CHAPTER 14

Empire and the ecological apocalypse: the historiography of the imperial environment

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The environmental history of the British and other European empires has been one of the great growth areas of contemporary historical scholarship. Historians of science, medicine and natural history, geographers and natural scientists have all contributed to this burgeoning field, creating in effect a completely new subdiscipline. More recently, cultural historians have also become active in the field. Nevertheless, notable American practitioners like Donald Worster and Alfred Crosby have re-emphasized both the alleged American origins and continued domination of environmental history.[1] This injection of nationalism is ironic, since Worster has argued that environmental history constitutes the major replacement for historians' concentration on the history of the nation-state in the late nineteenth and early twentieth centuries. In any case, as with all nationalist interpretations, there has been a rapid and spirited response. American pre-eminence has been contested by Richard Grove, both in *Green Imperialism* and in a recent paper.[2] At first sight this may seem a relatively sterile debate, but it has had the useful effect of uncovering the multidisciplinary sources of modern historical concerns.

Worster and Crosby have stressed the moral roots of environmental studies in the development of the (American) green movement of the early 1970s. They can equally be distinguished in the moral climate of decolonization and European concerns about the imperial interaction with the wider world. This notable strand of environmental history is now sufficiently broad for it to be possible to distinguish at least four historiographical tendencies within it, and new approaches are continually being uncovered, not least by the contributions to this volume. These four can be briefly characterized as the apocalyptic, the neo-Whiggish, the longer perspective, and the fully integrated cultural schools. They are not, of course, mutually exclusive and other defining modes can be overlaid upon them; for example, it is possible to distinguish Eurocentric, peripheralist, neo-centric, and ethnic perspectives. Moreover, some at least of these developments can be seen to mirror the intellectual and practical odyssey of imperial rule itself, from arrogant self-confidence to apprehensive questioning and doubt.

Empire, power and the apocalypse

Before examining the apocalyptic school of imperial environmental history, it is necessary to turn to imperialists' estimation of themselves, for, as frequently happens in the discipline of history, modern analyses often stand past ideologies on their heads, at least in identifying the gulf between objectives and results. It used to be thought that, if western European empires had anything positive to offer the rest of the world, it was surely their capacity to act as the bearers of the scientific, medical and engineering cargo upon which they ultimately based their claims of superiority. If, in the words of Michael Adas, 'machines' were 'the measure of men', then Europeans clearly perceived themselves as giants.[3] The kind of self-confidence offered by this sense of technical power comes through in David Livingstone's conviction in the positively redemptive powers of steam engines – even if they seldom worked for him as he hoped – in Rudyard Kipling's fascination with machines and the potential of the engineer to dominate and harness nature, and in the countless examples of contemporary wonder at the development of marine engineering, machine tooling, the submarine cable and the railways. Daniel Headrick has built a career out of arguing for their importance in his books *The Tools of Empire, The Tentacles of Progress*, and *The Hidden Weapon*.[4]

One of the objections to Headrick is that he takes Europeans too much at their own estimation. Certainly, their overweening environmental confidence, founded on such technical progress, can be found in any number of sources throughout the nineteenth and twentieth centuries. The Scots missionary Robert Moffat perceived environmental control as the distinctive characteristic of the Christian, contrasted with the heathen African's alleged helplessness. An engraving of his mission in his book *Missionary Labours and Scenes in Southern Africa*, published in 1842, reveals ordered hedges, paths, plantings and buildings contrasting with the wildness beyond.[5] Such polarities appeared in the illustrations to countless works on settlers and their power.[6] Livingstone's vision of great cotton fields down the Zambezi, populated by the poor of the central belt of Scotland, was surely influenced by the dramatic changes that he himself had observed in the agriculture of the Scottish Lowlands, in enclosure, draining, selective breeding, new approaches to hydrology and the rest.

For Sir Charles Eliot, Commissioner of the East Africa Protectorate at the turn of the nineteenth and twentieth centuries, the problem with Africa was precisely that its environment required to be controlled and transformed. The past of the continent was 'uneventful and gloomy' because of the lack of contact with the outside world as a result of the natural obstacles, deserts, marshes or jungles which separated the coast from the interior. He went on:

> Nations and races derive their characteristics largely from their surroundings, but on the other hand, man reclaims, disciplines and trains nature. The surface of Europe, Asia and north America has been submitted to this influence and discipline, but it has still to be applied to large parts of South America and Africa. Marshes must be drained, forests skilfully thinned, rivers be taught to run in ordered course and not to afflict the land with drought or flood at their caprice; a way must be made across deserts and jungles, war must be waged against fevers and other diseases whose physical causes are now mostly known.

