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Globalization, Environmental Change, and Social History: An Introduction

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Throughout the ages, the activities of humankind have weighed considerably upon the environment. In turn, changes in that environment have favoured the rise of certain social groups and limited the actions of others. Nevertheless, environmental history has remained a "blind spot" for many social and economic historians.¹ This is to be regretted, as changes in ecosystems have always had quite different consequences for different social groups. Indeed, the various and unequal effects of environmental change often explain the strengths and weaknesses of certain social groups, irrespective of their being defined along lines of class, gender, or ethnicity.

This Special Issue of the *International Review of Social History* aims to bring together the expertise of social and environmental historians. In the last few decades of the twentieth century, expanding holes in the ozone layer, global warming, and the accelerated pace of the destruction of the tropical forests have resulted in a worldwide recognition of two closely related processes: globalization and environmental change.² The contributions to this volume provide striking case studies of such connections in earlier periods, revealing a fruitful interconnection between social and environmental history. This introduction provides a historiographical context for the essays that follow, focusing on the relevant notions connected

^{1.} See Ted Steinberg, "Down to Earth: Nature, Agency, and Power in History", *The American Historical Review*, 107 (2002), pp. 798–820, 805.

^{2.} Thomas E. Lovejoy and Lee Hannah (eds), *Climate Change and Biodiversity* (New Haven, CT, 2006); Alfred W. Crosby, *Children of the Sun: A History of Humanity's Unappeasable Appetite for Energy* (New York [etc.], 2006).

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with globalization and environmental change, and stressing the existing interactions between environmental and social history. We are particularly interested in the consequences of processes induced by globalization, how transnational forces and agents changed the socio-ecological space, and how that affected relationships between different classes in history.

GLOBALIZATION AND GLOBAL HISTORY

Globalization is a concept that needs further elaboration. The rise of the internet, the shifts in the power of sovereign national states, the intricate intertwining of global markets, and the enormous numbers of people migrating across regions and continents trying to escape wars, environmental degradation, or disasters have prompted several scholars to explain these recent trends using new definitions of globalization. The description by the political scientists David Held and Anthony McGrew nicely captures our understanding:

Simply put, globalization denotes the expanding scale, growing magnitude, speeding up and deepening impact of interregional flows and patterns of interaction. It refers to a shift or transformation in the scale in human organization that links distant communities and expands the reach of power relations across the world's major regions and continents.³

In history, as well as in the social sciences, debates abound on the timing or start of globalization. In contrast to some scholars, we are not inclined to use globalization as a term limited to a new epoch that started in the 1980s or 1990s,⁴ neither do we think that the rapid globalization in the nineteenth century precludes all early modern globalization,⁵ nor do we see a specific date (1492 or 1571 have been suggested, for example) in the early modern period from which globalization truly took off.⁶ Rather, we wish to look upon globalization as a set of highly variegated processes that can be labelled in different ways, ranging from "thick" to "thin" globalization and from "diffused" to "expanded". These categories are

^{3.} David Held and Anthony McGrew, "The Great Globalization Debate: An Introduction", in *idem* (eds), *The Global Transformations Reader: An Introduction to the Globalization Debate*, 2nd edn (Cambridge, 2003), p. 4. "Regions" refer to certain larger areas within a continent, usually encompassing several nation-states, for instance south-east Asia or the European Community.

^{4.} Kenichi Ohmae, *The End of the Nation State: The Rise of Regional Economies* (New York, 1995); Martin Albrow, "A New Decade of the Global Age, 1996–2006", *Globality Studies Journal: Global History, Society, Civilization*, 8 (2007), pp. 1–26.

Kevin H. O'Rourke and Jeffrey G. Williamson, "When Did Globalisation Begin?", *European Review of Economic History*, 6 (2002), pp. 23–50.
 Dennis O. Flynn and Arturo Giráldez, "Path Dependence, Time Lags and the Birth of

^{6.} Dennis O. Flynn and Arturo Giráldez, "Path Dependence, Time Lags and the Birth of Globalisation: A Critique of O'Rourke and Williamson", *European Review of Economic History*, 8 (2004), pp. 81–108.

