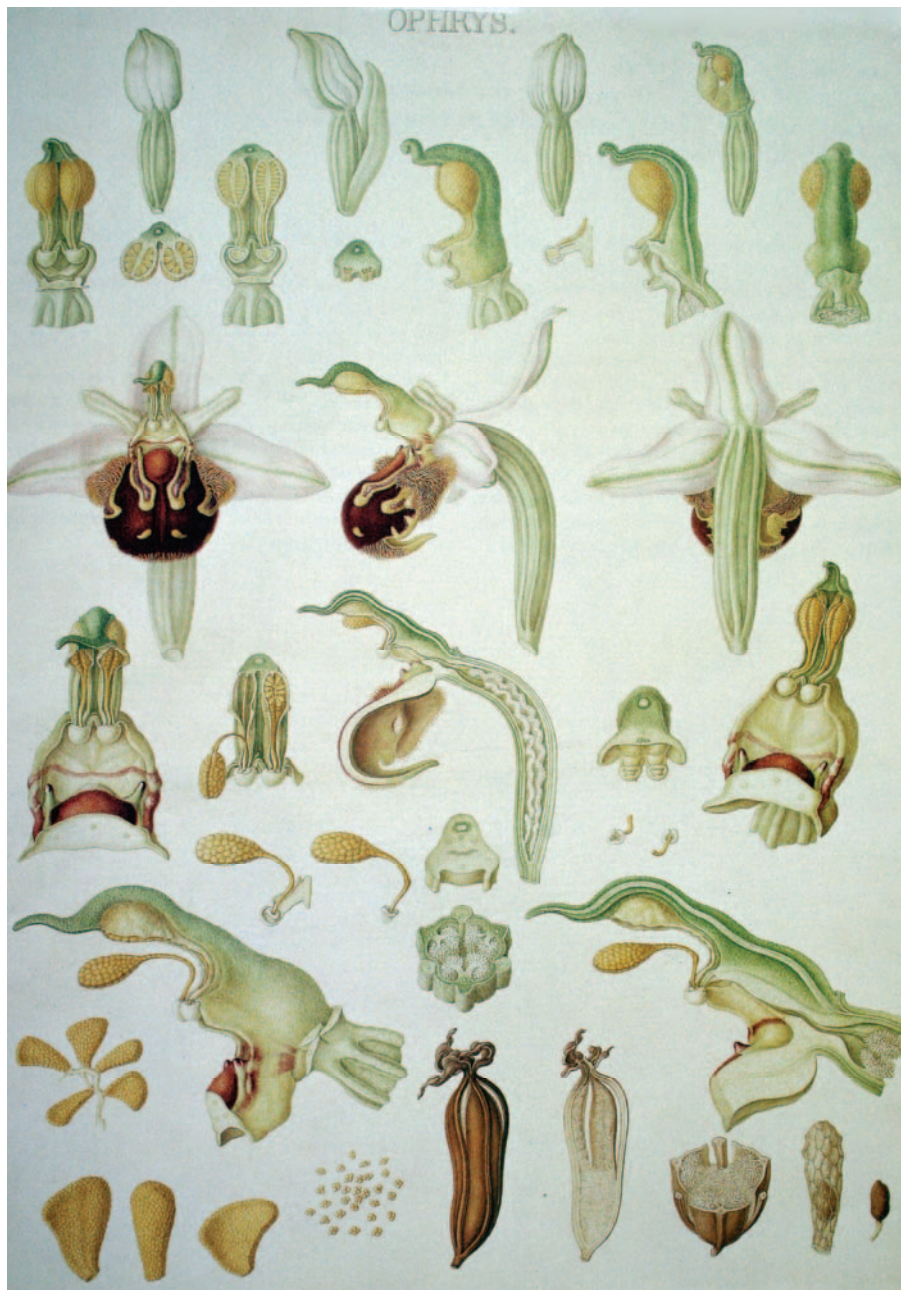


Fig. 9. Franz Bauer, *Ophrys apifera* Hudson, common name: bee orchid. This painting shows the parts of this flower which have been dissected and laid out on the page. The painting also shows some microscopic dissections of parts of the plant. (Stewart & Stearn 1993: 117).



Fig. 10. c. 1600. This painting of Queen Elizabeth shows her wearing a richly embroidered dress, employing many floral motifs. British School, Lane Fine Art. (Beck 1995: 13.)



Fig. 11. c. 1610. This portrait of Sir Peter Saltonstall shows the popularity of floral motifs in embroidered clothing during the seventeenth century. British School, Lane Fine Art. (Beck 1995: 35.)



Fig. 12. The formal garden at Heslington Hall, Yorkshire. (Inigo Triggs 1988: 136; Plate 48).