It is a fascinating statement. Having slid smartly from environmental determinism to ecological control, he applies the language of discipline and training to nature in the same way in which it was invariably used of indigenous peoples. Natural forces, like people, were to be acculturated to the modern world. Ronald Ross's final exposure of the causes of malaria had clearly convinced him that the caprice of the microbe could be ordered like that of the flood. In a final peroration, he asserted that 'this contest with the powers of Nature seems a nobler and more profitable struggle than the international quarrels which waste the brain and blood of Europe and Asia.'[7] Sir Charles Calwell's characterization of small colonial wars as 'campaigns against nature' becomes a battle with the environment itself instead of with other humans.[8]

This pride in environmental control was expressed in countless other ways. It can be found in the rolling periods of the purple prose of Viceroy Curzon's speeches at the opening of Indian bridges; in the two enormous recumbent lion statues that the British installed to guard the ends of the great Ganges Canal, imperial hydrological despotism expressed through the king of beasts; or in the creation everywhere of zoos, menageries and botanic gardens by imperial governors in their gubernatorial residences, a classic and symbolic taming of nature in the very backyards of the rulers of empire. It can also be found in the tremendous puffing of the resources of Africa by early explorers and commissioners like Sir Harry Johnston and Sir Arthur Hardinge.[9] This propaganda continued throughout the era of imperial rule. It was still being projected in the rapturous descriptions of such imperial environmental designs as the groundnut scheme in Tanganyika in 1947 – 'solid ground for hope, hundreds of miles of jungle cleared by science and the bulldozer with a real promise of a better life for African and European' – or in the movement of people and animals consequent upon the building of the Kariba Dam and the formation of the vast lake in the 1950s, a project which came to symbolize and even justify the very political unit of the Central African Federation.[10] Sir Harry Johnston portrayed the shift from assurance to anxiety in his own career and writings. He regarded himself as a natural history collector, zoologist and artist before he was an explorer and administrator.[11] He wrote ecstatically of the economic potential of Africa and its natural attributes, creating botanic gardens and small zoos wherever he established a government house. However, he also expressed mounting alarm at degradation and decline. Like so many natural history enthusiasts and hunters of the period, he was particularly anxious about the decline of animal numbers. When he had visited Tunisia in the late 1870s, he had found it still full of big game. When he returned as Consul-General in Tunis in 1897, the game had

already disappeared. He joined the Society for the Preservation of the Wild Fauna of the Empire when it was founded in 1903 and was active in its demands for stricter controls upon African hunting.[12] Even more interestingly, he has an almost throw-away line about Tanganyika in his autobiography, published in 1923. When he had visited the Nyasa-Tanganyika plateau in what is now south-western Tanzania in 1890, he had seen excellent crops, a profusion of wild flowers and an abundance of game: 'The Tanganyika in those days was a paradise; later it was to be ravaged by wars, depopulated by sleeping sickness and afflicted in many other ways.'[13] In the rivalries of the partition, Johnston was a notable Germano-phobe and there can be little doubt that he was implicitly ascribing this degradation to German rule.

This is indeed a characteristic of the apprehensive imperialist: the agency for ecological decline was invariably placed elsewhere. This was true of the disappearance of African game and the decline of forests and increased desertification.[14] British foresters in India (probably more than the Germans, whom the British employed) worried constantly about the damage caused by indigenous forest dwellers.[15] When E. P. Stebbing visited West Africa in the 1930s, he attributed the alarming denudation of tree and bush cover to the damaging effects of African pastoralism and shifting cultivation.[16] Indeed, swidden agriculture and the use of fire were excoriated everywhere by imperial rulers and their technical advisers. In the interwar years, irrigation engineers in India could not fail to observe that the grand canal schemes of the British were going wrong, but they were all too ready to place the blame upon poor maintenance and misuse by the agriculturalists whom they were supposed to benefit. These observations form a ready bridge to the apocalyptic school of imperial environmental history.

The apocalypse

Elizabeth Whitcombe's pioneering work on the canal systems of British India, published as early as 1972, illustrates this beautifully.[17] She demonstrated that British engineers and agronomists set about the amazing canal developments of the twentieth century with an environmental zeal that can only be described as religious. The British set about rebuilding and massively extending the canal systems of the Yamuna (Jumna), Ganges and Indus Rivers in north India and the Cauvery and Godavery in the south. They had a complex of motivations: extended settlement would increase the land revenue, the fiscal basis of their power; they would yet again find a means of fitting themselves into the Mogul legacy; by overcoming intermittent precipitation and groundwater shortages, they would illustrate command of the environment. The results were, however, very different from those intended. Since both the system and its execution were misconceived, it produced not economic regeneration, but extensive and damaging waterlogging, as well as high levels of salination akin to those found in ancient Middle Eastern irrigation systems which had similarly gone wrong.

