



Centre for Cultural Research Pre-Print Journal Articles

Culture and Nature at the Adelaide Zoo: At the Frontiers of 'Human' Geography

Kay Anderson

The definitive version of this article is published as:

Anderson, K. 1995, 'Culture and Nature at the Adelaide Zoo: At the Frontiers of 'Human' Geography', *Transactions of the Institute of British Geographers*, N.S 20(3): 275-294.

Available online at:

<http://www.jstor.org/stable/i225708> (institutional or subscribed access may be required)

***Transactions of the Institute of British Geographers N.S* is available online:**

<http://www.wiley.com/bw/journal.asp?ref=0020-2754>

Original copyright remains with the publisher

Disclaimer

Please note that this is an electronic, pre-print version of this article produced by the Centre for Cultural Research, University of Western Sydney, in accordance with the requirements of the publisher.

Whilst this version of the article incorporates refereed changes and has been accepted for publication, differences may exist between this and the final, published version. Citations should only be made from the published version.

User Agreement

Copyright of these pre-print articles are retained by the author. Users may download and/or print one copy of any article to facilitate their own study or non-commercial research. Wider circulation and distribution of the material and/or use of it in profit-making activities is prohibited.

URLs to access this post-print version can be freely distributed:

http://www.uws.edu.au/centre_for_cultural_research/ccr/people/researchers/professor_kay_anderson#publications

Culture and Nature at the Adelaide Zoo: At the Frontiers of 'Human' Geography

Kay Anderson

Abstract

This paper develops a cultural critique of the zoo as an institution that inscribes various human strategies for domesticating, mythologizing and aestheticizing the animal universe. Using the case of Adelaide, South Australia, the paper charts the mutable discursive frames and practices through which animals were fashioned and delivered to the South Australian public by the Royal Zoological Society of South Australia. The visual technologies at the Adelaide Zoo are documented from the time of menagerie-style caging in the late nineteenth century, through the era of the Fairground between the mid-1930s and the early 1960s, up to the contemporary era of naturalistic enclosures when exhibits such as the fanciful World of Primates continue to craft the means for the human experience of nature. Woven into the story are more general themes concerning the construction of nature under colonialism, the gendered and racialized underpinnings of 'human' boundary-making practices in relation to 'non-human' animals and that form of power and possession known as domestication.

Keywords: animals, rationality, domestication, representation, science, Adelaide

Introduction

It is in the suburban backyard that people, perhaps unwittingly, make their more routine interventions in nature. By clearing ground and arranging space for 'gardens', they simultaneously create 'habitats' in which some species of bird and animal life thrive while others lose out. The crow, whose diet includes some 600 items, is increasingly an urban and suburban bird. And gulls, once restricted to the coasts, are adapting well to cities located inland. Suburbs have become ecosystems of their own, though humans are probably unaware of their part in attracting the wildlife with whom they coexist. Likewise, people often tend to misrecognize as 'natural' the settings that have been deliberately set aside for human recreation and contemplation. These spaces include the parks and reserves where an ill-defined and unspecified 'nature' has been converted into cultural experience and spiritual commodity. It is the metropolitan space of the western world's zoo-logical gardens, however, that people encounter a nature that has been most complexly and culturally contrived by, and for, humans. Inside the grounds of these zoological gardens, an illusion of Nature is created from scratch and re-presented back to human audiences in a cultural performance and achievement that is the subject matter of this paper.

The zoo as a cultural institution

Nature, for all its apparent remoteness and distance from humans is, in some senses at least, socially constructed. In this paper I develop this argument with reference to the zoo, a space which I will examine not from a zoological or natural history vantage point but more critically for the human perceptions and purposes encoded within it. Following the preliminary work of Mullan and Marvin (1987) and Tuan (1984), I will

argue that the zoo is a cultural institution which reflects not nature itself – as if such an unmediated thing exists – but a human adaptation of the ensemble of life forms that bears the name ‘nature’. In terms of its changing animal composition and visual technologies, its exhibition philosophy and social function, the zoo inscribes various human representational and material strategies for domesticating, mythologizing and aestheticizing the animal universe.

Certainly, zoos contain a highly selective array of the species of the natural world, the majority of which are never seen by people in nature. Moreover, they are displayed in ways that cater to cultural demand and public expectations about animals and the world regions for which exhibits are made to emblematically stand. After all, most zoos in the western world are businesses seeking to attract fee-paying visitors – and many do. In the United States, in 1993, the 154 zoos and aquariums accredited by the American Association of Zoological Parks and Aquariums were visited by 100 million people, exceeding the combined attendance at all major-league baseball, football and basketball games (Tarpy 1993).

Some zoos are more successful than others, however, at attracting visitors. And human responses to zoos are themselves wide-ranging and profoundly ambiguous. Surveys tell us that people’s reactions to zoo animals typically combine excitement, fear, awe, sadness and nostalgia, with unease about the captivity of animals (Adams et al. 1991; Townsend 1988). These varied and contradictory responses are abundantly evident on the faces of children and adults lining enclosures at the zoo. Whatever the nature of human responses to zoos, however – and we need to learn more about them¹ – I will argue here that zoos ultimately tell us stories about boundary-making activities on the part of humans. In the most general terms, western metropolitan zoos are spaces where humans engage in cultural self-definition against a variably constructed and opposed nature. With animals as the medium, they inscribe a cultural sense of distance from that loosely defined realm that has come to be called ‘nature’. This is the social category that has recently prompted critical, deconstructive study by a growing number of geographers².

Cartesian legacies: mapping the cultural boundary of ‘human’ and ‘animal’

Historically, the nature/culture opposition has informed diverse and culturally variable practices of domination and subordination on the part of humans. The cultural sense of separation has implied no neutral relation between humans and the non-human world but rather entailed detailed and persistent disciplinary practices (Foucault 1980). This is abundantly evident in the treatment of animals in western cultural traditions where animals have long served human purposes (Manning and Serpell 1994; Noske 1989). Well before the erection of places called zoos, humans kept animals in

¹ Only limited research has been published on the way socially constructed nature has been received and interpreted by human users. Perhaps the most notable in geography is the work of Jacquie Burgess (1990, 1992). This paper on the zoo seeks to illuminate such responses where they can be retrieved from the primary sources, including visitor surveys. Its major objective, however, is the cultural production of zoo space, the consumption of which warrants further study.

² Fitzsimmons (1989); Katz and Kirby (1991); Nesmith and Radcliffe (1993); Simmons (1993); Smith (1984); Whatmore and Boucher (1993).

captivity for diverse purposes, chiefly as creatures of worship. By the third century BC, Romans introduced violent uses of animals in gladiatorial contests and triumphal processions. Again, during the Middle Ages, royal sports included bear-baiting and bullfighting (Zuckerman 1979).

By the late seventeenth century, private collections of caged animals called 'menageries' had become status symbols for their princely owners. One such collection was the Versailles menagerie, opened in 1665, when Louis XIV arranged a botanical garden and an enclosure for lions and elephants around his house in a pattern that is said to have inspired Bentham's Panoptican prison of the late eighteenth century (Mullan and Marvin 1987). In 1804, in keeping with the democratic order of post-revolutionary France, the royal animals were moved to Paris and a zoological garden at Jardin des Plantes opened to the public.

The opening of the Paris collection coincided with the rise of scientific formulations about non-human nature that supported practices of animal confinement. Following the publication in 1735 of Linnaeus' influential classification of plants and animals, there developed a tradition of research and writing about animal physiology and comparative anatomy³. The scientific community lent legitimacy to the menagerie concept which quickly spread throughout Europe, including England, where in 1826 the scientists Sir Joseph Banks and Sir Humphrey Davy formed the research and display organization – the Zoological Society of London. By 1847, the term 'zoo' had become a colloquial abbreviation for the Zoological Gardens of London, made up of animals from the royal menageries at Windsor Park and the Tower of London (Ritvo 1987).

The western world's zoos evolved historically out of a much older and more general logic and desire for classification and control of the non-human world. This frame of mind, described as 'rationalist', enshrined the premises and dualities of classical thought which from ancient times had progressively carved a deep philosophical rift between the spheres of human mind and nature's apparent 'mindlessness' (Lloyd 1984; Plumwood 1993). 'Humans', with their capacity for thought (calculation), agency and intentionality, had come to be set rigidly apart from non-human 'nature' which was defined, in opposition to 'human', as 'irrational'. The history of ideas is complex and some classical scholars (namely Aristotle) modelled the human/ nature distinction as a continuum; as a hierarchy of orders of life with the human as pinnacle and inanimate things at the base. And humans were themselves differentiated by both Plato and Aristotle into higher and lower groups, using gendered and racialized distinctions and including slaves as the most lowly⁴. But, in the course of the development of Christianity and humanism from the fifteenth century, the original rationalist dualism of human/nature began to congeal. The idea of all humanity as possessing a common nature or potential that set people apart from other orders of life was secured. Moreover, the reason/nature dualism came progressively to imply a hierarchy that pitted nature both against and *beneath* human who was henceforth

³ Erased in the rise to dominance of this Linnean (scientific) model of plant and animal classification were distinctive regional systems of plants' names. See Thomas (1983).

⁴ Perhaps there are legacies of this thinking in the inclusion of certain marginalized humans, such as pygmies, at some nineteenth-century zoos such as the Bronx Zoo.

justified in treating nature as object, as background to – and instrument of – human purposes.

