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Langerman's thesis, entitled The exploded book: a disarticulation of visual knowledge systems within sites of natural history display looks at how the legacy of the book in natural history museums has resulted in the representation of speciation deferring to a hierarchical, progressive model rather than to more current 'web-like' evolutionary schematics. The thesis consists of three introductory chapters which identify Christian models implicit within natural history display of speciation: the 'tree of life', the linear book and the Garden of Eden/diorama, and, through a discussion of curatorship, suggests that to embrace current schematic models within display, which require a more active engagement with the museum subject, may be a move towards the 'post-Christian museum'. The PhD submission also comprises an analysis of two exhibitions produced for the study and presented at the South African Museum. The first, Subtle Thresholds, used infectious disease as a theme to present a complex visual network of the inter-relationships between the zoological, human and microbial worlds. Situated in a gallery between social and natural history displays, the exhibition acted as a conceptual bridge between the two areas within the museum – disease being a meeting point between species. The exhibition was its own self-referential index and themes of the exhibition were distributed through formal and conceptual analogues throughout the gallery. The second exhibition, R-A-T, explored the representation of species through a single animal, Rattus norvegicus. Rather than a discrete, contained display, it was dispersed throughout the museum, furtively making its way into disused corners and cabinets. This distribution introduced the rat in relation to ranging themes, form-

I asked these artist-scholars (there isn't an easy term for what they are) to choose 3,000-word excerpts from their theses. I edited their texts slightly to ensure they are readable, mainly by deleting passages that refer to other parts of their theses. My emendations are marked by bracketed ellipses [...]. Most excerpts are introduced by summaries adapted from the authors' abstracts and from personal correspondence. I also asked for illustrations both of the work they studied in their theses and of their own work, when the two are different. Footnote citations follow the authors' own usages.

ing a meta-narrative of connections while suggesting manners in which museum display impacts on the understanding of species.

The following writing is an excerpt from an introductory chapter that discusses the Garden, referring to Eden and Noah or paradise and wilderness within display.

Of Wood and Trees: Locating Eden and Noah's Ark within Displays of Natural History

On a mountain ledge high in the Drakensberg a family of leop ards is awakening. Flecked markings and dappled sunlight converge as, framed between rocks and agapanthus blooms, cubs and parents are captured in a nurturing moment. Far-off hills reflect the early morning sun, dissolving into a perfectly clear sky. This Arcadian scene is one of 14 habitat dioramas installed at the Durban Museum of Science, which were painted by Nils Anderson in the 1950s.1 In another scene, a wild dog mother lies recumbent, nursing her cubs while the father stands protectively guarding his family. Set in the late afternoon amidst languid hills, peppered with colourful foliage and darting birds, this is an idyllic moment - a view of Eden. On a recent visit to Durban I was privileged to catch the Campbell Gallery under refurbishment while the dioramas were being upgraded with custom LED spotlights to enhance the time specificity of the geographically particular scenes. The open cabinets had two effects: to draw attention to the artificiality of the constructed scenes and literally to expose the constructions to the viewer.

To be a viewer in a museum of natural history is, more often than not, to assume the role of observer, witnessing either a distant past or an arrested collection of specimens. It is to position oneself as outside of the cabinet, outside of the taxonomic boundaries of glass and, as such, distanced from a continuum of speciation. This separation is one that is heralded by the appellation 'nature/ natural', a highly contested term, and famously said by Raymond Williams to be "the most complex word in the language" (Williams, 1983:219). An abstraction that distances humans from something else – something archaic and pristine. Without agency, nature is, in one sense of the word, something that can be dominated, ordered, labelled, named and governed. Nature is often set in opposition

to culture, yet there is no nature without culture: as a concept it is born of an understanding of human endeavour – and museums of natural history are as much museums of cultural history, constructed around human enterprise and burdened by colonialism, imperialism and patriarchy. Natural history is thus both a practice and a concept and the manner in which objects of its study are presented are clearly determined by cultural conventions and by entrenched narratives and mythologies.² In this chapter I examine how Genesis narratives are strongly located within the display of natural history and what these indicate about an attitude to speciation. In this discussion the impact of the book on museum display is that of the book of books – the Bible – and how it establishes a language of dominance and hierarchy.