More recently, Whitcombe has written of the medical consequences in the resultant expansion in the incidence of malaria.[18]

Whitcombe's work has a magisterial coolness about it, belying the heat, dust and hydrological rush of its subject. Perhaps the prime early and hotter example of the historiography of the imperial apocalypse is to be found in the publications of Alfred Crosby. If, for Whitcombe, the grand environmental projects had gone wrong, Crosby saw Europeans as initiating a successful biological conquest of the globe. In both his *Columbian Exchange* of 1972 and his more ambitious *Ecological Imperialism* of 1986, he painted a picture of organisms of all sorts being marshalled, consciously and unconsciously, for just such a campaign.[19] Mammals, birds, freshwater fish, insects, pathogens, trees, plants and weeds set about the creation of neo-Europes, exotic environments comprehensively overlaid with the extensive biota of the new conquerors. These events were promoted by economics, aesthetics, sport, nostalgia, or simply absent-mindedness and inefficiency. Yet his vision was not entirely global, for Crosby paid little attention to Africa and he also argued that the well-established historic peasant cultures of Asia had been able to resist these processes, a contention that some modern Indian scholars deny.[20] What is more, Crosby suggested, highly dubiously, the surprising thing was that so little came back. In his determination to see biological imperialism as a one-way process, illustrated by the imperialist urges of the dandelion, he seemed to know little of the expansion of the eucalypt and Australian wattle, the depredations of the rhododendron, Japanese knotweed or Himalayan balsam, the territorial hunger of the grey squirrel, the mink or the New Zealand flatworm.

Meanwhile Lucile Brockway had already provided a conspiratorial twist for this biological expansion by seeing continental and intercontinental plant transfers as part of a global plot masterminded by scientific controllers at Kew Gardens.[21] Moreover, as many other environmental and economic historians have pointed out, rather more convincingly, such plants, in their frequent transformations from foraged to cultivated product, spread plantations throughout the world. And such plantations created maximum social and environmental damage through being land-extensive and soil- and labour-intensive. Vast tracts of pre-colonial nature were overwhelmed as sugar, coffee, tea, indigo, the opium poppy, cinchona, jute, sisal, tobacco and rubber marched across the landscape. These plants were the shock troops of economic and natural historical warfare.

Studies in East and Central Africa powerfully developed this sense of imperial catastrophe. Helge Kjekshus, in his *Ecology Control and Economic Development in East African History*, strongly contrasted images of a period of plenty in pre-colonial times with the shattering effect of a series of environmental and medical disasters attendant upon the arrival of Europeans in the 1890s.[22] Some of these, like rinderpest, afflicting both cattle and game, smallpox and jigger fleas, menaces to human health, were introduced directly, albeit inadvertently, by European agency. Others, like the prevalence of drought and the spreading of

locust swarms, happened to coincide with the appearance of Europeans, leading contemporary Africans to draw appropriately hostile conclusions. Others again, like the spread of nagana and East Coast fever among cattle and sleeping sickness among humans, were the results of misconceived colonial policies. In rather more sophisticated studies spanning parts of Zambia, Malawi and Mozambique, Leroy Vail has argued that a 'major ecological catastrophe' resulted from the combined impact of expanding capitalism and colonial administration in the region.[23] If some evidence of pre-colonial problems can be identified, then imperial rule seized a system that was already under stress and pushed it over the edge.

To heighten this sense of an imperial apocalypse, historians and others have felt it necessary to offer a constrasting image of a pre-colonial past that was in harmony or balance with nature. Kjekshus has been criticized for creating just such a vision of 'Merrie Africa' – and, indeed, parallel images of 'Merrie Australia' and 'Merrie India' can be found in the literature. William Lines's *Taming the Great South Land* of 1991 is a record of rapine and plunder, of the piling of environmental disaster upon natural catastrophe since the arrival of Europeans in Australasia. Whereas, according to Lines, Aboriginal occupation had only touched the environment lightly and did 'not greatly disturb relationships within the community of plants and animals', Europeans brought destruction in their wake.[24] Such a view is hardly sustainable, as had been suggested by Bolton several years earlier.[25] In *This Fissured Land* (also of 1991), Madhar Gadgil and Ramachandra Guha create a theory of modes of resource use to illustrate the greater harmony between humans and nature in the pre-imperial period in India.[26] In this and other works by Guha, Indian hunters, pastoralists and cultivators are all seen as promoting sustainable yield policies as well as establishing mutually beneficial ecological niches. Europeans disrupted and destroyed these fine balances, not least in their exaggerated and exclusivist forest policies.

Such visions of global apocalypse have been assiduously fed through into populist green histories. Clive Ponting's *Green History of the World* presents a strikingly doom-laden picture.[27] In his reading, it is not only a case of 'Apocalypse Now', but also of 'Apocalypse Then'. Influenced by Marshall Sahlins's *Stone Age Economics*, Ponting, like some other popular writers, fingers the Neolithic revolution as the start of human ecological madness. Since then, successive civilizations have been doomed to destruction through self-inflicted environmental degradation. This dramatic counter-progressivism views world history as one long free fall, with imperialism as its global accelerator. The entire past is coloured with fear of the future.