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derived from *Global Transformations*, the influential study by David Held *et al.* in which they observe variations in the extensity, the intensity, the velocity, and the impact of global connections.⁷

"Thick" globalization then refers to processes that share an expanding scale, growing magnitude, and an acceleration as well as a deepening of their impact. A case in point is the growing interconnection of the world markets in the late nineteenth century under the auspices of the British Empire. Thin globalization typically relates to developments that can be defined by an expanding scale while the other three characteristics are weak. A good example is the long-distance trade along the Eurasian silk route in the medieval period. The impact of diffuse globalization is likewise rather shallow, yet its velocity and intensity are high; the worldwide spread of Coca-Cola may serve as an illustration. Finally, expanded globalization refers to developments in which the impact is high, yet the intensity and velocity are limited, as represented by the colonization of Latin America and the Caribbean in the early modern period. This distinction in different categories allows us thus to investigate environmental impacts that can be substantial even before the rise of imperialism or other obvious "thick" globalizations.

In line with these thoughts, it would be preferable to speak about "globalizations" instead of one "globalization", not as a single process but as a multitude of uneven developments.⁸ Implicit in numerous conceptualizations of globalization is the assumption that it inevitably entails homogenization, that all societies will increasingly look the same.⁹ Although convergence is indeed often strong, globalization also leads to divergence, which is best illustrated perhaps by the division in world power. A set of elite groups in the core regions maintain excellent relations with the new nodes of power, while other groups and regions become increasingly marginalized. For example, when the world financial markets experienced rapid interconnection in the late twentieth century

7. David Held *et al., Global Transformations: Politics, Economics, and Culture* (Cambridge [etc.], 1999), pp. 17–23.

8. See also Wolf Schäfer, "From the End of European History to the Globality of World Regions: A Research Perspective", *Globality Studies Journal: Global History, Society, Civilization*, 1 (2006), pp. 1–9, 6. This resembles the debates regarding modernization, in which it has become common ground to study "modernizations" instead of the one master trajectory in history towards modern society. The latter inevitably led to the misguided supposition of the superiority of the Western path of development. See Christopher Bayly, *The Birth of the Modern World*, 1780–1914: Global Connections and Comparisons (Oxford, 2004); Julia Adams, Elisabeth S. Clemens, and Ann Shola Orloff (eds), *Remaking Modernity: Politics, History, and Sociology* (Durham, 2005).

9. Many historians follow this assumption, above all economic historians. See among others O'Rourke and Williamson, "When Did Globalisation Begin?", and Flynn and Giráldez, "Path Dependence, Time Lags and the Birth of Globalisation".

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the number of financial experts actually acquainted with the development was quite small; they were termed the "new economic hit men", and included major investors such as George Soros.¹⁰

The social scientist Manuel Castells stressed that globalization effectuates a sharpening of class distinctions and even the emergence of new classes. He observed that in the age of the internet, certain business managers moved rapidly towards the upper echelons of society, while at the bottom a new "fourth class" found itself deprived of digital ways to make money. Castells summarizes these trends as follows: elites are cosmopolitan and global, "ordinary people" remain oriented towards the local.¹¹ Comparable processes are observed in different fields: for example, James Scott noted that in a Malaysian village the new profits of the green revolution went disproportionately to the wealthier farmers.¹² Thus, marginalized people remain localized, strengthening divergence.

Divergence can also be the result of resistance to global trends. A growing consciousness of typically local and national interests results in movements wishing to stress differing and alternative paths, such as nationalist parties and fundamentalist Islam, to mention but a few. Movements that do not oppose globalization yet aspire to blend global tendencies within local traditions and solutions are called glocal, which can also reinforce divergent trends.¹³

Historians have also recognized the thick globalization of the last few decades of the twentieth century, above all its impact on the role of sovereign states. Not that the nation-state is withering away, but its functions have undergone major transformations, and historians have become more attentive to the workings of transnational trends and agents in earlier periods.¹⁴ As the global connections changed and intensified, as regional and intercontinental structures expanded, historians increasingly looked back on the development of their own nation-states as constructs that were strongly linked to a specific phase in world history. This stimulated the rise of a distinct group of world historians, as exemplified by the establishment of the *Journal of World History* in 1990.¹⁵ Within world

^{10.} Niall Ferguson, *The Ascent of Money: A Financial History of the World* (New York [etc.], 2008), pp. 314–327.

^{11.} Manuel Castells, The Rise of the Network Society. I: The Information Age: Economy, Society and Culture, 2nd edn (Cambridge [etc.], 2000), pp. 296ff.

^{12.} James Scott, Weapons of the Weak: Everyday Forms of Peasant Resistance (New Haven, CT, 1985), pp. 56, 305.