What is interesting, in terms of this paper, is the imaginative act that assimilated those thinking, sentient, intentional and animate creatures called ‘animals’ into the black-box category of ‘nature’. From the seventeenth century, when Descartes overlaid the ancient dualism of reason/nature with the distinction of mind and body – one which privileged the former (as the embodiment of reason and intellect) over the latter (the locus of sensation and passion) – the conceptual ground was further cleared to differentiate ‘human’ nature from ‘animal’ nature. While both humans and animals were believed to be capable of physical sensation, Descartes deduced that, since animals lack reasoning capacity, their sensations are merely ‘bodily’ (physical/mechanical) ones of which they can’t be ‘aware’ or ‘conscious’. Henceforth, the conceptual boundaries between ‘animal’ and ‘human’ were drawn increasingly chauvinistically within the larger Cartesian framework of western dualistic thought. In a boundary-marking exercise of ‘hyperseparation’ (Plumwood 1993), animals were not only opposed to humans, they were consigned to the already inferiorized and homogenized sphere of ‘dead’ (unconscious) nature – that residual realm inhabited by such diverse things as plants, soils, stones, the elements and the land.

The collapse of ‘animal’ into ‘nature’ repays further scrutiny in the light of feminist and post-colonial critiques of western science and philosophy. Some feminist writers have persuasively correlated Cartesian thought with the interconnected projects of environmental, species, racial and gender oppression, the interrogation of which clears a way of problematizing not just the categories of ‘nature’ and ‘animal’ but, more radically, of ‘human’. According to Plumwood (1993, 5), these projects of oppression privileged ‘not a masculine identity pure and simple’ but a ‘complex dominator identity’ – a ‘master subject’ – ‘formed in contexts of multiple oppressions’. Plumwood argues that a master subjectivity was built into western science and philosophy out of a web of exclusions based on dualistic thinking and a privileging of rationality that, over time, came to colonize the very conception of the human self and western culture. The normative ‘human’ identity became constructed out of the capacity for reason (versus, for example, emotion, imagination, sensation). In time, with the rise of weapons and other technology, as well scientific enterprises, teleological conceptions of the rational human afforded it the justification to order and control other spheres of life. These included the feminine (equated with the body, the irrational and nature), the racialized slave, the animal and the environment in general. In contexts of power-differentiated relations, the rational (male) subject’s perspective began to be set up as universal, as the generic ‘human’ gaze around which all else turned. Indeed, it set *itself* up as neutral, objective, panoramic and all-knowing – as history’s master subjectivity – when in reality it was a ‘partial perspective’ that relied on various strategies of denial, exclusion, spatial separation and stereotyping of women, racialized peoples, non-human animals and ‘nature’ more generally⁵.

The arguments concerning the master subject’s gaze need to be carefully specified for particular settings and for distinctive manifestations (as is attempted in the case study that follows). In the example of the zoo, it seems reasonable to argue that it is a most transparent institutional exploitation of the hierarchizing, rationalist oppositions of

⁵ Haraway (1988); Harding (1993); Lloyd (1984); in geography, see Blunt and Rose (1994).

(white) masculine that is unseen, that is *not* the spectacle but rather the privileged eye (I), the bearer of reason, the author, the knower.

At a more popular 'exhibitionary complex', that of the nineteenth- and twentieth-century zoo, the public was provided *en masse* with a forum to know rather than be known (see also Bennett 1988). They could become subjects of knowledge (with animals as objects) and experience indirectly, off-exhibit, what it was and is to be 'human', to be 'self' as opposed to something 'other'. As this paper seeks to demonstrate, the visual experience of the zoo has been complexly crafted. Through it, the public has been initiated into a way of seeing that – in manifestly variable ways over time – parades humans' capacity for order and command. These are the rationalist principles of a 'Cartesian perspectivalism' (Jay 1992), out of which, it is argued, a master subjectivity was constructed at particular sites in western societies.

That this 'way of seeing' enshrined distinctive western 'ways of being' in relation to nature, is surely also the case. Indeed, it is interesting to reflect upon the long history of the domestication of plants and animals in European (and other) civilizations which had seen landscapes cleared for agricultural complexes and other human uses since prehistoric times (in geography, see Isaac 1970). In the context of this paper, the theme can usefully be pressed further. For just as landscapes were progressively shaped and moulded with the elaboration of European colonialism and capitalism, so too were women's roles and statuses adapted ('domesticated') to the requirements of white, male-centred projects⁶. If there was a place for nature in a western rationalist universe, so too was there a place for women, not only in the (literally) domestic sphere but more generally as instruments and servicers of (higher) male purposes. Domestication, conceived in the expanded sense, of the taming and converting of that which is different ('wild') for pragmatic human ends, can thus be understood as a form of conceptual and instrumental power alongside more extensively studied forms of disciplinary and coercive power. This paper is only suggestive in opening up the vast and, as yet, largely unexamined topic of the historical interconnections between the domestication of nature and women. But it offers glimpses – from a site where nature was converted into a supremely domesticated object – of a mode of control that surely filtered to other inferiorized categories, including those defined around sexual difference.

If zoos grew out of, and carried forward, a rationalist perspectivalism and practice in relation to 279 the animal universe, they also bear witness to contest and acts of resistance on the part of both women *and* men. The hints of dissent to the practice of animal captivity, evident in the history of Adelaide Zoo, attest, for example, to the deeply ambiguous impulses in the human relation with animals in western societies. It follows that the cultural history of that zoo is more complex than a chronicling of recurrent, rationalist frames of viewing. The inconsistent variety of human responses to animals at the zoo that I noted earlier – excitement, fear, wonder, distaste, guilt, nostalgia – reflect precisely the fragility of the cultural hold of reason as the master source of 'human' identity in western societies. Indeed, the tensions in part explain the adaptations in zoo philosophy and design that are charted in this paper. The zoo

⁶ I am grateful to John Agnew for highlighting this connection. See also Warner's (1994) chapter called 'Monstrous mothers' regarding the idea of female, untamed nature whose ungoverned energy must be leashed.

thus provides us with an arena to investigate the ways ‘humans’ have not only defined but also struggled with their complex relationship to nature⁷.

The argument concerning the mutual construction of culture and nature at the zoo has a further component. For if zoos hold up mirrors to cultural practices towards nature in general and animals in particular, it is also the case that zoos are urban institutions. Not only did the zoo bring nature into western popular culture, it also imported it to the city. This seems particularly significant, historically and conceptually. For if, from the late nineteenth century, cities came to be read as monuments to peoples’ capacity for progress and order, then it follows that zoos – where nature was introduced to the metropolis and converted into domesticated spectacle – represented the ultimate triumph of modern man (*sic*) over nature, of city over country, of reason over nature’s apparent wildness and chaos. That this process was accompanied by nostalgia for lost natures (Williams 1973) and for the animals who were progressively removed from everyday life (Berger 1980), is evident in the ambivalent human responses to nature that persist to this day. Zoos tell us something, then, not only about the making of western popular culture but also the complex construction of metropolitan cultures and identities – of what it was, and is, to be a city-dweller.

Nature’s otherness: methodological issues of the general and the particular

It was during a sabbatical in London – where, against the backdrop of the financial district’s buildings, I watched the necks of giraffes rising high above the walls of Regent’s Park Zoo – that I first grew curious about zoos. *En route* to the tube station each day I encountered a range of groups waving placards whose slogans told of an unfolding cultural contest. First, there were the animal rights activists, intent on rendering the zoo an endangered species itself. On hand also were sympathizers moved to ‘defend this romantic park at the heart of urbanised, domesticated life’ (*Daily Telegraph* 13 June 1991). Thirdly, the London Zoo director himself spoke out in defence of the zoo, highlighting its role in what he called ‘the breeding and conserving of endangered species’. The London experience prompted my first critical reflections about zoos but it was only a methodological start, as the following comments attempt to elaborate.

Returning to Australia, I decided to venture to the zoo in Adelaide, the capital city of South Australia, where I read the annual reports of the Royal Zoological Society of South Australia (RZSSA) from its inception in 1878 (as the South Australian Acclimatisation Society) through to the present. My interest in the Adelaide example lay less in conducting a semiotic or textual analysis that might decode – as a deconstructive exercise – the representational strategies implemented at the zoo. Nor was my primary purpose to read the symbol-ism or iconography of the (zoo’s) landscape for what it might say about human attitudes to animals. Rather, my objective was to write an account of that particular institution’s historical emergence and cultural transformation in the light of the perspective I outlined above. As in my earlier work on Chinatown (Anderson 1991), I sought to elaborate a generalizable conceptualization of a place while simultaneously situating the example in its own

⁷ The ambivalences and complications in the human relationship with plants and animals are highlighted in the richly detailed study by Goody (1993) of different cultural practices surrounding flowers in western and non-western societies.

historical context. In both cases, that of Chinatown and the zoo, the approach proved fertile in two senses.

First, *Vancouver's Chinatown* tells a story about place definition that speaks to the experience of other racially defined places in other contexts. One of its contributions is to develop a conceptualization of Chinatown as a material and ideological construct of Orientalist imagining and practice. But for all its signalling toward more global processes of cultural domination and more general conceptual issues concerning the relationship between the 'real' and the 'representational', it is a work insistently grounded in the specificity of the Vancouver context. Its narrative device is no universalized western mindset and praxis, no invariant racial ontology, no abstract model of 'us' and 'them'.

Likewise, the following analysis of the Adelaide Zoo speaks to general themes concerning nature's social construction and othering, its externalization and commodification. And it is surely the case that Adelaide Zoo, like other Australian zoos, has adopted trends in zoo philosophy, exhibiting and design established elsewhere in the western world. But this does not render the Adelaide case incidental to the analysis. If the zoo is a 'space', Adelaide Zoo is a 'place' which tells us about its own framing contexts of colonialism and post-colonialism, to which must be added an imperial network of animal trading, the confluence of late nineteenth-century ideas surrounding race, gender and empire, the growth of extractive and consumer capitalism over the twentieth century, the role of science/ knowledge in everyday life and the spectacle, changing animal import and quarantine policies, and shifting planning and design languages in society at large. Such were some of the contexts out of which were created general zoo forms in British settler societies, having specific manifestations in Australia and the state of South Australia. By examining a particular zoo, then, I shift the analytical focus from the discursive construction of animals' otherness to the material production (and form) of human-animal relations at a specific site.