Neo-Whiggism

It is perhaps inevitable that the post-modernist age should have rediscovered a powerful progressive antidote to this 'apocalyptism'. This tendency privileges European sensibilities in producing environmentalist ideas from the seventeenth, eighteenth or nineteenth centuries. It can be dubbed neo-Whiggish,

because it does indeed chart progress through the development of the bourgeois intellect. The model is perfectly symbolized by the word 'roots', which tends to appear frequently in its titles.[28] It fits into long-standing Eurocentric and Anglocentric traditions, which have been developed particularly in the last sixty years or so. It can be found in the work of the sociologist Norbert Elias, *The Civilizing Process* of 1939,[29] which charted the development of manners in late eighteenth- and early nineteenth-century Europe, or again in the words of Harold Perkin, who suggested that: 'between 1780 and 1850 the English ceased to be one of the most aggressive, brutal, rowdy, outspoken, riotous, cruel and bloodthirsty nations in the world and became one of the most inhibited, polite, orderly, tenderminded, prudish and hypocritical'.[30] Famously, Keith Thomas carried this notion into the English – and his work is highly Anglocentric – relationship with nature. The science of the Enlightenment, as well as of the Romantic and post-Enlightenment periods, produced a 'revolution in perceptions' which created 'new sensitivities that have gained in intensity ever since'.[31] David Allen and Harriet Ritvo, both of them in well-contextualized works that give due attention to both class and power, tended to shift these growing sensitivities from the beginning towards the end of the nineteenth century.[32]

While James Serpell has identified the moral contradictions in the human approach to domestic and wild animals, the philosopher Mary Midgley has also analysed nineteenth-century hunting works in terms of heightened sensibilities.[33] She has even argued, wholly unconvincingly in my view, that the Highland butcher of a Nimrod, Roualeyn Gordon Cumming, clad in his kilt and Badenoch brogues, demonstrated 'a true belief in the consciousness, complexity and independence of the victim'. In suggesting that apparent cruelty towards elephants is not necessarily analagous to callousness towards people, Midgley demonstrates an inadequate understanding of the vast range of imperial hunting literature and of imperial campaigns, in which hunting imagery was applied to humans right down to the time of Mau Mau in Kenya in the 1950s.[34]

In some respects, though decidedly not in others, Richard Grove writes within this tradition, though his imperial focus and his command of primary material is greater than that of all his predecessors. In his defiantly titled *Green Imperialism*, he has been involved in identifying the roots of environmental ideas as lying much further back in history than has ever occurred to the American practitioners, blinkered as they are by the nationalist obsession with George Perkins Marsh, John Muir and Henry David Thoreau.[35] Through his study of ecological ideas relating to oceanic islands, the development of desiccation theory and anxieties about deforestation and species extinction, Grove has convincingly demonstrated not only the antiquity of such environmental thinking, but also its international and peripheral character. For him, the key ideas come not from the European metropolis, but from the periphery, and are relayed through international scientific networks, particularly those of the French and the Scots. By an attractively neat analytical sleight of hand, he has linked such ideas to radical politics in the late eighteenth century.

He has also provided a significant ethnic context to the development of such ideas, not only through the capacity of colonial ecologists to draw on indigenous knowledge, but also through the particular interests and expertise of the Scots. The botanist doctors of the Indian Medical Service, largely trained in Scottish universities, were the intellectual propagators of such ideas within India, the Cape and elsewhere in the British Empire.[36] Although Grove's work has considerable strengths (not least in its remarkable globalization) and offers strikingly new interpretations, it often privileges ideas over policy, almost suggesting that the former lead ineluctably to the latter. In any case, he gives hostage to fortune by ending *Green Imperialism* in 1860, just as the exploitative force of imperial rule moves up several gears with the working through of the 'second industrial revolution' of the period. It should be said, however, that other publications of Grove have noted the economic shifts and the constraints and barriers to environmental ideas in the political, social and cultural contexts of late nineteenth-century imperialism.

The longer-perspective school

As fresh historiographical schools continue to emerge, it is no longer possible to see this third strand as the final element in that satisfying rule of three that has so often been a central feature of philosophy, culture and the arts. It decidedly cannot be privileged within a challenge, response and resolution paradigm. Nevertheless, the fundamental problem with both 'apocalyptism' and 'neo-Whiggism' is that, in their different ways, they ascribe too much power to empire. The British Empire, vast and apparently despotic as it seemed, was in reality a ramshackle conglomerate, very far from the all-seeing, all-powerful monolith envisaged by Edward Said and his followers among the discourse theorists.[37] It was decentralized and highly heterogeneous, bearing within it many different types of rule as well as social, economic and racial systems. What is more, its influence was felt in distinct parts of the globe over very different time-spans.

Perhaps it is significant that this third school has been developed largely, though not exclusively, in the case of Africa, where the imperial period has been characterized (in one book title at least) as *The Colonial Moment in Africa*.[38] As the post-colonial era lengthens, perspectives and time-scales have tended to open up. Much new work, particularly in Africa, has reduced the tendency to see the imperial experience as both profoundly transformatory and uniquely destructive. A great deal of this new work has been concerned with fragile ecologies, with forest and marginal zones, with regions of transhumant pastoralism, with faunal extinctions and survivals, with issues involving relationships between peoples and power, demographic and climatic change and the incidence of famine.

Much of this research has tended to see the changes wrought by imperial power as but one phase in much longer cycles of environmental ups and downs not unlike those of the 'dismal science' of economics. Indeed, indigenous

knowledge in many regions of Asia, Africa and Australasia reveals that many peoples have their own awareness of some form of the biblical cycle of feast and famine. At the same time, climatic history has been catching up with its sophisticated use in the natural sciences, and historians and archaeologists are increasingly coming to grips with pluvials and inter-pluvials, little ice ages, volcanic and El Niño-induced transformations. Linguists, historians and anthropologists have revealed words for 'dearth', like that powerfully expressive word of the Shona of Zimbabwe, *shangwa*.