It is perhaps not surprising that in spaces concerned with origins and lineage, various mythical narratives should be collapsed. The display of animal specimens in museums of natural history tends to rely on either dioramas or processional devices that evoke the creationist myths of Eden and Noah's Ark respectively, both narratives deeply reliant on lineage and tree (genealogy) iconography, and in both cases providing a male figure as the 'first known ancestor' in the development of a people. Adam and Noah mark the bookends of the antediluvian period – between two points of sin – spanning 1,656 years. And, while the appeal of dioramas to discrete, Edenic spaces may appear somewhat obvious, the copresence of both Eden and the Ark and their relationship to the iconography of evolution, has not been fully unravelled.

Eden is an ancestral space, a site of purity and of grace, but significantly also one of ignorance or forbidden, divine knowledge. Despite knowledge being withheld, it is also a site of knowledge generation as the first instance of nomenclature – the proto-Linnae-an naming of species by Adam. Genesis 2:19 tells us: "And out of the ground the lord God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them; and whatsoever Adam called every living creature, that was the name thereof" (KJV). Adam symbolises the taxonomist, identifying individual species, whereas Noah is the curator – custodian and preserver, organising species into groups and taking responsibility for their destinies. He performs the multiple actions

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of the curator: selecting, labelling, rearranging, storing, recontextualising, realigning, relocating, pairing and archiving. As custodian his collection is taken out of the store and decommissioned before being released back onto land at God's command: "Bring forth with thee every living thing that is with thee, of all flesh, both of fowl, and of cattle, and of every creeping thing that creepeth upon the earth; that they may breed abundantly in the earth, and be fruit ful, and multiply upon the earth" (Genesis 8:17, KJV). This recalls the directive to Adam earlier in Genesis: "And God blessed them, and God said unto them, 'Be fruitful, and multiply, and replenish the earth, and subdue it, and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth" (Genesis 1:28, KJV). Scholar of science and religion, Peter Harrison, notes the change in the early modern in terpretation of Genesis from a medieval symbolic interpretation of animals to a literal one. He quotes Francis Bacon "the first acts which man performed in Paradise consisted of the two summary parts of knowledge; the view of the creatures, and the imposition of names" and in this way taxonomy was seen as the first vocation, and nature as the first religion (Harrison, 2009:885-887). Naturalists were perceived as producing knowledge about the world and in this way, exercising dominion over it, and it is this spirit of mastery and patriarchy that was to find an analogue in the imperialist museums of the eighteenth and nineteenth centuries.6

It is curious that the modern museum should, despite a seemingly oppositional agenda, make appeal to the iconography of Genesis. Carla Yanni, in her book that examines the impact of architecture on the reception of natural history, notes that evolution and religion were reconciled in the Victorian museum by natural theology. As an extension of the Enlightenment philosophy that saw the massing of collections as evidence of God's power, evolution and slow changes in species were seen as testimony to God's continual involvement in creation, and the variety as evidence of his creative omnipotence (Yanni, 1999:14). Museums became symbolic cathedrals in which to worship God's work. The appeal to religious symbolism predates the Enlightenment. Early modern scholar, Paula Findlen, makes the point that late Renaissance naturalists "framed their collecting of nature within messages of redemption and sal-

vation" and that within a renewed "encyclopedic optimism," botanical gardens were seen as reconstructions of Eden and museum collections as Noachian projects that ultimately surpassed that of Noah (Findlen, 1994:92). Athanasius Kircher (1675) described Noah's Ark as the first museum of natural history, and saw his own collector's impulse as inspired by Noah, ultimately culminating in his Musaeum Kircherianum in Rome. The conceptualisation of the natural history museum as an ark, concerned with conservation and preservation, has been closely aligned to its development.