Secondly, a historical sensitivity affords the possibility of charting the mutability of cultural imaginings and practices over time. Not only have othering strategies toward racialized peoples and natures taken manifestly variable forms across the western (and non-western) world, they have also assumed changing and contradictory expressions over time. These shifts again reveal the zoo's insistently human and cultural foundation.

In the study that follows, I chart and contextualize the mutable technologies for fashioning a specific ('human') experience of nature at the Adelaide Zoo. This mutation extends from the period (1878-1930) of menagerie-style caging, through the Great Depression and Second World War when the zoo became a Fairground, to the postwar period when the zoo was 'modernized', thenceforth to the present when a form of ecological theatre in the fanciful World of Primates continues to craft the means for the popular experience of nature in South Australia.

Building a 'collection' at the Adelaide Zoo: 1878-1930

In the mid-nineteenth century, zoological garden construction expanded rapidly in many 'New World' societies, including Australia. Prominent citizens in the colonies

of New South Wales, Victoria, Tasmania and South Australia felt moved by civic pride and political pressure to establish zoos in the nascent capital cities. Adding a zoo – as well as a museum, library and art gallery – appears to have been part of the process of converting an impersonal array of buildings and houses into a ‘city’, of affording a sense of permanence, wealth and metropolitan identity that mapped places locally and regionally.

In South Australia, the impulse to add a zoo to the new city of Adelaide led to the formation in July 1878 of the Acclimatisation Society of South Australia (SAAS). Its officers included the Governor of South Australia, Sir W F Jervois, as Patron, the Chief Justice, Samuel Way, as President, four Vice- Presidents and a committee of twenty, all eminent local men. The society was a colonial offshoot of its parent in England, itself having a counterpart in the Société Zoologique d’Acclimatation of France (see Osborne 1994; Ritvo 1987). The South Australian society engaged in various activities but primary among its objectives was to ‘introduce, acclimatise, domesticate and liberate select animal, insect, and bird species from England’ (SAAS 1st Annual Report 1878, 3) that would transform the colony in the home country’s image and diversify the economic base of South Australian agriculture. Adapting the colony’s alien landscape became the moral (and masculinized) responsibility of the likes of Chief Justice Way who, in 1881, reported with pride

the work ... of introducing the songsters and insect-destroying birds of the mother country, so well known to many members in their younger days, with the hope that they may be permanently established here, and impart to our somewhat unmelodious hills the music and harmony of English country life. (SAAS 3rd Annual Report 1881, 6).

The quest to overcome (domesticate) the ‘wild’ nature of South Australia’s landscapes relied on the cultural presumption of ‘human’ priority over nature, while more specifically facilitating British ascendancy in this colony.

Within a year, and following the examples set by the colonies of New South Wales, Victoria and Tasmania, the RZSSA decided to extend its activities by building a zoo. A tract of land next to the centrally located Botanic Gardens was granted by the state parliament after some dispute about the aesthetic wisdom of juxtaposing botanical concerns and animals, and an aborted attempt to situate the zoo next to Adelaide’s lunatic asylum⁸. By 1883, construction was underway to erect a place ‘of recreation and education for the public where they may be familiar with the living specimens of natural history’ (SAAS 3rd Annual Report 1881, 5). This would be Adelaide’s ‘Pleasure Garden’, in the words of society president Sir Thomas Elder in 1883. Its buildings soon included a keeper’s lodge, a ladies’ waiting room, separate ‘paddocks’ for ostrich, llama, brahman cattle and emu, a ‘most commodious’ carnivora house, ‘sheds’ for baboons, monkeys, wombats and parrots, various aviaries, a bearpit ‘that will enable visitors to witness to great advantage the antics of the Java sun bear’ and a ‘house’ for ‘Miss Siam’, the elephant who in 1883 was donated ‘so graciously’ by President Elder. Miss Siam was the first animal to be named at the zoo, beginning a

⁸ In his paper on the history of museums and exhibitions, Bennett (1988) argues that the institutional mechanisms of ‘confinement’ (emphasized by Foucault (1979) in his study of prisons) were complemented in the nineteenth century by those of ‘exhibition’. This makes all the more noteworthy the consideration given by the RZSSA to juxtaposing the asylum and the zoo.

tradition at Adelaide (and widely used in other zoos) of bestowing titles on animals who were either trainable or charismatic in the eyes of human audiences (Mullan and Marvin 1987).

In preparation for the jubilee of the colony of South Australia, zoo director Ronald Minchin travelled to Europe to seek to enlarge the number of exhibits at the Adelaide Zoo. By 1887, it was noted with pride that ‘the collection of animals exceeds by some hundreds that of any similar institution in the southern hemisphere’ (RZSSA 9th Annual Report 1887, 6). The quantity of exhibits was foremost in the minds of zoo officials who specified ‘additions to stock’ as a badge of honour in each year’s annual report well into the twentieth century. The more stock, the more striking the image of acquisition and possession, and the more ‘exotic’ so much the better, since it was peculiarity that was believed to afford the greatest recreational and educational advantage⁹.

Or so the conventions of colonial imaginations had it. These expectations appear to have made compulsory the display of staple creatures such as elephants, lions, cobra snakes, rhinoceroses, zebras and bears inside ‘New World’ menageries like Adelaide’s. These exhibits served as emblems of colonial mastery over the animal world, the former becoming more impressive, it seems, the more exotic the subdued creature. Some of the exhibits, including Miss Siam, the hippopotamus and the polar bears, were even given special houses to reflect their elite status in the zoo universe. Indeed, so prestigious was Miss Siam that her house was exclusively ‘furnished’ with what was described as a ‘spacious bath’. The ornamentation of her fanciful ‘Indian-style temple’, as well as the Japanese arch-way constructed in 1892 and the ‘Egyptian’ hippopotamus house added in 1901, went further, to inscribe prevailing stereotypes of racialized difference. The elephant house, in particular, met cultural expectations about the distant lands and peoples over which imperial influence was extending. This included India, the as yet untamed home of Europe’s generic Jumbo. Moreover, it seems significant to note that Miss Siam (and her descendants) were female. Her accommodation was ‘decorated’ and, as we shall see, she became the mother figure for children at the zoo. Thus it can be said that within the space of the Adelaide Zoo, othered people were brought closer to nature, so legitimizing not only colonial domination but also a deeper (racialized and gendered) conception of ‘human’ identity and status.

The core, exotic creatures were also the most valuable in the animal economy that supported this colonial institution. By the late nineteenth century, Adelaide Zoo was incorporated into a well-coordinated imperial network of animal trading, itself an arm of the regime of extractive capitalism that was beginning to straddle the globe. The RZSSA paid a ‘handsome fee’ to a South African firm in 1895 for two zebras (in the hope that it would be possible to acclimatize them at the zoo and ultimately release them to the Adelaide Hills for ‘draught purposes’). The governor was called on to use his colonial influence in 1896 to help Adelaide Zoo acquire a hippopotamus and, by 1901, the local newspaper announced this ‘expensive novelty ... costing 800 pounds will soon pay for itself in gate receipts (*Advertiser*, 3 August 1901). (‘Hippo’s’

⁹ See the chapter about the *National Geographic* magazine by Rothenburg (1994) concerning the confluence of ideas surrounding the exotic, the erotic, race and gender in the appropriation of resources under imperialism.

sudden death the following year became a boon for the South Australian Museum which acquired the skins of dead or destroyed zoo animals for its own displays¹⁰). Several other valuable animals were purchased from the local circus operators. Wirth Brothers, who were themselves engaged in purchasing and poaching animals from colonial traders and naturalists abroad. There was also a system of exchange between zoos, with Adelaide looking to negotiate a 'reasonable' price for a giraffe from the Victorian Zoological Society and to sell its 'surplus zoo-born assets' early in the new century.

Still other animals came from public donations. The most coveted were the wild boar and peafowl given by the king of England and the bull eland and Przewalski horse granted by the Duke of Bedford in exchange for Australian fauna to display at his Woburn estate (later to become England's earliest safari park). His Excellency the Governor reminded the members of the RZSSA of their colonial debts in 1909 when he told the annual meeting that 'it is a great compliment to the Society that his Grace [the Duke] takes such an interest' (RZSSA 31st Annual Report 1909, 31). Australian fauna and birds were certainly popular with zoos and traders abroad. Many annual reports boasted sales or exchanges that were a profit to the society. Despite the zoo president's observation in 1916 that 'foreign animals are well represented at the Gardens, but there are insufficient local fauna' (RZSSA 38th Annual Report 1916, 10), the overwhelming focus of the collection was on 'difference', 'peculiarity', 'strangeness' and that which was 'far way'. One of the appeals of the zoo, it seems, was to provide a vicarious journey abroad. Like other vehicles of mass communications, including the *National Geographic* magazine and nature programmes later on in the century (see Wilson 1992), the zoo afforded a local experience of global nature.