Moreover, pre-colonial peoples had more power to transform their environments, mainly through fire, than imperial rulers or modern scholars have ever allowed. This is true, as we now know, of Australia, India and Africa. In comparatively recent times, there were almost certainly pre-colonial species extinctions caused by overhunting and, at times, profligate killing. Examples of the latter have been found in North America and Australia.[39] The arrival of new migrant peoples, like the Bantu-speakers in Africa or dominant élites in India, had the capacity to transform the human relationship with botanical and zoological contexts as much as, or, in some cases, more than, colonial rulers, not least because they had a longer time to do so. Hunters and gatherers were perhaps well aware of this: there is a celebrated bushman cave-painting not far from Harare in Zimbabwe which, very movingly, depicts an immigrant Bantu-speaker cutting down a tree with an axe, an action which must have been technically and environmentally inconceivable to the painter.

At any rate, the repeated incidence of dearth must have produced both human and zoological demographic swings. In the African case, Europeans almost certainly arrived during one of a long series of environmental downturns, which both indigenous contemporaries and modern protagonists of the apocalyptic view attributed to their agency. Thus we have to understand the mutual effects and complex oscillations of both the natural cycle and human-induced change. We now know more of the historical depth of famine in, for example, both Ethiopia and India, knowledge which in both cases goes back to the sixteenth century and earlier.[40] We know that deforestation is far from being just a modern phenomenon; nor is the tight control of forests, their resources and who may live within them. Recent research has indicated the scale of environmental degradation in Indian forests under the Moguls, as well as the manner in which successor states to the Mogul Empire may have developed forest policies which became a model for the British at a later date.[41] There has been a good deal of speculation about the extent to which ecological problems had effects not only on a medieval state like Zimbabwe, but also on eighteenth- and nineteenth-century African polities in Zululand, Angola and Malawi.

Other scholars have pointed to the complex diversity of the imperial impact. McCracken, for example, has suggested that capitalism, in the shape of commercial tobacco-growing in Malawi, interacted with environments rather than dominated them, producing a mix of deleterious and favourable outcomes.[42] In any case, environmental enlightenment is not the sole prerogative of any one

side in the imperial relationship. At times, indigenous peoples succeeded in frustrating attempts at botanical and forestry protection – examples have been found in both West and East Africa.[43] Moreover, the imperial monolith has increasingly fragmented. Experts and administrators sometimes tried desperately to settle nomadic pastoralists, not always successfully; elsewhere, pastoralists were culturally valued more highly than the supposedly softer, stationary peasantry. Some colonial authorities in Africa sought to destroy game to try to beat back the incidence of the tsetse fly, which used game as a host; others created vast national parks to encourage the regeneration of game stocks.[44] The policy pursued largely depended on whether the territory contained white settlers with cattle to be protected. As always, expert opinion was highly attuned to the political contexts that it served.

Towards the end of imperial rule, there were at least the beginnings of a better understanding of the interrelationship between forest peoples and their environment and between pastoralists, their herds and game. The nationalist historiography has often influenced historians of natural history to concentrate on instances of resistance to European policies, when submission and collaboration may have been just as prominent a part of indigenous responses. In many cases, post-colonial states have been more susceptible to sectional interests than imperial rulers.[45] No modern state likes people to move around, and many post-colonial states have been even more concerned to settle pastoral nomads than their colonial predecessors. Hunters and gatherers invariably come in for a raw deal, as recent examples in Africa and elsewhere demonstrate repeatedly. What is more, such states have often proved more responsive to powerful international conservation lobbies which do not always take indigenous needs into account. Just as the longer perspective school can dip deeper into the past, so, too, can it come closer to the present.

The fully integrated cultural school

This tendency in environmental history is a distinctively modern one, insofar as it often deals with constructions of nature as much as the supposed realities. It also attempts to set environmental issues into their full economic, political and cultural contexts. In the process, however, it has often tended to re-nationalize environmental history. In the past, the great strength of environmental history has been its capacity to transcend national, regional or even continental boundaries. This has certainly been the case with the work of Crosby, Grove and others. In *The Empire of Nature*, I very self-consciously wrote about both Africa and India in an attempt to demonstrate aspects of the common scientific, cultural and legal cultures that obtained throughout the British Empire.[46] In that work, I also set out to place imperial hunting into both indigenous and metropolitan cultural contexts. I argued that conservationist policies had to be understood not in terms of the development of sensitivities, but as ideas that were only possible once the economic need for the exploitation of animals had

begun to pass away. They also had to be analysed – together with the legislation that they spawned – within their racial, scientific and settler environments. As alarm about the decline of animals increased in the 1890s and early years of this century, European hunters produced an apocalyptic vision which often produced equally apocalyptic solutions: the creation of vast reserves and national parks, the movement of peoples, widespread culling of both domestic and wild animals, particularly so-called 'vermin', and the imposition of hunting bans that were highly culturally determined. Ultimately, many of these policies were as disastrous, to the interests of both humans and animals, as the problems they were designed to overcome. This was particularly the case with the spread of tsetse fly and the incidence of nagana and sleeping sickness.[47]