Fig. 13. Sir William Ashurst's house at Highgate, engraved by J. Harris, c. 1700. (Quest-Ritson 2003: 113).



Fig. 14. A photo of the gardens at Versailles (Tansey & Kleiner 1996: 872).

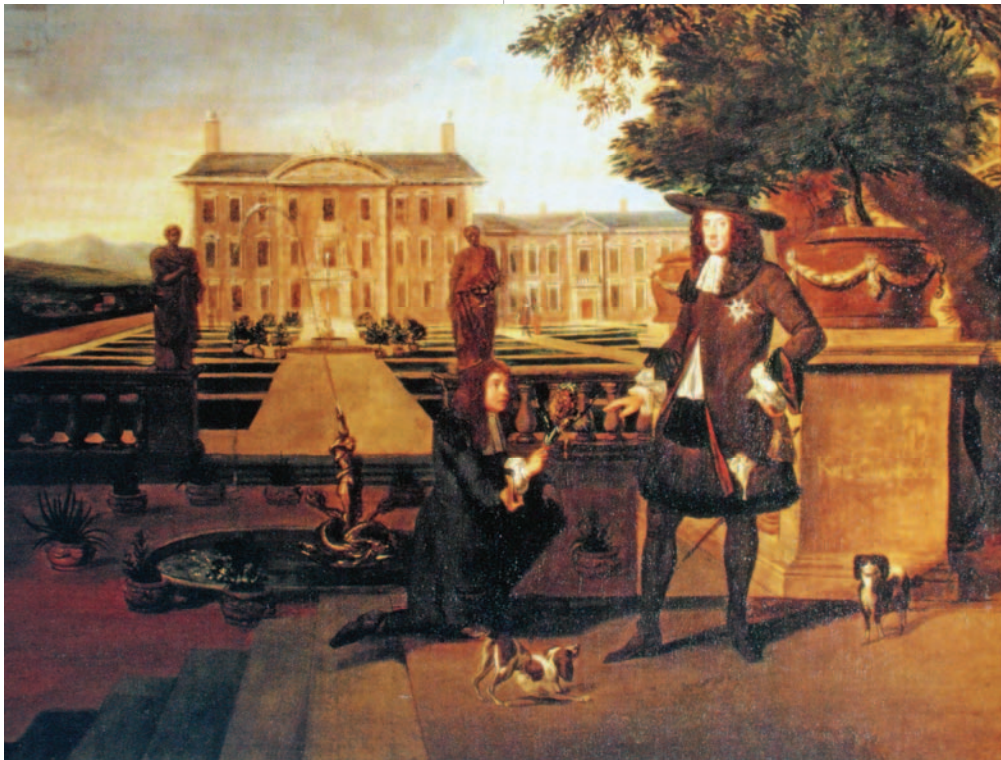


Fig. 15. This painting (attributed to Hendrik Danckerts) shows John Rose, presenting Charles II with the first pineapple grown in England, c. 1670. (Quest-Ritson 2001: 74).



Fig. 16. Brigid Edwards, *Poppy Seed Head* (1999). Watercolour over pencil on vellum, 381mm x 305mm. (Sherwood 2001: 72).



Fig. 17. Barbara Oozeerally, *Magnolia X Soulangeana* (1998). Watercolour on paper, 430mm x 350mm. (Sherwood 2001: 164).



Fig. 18. Mariko Imai, *Nepenthes Maxima* "Superba" (1999). Watercolour on paper, 765mm x 585mm. (Sherwood 2001: 110).



Fig. 19a. Victoria du Toit, Intricately and curiously wrought (as if embroidered with various colours) (Side 1) (2007). Watercolour on Arches paper. Circle diameter: 260mm.