Not only did the RZSSA seek in its animal-composition practices to cater to colonial imaginations, it also sought to fulfil the desires of an urban audience. The selectivity of animals at the Adelaide Zoo was in part a function, therefore, of their variable capacity to titillate metropolitan expectations. Familiar animals like sheep, goats, rabbits, donkeys and ponies, for example – not to mention the thoroughly domesticated companion animals of dogs and cats – had no place at the zoo, except much later on in the Children's Zoo (1965) which sought to bring the 'farm' to the Adelaide child. By contrast, animals were well-qualified for display if they could be made to communicate images of the so-called 'wild'. This (wildly) unspecified term seems to have been used, out of fear and nostalgia, to refer to the jungles, mountains, savannas, swamps and polar reaches so wondrously removed from human habitation¹¹. Moreover, in this colonial context, the more wild and savage the animal, the greater the triumph of domestication and the more glorious the emblem of both colonial and 'human' control.

¹⁰ Apparently there were other uses for dead zoo animals. Members of societies such as London's Royal Zoological Society were treated at their functions to the remains of whatever had died in the gardens! (see Stoddard 1986, 22).

¹¹ These classificatory codings also crept into the tradition of world regional geography that was itself yoked to British expansionism in the nineteenth and twentieth centuries (see Livingstone 1992). The notion of 'wild' (as distinct from 'civilized', i.e. domesticated) environments coursed its way through geography's own mappings.

Consideration was also given by the society in its animal-recruitment practices to the 'educational' potential of its exhibits. Officers of the RSZZA were ever alert to their educational role in the South Australian community and, from the time the zoo opened, the society was never comfortable with the suggestion that the zoo had a solely recreational function. Again, it was the more exotic and (apparently) geographically distant animals who were thought to hold out the strongest educational promise. After all, education inhered in nothing more specific than the act of observation, it was believed, and it was the exotic animals who arrested audience attention. In the words of one news report:

Just by looking, visitors get an object lesson in natural history, animal behaviour and world geography. An inspection of the denizens of the rows of cages and houses will give the enquiring visitor a clear understanding of many of the specimens of the lower order of life. (*Advertiser*, 28 July 1909).

Certainly, the members of the South Australian parliament needed little convincing of the zoo's educational function and routinely supported the society's activities with an annual grant.

A range of considerations, then, affected decisions about animal composition at the Adelaide Zoo in its early decades. Officers of the RZSSA – the citizens who enjoyed the power to represent the zoological world to the Adelaide public – drew upon master norms of nature's 'difference' to order nature in their image. The officers did not include women, though clearly women were interested in the zoo's operation. In 1887, the governor told the annual meeting of the society that he

was greatly pleased to see so many ladies present ... [and] hoped on a future occasion that ladies would take part in the proceedings. (RZSSA 9th Annual Report 1887, 7).

(This did not transpire until much later in the century.) The officers seemed to have perceived the zoo as a space through which to confer not only colonial control but also 'human' structure on the chaos of nature. Here they drew upon prevailing rationalist conceptions of human identity through which they forged their own moral sense of themselves as white/masculine and *ipso facto* authoritative. The zoo grounds were their mandate. The 'collection' was their charge. They were chief crafters of a way of seeing and master authors of the public landscape. In turn, the men presided over a range of male and female staff who were employed to feed and tend the animals, build and repair enclosures, install heat and light systems, maintain the drainage, fencing and effluent-disposal systems, plant and irrigate the grounds, lay out the paths in an orderly way (in contrast to the 'wild') and, more generally, create an illusion which seemed natural only in contrast to the surrounding environs of the city of Adelaide.

Just as there were cultural norms governing the composition of animals at the Adelaide Zoo, so were there prevailing conventions for displaying the stock. The exhibition philosophy at the Adelaide Zoo also reflected mutable scientific understandings of the animal universe. Thus when the zoo opened in 1883, the exhibits were set out in conformity with prevailing classifications based on visible characteristics – reptiles, birds, mammals and fish – and each exhibit was made to stand as a taxonomic speci'men' of a broader category. (The animals were not, for

example, organized in terms of their social patterns or cultural life.) Consistent with those classification systems, there appeared to exist the presumption that the animal could be known in the form the zoo sought to display it – as body. Thus was inscribed and preserved the deeper mind/ body, human/animal dualisms of Cartesian thought that privileged the ‘human’ capacity for reason¹².

Exhibit labels, complete with maps of the global distributions of specimens, served to translate scientific thought into a form amenable for popular consumption and instruction at the zoo. The exhibits showed nature not only confined and subdued but also interpreted and classified. To that end, the zoo space occupied that critical nexus in the traffic of ideas between scientific and popular. Such maps also tended to imply that there was some fixed provenance of the exhibits in nature, when, as we have seen, it was other zoos that in reality supplied a large part of the stock. A year after the labels were added, for example, the Annual Report noted the

stock of animals and birds has been increased greatly by purchases from the Zoological Gardens in Sydney, Melbourne, Auckland, Hamburg, Rotterdam and Toronto. (RZSSA 53rd Annual Report 1931, 3).

A rationalist image of discrete types was also communicated through the construction of cellular confinements – separate enclosures and partitioned paddocks in front of which visitors would pass as in a museum or prison (see Fig. I; also Berger 1980). While certain celebrities of the zoo community were given distinctive ‘homes’, the accommodation of the zoo’s rank-and-file members consisted mainly of concrete pits and iron cages. Not only did variable ‘housing’ serve to order class distinctions among zoo inhabitants (to which the audience might relate), the bars and cages encoded a bold sense of separation between the penultimate categories of keeper and kept. Indeed, the cages had the multiple functions of maximizing the thrill of proximity to, gaze over and security from the exhibits they restrained. An editorial in the *Register* newspaper in November 1892 observed that a

Desirable mix of fascination and repulsion is afforded the human being who can look on brute creatures from the right side of the cage.

The abiding purpose of all the enclosures was to display ‘to the greatest advantage the carriage, curiosities, and habits of their inmates’ (RZSSA 33rd Annual Report 1911, 4). For example, the carnivora house (in which lived seven lions and two tigers) was lined with white tiles in 1896 to ‘furnish an excellent background for visitors, including natural history students and artists’ (RZSSA 18th Annual Report 1896, 8). The enclosure of the black bear was similarly fitted with tiles in 1914. The cages were stark and unfurnished for the most part, although in 1894 director A Minchin noted that, in a ‘unique performance’, the boa constrictor had ‘swallowed and disgorged its blanket ... los[ing] twelve of its teeth’ (RZSSA 16th Annual Report 1894, 4).

The comfort of animals was not entirely without consideration during this period – as witnessed by the lengthy discussions in the annual reports between 1912 and 1918 about the cramped conditions of the stock. The susceptibility of the monkeys and birds to ‘the cold’ was also often noted until their timber structures were replaced by

¹² I am grateful to Val Plumwood (1993) for this point.

brick buildings in the late 1920s. So too was the RZSSA sensitive, during the early decades of the zoo's operation, to periodic criticisms on the part of Adelaide men and women about practices of animal cruelty at the zoo¹³. The society's concerns for animal welfare, however, appear to have stemmed largely from anxieties about the mortality of the stock. Annual deaths were reviewed in each report; some, such as 'Hippo's' in 1929, being considered 'very serious'. As for the problem of congestion, no consideration was ever given to reducing the number of exhibits as a solution, until much later in the century. While most of the zoo enclosures dramatized the distance between keeper and kept, there were so-called 'charismatic' exhibits, such as Miss Siam who offered immediate encounters with nature for children who took rides on her back. Images and experiences of both distance from and proximity to animals, were thus available at the Adelaide Zoo. Animals, such as the elephant, which could be so tamed as to be playthings for children, appear to have acquired a distinctive, feminized status in the eyes of the public. By 1885, Miss Siam was carrying 'thousands of children on her back' and 'generally proving an immense attraction', having 'so improved in docility as well as size' (RZSSA 7th Annual Report, 1885, 6). When she contracted an ulcer in 1894, there was talk not of healing but of replacing her. The fate of Miss Siam seems to have been that of being 're-invested with agency and purpose only after being brought captive ... within the master's sphere of ends' (Plumwood 1993, 192).

More generally, the period to 1930 marked the historical stage in nature's colonization at the Adelaide Zoo where, through an elaborate cultural process, certain leading characters of the animal universe had been gathered, annexed and re-presented to the Adelaide public as for a set of postage stamps. So crafted was a complex figuration of the colonial enterprise that did itself draw on a deeper social project of 'human' domination. The artifice of distance between 'human' and 'non-human' (animal), and animal and animal was dramatized in a gallery of images through which the zoological universe was rationally ordered and delivered to the South Australian public. The dominant culture's capacity for domesticating nature had been gloriously sublimated in the social creation that was the Adelaide Zoo.

The zoo circus: building a Fairground, 1930-1963

At the annual meeting of the RZSSA in 1931, it was noted that

nobody can walk around the Gardens without being impressed by the fact that the animals and birds are comfortably housed, and in better circumstances than those in which they find themselves in their natural habitat. (RZSSA 53rd Annual Report 1931, 1).

Whatever confidence the society possessed in its efforts to ensure the stock's comfort in the years to 1930 appears to have faded come the Great Depression, when adverse economic conditions were experienced by all Australian zoos. The government grant to the RZSSA was drastically cut and only the 'most urgent' works were carried out. Matters grew 'especially serious' in 1934 when Mary Ann, Miss Siam's replacement, died. There were no surplus funds to buy another elephant, yet

¹³ See, for example, the editorials in the Adelaide newspapers concerning the dubious ethics of keeping animals (*Register* 31 January 1896; *Advertiser* 13 May 1910).

it was considered imperative to obtain one without delay, as its great popularity and money-earning powers make it a most necessary exhibit. (RZSSA 56th Annual Report 1934, 9).