This kind of cultural approach has been developed in much more sophisticated ways in recent times. *The Kruger National Park* by Jane Carruthers has an importance far beyond its relatively brief length or apparently specialist focus.[48] Her subtitle, 'A Social and Political History', could perhaps be expressed more accurately as a cultural and racial history. She studies the development of that vast park not only in terms of the lives of Africans, Europeans and animals interacting with each other through hunting, subsistence, war and leisure, but also in the context of Afrikaner nationalism. Although Afrikaners often paid no more than lip-service to conservationist measures, they soon recognized the significance of the Kruger Park not only for their wilderness myths, but also for their search for international acceptability, particularly once the full nationalist racial programme had been inaugurated after 1948. The nakedness of apartheid was clothed in the fig-leaf of the conservationist Kruger.

Tom Griffiths's superbly suggestive *Hunters and Collectors: The Antiquarian Imagination in Australia*, approaches constructions of the environment through successive interpretations of the human past.[49] He analyses the controversies about so-called wildernesses and the preservation of ecologies complete with their palimpsests of human endeavour superimposed or interleaved within them. This rich blend includes issues of tourism, the often contradictory phases of ecological management and preservation of the built environment, as well as private and museum collecting and their related exhibitions. Hunting and collecting took place within a landscape that was repeatedly being re-evaluated by settlers, even as their relationship with Aborigines, geological and human timescales, and their own ancestors was progressively transformed.

Geoff Park's *Ñga Uruora* ('the groves of life' in the Maori language) brings together a personal and romantic experience of landscape with a sustained analysis of the Maori and *Pakeha* (white) approaches to exploitation, degradation and sustainability in the fertile coastal plains of both North and South Islands of New Zealand.[50] It also explores the responses of art and photography to these lands, where survival, economics and spirituality profoundly intermingle. There is, perhaps, a tendency towards a pre-colonial 'Merrie New Zealand' here, and the repeated interposition of the author's own personal responses is reminiscent of Simon Schama's *Landscape and Memory*.[51] Schama,

however, renders his study of the nationalist constructions of landscape within Europe almost unreadable through his labyrinthine, post-modernist and obtrusively personal approach.

The partial re-nationalization of environmental history by Carruthers, Griffiths, Park and Schama is not necessarily a bad thing. Constructions of nature inevitably have a national or racial component. Additionally, these approaches represent the multilayered richness of the field and also offer all kinds of comparative methodologies useful elsewhere. They should help to promote, rather than hinder, the globalizing of environmental history. Indeed, Mahesh Rangarajan has recently asserted that the distinctive and extensive character of environmental studies in South Asia calls for a two-way process of global understanding and mutual fertilization.[52]

Other examples of the 'longer perspective' and 'culturally integrated' schools appear within this volume. Moreover, new neo-centric and peripheralist analyses can also be identified here. As the human past in Australia, as well as the antiquity of all its life-forms, is pushed further back, geographical as well as chronological perspectives can shift strikingly. A new prospectus repeatedly asserts itself, one which must develop indigenous conceptualizations of the environment, together with ethno-botany, ethno-entomology and natural history, and the capacity of Europeans to learn from these. The manipulation of the environment in the processes of resistance and collaboration must also be on the agenda, together with distinctive religious, philosophical and intellectual inputs. Since the histories of science and medicine have ceased to be the rather specialist and esoteric fields that they once were, there is also a need to develop the very productive work in these fields along with all the other cultural and ecological work in progress. It is abundantly apparent that four schools of environmental history represent no more than an opening bid.

Notes

1. Donald Worster, 'Doing Environmental History', in *The Ends of the Earth: Perspectives on Modern Environmental History* (Cambridge: 1988), pp. 289–307; Alfred Crosby, 'The Past and Present of Environmental History', *American Historical Review*, 100/4 (1995), pp. 1177–89.
2. Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (Cambridge: 1995); 'North American Innovation or Imperial Legacy? Contesting and Re-assessing the Roots and Agendas of Environmental History 1860–1996', paper delivered at the Australian National University Colloquium on the Environment, February 1996.
3. Michael Adas, *Machines as the Measure of Men: Science, Technology and Ideologies of Western Dominance* (Ithaca: 1989).
4. Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Ninteenth Century* (Oxford: 1981), *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850–1940* (Oxford: 1988), *The Hidden Weapon: Telecommunications and International Politics, 1851–1945* (Oxford: 1991).
5. Robert Moffat, *Missionary Labours and Scenes in Southern Africa* (London: 1842), p. 147.
6. See, for example, Denis Cosgrove and Stephen Daniels, *The Iconography of Landscape* (Cambridge: 1988), p. 165.