^{13.} Roland Robertson, Globalization: Social Theory and Global Culture (London, 1992).

^{14.} Patrick O'Brien, "Historiographical Traditions and Modern Imperatives for the Restoration of Global History", *Journal of Global History*, 1 (2006), pp. 3–39, 38.

^{15.} Jerry H. Bentley, "A New Forum for Global History", *Journal of World History*, 1 (1990), pp. iii–v, noted the increased awareness of historians regarding the changing position of the nation-state.

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history a further specialization occurred, with one group studying the world as a whole (world historians) and another focusing on global connections and comparisons across regions and continents (global historians). Although the *Journal of World History* harboured both species, the *Journal of Global History* was founded in 2006 with explicit reference to the second group.¹⁶ In calling attention to global connections, this Special Issue is strongly embedded within this latter trend of historiography, stressing further that globalization is a multifaceted process with both convergent and divergent trends that do not necessarily have to be "thick" to have a significant impact on localized societies.

ENVIRONMENTAL HISTORY

Since the start of the new millennium, environmental change has acquired an undisputed position in the historiography. It is invoked frequently by historians of all sorts and trades to explain the rise and decline of former civilizations such as that of the Fertile Crescent and of the Mayas. Also, short-term effects, such as weather conditions during major historical battles, have received increased attention.¹⁷ But this is a rather recent phenomenon. For a long time, history traditionally studied the actions of humans in the past, with only scant attention paid to the environment, which was more often than not viewed as immovable and unchangeable.

Nowadays, environmental history is quite generally defined as the study of the interaction between humans and nature, or between society and nature, in the past.¹⁸ The field received major stimuli with the growing awareness since the 1960s and 1970s of the impact of industrial pollution and nuclear waste.¹⁹ The historical world witnessed a major institutionalization with the establishment of the American Society for Environmental History in 1975, followed by the publication of a journal, the *Environmental Review* (renamed *Environmental History* in the 1990s).

19. Alfred Crosby, "The Past and Present of Environmental History", *The American Historical Review*, 100 (1995), pp. 1177–1189, 1187–1188.

^{16.} William Gervase Clarence-Smith, Kenneth Pomeranz, and Peer Vries, "Editorial", *Journal of Global History*, 1 (2006), pp. 1–2; O'Brien, "Historiographical Traditions", p. 7.
17. Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York, 2005); Ian

^{17.} Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York, 2005); Ian Whyte, *World Without End? Environmental Disaster and the Collapse of Empires* (London [etc.], 2008).

^{18.} Wolfgang Behringer, *Kulturgeschichte des Klimas: Von der Eiszeit bis zur globalen Erwärmung* (Munich, 2007), p. 119; Timo Myllyntaus, "Environment in Explaining History: Restoring Humans as Part of Nature", in *idem* and Mikko Saikku (eds), *Encountering the Past in Nature: Essays in Environmental History* (Athens, OH, 2001), pp. 141–160, 143–145; Richard White, *The Organic Machine: The Remaking of the Columbia River* (New York, 1996), p. ix: "we cannot understand human history without natural history and we cannot understand natural history without human history. The two have been intertwined for millennia."

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Since then, North America has always been home to a prominent group of environmental historians.²⁰ Europe followed in 1988 with the European Association for Environmental History, which published the Environmental History Newsletter before it became involved in the distribution of the journal Environment and History (published from 1995), of which Richard Grove was the founding editor, supported by colleagues from Europe, Africa, Asia, Australia, and the USA. Both journals set the academic standard for the field. The approach was strongly interdisciplinary, with contributions from historians, natural scientists, social scientists, and geographers, to mention only the most important. A couple of worldwide bestsellers rendered the field of study well known, notably Alfred W. Crosby's Columbian Exchange (1972) and Ecological Imperialism (1986); Donald Worster's The Ends of the Earth (1988); Clive Ponting's A Green History of the World (1991); Richard Grove's Green Imperialism (1995); Jared Diamond's Guns, Germs and Steel (1997); and John McNeill's Something New Under the Sun (2000). The creation of a new Italian historical journal in 2008, Global Environment, shows the strength and resilience of the environmental history approach.²¹