Lilian arrived from Singapore Zoo later in the year to take up work drawing a passenger trolley (until she was large enough to carry children on her back). Many other instances of planning and management reveal the complex cultural entity that was Adelaide Zoo during the 1930s and 1940s. The society went to great lengths to replace the hippopotamus which died in 1929 when it choked on a rubber ball thrown into its cage by a visitor. Purchase in this case was assisted by The News newspaper which, from the 1930s, was more generally involved in promoting the zoo's activities. In the local press, the Adelaide Zoo had acquired an authoritative publicity agent. The city's two daily newspapers fastened upon the zoo's entertainment potential and helped fashion an evolving definition of the zoo as an amusement park. The use of newspaper photographs was especially effective in shaping the showcase image and many a front page from the 1930s featured the latest 'important additions' to stock, including Michael and Mary Chimp in 1935. In turn, the society was often moved gratefully to acknowledge the 'press and broadcasting stations who have done much to promote the zoo, thereby assisting its finances' (RZSSA 70th Annual Report 1948, 3).

In conjunction with the activities of the press, the council of the RZSSA developed its own strategies to popularize the zoo. During the period of the Great Depression and beyond to the Second World War – when bird and animal imports and exchanges were prohibited and 'more common, Australian animals added' (RZSSA 62nd Annual Report 1940, 9) – efforts were made to emphasize the zoo's function as a spectacle. The earlier recreational function of the zoo became transformed into a more specific amusement and entertainment concept. Maximum display value was on the lips of society members as they sought to boost the zoo's coffers with a range of initiatives.

In 1935, it was decided to introduce 'public feeding time', including on Sundays. The eating habits of the carnivora could be featured 'for the amusement of the public', so commencing a spectacle that afforded a titillating juxtaposition of savagery and captivity and a reassuring image of human control. Later in the year it was noted that visitors 'evinced much interest in the proceedings' at the feeding events of lions and penguins (RZSSA 57th Annual Report 1935, 6). In the same year, a monkey yard was donated by director A Minchin, complete with 50 rhesus monkeys and 'various gymnastic appliances'. The 'amusement value' of primates drew increasing notice in the annual reports and, in 1938, it was decided orang-outangs would make a 'profitable investment' (RZSSA 60th Annual Report 1938, 8). Gibbons were introduced to the zoo in 1943 and, ten years later, it was noted that

when they are in the mood to indulge their amazingly agile acrobatics, their cage is one of the most popular attractions in the zoo. (RZSSA 76th Annual Report 1953-4, 3).

With their athletic ability, the primates seem to have been regarded as closer to man (literally); their performance perhaps titillating audience confusions about the human/animal boundary (see Haraway 1989).

Another initiative was to mark Lilian's 'growing popularity'. In 1939, the year admission charges were increased for the first time since the zoo's opening, 1500 pieces of cake were distributed to visitors on the occasion of her (much publicized) ninth birthday. It was also decided to take her on annual walks through Adelaide's central business district to the East End market where she was weighed and photographed. The practice was continued for seven years to 1942, when Lilian began to show 'signs of nervousness at the prospect of leaving the zoo grounds' (RZSSA 64th Annual Report 1942, 4). Not discontinued, however, were her rides through the zoo grounds, despite the fact that in 1946 it was reported she had developed blisters on the soles of her feet.

Other 'attractions' were added to the zoo grounds in this period that reveal the sense in which the zoo was a site through which human mastery over the animal kingdom could be witnessed and experienced. Notable was the introduction in 1939 of a circus 'for the amusement of children' (RZSSA 61st Annual Report 1939, 11). A trainer was employed, chimpanzees were trained to hold tea parties and, when the circus commenced 'shows', members of the society observed that 'the animals enjoy the performance as do the many adult spectators who usually outnumber the children' (RZSSA 61st Annual Report 1939, 13). When, in 1942, the circus attracted criticism from some visitors for 'possible cruel treatment to performing animals', it was stopped, reminding us of the ambiguity of human responses that are prompted in people by their own separation from nature, as well as the fragility of rationally based power relations between people and animals. In this case, a minor amendment transpired. The circus was substituted with a bicycle-riding act by Mias the orang-outang (see Fig. 2). According to the zoo director, there could be

no suggestion of cruelty in getting the orang-outang to perform as he is very tractable with no vice and appears to enjoy his performance. (RZSSA Minutes of Council, 23 November 1942).

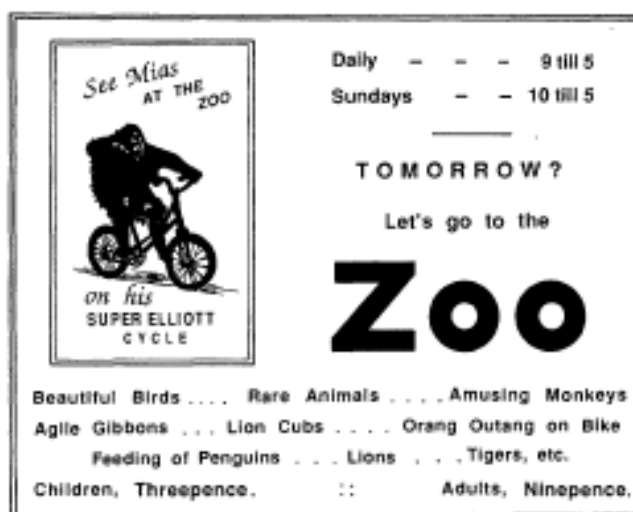


Figure 2. Advertisement for the Adelaide Zoo (Source: *Advertiser* 5 May 1948).

The importance of product presentation in this era, during which mass capitalism and mass culture were being elaborated in South Australia, began to register with society officers from the late 1930s. Many enclosures were fitted with ornamental fixtures (such as rock pools) to improve their appearance and, in general, the society

developed a view ‘that the manner of exhibition is as important as the exhibit itself’ (RZSSA 60th Annual Report 1938, 7). Display methods were discussed at length in many of the annual reports between 1930 and the Second World War, again revealing the sense in which the zoo was a realm conceived by human imagination for human consumption. The interest of the society in the animals’ welfare seems to have eroded almost entirely, no less after the appointment in 1936 of a pathologist – Mr G McLennan – to treat disease among the animals. Mr McLennan believed the zoo’s purpose to be entirely utilitarian: to

use beasts and birds not only to view, but ... for dissections that thereby we may take light what may be wrought upon the body of man. (RZSSA 58th Annual Report 1936, 5).

The use of zoo animals for experiments again suggests the debt of the institution to scientific languages and agendas.

By 1947, when animal quarantine regulations were beginning to seriously constrain the society’s ability to import ‘attractive animals’, the attention of the RZSSA turned to breeding programmes at the zoo. Inducing animals to breed in captivity seems to have been another part of the process of domesticating that which was ‘wild’. At the first annual gathering of Australian zoo directors in 1944, it was decided to list the nation’s zoo stock so that temporary exchanges for breeding purposes could be coordinated. A female tiger was loaned to Adelaide Zoo from Bullen Brothers’ circus in 1957 for precisely that purpose but, as transpired in the case of Sally the polar bear, the mother did not show any interest in her cubs and they died. (Such efforts at reproducing what were called ‘rare species’ prefigured the more orchestrated breeding programmes of ‘endangered species’ during the 1990s.) A number of attempts were made to induce Sally to breed, using increasing ‘natural conditions and diet’ (RZSSA 80th Annual Report 1957-8, 7) but none were successful. The failures were read (probably correctly) as a measure of the stress suffered by the animals concerned.

Perhaps it is the slogan that was used as a postmark on South Australia’s mail during the years 1961-3 – ‘Visit the Zoo: Laugh and Learn’ – that captures the blunt turn to commodification adopted by the RZSSA during the period from the mid- 1930s to the early 1960s. The phase was marked by a foregrounding of the entertainment value of animals who were drawn into the vortex of mass capitalism’s cultural and economic expansion in the state of South Australia. As the zoo entered the arena of capitalist competition for the recreation dollar, so did it draw more transparently on hierarchical oppositions of human and animal in its appeal strategies. Having crafted a model of nature’s domestication earlier in the century, the RZSSA saw fit in this period to appropriate its animals for wholly rationalist-instrumentalist purposes. By the early 1960s, when the animals’ living conditions were in a state of serious neglect and attendance figures peaked, Adelaide Zoo bore supreme witness to the master disciplinary practices that were progressively alienating ‘humans’ from nature.

Taking ‘stock’: modernizing the Adelaide Zoo, 1963-1982

There followed an energetic phase in the history of Adelaide Zoo of what might be called ‘taking stock’ – a period lasting to approximately 1980 during which evolved a critique of the zoo. A government inquiry in 1963 into the operations of the RZSSA

criticized the society for its inadequate animal record-keeping practices and general lack of 'planning'. In a context of the rise of modernist planning in cities more generally (Relph 1987), the inquiry recommended that the society 'update' the zoo's 'housing', much of which was described as 'old'. There was also the suggestion that the zoo's research and education activities be expanded. Henceforth, the Adelaide Zoo became a site through which the RZSSA sought to adapt stark images of human mastery over nature. The rationalist impulses sustaining animal confinement at the zoo persisted, as did the primacy of human interests in representing species but the depictions of the human/animal relationship would assuredly be revised. The shift was not neat, however, with legacies of the past always intruding into the present. In 1966, for example, a 'zoo fair' was opened that, while not involving animals, reflected a mindset more consistent with earlier eras.

In response to the inquiry, the focus of the RZSSA turned to 'making the Gardens attractive, renovating buildings, and generally giving the zoo a face-lift' (RZSSA 87th Annual Report, 1964-5, 6). A new director was appointed, a consultant architect employed to transform what was described as the zoo's Victoriana appearance and some major capital works projects undertaken. This included the erection in 1965 of a Children's Zoo in the south-west corner of the grounds. The effect of the children's corner, it was later said, was to transform

a rather dilapidated corner into one of the Garden's most popular areas in which visitors mingle freely and on the most friendly terms with young animals under the supervision of their girl-keeper. (RZSSA 88th Annual Report 1965-6, 11).