It could be argued that popular Christian tropes for understanding taxonomy and lineage were established in pre-evolutionary proto-museums, and that contemporary display defers to these. However, although Linnaeus was motivated by a sense of a divine taxonomy and was referred to as the second Adam (Harrison, 2009:878), the conceptual approach to collections during the Enlightenment manifest in a dense layering and massing of specimens that made little obvious visual reference to the language of the Bible. It is only with the advent of the diorama in museums that the appeal to Eden became an overt, embedded, modern reference. Interestingly this roughly coincides with two groundbreaking publications of the nineteenth century: Charles Lyell's Principles of geology (1833) and Darwin's On the origin of species (1859). While both of these publications were to challenge the foundations of belief in divine creation, creative responses to them drew on the drama of natural form and light in ways that were reminiscent of earlier Romantic paintings. Artworks by Alfred William Hunt, John Brett, Frederic Church and even John Ruskin, executed between 1855 and 1857, demonstrate a fascination with geology and dramatic lighting effects.7

Dioramas, invented by Louis Daguerre in 1822, and popularised in the early nineteenth century, were initially theatrical devices that relied on the complex manipulation of light to transform a constructed landscape. The lure of this device was its ability to seduce and deceive the viewer into believing the veracity of the observed scene. The parallel development of the diorama and photography was evident in early diorama construction, which co-opted various depths of field and singular viewpoints, while more recent dioramas use tilted perspective and an infinity curve with the inclusion

of real objects to present the illusion of recessive space. While the spectacle of the diorama was short lived as a purely theatrical device, it was to reappear within natural history museums towards the end of the nineteenth century. The word derives from the Greek dia (through) and horoa (view) and while this may initially have related to Daguerre's diaphanous backdrops, the view through to the landscape has historical implications. Renaissance perspective provided an ordered, controlled organisation of a view over nature, dividing it into different grounds and framing it within a window This formalised image of nature gave dominion to those who be held it, and it is this visual legacy that persists within diorama construction. The frame of the diorama separates reality and illusion. Yet when a diorama is photographed, the illusion is complete, an the viewer becomes part of immediate foreground situated within the landscape. Hiroshi Sugimoto's black and white photographs of dioramas from the 1970s are clear examples of this, flattening any distinction between animals and the background and erasing evidence of the museum as a contextualising reference.

Carl Akeley, best known for his contribution to the American Museum of Natural History, New York, is credited with the first habitat diorama at the Milwaukee Public Museum in 1890.8 Following this lead, museums throughout the world began to install similar displays and the allure of realism within habitat dioraman became standard practice within natural history museums well into the 1950s. The Durban Science Museum's dioramas from this period are typical of this style of display, and similar counterparts can be found nationally at the Iziko South African Museum, Kwa-Zulu Natal Museum and the National Museum, Bloemfontein. Indeed the display of leopards, described earlier, is remarkably similar to that of jaguars, set on the slopes of Box Canyon, Mexico, within the American Museum of Natural History's Hall of North American Mammals. Habitat dioramas generally contain single or double specimens, often with their young and sometimes with companion species, while lighting enhances the particularity of the geography and temporality. Specimens generally face forward and are frequently actively involved in hunting or feeding. Despite this, they are displayed in such a way as to suggest an inherent passivity and benign demeanour: their frontality and gaze acknowledges the

viewer, while the distraction of the activity deflects a direct, challenging engagement. This has a particular appeal to an Edenic fantasy where humans and animals lived in companionable harmony. The suspended animation of the exhibits has the lure of familiarity in that year on year exhibits remain unchanged, predictable and familiar. As Michelle Henning suggests, there is a suppressed desire within the viewer that the animals may one day rise from sleep in their glass coffins and emerge as domesticated pets (Henning, 2006:51). Donna Haraway writes that taxidermied animals in dioramas allow a communion with the viewer that transcends any lived experience. In every tableau there is an animal that arrests the gaze of the viewer - inviting visual penetration - caught "frozen in a moment of supreme life" (Haraway, 1984:54).9 Animals here return the human gaze, recalling an idealised moment in an archaic past when humans and animals were in communion. The animals are perfect specimens, beyond mortality, disease and the ravages of time. The thick glass between observer and observed provides a conceptual threshold between species, 10 reinforcing an assumed hierarchy. Interestingly, there are very few examples of dioramas of domestic animals¹¹ - markers of the threshold between nature and culture. Instead, with the persistence of 'wild' specimens, human viewers are set apart from the landscape (nature), and located within the space of the museum (culture). This is a symbolic recreation of the expulsion. When Adam and Eve are banished from the Garden they are cast outside of the gates - set apart from nature to look from the outside into something separate from humans. At this point a threshold is established between nature (unchanging, constant, ideal) and culture (progressive, dynamic).