7. Sir Charles Eliot, *The East Africa Protectorate* (London: 1905), pp. 4–5.
8. C. E. Callwell, *Small Wars: Their Principles and Practice* (London: 1906).
9. See, for example, Sir Arthur Hardinge, *Report on the Condition and Progress of the East Africa Protectorate from its Establishment to the 20th July 1897*, C 8683 (1897), p. 48.
10. Quoted in John M. MacKenzie, '"In Touch with the Infinite", the BBC and the Empire 1923–53', in *Imperialism and Popular Culture* (Manchester: 1986), p. 183.
11. Sir Harry Johnston, *The Story of my Life* (London: 1923).
12. Johnston, *Story of my Life*, pp. 65–8; John M. MacKenzie, *The Empire of Nature: Hunting, Conservation and British Imperialism* (Manchester: 1988), pp. 211–16.
13. Johnston, *Story of my Life*, p. 276.
14. See, for example, David Livingstone, *Missionary Travels in South Africa* (London: 1857), p. 152. The question of indigenous agency in game destruction is explored in MacKenzie, *Empire of Nature*.
15. Madhav Gadgil and Ramachandra Guha, *This Fissured Land: An Ecological History of India* (Oxford: 1992); Richard P. Tucker, 'The Depletion of India's Forests under British Imperialism: Planters, Foresters, and Peasants in Assam and Kerala', in Worster (ed.), *Ends of the Earth*, pp. 118-40; Ramachandra Guha, 'Prehistory of Indian Environmentalism: Intellectual Traditions', *Economic and Political Weekly*, 4–11 January (1992), pp. 57–64; Jacques Pouchepadass, 'British Attitudes towards Shifting Cultivation in Colonial South India: A Case Study of South Canara District 1800–1920', in David Arnold and Ramachandra Guha (eds), *Nature, Culture, Imperialism: Essays in Indian Environmental History* (Delhi: 1995), pp. 123–51.
16. E. P. Stebbing, *The Forests of West Africa and the Sahara* (Edinburgh: 1937). Stebbing held (p. 5) that forest degradation occurred in three phases: 'farm it, graze it, then hunt it'.
17. Elizabeth Whitcombe, *Agrarian Conditions in North India* (Berkeley: 1972).
18. Elizabeth Whitcombe, 'The Environmental Costs of Irrigation in British India: Waterlogging, Salinity and Malaria', in Arnold and Guha (eds), *Nature, Culture, Imperialism*, pp. 237–59.
19. Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport: 1972), *Ecological Imperialism: The Biological Expansion of Europe 900–1900* (Cambridge: 1986).
20. Gadgil and Guha, *Fissured Land*, pp. 117-18.
21. Lucile H. Brockway, *Science and Colonial Expansion: The Role of the British Royal Botanical Gardens* (New York: 1979).
22. Helge Kjekshus, *Ecology, Control and Economic Development in East African History* (London: 1977).
23. Leroy Vail, 'Ecology and History: The Example of Eastern Zambia', *Journal of Southern African Studies*, 3 (1977), pp. 129–55, 'The Political Economy of East-Central Africa', in D. Birmingham and P. M. Martin (eds), *History of Central Africa*, vol. 2 (London: 1983), pp. 200–50.
24. William Lines, *Taming the Great South Land: A History of the Conquest of Nature in Australia* (Sydney: 1991), p. 11.
25. Geoffrey Bolton, *Spoils and Spoilers: Australians Make their Environment, 1788–1980* (Sydney: 1981).
26. Gadgil and Guha, *Fissured Land*, part 1.
27. Clive Ponting, *A Green History of the World* (Harmondsworth: 1991). For more respectable surveys, see I. G. Simmons, *Environmental History: A Concise Introduction* (Oxford: 1993); A. M. Mannion, *Global Environmental Change: A Natural and Cultural Environmental History* (London: 1991).
28. T. C. Smout, 'The Highlands and the Roots of Green Consciousness, 1750–1990', the Raleigh Lecture on History, *Proceedings of the British Academy*, 76 (1991), pp. 237–63; David Pepper, *The Roots of Modern Environmentalism* (London: 1984).
29. Norbert Elias, *The Civilising Process: The History of Manners*, trans. Edmund Jephcott (1939; Oxford: 1978).
30. Harold J. Perkin, *The Origins of Modern English Society* (London: 1969), p. 280.