Interestingly, the culturally prevalent image of women as nurturers had found a place in the zoo, in the children's section, where women were placed in charge of cows, goats, rabbits, ducks and sheep – the most domesticated of the zoo's animals. Just as animals had their place in the zoo, so too, in a master representation of society's pecking order, had some 'humans'. This was in the romanticized 'patting zoo' (where children grew acquainted with species that were, in effect, agents of degradation of South Australian landscapes).

Another significant capital-works project under-taken in this period was the erection of an 'Australiana exhibit'. In the contexts of increasing levels of urbanization and nationalism in Australia, references to 'our own creatures' began to multiply in the RZSSA reports. Up until that time, there had been more interest in exporting Australian fauna to zoos abroad than displaying them at home. For one thing, they were considered insufficiently 'exotic' (although native species had always featured at the zoo and the successful breeding of Australian parakeets was noted as early as 1931). But in 1972, a prominent 'open plan' exhibit was planted with native vegetation and, by 1974, it was stocked with kangaroos, koalas, wallabies and other native species whose status in the zoo community had risen. The strategic use of native vegetation also suggests the sense in which human control over the plant (as well as animal) universe was iconically enshrined in the space of this zoo.

Much effort was devoted in this period to 'modernizing' enclosures. A decision was taken to upgrade the wombat exhibit, by which was meant 'having virtually all the wire mesh removed to convert it to an open display' (RZSSA 93rd Annual Report 1970-1, 12). Such remodelling of the zoo's exhibits was in part enabled by the

introduction of drugs for use on the zoo's population in the 1960s (Watts 1974). Prior to this development, the cement enclosures had been lime-washed each day to rid them of litter, potential infection and 'smells'. The availability of antibiotics, however, removed the fear of disease and contagion and enabled animals to be displayed on exposed earth (Bruce Matthews, pers. comm.). Thus was set in train a refurbishment programme that prefigured the more naturalistic enclosures of the 1980s and 1990s which, interestingly, were *facilitated* by greater technological control over nature. The use of antibiotics and tranquilizers to tame and sanitize the animals is certainly further testimony to the confidence of humans in their authority to domesticate nature at the Adelaide Zoo¹⁴.

The impetus to modernize the zoo during the 1960s and 1970s appears to have been based primarily on visual and aesthetic considerations, with the perspective of the zoo's population considered, as always, only incidentally. The purpose of the new 'moated enclosures' for the deer and bears, for example, was to 'permit a much freer view of the exhibits' once obscured behind bars (RZSSA 95th Annual Report 1972-3, 6). Opening up the spaces inside the zoo would also 'bring down the scale of the zoo from a human to an animal one' (RZSSA 95th Annual Report 1972-3, 30). The walk-through aviary, constructed in 1973, arose out of this new design language. And when, in 1970, the annual reports began to express concern about the rise of 'counter-attractions' available to the Adelaide public, it was noted that every effort should be made to keep the zoo grounds 'as attractive to the public as possible'. 'Attractive' seems to have meant 'a more open and spacious appearance, or 'low-look', in the words of the RZSSA 95th Annual Report (1972-3, 23).

The improvements, though prompted by human agendas, signalled the beginnings of a slowly evolving shift in sensibility on the part of the RZSSA in relation to its stock. In 1969 (after numerous complaints from the Royal Society for the Prevention of Cruelty to Animals) it was decided that surplus stock be sold to circuses only if they could not be placed at other zoos. By 1972, a vocal member of the council of the RZSSA was prepared to suggest that the society clarify the 'purpose for which we keep our stock' (RZSSA Exhibits Committee Minutes, 26 June 1972). He echoed the 1963 remark of zoo director W Gasking that we 'aim for quality rather than quantity in our displays' (RZSSA Minutes of Council, 22 July 1963).

Another significant shift was being articulated in regard to the zoo's overall function. In 1971, the 93rd Annual Report (1970-1, 19) noted that 'a start has been made in promoting the educational as opposed to the purely entertainment or recreational value of the Zoo'. An educational officer was appointed in 1972 to 'emphasize to schools the value, purpose and function of the zoo as an educational tool' (RZSSA 94th Annual Report 1971-2, 12). Local universities were also encouraged to use the zoo for research work into animal taxonomy, behaviour, breeding, genetics and veterinary science. Unlike other zoos, most notably Regent's Park Zoo in London, the research function of Adelaide Zoo had been only weakly developed to this time. Finally, in 1983, elephant rides were ceased.

¹⁴ The parallel might be drawn here between the use of tranquillizers and other drugs to help both zoo animals and suburban women to adapt to their produced environments.

From the time the Adelaide Zoo opened in 1883, there had always been ripples of dissent among quarters of Adelaide society about practices of cruelty to animals at the zoo. Expression of disapproval grew faint during the era of the Fair-ground but they persisted from earlier times to provide the seed of doubt for later generations. By the 1960s, those concerns had begun to feed into wider shifts in design and architectural language that prompted the RZSSA to adapt its exhibitionary practices and statements of purpose. Again we can note that the zoo was being shaped by culturally mutable and contestable efforts to craft an experience of nature for human consumption. The practices of animal captivity and rationalist images of hyper-segregation at the Adelaide Zoo were becoming increasingly transparent, how-ever, not only to the public but also to zoo staff (local, national and international). This facilitated a call on the part of the RZSSA for the scientific legitimation of purpose and a turn to more radical display technologies, of the kind that feature in many of the western world's metropolitan zoos today.

The biobank, the World of Primates and the discourse of nature's recovery, 1983-1994

Evidence for the endurance of colonizing practices toward nature and animals in today's western world is abundantly available (see, for example, Davis 1993; Ophuls 1992). The felling of forests, the clearing of land, the mining of resources – without regard for bird and animal inhabitants and habitats – continues apace. Rationalist presumptions of nature's availability for human purposes assuredly persist into the present, including in urban areas where the practice of animal captivity for human projects endures in metropolitan zoos. Nonetheless, the narratives that people tell each other about nature, animals and their relationship to each, have diversified over the past decade. Increasingly ascendent in contemporary western societies is a narrative plot structured around global scenarios of nature's 'scarcity'. And Adelaide Zoo, which entered a new phase of development in the 1980s and 1990s, is host to images of that narrative. At the zoo, nostalgic desires on the part of humans for nature's 'recovery' have been tapped and commodified. Within the rationalist framework of the zoo project, a new field of vision seeks to reconcile the tradition of human's hyper-separation from nature with growing anxieties about their own alienation.

Conservation

During the 1980s, many zoos began to recruit the services of a wide range of professionals, including conservational scientists. The RZSSA has been most receptive to the input of scientists, drawing for credibility upon their language of 'species survival' to articulate a new purpose for its zoo-keeping operation (David Langdon, pers. comm.). Significantly, the conservation language has echoed the more inchoate public lament for lost natures, turning 'nature' more transparently than ever into a cultural product. Indeed, scarce nature, like other 'positional goods' in capitalist economies (Thrift and Leyshon 1992), has found a profitable marketing niche in contemporary western societies, including the metropolitan zoo. In the Adelaide case, the global image of nature's redemption would be on local offer at the zoo's new ecological theatres, as we shall see in the discussions that follow.

From early years at the Adelaide Zoo, some of the stock had been obtained from breeding inside the zoo and annual reports down the decades were quick to boast

'breeding successes'. Come the 1980s, 'captive breeding' took on a new meaning, referring to a highly purposeful conservational strategy of propagating species recognized as 'endangered' in their own habitats. Along with many metropolitan zoos in the western world, Adelaide Zoo thus became host to an innovative, science-led programme. Moreover, the programme assured the RZSSA of stock replenishment at a time when international and national agreements (such as the 1973 Convention of International Trade in Endangered Species of Wild Fauna and Flora) severely constrained the ability of all zoos to obtain animals.

The development of captive breeding programmes saw the involvement of many specialist scientists at the Adelaide Zoo. These have included population and reproductive biologists – interested in the contribution that zoo stock may make to the gene pools of species threatened with extinction – and computer experts, whose databases and technology permit the integrated exchange and breeding of captive populations. In 1985, Adelaide Zoo's animal records were computerized and the widely used Animal Records Keeping System (ARKS) installed. Also on hand have been behavioural ecologists and nutrition experts to advise on captive breeding conditions and strategies.

Today, zoo animals throughout the world are traded less for money, than according to a gene-weighted index of 'rarity value' and the need to replenish and diversify certain gene pools deemed to be precarious in nature (Tudge 1991). This exchange is coordinated globally, to control inbreeding, by an International Species Management Program and regionally by an Australian and New Zealand zoo network, in which Adelaide is a participating member (Seal 1990). The ultimate objective of such programmes has been to release zoo-bred offspring back to the 'wild', prompting in turn a commitment on the part of zoo operations, including the RZSSA, to protect and restore habitats in readiness for re-introductions. Freedom has come to justify captivity – 'wildness' now legitimizes domestication – in a fresh regulatory practice at today's Adelaide Zoo.

That the species selected for species survival plans have tended to be the 'charismatic vertebrates' (Bostock 1993) underlines once more the sense in which zoo agendas continue to be cultural agendas. At the Adelaide Zoo, hope is centred on its Przewalski horse population and the red panda. More generally, the propagation efforts bear witness to a highly self-conscious project of genetic management designed to reproduce wild animals. Armed with studbooks, population-viability assessment tools and centralized computer databases, the international zoo community places select animals with select mates – sometimes thousands of miles away and with the assistance of specialized animal transit and insurance services – in a thoroughly regulated and human-directed project of nature's recovery¹⁵.