The term 'landscape' encapsulates the imagining of a relationship – both a vista and a surveillance – a clear political geography. Landscape is thus a cultural coding of nature and the space in which the tensions between these concepts is played out. At the end of the nineteenth century, landscape and the notion of nature were associatively conflated with the colonised body – a site to be ordered and controlled. Yet, at the same time, theories of evolution rendered 'nature' itself a space of anxiety, in that the distance between the animal and human body became contracted. Ideologically, structures had to be found to accommodate this repositioning

and here Social Darwinist theories of the time provided justifica tion for a racialised interpretation of evolution by linking survival. adaptation and race. In addition, a view of nature that was passive and, by association, able to be domesticated, fed into a hierarchi cal and tree-like understanding of the structure of speciation.12 The will to tame the landscape through formal and aesthetic means has obvious political objectives. J. M. Coetzee's frequently referenced White Writing provides a useful entry point to understanding the dual appeal of the diorama and procession. He writes that "land scape remains alien, impenetrable, until a language is found in which to win it, speak it, represent it" (Coetzee, 1988:7). Referring to the indeterminacy of the colonial eye, 13 he identifies two respons es to interpreting the unfamiliar landscape: that of appropriating a foreign image derived from the homeland and layering it over the landscape, or acknowledging the landscape as foreign and treating it as open, untamed wilderness. For my purposes I liken these responses respectively to Eden in the case of the museum dioramas, and Noah's Ark in the case of the museum procession.

Coetzee cites artist and cleric William Gilpin's popular eigh teenth-century notion of the picturesque, which suggested that asymmetry and irregularity were desirable compositional devices, and that paintings should be structured around receding planes with clear fore-, middle- and background relationships (Coetzee, 1988:39-40). It advised that a foreground should be in sharp focus and characterised by rough elements and shadow, whereas distant plains should be atmospheric and luminous. I believe that this in tense structuring of the landscape made (and still makes) an easy transition to the diorama, which, in order to seduce the eye, relies on highly structured visual grounds: the curved background, foreground specimen and foliage, and middleground 'tie in'. The back drop most often depicts contemplative periods of the day: morning or late evening sky, and the glowing quality of light hints at a moment of epiphany – a re-enactment of a religious moment. Here two grand projects are powerfully conflated. In the appeal to the iconog raphy of the Bible, and to the light of prophets, reassurance is given of the museum as a place of authority, illumination and truth. If museums are 'cathedrals of science', then illuminated dioramas are the stained glass windows, educating through an accessible narrative.

Typically, dioramas present a scenic backdrop painted from a superior viewpoint and elevated perspective to suggest a point of safety from where the 'active viewer' can imaginatively be inserted into the landscape. This connects with visions of colony and, in relation to this, Delmont and Dubow write of a "spatial inducement" and a "willingness to be located within a site and be enfolded by its perimeters," and of the picturesque they suggest that "it is a landscape which admits the colonial subject and, in reciprocity, returns his cultural gaze" (Delmont & Dubow, 1995:14). Within their hermetic glass cases, animal specimens occupy this topography of paradise. The Garden of Eden is symbolically an enclosed space, uncontaminated by external influence. It is a place of arrested time, where species are immortal and perfectly formed. When Adam and Eve were cast from light and ordered to a dark wilderness, they found nature unpredictable, harsh, and animals were forced to prey upon one another. In a return to paradise within the diorama, animals are untroubled, seemingly non-predatory14 and in catching the viewer's gaze, again commune with humans. Interestingly, in looking inwards to paradise, the viewer is cast into the space of the wasteland and forced to contemplate the chasm between the idyllic archaic past and the present.