Environmental history at its best shares three characteristic tendencies with global history: the long-term perspective, the transnational and transcontinental connections, and the interdisciplinary approach. First, many topics in environmental history require a long-term perspective. Pollution is often a matter of one or more generations, most ecological catastrophes have long-term repercussions, and erosion and climatic changes usually span decades or even centuries. Not surprisingly, the *longue durée* of the *Annales* tradition comes to the foreground again.²² Second, in spatial terms environmental history frequently transgresses national borders. Pollution does not stop at human-made frontiers; neither does erosion, let alone climate change. Like global historians, numerous environmental historians look beyond Eurocentric or Westerncentric approaches by focusing on developments in Asia, Africa, Latin America, Australasia, and even the oceans. The relationship between

^{20.} J. Donald Hughes, *What is Environmental History?* (Cambridge, 2006); Sverker Sörlin and Paul Warde, "The Problem of the Problem of Environmental History: A Re-Reading of the Field and Its Purpose", *Environmental History*, 12 (2007), pp. 107–130, 108.

^{21.} The *bollettino* called *I Frutti di Demetra* serves Italian-speaking environmental historians. The Low Countries have shared a *Jaarboek voor Ecologische Geschiedenis* since the 1990s. See also Marjolein 't Hart, "Tussen dierenliefde en milieubeleid. Tien jaar ecologische geschiedschrijving in de Lage landen", *Jaarboek voor Ecologische Geschiedenis*, 10 (2007), pp. 23–44.

^{22.} Fernand Braudel, *La Méditerranée et le Monde Méditerranéen à l'époque de Philippe IIe* (Paris, 1949); Emmanuel Le Roy Ladurie, *Histoire du climat depuis l'an mil* (Paris, 1967); Richard White, "American Environmental History: The Development of a New Historical Field", *Pacific Historical Review*, 54 (1985), pp. 297–335; J.R. McNeill, "Observations on the Nature and Culture of Environmental History", *History and Theory*, 42 (2003), pp. 5–43, 14.

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colonialism/imperialism and ecological decline has received increased attention in the past two decades.²³ Third, the interdisciplinary approach is strong not only among world historians, but also in environmental history as the latter incorporates insights from a range of fields, including biology, chemistry, geology, and archaeology.²⁴ Characteristically, the youngest journal in the field of environmental history, *Global Environment*, carries the subtitle *A Journal of History and Natural and Social Sciences*.

As much of environmental history was and is linked to the growing concerns of the green social movement, the field is strongly problemoriented. Topics typically deal with the spread of epidemic disease, the consequences of climatic change, the far-reaching effects of natural disasters, the reduction in ecological diversity, and humans overburdening the ecosystem, as witnessed by air, soil, and water pollution and the impoverishment and erosion of the soil.²⁵ Improved knowledge of El Niño climatic cycles has stimulated new research.²⁶ Such environmental causes carry an enormous weight, but it is the social, economic, cultural, and political context that can explain the actual impact and consequences in full. Why are comparable disasters less destructive than others, why are some societies more resilient than others, why are certain classes or groups hurt more than others? Such questions call for a strong association of environmental studies with social history.

SOCIAL HISTORY AND ENVIRONMENTAL STUDIES

Despite the potential links between social and environmental history, the two fields still retain their own preferences, leaving several obvious interconnections underdeveloped. Most social historians tend to look at nature, at the environment, as a given, as a constant entity that needs no further research. On the other hand, many environmental historians – often preoccupied with getting the necessary details from the natural sciences right – are inclined to look upon society as a homogeneous entity. The effects of disastrous floods or volcano eruptions, for example, are

23. David Arnold, The Problem of Nature: Environment, Culture and European Expansion (Oxford [etc.], 1996); Ramachandra Guha, The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya, 2nd edn (Berkeley, CA, [etc.], 2000), p. xiii; John Richards, The Unending Frontier: An Environmental History of the Early Modern World (Berkeley, CA, [etc.], 2003); William Beinart and Lotte Hughes, Environment and Empire (Oxford, 2007). 24. J. Donald Hughes, "Three Dimensions of Environmental History", Environment and History, 14 (2008), pp. 319–330.

26. Mike Davis, Late Victorian Holocausts: El Niño Famines and the Making of the Third World (London, 2001); Ross Couper-Johnston, El Niño: The Weather Phenomenon that Changed the World (London, 2001).

^{25.} Myllyntaus, "Environment in Explaining History", p. 149.

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frequently studied only for societies as a whole, without taking into account the different groupings within those societies.²⁷ Even many of the environmentalist works within the widely acclaimed Annales School tended to overlook all sorts of societal differences.