The captive breeding programmes undertaken at Adelaide Zoo have had mixed outcomes, though this is not the place to assess their effectiveness or worth. It can be said, however, that the difficulties encountered by many zoos in re-introducing animals bred under zoo conditions, issue a caution to zoo directors who liberally

¹⁵ This is not to discredit the scientific agenda of the contemporary zoo or the scientists involved in conservational breeding programmes. It is rather to underline the point, implicit in other sections of this paper, that science is a product of the society and history of which it is a part.

trumpet high-sounding rhetoric about zoos as local cradles of global bio-diversity or modern-day arks (Midgley 1987; Mulvaney 1987). How 'wild' zoo-bred animals really are, is just one of the matters of contention among ecologists and wildlife biologists (Paull 1985). Other concerns have been raised about the lack of immunity to disease and the weakly developed foraging ability of zoo-bred animals. And, like those other simulacra of the 'wild', urban parks (Katz and Kirby 1991), zoos can play only an extremely minor role in conservation given the minute selection of species that they may keep. What is significant for the purposes of this paper, however, is that the language of species survival has been adopted by the RZSSA to legitimize its conservational, educational and display operations – to itself, its staff and the public.

Exhibition

If the conservational function of Adelaide Zoo was its primary source of credibility in the 1980s and beyond, the exhibition purpose of the institution was by no means neglected. On the contrary, exhibition practices, evolved in tandem with the conservational messages of captive breeding, are becoming similarly elaborate ventures into which bleed scientific, cultural, technological and economic agendas.

The Adelaide Zoo underwent significant design modification during the 1960s and 1970s under the influence of postwar, modernist, planning philosophies. By the 1980s, the RZSSA sought more radically to transform the zoo, as did its counter-parts throughout Australia and the western world. No longer was there an impulse to represent the range of animal species as for a postage stamp collection. The objective rather became one of 'rationalizing the collection' (RZSSA 107th Annual Report 1983-4, 12) and affording the South Australian public a sense of identification with fewer animals as they would exist in apparently untouched ecosystems. There was a turn to an aesthetic of naturalism in display technology and, paralleling a trend in many contemporary museums, a move towards 'story-driven' rather than 'object-driven' displays (see, for example, Hancocks 1989a and b, 1990). (Whereas the former mode of display selects a field of information and then chooses the objects that will illuminate it, the latter selects an object and then chooses a way to display it.) In both modes of display, there exists the ongoing presumption – rooted in the mind/body, human/animal dualisms that have supported the Adelaide Zoo's career – that the animal can be *known* in the form that humans elect to display it.

Consistent with the shift to a more 'story-driven' exhibition philosophy, Adelaide's menagerie-style cages were refurbished or replaced during the 1980s and early 1990s. Their prison image could not be reconciled with conservation languages of the period and thus many of the old wired aviaries and monkey cages were removed (although, paradoxically, a South Australia heritage order was placed on some of the monkey's cages, prohibiting their demolition (see Browzy 1992)). In their place were built more elaborately 'furnished' enclosures that sought to contextualize each exhibit as they would appear in the 'wild'. The giraffe enclosure was planted with 'Canary Island Palms', the seals were moved to a new 'Seal-Bay' exhibit, the penguins transferred to an exhibit 'simulating a coastal sand dune' (RZSSA Annual Report 1982-3, 6), the baboons were relocated to a large, enclosed rock exhibit and new enclosures bearing regional titles such as the 'Amazon Aviary' were designed. The animals were put in their place, as it were, all over again.

Other professionals were employed at the Adelaide Zoo during the 1980s to create the new viewing experiences. Landscape architects, wilderness horticulturalists, graphic designers, construction engineers, audio-specialists and others have lent their skills. At the nocturnal house, where creatures that come alive at night are displayed, day has been turned into night. Inside Adelaide's World of Primates – the new centrepiece of the zoo partly funded by the Shell corporation – the visitor is immersed in an apparently pristine natural environment¹⁶. Complete with props of fibreglass swings, artificial rockwork and carefully positioned viewing stations for the visitor, World of Primates offers the liminal experience of the generic jungle. In a world of theme parks and spectacles (Debord 1983; Ley and Olds 1992), it offers up unspoiled nature as an object of desire. As a therapeutic display, it shores up public anxieties and guilt about lost natures. It invokes a romantic reversal of hierarchical oppositions of human and animal (without overcoming the dualistic legacy of past relationships). The animals enter the stage as monuments to their own disappearance in nature. This is the post-modern biopark of the 1990s that bears the stamp of an insistent human discourse – a globalizing narrative of nature's loss (at human hands) with the promise of its heroic, human-led, recovery.

Yet what remains offstage, obscured behind the decor, are walls and fences, and the electrified security systems without which the zoo cannot function. The visitor to the Adelaide Zoo is informed about primate habitats in general and encouraged by instructional labels to care for nature. That such educational strategies have a receptive audience was confirmed by a survey of 265 visitors to the Adelaide Zoo in 1986. The educational experience of the zoo was its primary drawcard, according to the majority of respondents (Visitor survey 1986; see also Adams et al. 1991).

At the same time, visitors are spared the knowledge that the objects of their gaze are subject to complete dependence on a caretaker; an artificial diet; immunity from disease they would encounter outside the zoo; strictly controlled mate selection; regulated reproductive practices, including (in some cases) artificial insemination; reduced life expectancy; drugs; social company not of their choosing; severely restricted ranges; and so-called 'behavioural enrichment' programmes devised by zoo staff. Moreover, the animal behaviour that the public witnesses is heavily controlled. There is no animal mating or fighting on display; no eating of each other or hunting, for example. On the other hand, captive bears and jaguars often pace, zoo baboons and monkeys are known to display increased aggression and many animals exhibit stereotypic behaviour. Some captive animals even mutilate themselves and eat their young. Of course, the conditions of life are better than in previous enclosures and the settings are arguably more conducive to breeding. Ultimately, however, the new naturalistic enclosure delivers a culturally commodified and socially produced nature, designed to shape a distinctive ('human') experience of Nature for late twentieth-century audiences. If the message is conservational, it is paradoxically (I think) one that continues to rely for its meaning on animal captivity and rationalist conceptions of a human/animal divide.

¹⁶ The irony might here be noted of Shell - for all its contribution to the destruction of nature - involved in this venture of producing it.

Conclusion

This paper has sought to examine the field of vision and habitation that has been the Adelaide Zoo since its opening in the late nineteenth century. I have argued that the zoo is a space where nature is abstracted from its contexts and shaped into an image and experience by, and for, humans. The mutable discursive frames through which animals have been fashioned and delivered to the South Australian public have been the substantive focus of this paper. It thus contributes to what Philo (forthcoming) calls a

social-cultural animal geography in which the spotlight is turned on how animals ... become discursively constructed as one thing rather than another ... and then subjected to related socio-spatial practices of inclusion, exclusion, or mixtures thereof 'on the ground'.

In conceptualizing the Adelaide Zoo as a cultural institution, the paper has sought to problematize the zoo experience by nesting it within the range of contexts that shaped it over time. The zoo's debts to cultural conceptions of nature and regimes of colonialism and capitalism have been just some of the contexts that have been signalled. The paper has sought to go further, however, by unsettling the binding grip of constructs of 'human' (as distinct from 'animal') identity in the making of the zoo. The rationalist underpinnings of the Adelaide Zoo described in this paper begin to shed light on the gendered and racialized nature of the boundaries that 'humans' have long erected to distinguish themselves from 'non-human' animals. As we have seen, a distinctive way of seeing and relating to animals was crafted out of faith in the capacity of humans for reason – a capacity that was believed to be the defining characteristic of 'human' and to set humans apart from other spheres of life.

Yet this conception of 'human' had, for centuries prior, been itself deeply gendered and racialized. As far back as classical times, reason had been assumed to be the exclusive preserve of European, adult, free men. Women, children and racialized others were identified with the inferiorized realms of nature and the body. These were the spaces that were progressively domesticated to (rationally based) projects in the course of the long rise to power of History's master subject. The moral order underpinning this power cohered around a set of Cartesian binaries of reason/nature and mind/body, the critical deconstruction of which begins to unsettle the very basis on which non-human animals were set apart from 'humans'. Attention is thus directed to the specific disciplinary practices that advanced our accepted conceptions and positionings of 'human' and 'ani-mal'. Also spotlighted are the specific sites at which those practices were articulated and renegotiated.

From the late nineteenth century, the Adelaide Zoo became a site where the human/animal distinction was popularized and the muscle of colonial mastery over nature was flexed. Henceforth, throughout the twentieth century, various versions of Nature were invented by the RZSSA that inscribed the broader social project and rational quest for regulation and control of those whose difference was in some way threatening. From the reign of Miss Siam through to the death and funeral of her 'much-loved' descendent and state pet, Samorn, in 1994 (*Advertiser*, 11 October 1994), a most domesticated social product was contrived at the Adelaide Zoo – one whose partial perspective lay unseen, off-exhibit, yet persistently ridden with tension in the decades to the present.

Acknowledgements

I would like to thank David Langdon, assistant director of the Adelaide Zoo, for time spent in interview and for allowing me access to the annual reports of the Royal Zoological Society of South Australia. Thanks also to the curator of mammals for an informative guided tour of the Adelaide Zoo. Julie Kesby assisted with proofreading and referenc-ing, and by compiling a summary of my notes from the annual reports. The comments of the following faculty and students at the Department of Geography at Syracuse University, where this paper was written, are gratefully acknowledged: John Agnew, Jim Duncan, Nancy Duncan, Don Meinig, John Mercer, David Robinson, Joanne Sharpe, John Short and Judy Walton. I would also like to thank Val Plumwood and the anonymous referees for their very helpful and affirming comments.