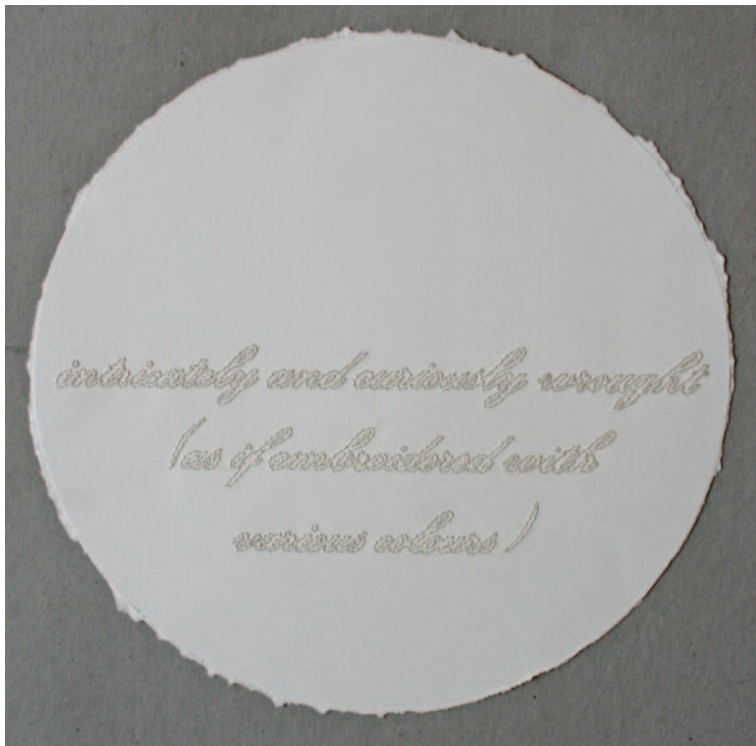


Fig. 19b. Victoria du Toit, Intricately and curiously wrought (as if embroidered with various colours) (Side 2) (2007). Embroidery thread on Arches paper. Circle diameter: 260mm.



Fig. 20a. Victoria du Toit, *Handmade: Catharmis* (Side 1) (2007). Watercolour on Arches paper. Circle diameter: 260mm.



Fig. 20b. Victoria du Toit, *Handmade: Catharmis* (Side 2) (2008). Embroidery thread on Arches paper. Circle diameter: 260mm.



Fig. 21a. Victoria du Toit, *Leucospermum cordifolium*, 'Nodding pincushion', a fragile frame (Side 1) (2007). Watercolour on Arches paper. Circle diameter: 260mm



Fig. 21b. Victoria du Toit, *Leucospermum cordifolium*, 'Nodding pincushion', a fragile frame (Side 2) (2007). Embroidery thread on Arches paper. Circle diameter: 260mm.



Fig. 22a. Victoria du Toit, *Azalea: an alien at home in my garden* (Side 1) (2008).
Watercolour on Arches paper. Circle diameter: 260mm.



Fig. 22b. Victoria du Toit, *Azalea: an alien at home in my garden* (Side 2) (2008).
Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 23a. Victoria du Toit, *Pincushion cut and crushed and dried* (Side 1) (2007). Watercolour on Arches paper. Circle diameter: 260mm



Fig. 23b. Victoria du Toit, *Pincushion cut and crushed and dried* (Side 1) (2007). Embroidery thread on Arches paper. Circle diameter: 260mm.



Fig. 24a. Victoria du Toit, *Common name: Waratah: outsider inside* (2008). Watercolour on Arches paper. Circle diameter: 260mm.



Fig. 24b. Victoria du Toit, *Common name: Waratah: outsider inside* (Side 2) (2008). Embroidery thread on Arches paper. Circle diameter: 260mm.

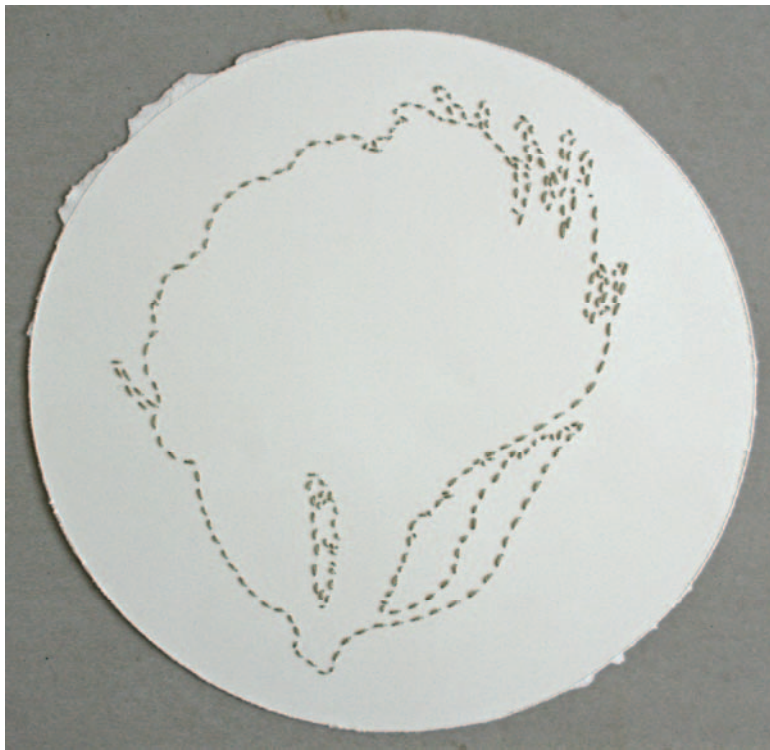


Fig. 25. Victoria du Toit, *Cut out* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 26. Victoria du Toit, *An African Morris* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 27. Victoria du Toit, *Pinned cushion* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 28. Victoria du Toit, *Memory: pinned down* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 29. Victoria du Toit, *White pincushion* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 30. Victoria du Toit, *Embroidered pincushion* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 31. Victoria du Toit, *Black pincushion* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 32. Victoria du Toit, *White outline* (2008). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 33a. Victoria du Toit, *Leucospermum cordifolium*: *Identity: cut and dried* (Side 1) (2007).
Watercolour on Arches paper. Circle diameter: 260mm.