Having said that, it should be pointed out that in several areas meaningful interaction can be found between social history and environmental studies. In this section we can stress only those that are of direct interest to this volume, centring, first, around the notion of vulnerability; secondly, imprudent environmental policies, related to the concept of unintended consequences; and, thirdly, social protests related to environmental policies (or the lack thereof), including the movement for environmental justice.

Vulnerability has recently become a major topic in environmental studies. Many disasters that seem purely "natural", such as earthquakes and floods, are often significantly aggravated by particular social policies or processes. Indeed, natural hazards turn into true disasters only if there is a high degree of vulnerability among a significant part of the population. Repeatedly, risks from natural catastrophes are greater for the poor, for racial and ethnic minorities, the less educated, and the politically powerless.²⁸ At the same time, those groups at the lower end of the social hierarchy often suffer disproportionably from environmental degradation.

Studies related to El Niño have become commonplace in this regard. Worldwide droughts had occurred before, yet since the late eighteenth century considerable segments of the peasant class were increasingly living at subsistence levels in monoculture environments, with the result that any small fluctuation in harvests or grain prices had disastrous consequences. With the changing forms of production and consumption, what mattered above all was the question of which groups had access to the existing resources.²⁹ In early nineteenth-century South Africa, for example, droughts destabilized above all the already marginalized indigenous

29. Davis, Late Victorian Holocausts, pp. 277ff.; Amartya Sen, Poverty and Famines: An Essay on Entitlement and Deprivation (Oxford, 1982); on subsistence in a global context see Marcel van der Linden, Workers of the World: Essays Toward a Global Labor History (Leiden, 2008), pp. 324ff.

Alan Taylor, "Unnatural Inequalities: Social and Environmental Histories", *Environmental History*, 1:4 (1996), pp. 6–19, 7; Stephen Mosley, "Common Ground: Integrating Social and Environmental History", *Journal of Social History*, 39 (2006), pp. 915–933, 922.
 Terry Cannon, "Vulnerability Analysis and the Explanation of 'Natural' Disasters", in Ann

^{28.} Terry Cannon, "Vulnerability Analysis and the Explanation of 'Natural' Disasters", in Ann Varley (ed.), *Disasters, Development and Environment* (Chichester, 1994), pp. 13–31; Greg Bankoff, Georg Frerks, and Dorothea Hilhorst (eds), *Mapping Vulnerability: Disasters, Development and People* (London, 2004); Greg Bankoff, "Constructing Vulnerability: The Historical, Natural and Social Generation of Flooding in Metropolitan Manila", *Disasters, 27* (2003), pp. 224–238; Michael Dorsey, "Globalizing Justice: Against Environmental Racism in the Age of Globalization", in Natalia Arias and Ivonne Yánez (eds), *Resistance: A Path Towards Sustainability* (Quito, 2000), pp. 37–50; Ted Steinberg, *Acts of God: The Unnatural History of Natural Disaster in America* (New York, 2000).

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agrarian communities and, at the same time, strengthened the establishment of British rule over the territories.³⁰

Climatic changes did not always need to have so much effect. The degree of vulnerability mattered, as Emanuela Guidoboni showed for the sixteenth-century Po Valley. There, communities had grown increasingly vulnerable due to the deforestation and cultivation of mountain slopes, while recurrent near-famine conditions had already weakened the peasant class too. In such circumstances the increase in rainfall during the "Little Ice Age" – which was not actually that exceptional – resulted in floods with an extremely high number of casualties.³¹ Another example is the rapid spread of the plague in fourteenth-century Europe, which cannot be attributed solely to the deathly germs. Prior to the plague's arrival, living standards had been lowered, not least by a series of volcanic eruptions that impacted climatic circumstances and thus increased vulnerability.³²

Yet vulnerability can also result in social movements that reduce such risks. In eighteenth-century colonial Mexico, floods brought about an increased awareness and willingness to cooperate among riverine populations. The organizations transcended even traditional lines of ethnicity and class. Likewise, Greg Bankoff has noted the emergence of mutual associations in twentieth-century Manila, in particular in areas prone to earthquakes and typhoons, which significantly enlarged the resilience of these communities. Such associations proved helpful in all spheres of life.³³

A second concept that will be discussed in this context pertains to that of unintended consequences. Nowadays, Iceland is dominated by sterile wasteland, but at the time of its initial settlement wasteland accounted for only one-fifth of the surface area. Overgrazing and concomitant erosion rendered Iceland a harsh place to live, reducing its population from some 80,000 in the twelfth century to well below 30,000 in the eighteenth

^{30.} Charles Ballard, "Drought and Economic Distress", *Journal of Interdisciplinary History*, 17 (1986), pp. 359–378.