References

Adams, G., Fisher, L., Le Blond, D., Mazur, N., McMahon, C., Peckover, T., Schmiechen, J. and Sharrad, N. 1991, *The role of the Adelaide Zoo in conservation*, Report prepared for the Royal Zoological Study of South Australia, Mawson Graduate Centre for Environmental Studies, The University of Adelaide.

Anderson, K. 1991, *Vancouver's Chinatown: racial discourse in Canada, 1878-1980*, McGill Queen's University Press, Montreal and Buffalo.

Bennett, T. 1988, 'The exhibitionary complex', *New Formations*, 4: 73-83.

Berger, J. 1980, *About looking*, Pantheon Books, New York.

Blunt, A. and Rose, G. (eds), 1994, *Writing women and space: colonial and post-colonial geographies*, Guilford, New York.

Bostock, S. St C. 1993, *Zoos and animal rights: the ethics of keeping animals*, Routledge, London and New York .

Browzy, R. 1992, *Adelaide Zoo conservation plan*, Report prepared for the South Australian Department of Housing and Construction, Adelaide.

Burgess, J. 1990, 'The production and consumption of environmental meanings in the mass media: a research agenda for the 1990s', *Transactions of the Institute of British Geographers*, 15(2): 139-61.

Burgess, J. 1992, 'The cultural politics of nature conserva-tion and economic development', in, Anderson, K. and Gale, F. (eds), *Inventing places: studies in cultural geography*, Longman Cheshire, Melbourne, pp 235-54.

Davis, M.1993, 'The dead west: ecocide in Marlboro County', *New Left Review*, 200: 49-74.

Debord, G. 1983, *The society of the spectacle*, Wayne State University Press, Detroit.

Duncan, N. and Duncan, J. 1988, '(Re)reading the landscape', *Environment and Planning D: Society and Space*, 6: 117-26.

Fitzsimmons, M. 1989, 'The matter of nature', *Antipode*, 21: 106-20.

Foucault, M. 1979, *Discipline and punish: the birth of the prison*, Vintage Books, New York. (Translated from French by Alan Sheridan).

Foucault, M. 1980, 'Disciplinary power and subjection', in, Gordon, C. (ed.), *Power/knowledges elected interviews and other writings of Michel Foucault 1972-1977*, Harvester Press, Brighton, Sx 20-40.

Good, J. 1993, *The culture of flowers*, Cambridge University Press, Cambridge.

Hancocks, D. 1989a, 'Seeking to create illusions of wild places: master planning guidelines for the Melbourne Zoo Part I', *Landscape Australia*, 3: 258-67.

Hancocks, D. 1989b, 'Seeking to create illusions of wild places Part II', *Landscape Australia*, 4: 421-8.

Hancocks, D. 1990, 'Seeking to create illusions of wild places Part III', *Landscape Australia*, 1: 62-9.

Haraway, D. 1983, 'Teddy bear patriarchy: taxidermy in the Garden of Eden, New York City, 1908-1936', *Social Text*, 3: 20-64.

Haraway, D. 1988, 'Situated knowledges: the science question in feminism and the privilege of partial perspective', *Feminist Studies*, 14(3): 575-99.

Haraway, D. 1989, *Primate visions: gender race and nature in the world of modern science*, Routledge, New York and London.

Harding, S. (ed.) 1993, *The 'racial' economy of science: toward a democratic future*, Indiana University Press, Bloomington.

Isaac, E. 1970, *Geography of domestication*, Prentice-Hall Inc., Englewood Cliffs, NJ.

Jay, M. 1992, 'Scopic regimes of modernity', in, Lash, S. and Friedman, J. (eds), *Modernity and identity*, Blackwell, Oxford, pp 178-95.

Katz, C. and Kirby, A. 1991, 'In the nature of things: the environment and everyday life', *Transactions of the Institute of British Geographers*, 16(3): 259-71.

Ley, D. and Olds, K. 1992, 'World's fairs and the culture of consumption in the contemporary city', in, Anderson, K. and Gale, F. (eds), *Inventing places: studies in cultural geography*, Longman Cheshire, Melbourne, pp 178-93.

Livingstone, D. 1992, *The geographical tradition: episodes in the history of a contested enterprise*, Blackwell, Oxford and Cambridge.

- Lloyd, G. 1984, *The man of reason*, Methuen, London.
- Manning, A. and Serpell, J. (eds), 1994, *Animals and human society*, Routledge, London and New York.
- Midgley, M. 1987, 'Keeping species on ice', in, McKenna, V., Travers, W. and Wray, J. (eds), *Beyond the bars: the zoo dilemma*, Thorsons Publishing Group, Wellingborough, pp 55-65.
- Mullan, B. and Marvin, G. 1987, *Zoo culture*, Weidenfield and Nicolson, London.
- Mulvaney, K. 1987, 'Conservation as a human problem', in, McKenna, V., Travers, W. and Wray, J. (eds), *Beyond the bars: the zoo dilemma*, Thorsons Publishing Group, Wellingborough, pp 146-58.
- Nesmith, C. and Radcliffe, S. 1993, '(Re)mapping Mother Earth: a geographical perspective on environmental feminisms', *Environment and Planning D: Society and Space*, 11(4): 379-94.
- Noske, B. 1989, *Human and other animals*, Pluto Press, London.
- Ophuls, W. 1992, *Ecology and the politics of scarcity revisited*, W H Freeman and Company, New York.
- Osborne, M. 1994, *Nature, the exotic, and the science of French colonialism*, Indiana University Press, Bloomington.
- Paull, D. 1985, *The conservation role of captive breeding: a case study of rare and threatened animals indigenous to South Australia*, Unpubl. Honours thesis, University of Adelaide.
- Philo, C. (forthcoming), 'Animals, geography and the city: notes on inclusions and exclusions', *Environment and Planning D: Society and Space*.
- Plumwood, V. 1993, *Feminism and the mastery of nature*, Routledge, London.
- Relph, T. 1987, *The modern urban landscape: 1880 to the present*, Johns Hopkins University Press, Baltimore.
- Ritvo, H. 1987, *The animal estate: the English and other creatures in the Victorian age*, Penguin, Harmondsworth.
- Rix, C. E. 1978, *Royal Zoological Society of South Australia 1878-1978*, Griffin Press, Netley, South Australia.
- Rothenburg, T. Y. 1994, 'Voyeurs of imperialism: the National Geographic magazine before World War II', in, Godlewska, A. and Smith, N. (eds), *Geography and empire*, Blackwell, Oxford 155-72.

RZSSA (Royal Zoological Society of South Australia), *1883-1994 Annual Reports*, miscellaneous publishers, copies available from Adelaide Zoo library.

RZSSA (Royal Zoological Society of South Australia), *1992 Exhibits Committee Minutes*, available from Mortlock Library of South Australia.

RZSSA (Royal Zoological Society of South Australia), *1942 and 1963 Minutes of Council*, available from Mortlock Library of South Australia.

SAAS (South Australian Acclimatisation Society), *1878-82 Annual Reports*.

Seal, U. 1990, 'The global and local role of zoos in conservation of biodiversity and prevention of species extinction', *Bulletin of Zoo Management: Journal of the Association of Zoo Directors of Australia and New Zealand*, 28: 37-9.

Simmons, I. 1993, *Interpreting nature: cultural constructions of the environment*, Routledge, London and New York.

Smith, N. 1984, *Uneven development: nature, capital and the production of space*, Blackwells, Oxford.

Stoddard, D. 1986, *On geography and its history*, Basil Blackwell, Oxford.

Tarpy, C. 1993, 'New zoos – taking down the bars', *National Geographic*, July: 2-38.

Thomas, K. 1983, *Man and the natural world: changing attitudes in England 1500-1800*, Allen Lane, London.

Thrift, N. and Leyshon, A. 1992, 'In the wake of money: the city of London and the accumulation of value', in, Budd, L. and Whimster, S. (eds), *Global finance and urban living: a study of metropolitan change*, Routledge, London, pp 282-311.

Townsend, A. 1988, *Attitudes, perception and behaviour among visitors at the Adelaide Zoo*, Unpubl. Honours thesis, Department of Psychology, University of Adelaide.

Tuan, Y-F. 1994, *Dominance and affection: the making of pets*, Yale University Press, New Haven and London.

Tudge, C. 1991, *Last animals at the zoo: can the world's animals be saved from mass extinction by captive breeding?*, Hutchinson Radius, London.

Visitor survey, 1986, A report on a survey of visitors to the Adelaide Zoological Gardens, 1986, copy in Adelaide Zoo library.

Warner, M. 1994, 'Managing monsters: six myths of our time', *The 1994 Reith lectures*, Vintage, London.

Watts, C. 1974, 'Twenty years the zoo vet in Royal Zoological Society of South Australia', *RZSSA 96th Annual Report*, 29-31.

Whatmore, S. and Boucher, S. 1993, 'Bargaining with nature: the discourse and practice of 'environmental planning gain'', *Transactions of the Institute of British Geographers*, N S 18(2): 166-79.

Williams, R. 1973, *The country and the city*, Oxford University Press, New York.

Wilson, A. 1992, *The culture of nature: North American landscape from Disney to the Exxon Valdez*, Blackwell, Cambridge and Oxford.

Zuckerman, L. (ed.) 1979, *Great zoos of the world: their origins and significance*, Weidenfeld and Nicolson, London.