31. Keith Thomas, *Man and the Natural World: Changing Attitudes in England, 1500–1800* (London: 1983), pp. 15, 243.
32. David Elliston Allen, *The Naturalist in Britain: A Social History* (London: 1976); Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (1986; Harmondsworth: 1990).
33. James Serpell, *In the Company of Animals: A Study of Human–Animal Relationships* (Oxford: 1986); Mary Midgley, *Animals and why they Matter* (Athens, GA: 1984).
34. Midgley, *Animals*, pp. 14–16; Susan L. Carruthers, *Winning Hearts and Minds: British Governments, the Media and Colonial Counter-Insurgency 1944–1960* (London: 1995), p. 152.
35. Grove, *Green Imperialism*, pp. 2–3.
36. See Chapter 9, above; Grove, *Green Imperialism*, chapter 8.
37. Edward Said, *Orientalism* (Harmondsworth: 1985). For a critique of the post-colonial theorists, see John M. MacKenzie, *Orientalism: History, Theory and the Arts* (Manchester: 1995).
38. Andrew Roberts, *The Colonial Moment in Africa* (Cambridge: 1990).
39. Bolton, *Spoils and Spoilers*, pp. 6–7; Gadgil and Guha, *Fissured Land*, p. 73; William Beinart and Peter Coates, *Environment and History: The Taming of Nature in the USA and South Africa* (London: 1995), pp. 4–20.
40. See, for example, R. Pankhurst, *The History of Famine and Epidemics in Ethiòpia prior to the Twentieth Century* (Addis Ababa: 1985); Vinita Damodaran, 'Famine in a Forest Tract', *Environment and History*, 1/2 (1995), pp. 129–58.
41. Michael Mann, 'Ecological Change in North India: Deforestation and Agrarian Distress in the Ganga-Jamna Doab 1800–1850', *Environment and History*, 1/2 (1995), pp. 201–20; Chetan Singh, 'Forests, Pastoralists and Agrarian Society in Mughal India', and Atluri Murali, 'Whose Trees? Forest Practices and Local Communities in Andhra, 1600–1922', both in Arnold and Guha (eds), *Nature, Culture, Imperialism*, pp. 21–48 and 86–122.
42. John McCracken, 'Colonialism, Capitalism and Ecological Crisis in Malawi: A Reassessment', in David Anderson and Richard Grove (eds), *Conservation in Africa: People, Policies and Practice* (Cambridge: 1987), pp. 63–77.
43. Andrew Millington, 'Environmental Degradation, Soil Practices and Agricultural Policies in Sierra Leone, 1895–1984', and David Anderson, 'Managing the Forest: The Conservation History of Lembus, Kenya, 1904–1963', both in Anderson and Grove (eds), *Conservation in Africa*, pp. 229–48 and 249–68.
44. MacKenzie, *Empire of Nature*, chapters 9 and 10. See also William Beinart, 'Empire, Hunting and Ecological Change in Southern and Central Africa', *Past and Present*, 128 (1990), pp. 162–86. An entire issue of the *Journal of Southern African Studies*, 15/2 (1989), was devoted to this and related issues.
45. Olusegun Areola, 'The Political Reality of Conservation in Nigeria', in Anderson and Grove (eds), *Conservation in Africa*, pp. 277–92; Madhav Gadgil and Ramachandra Guha, *Ecology and Equity: The Use and Abuse of Nature in Contemporary India* (London: 1995).
46. MacKenzie, *Empire of Nature*.
47. John M. MacKenzie, 'Experts and Amateurs: Tsetse, Nagana and Sleeping Sickness in East and Central Africa', in *Imperialism and the Natural World* (Manchester: 1990), pp. 187–212.
48. Jane Carruthers, *The Kruger National Park: A Social and Political History* (Pietermaritzburg: 1995).
49. Tom Griffiths, *Hunters and Collectors: The Antiquarian Imagination in Australia* (Melbourne: 1996).
50. Geoff Park, *Ñga Uruora: Ecology and History in a New Zealand Landscape* (Wellington: 1995).
51. Simon Schama, *Landscape and Memory* (London: 1995).
52. Mahesh Rangarajan, 'Environmental Histories of South Asia', *Environment and History*, 2/2 (1996), pp. 129–43.

CHAPTER 15

Empires and ecologies: reflections on environmental history

David Lowenthal

The diverse insights that unfold in this book are, at times, mutually at odds. Given the wide range of places, peoples and periods treated, divergent viewpoints are inevitable – and enlightening. We understand nineteenth-century New South Wales better by seeing how its settlement differed from, say, seventeenth-century Virginia. Six interrelated themes, converging on issues of environmental perception and impact, stand out as especially salient in the preceding chapters. I seek here to set them within a broader scope.

Imperial and settler types and stereotypes

Compelling images emerge out of Old World discovery, conquest and settlement abroad – images of rapture and terror in viewing exotic lands, images of fruition and rapine in engrossing them. But common stereotypes conceal profound differences of New World locale, of imperial ambition, of settler behaviour and of indigenous response. These variables are ecologically vital. To appreciate their import demands in-depth specific histories. We cannot understand the general ecology of empire without chronicling its particulars throughout Australasia and America, Africa and the Pacific. To know why imperial China gutted its woodlands while imperial Japan reafforested them, as Michael Williams notes, we need to study shifting imperial motives in both countries.[1]

The discussions that gave birth to this book focused predominantly on British imperial impacts. Vast extent and wide dispersal gave British imperial officials and scientists unrivalled opportunities to exchange environmental data and insights.[2] But collaboration was more than British; it was global. In learning about and modifying new worlds, European venturers and settlers moved with casual ease across imperial boundaries, much as the British in India imported French and German forestry expertise.[3] Caribbean history exemplifies such commingling. French and English seventeenth-century entrepreneurs hijacked Portuguese sugar-cane technology from Brazil to the West Indies, and deployed Dutch drainage and irrigation expertise to impolder the Guiana coast. Three centuries later, the quadri-imperial Caribbean Commission (established in 1946) sponsored programmes that ranged from area-wide climatic and volcanic