Emanuela Guidoboni, "Human Factors, Extreme Events and Floods in the Lower Po Plain (Northern Italy) in the 16th Century", *Environment and History*, 4 (1998), pp. 279–308.
 M.G.L. Baillie, "Putting Abrupt Environmental Change Back into Human History", in

^{32.} M.G.L. Baillie, "Putting Abrupt Environmental Change Back into Human History", in Paul Slack (ed.), *Environments and Historical Change: The Linacre Lectures 1998* (Oxford, 1999), pp. 46–75, 64–70.

^{33.} Georgina H. Endfield, Isabel Fernández Tejedo, and Sarah L. O'Hara, "Conflict and Cooperation: Water, Floods, and Social Response in Colonial Guanajuato, Mexico", *Environmental History*, 9 (2004), pp. 221–247; Greg Bankoff, "Dangers to Going it Alone: Social Capital and the Origins of Community Resilience in the Philippines", *Continuity and Change*, 22 (2007), pp. 327–355, 341; see also Enakshi Ganguly Thukral and Machindra D. Sakate, "Baliraja: A People's Alternative", in Enakshi Ganguly Thukral (ed.), *Big Dams, Displaced People: Rivers of Sorrow, Rivers of Change* (New Delhi, 1992), pp. 143–154. Regarding situations in which water is a scarce resource – thus requiring cooperation, yet in which conflicts abound – see Helga Haftendorn, "Water and International Conflict", *Third World Quarterly*, 21 (2000), pp. 51–68.

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century, from being rather well-to-do farmers to becoming poor cottiers and fishermen. Another famous example is the case of the Aral Sea. Driven by the short-term performance planning of the Soviet regime, aimed at achieving self-sufficiency of cotton production in central Asia, planners did not consider the possible long-term impact of their ideas. The consequences were disastrous for all communities in the area.³⁴

In the social sciences, the concept of unintended consequences was popularized by Robert K. Merton as the "unanticipated consequences of purposive social action". Whereas humans usually act on the basis of opinion and estimate, most knowledge stems from comparable actions in the past.³⁵ Here the particularities of the environment come to the forefront. The consequences of policies implicating the environment are frequently noticeable only after decades and are then often irreversible. Iceland's settlers did not realize the vulnerability of the island, as the environment in their home communities had not suffered from pasture at all. Decisions that worked well in the past may well be utterly destructive in later periods or in other settings; in this context the phrase "other things being equal" is often wrong as the environment is actually changing all the time.

A well-studied theme in this respect deals with conservation by colonial governments. In *Green Imperialism* Richard Grove established the growing awareness among colonial administrators of the possible detrimental effects of deforestation in particular. Within these colonial semi-scientific networks Grove even discovered the roots of Western environmentalism.³⁶ Although the latter is a rather contested viewpoint, the fact remains that conservation schemes in the colonies preceded those in the homelands themselves.

Such conservation policies carried consequences, of course, that were at least partially unintended.³⁷ The establishment of national parks and

37. Naturally, the effects of colonial policies were not always unintended. In the midnineteenth century, in order to improve the thrift of the colonized subjects, the British colonial secretary, Earl Grey, developed a tax system that was to fall in particular on those with the lowest incomes in the tropics. The scheme aimed to encourage positive working attitudes, as he

^{34.} Whyte, *World Without End?*, pp. 123, 201; Joachim Radkau, *Nature and Power: A Global History of the Environment* (Cambridge, 2008), pp. 154, 166. For an excellent introduction to the environmental effects of colonization policies in the early modern period, see Richards, *The Unending Frontier.*

^{35.} Robert K. Merton, "The Unanticipated Consequences of Purposive Social Action", *American Sociological Review*, 1 (1936), pp. 894–904, 899. For an insightful elaboration regarding unintended consequences in state policies, see James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT, 1998).

^{36.} Richard Grove, *Green Imperialism: Colonial Expansion, Tropical Islands Edens and the Origins of Environmentalism, 1600–1860* (Cambridge, 1995). On criticism regarding Grove's interpretations on the origins of environmentalism, see Radkau, *Nature and Power*, p. 128; S. Ravi Rajan, *Modernizing Nature: Forestry and Imperial Eco-Development, 1800–1950* (Oxford, 2006), p. 68.