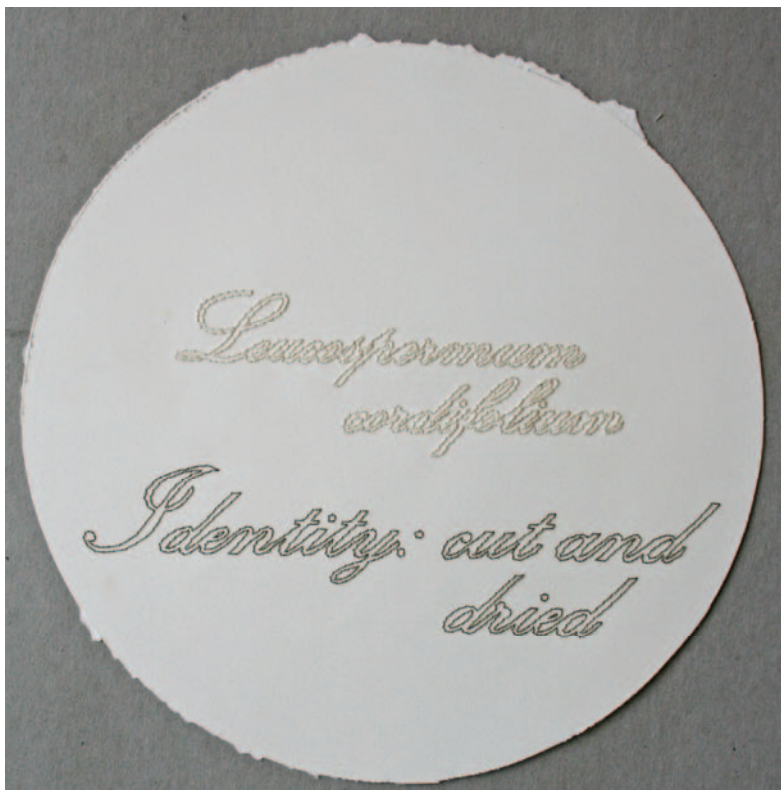


Fig. 33b. Victoria du Toit, *Leucospermum cordifolium*: *Identity: cut and dried* (Side 1) (2007).
Embroidery thread on Arches paper. Circle diameter: 260mm.



Fig. 34. Leora Farber, Ties that bind her: Regeneration (2006-7). Archival pigment on Soft Textured Fine Art paper. 1000mm x 1332 mm. (Van Rensburg 2007).



Fig. 35. Leora Farber, Ties that bind her: Repartation (detail) (2006-7). Archival pigment printing on Soft Textured Fine Art paper, 420mm x 560mm. (Van Rensburg 2007).



Fig. 36. Leora Farber, *Aloerosa: Induction* (2004-7). Archival pigment printing on Soft Textured Fine Art paper, 650mm x 650mm. (Van Rensburg 2007).



Fig. 37. Leora Farber, *Aloerosa: Propagation* (2004-7). Archival pigment printing on Soft Textured Fine Art paper. 650mm x 550mm. (Van Rensburg 2007).



Fig. 38. Leora Farber, Aloerosa: Supplantation (detail) (2006-7). Archival pigment printing on Soft Textured Fine Art paper. 520mm x 700mm. (Van Rensburg 2007).



Fig. 39a. Victoria du Toit, *Protea Susannae*: circumcised heart, cut, severed, separated ... (Side 1) (2007). Watercolour on Arches paper. Circle diameter: 260 mm.



Fig. 39ba Victoria du Toit, *Protea Susannae*: circumcised heart, cut, severed, separated ... (Side 2) (2007). Embroidery thread on Arches paper. Circle diameter: 260 mm.



Fig. 40. Francesca Anderson, *Sunflowers series No. 2* (1996). Pen and ink, 580mm x 730mm.
(Sherwood 2001: 35).



Fig. 41. Francesca Anderson, *Sunflowers series No. 5* (1996). Pen and ink, 580mm x 730mm.
(Sherwood 2001: 34).



Fig. 42. Rory McEwan, Ginkgo leaf, East 61st Street, New York (1979). Watercolour on vellum, 190mm x 230mm. (Sherwood 2001: 136).