The potential appeal of Edenic imagery at the end of the nineteenth century, when many museums of natural history were established, ¹⁵ is further complicated by a counter-industrial idealism and a romantic desire for spaces of origin, untainted by the city. The period is marked by a representational binary between a cyclical, Arcadian 'refuge from history' and a utopian modernism, which saw progress as desirable. Arcadia is scenic, passive, timeless, romantic and feminine whereas utopia is urban, active, masculine and linear. ¹⁶ Crudely, this can be applied to the Edenic diorama, which is a passive space of reflection and contemplation, whereas displays which appeal to Noah's Ark with an active, progressive parade of species, may relate to 'utopian modernism.'

The mythology of Eden establishes the fundamental gender stereotypes. Environmental historian Caroline Merchant writes of Eve's multiple roles: initially she is conflated with nature, virginal and pure. As fallen Eve she is associated with unpredictable, chaotic nature, while as mother Eve nature is a garden, nurturing and

fertile (Merchant, 2004:22). Adam on the other hand is created in the image of God as creator, active and with agency. In this classic gender reading, the subjects within the diorama may be equated with the feminine – passive, inert and subject to the active spectator.

Merchant speaks of the Garden of Eden as one of the primary "recovery narratives" that have shaped western thinking (Merchant, 2004:11). She suggests that by the seventeenth century the Christian story had merged with science, technology and capital ism to form a progressive myth by which human industry and development attempted to recreate the Garden on earth.¹⁷ Progress and recovery became conflated. The idea of progress can be trans lated to museum display, bound very much to the linearities of the iconography of evolution as previously discussed, this may indeed also play into a recovery narrative: an ascent towards an ideal state of purity and oneness with nature. Environmental activist, Alexan der Wilson, makes a similar point in relation to 1950s Disney na ture films that, while showing the cyclical and natural rhythms of nature, always constructed the films as a move towards a point of perfection - towards progress and the ideal (Wilson, 1992:119). In addition, video and film technologies of the time encouraged the translation of the experience of nature into those accessible to the camera. Thus, seen through the viewfinder, nature became a back drop: familiar and known. The experience of nature was a "viewing of" rather than "participation in" (Wilson, 1992:121). In contemporary society, the attempt to reclaim nature is correspondingly mediated by commercialism: tourism, parks, garden suburbs, gardening emporia, shopping malls, theme parks and the museum.

Eden and wilderness lie at each other's thresholds, and I argue that the natural history museum display works with both these contrasting spaces. The Eden myth is developed around binary terms: 'inside/ outside,' 'dark/ light,' 'order/ chaos,' 'fertile/ barren', 'known/ unknown.' The edge of paradise is a boundary place of change and transformation; peace and pain; pleasure and labour. [...]

Endnotes

1 The elevated positioning of the viewer over a mountainous land-scape is reminiscent of the paintings by W. H. Coetzer of the Great Trek, designed for translation into embroideries for the Voortrekker Monument. All 14 diorama paintings characterise regional South African geographies and this, together with their aspect, also recalls Pierneef's nationalistic Johannesburg Station panels of the late 1920s. Anderson was largely known for his marine paintings and was deeply influenced by the highly structured work of fellow Durban artist Clement Sénèque (Berman, 1970:30).

2 That nature is a human construction was acknowledged by Enlightenment naturalists such as Comte de Buffon, who believed that nature's laws can never be known in themselves and that human behaviour guides knowledge. In addition, human nature is projected onto the animal world. His first animals of study in his *Histoire naturelle* were consequently domestic animals and pets (Asma, 2001:64).

3 The tree is frequently referred to as the tree of knowledge of good and evil. Rather than having a moral dimension, or being oppositional, biblical scholars suggest that this is a merism, a figure of speech which embraces a totality – thus a tree of all knowledge. In many ways this speaks to the museum impulse to provide an encyclopaedic view of a collection of all things.

4 See Donna Haraway in "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908–1936" and Karen Wonders in *Habitat dioramas: Illusions of wilderness in museums of natural history*.

5 The Creation Museum in Petersburg, Kentucky, (opened in 2007) provides an extreme example of the conflation of biblical narrative with the display of speciation. This museum, established by the Answers in Genesis Ministry, presents a scenario in which time, science and mythology is collapsed within a world that is 6,000 years old. The central exhibit depicts a pastoral idyll framed between the tree of life and the tree of knowledge in which early humans and dinosaurs live companionably. In the exhibits, which are designed by the same people responsible for those at Universal Studios, Florida, the veracity and spectacle is a critical aspect of their persuasive argument. This argument asserts that there is no contradiction between the fossil record and creation, as dinosaurs boarded the Ark alongside all other animals and all geological evidence, used to support theories of evolution, originates at the same time as this.

6 The nineteenth-century sentiment that sent collectors, artists and taxidermists on imperialist hunting trips to secure perfect specimens in order to "bring a vision of the world to those who will never see it" (Henry Fairfield Osborn, President of the AMNH cited in Quinn, 2006:12) con-

tinues today. This was recently articulated by the Iziko SA Museum on receipt of hunter, Peter Flack's collection of rare taxidermied animals "the collection is of huge educational value. For many it will provide the only chance they will ever have to see these animals at close quarters" (iziko org.za/static/landing/statement-peter-flack-collection-donation).

- 7 The relationship between visual art and natural theories in the mid-nineteenth century is discussed further by Rebecca Bedell in her fascinating essay "The history of the earth: Darwin, geology and landscape art" (Donald & Munro 2009).
- 8 Charles Willson Peale organised the first American scientific expedition in 1801 and founded what became the Philadelphia Museum. He developed habitat displays for specimens as a forerunner to the diorama and perfected taxidermy using arsenic and wooden carved armatures (Prince, 2003:15).
- 9 The reciprocal gaze between humans and animals has been the subject of much recent literature, most notably Derrida's discussion of his cat in *The animal that therefore I am* (2008) and Donna Haraway's dogs in *Companion species manifesto* (2003). Wendy Woodward has brought together African literature on the subject in *The animal gaze: animal subjectivities in Southern African narratives* (2008).
- 10 The word 'species' is derived from the Latin *specere* to look at and while it has come to mean entities that look the same and are gentically close, it is linked to the notion of spectacle.
- 11 Within Eden there exists the contradiction of co-existence of both domestic and wild animals. Only after the expulsion did farming, agriculture and thus the domestication of animals become necessary.
- 12 German biologist Ernst Haeckel's tree of 1876 traces a deliberate route from *monera* at the roots to *menschen* at the uppermost tips of the tree.
- 13 These ideas are expanded upon by Elizabeth Delmont and Jessica Dubow (1995).
- 14 There are of course instances of animals engaged in hunting and feeding. On the whole these are discrete and understate moments of carnality. One significant exception to this is found at the Maputo Natural History Museum, Mozambique, where animals are presented in a scene of frenzied carnage. The recent inclusion of the Peter Flack hunting collection within the museum represents a significantly different animal vision. The taxidermy has heightened the 'viciousness' of the animals that snarl and chew on bloodied meat. The representation of these specimens as predatory is a justification of hunting and a celebration of the hunter.
- 15 The Natural History Museum in South Kensington was founded in 1880 (move from British Museum); the American Museum of Natural

History, New York, was founded in 1869; the Muséum national d'Histoire naturelle, Paris, was founded in 1793 and the Galerie de paléontologie et d'anatomie comparée in 1898; and the Smithsonian Museum of Natural History was founded in 1910.

16 The environmental art writer Rebecca Solnit suggests that land-scape evokes a narrative of nostalgia and longing for a pastoral past that is simple, primitive and pure – set in opposition to the perceived corruption of the urban she says that contemporary art practice shifts landscape from the terrain of scenery to actively lived and experienced materiality (Solnit, 2001:48).

17 Merchant contrasts this with declensionist myths, which hold that the more humans progress technologically, the further they move from Eden.

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