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Nature and Power

An Intimate and Ambiguous Connection

Nature and Power *is to be understood not only as* human power against nature *but also as* power by nature *in the sense of Michel Foucault's* biopouvoir *(biopower) or Francis Bacon's "Naturae non imperator nisi parendo" (Only by obeying nature may we dominate nature). The fragile human attempts to get power over nature and by nature have a long history, reaching back over millennia until prehistoric times, and much of world history may be explained in part by the unstable relationship between humans and nature. The environmental approach offers a fresh look at global history. The great change that has happened in modern times seems to have been described best by Karl Polanyi (1944) in his* Great Transformation, *which also refers to a revolution in the human relation to nature. There are primeval symbioses of humans and nature that are the basis of environmental history until modern time. A global history of the environment may be written for a long time along the three great commons of history: woodlands, water, and pasture. The dark tune of Garrett Hardin's (1968) "Tragedy of the Commons," to be sure, does not dominate the whole melody of environmental history. There is also a lot of historical evidence for Elinor Ostrom's rehabilitation of the commons. But it is better to be cautious with dogmatic theories and sweeping judgments. In modern times Hardin may be right, at least in this or that regard. Ostrom's concept applies only to local, not to global commons. The underlying philosophy of* Nature and Power *is neither optimism nor pessimism but possibilism.*

Nature and Power: is the title self-explanatory, or does it need further explanation? Apparently it does.[1] The American cover picture—the so-called White House ruins of the Anasazi culture in Arizona—seems to suggest a

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certain interpretation of the title following Jared M. Diamond's (2005) world best seller *Collapse*. Eventually, when human culture has exceeded its natural limits, the monuments of human power are overwhelmed by the power of nature. Thus does Diamond present a grand narrative telling how human cultures have since ancient times tended to overstep these limits, so that one ecological suicide has followed another: a fatal omen for the future of humanity. As for me, I was delighted by the aesthetic attractiveness of this excellent cover but did not wholly agree with the message and the narrative of decline combined with it. The value of Diamond's work is without question, but he likes to jump from archaic cultures to modern American civilization while ignoring most of environmental history in-between.

And is it really proven that the Easter Islanders committed ecological suicide by felling their last tree out of blind ignorance? This story has been a favorite opener to the more apocalyptic forms of environmental history ever since Clive Ponting's (1992) *Green History of the World* was popularized by the film *Rapa Nui*. But as I tried to explain in *Nature and Power* (Radkau 2008a: 166), this is by no means the only possible account of the decline of Easter Island, nor is it the most convincing. Perhaps my arguments were insufficient, but my doubts have been confirmed about the Easter Islanders and the Anasazi decline by the new anthology *Questioning Collapse* (McAnany and Yoffee 2010).[2] Rats, brought in by the Europeans, became much more destructive for nature on Easter Island than any deforestation carried on by the indigenous people. Deforestation stories, whether on Easter Island or elsewhere, are the typical legends of environmental history, as we shall see.

The cover of the original German hardcover edition of *Nature and Power*, by contrast, emphasizes the dichotomy between the two, juxtaposing an alley of green trees above and dark blue nocturnal skyscrapers below (Radkau 2002b [2000]). The message is quite clear: monuments to economic power represent a horrifying counterforce against beautiful nature. But again, I was not satisfied with the aesthetics or with the message. When the first paperback edition was published in 2002, the publishing house accepted my proposal and decorated the cover with green wet-rice terraces. Not only did I like the beauty of that image, but I liked its ambivalence, too. Terraces are the best method of soil conservation in a hilly terrain that has been deforested for agriculture, but at the same time they are a deep intervention into the natural landscape, a drastic remodeling of nature creating ecologically fragile conditions if there is no longer a village community to constantly repair them. The

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irrigation system needed in a region that is not rich in rivers also requires a centralized authority. Water and power: an old connection indeed and *Leitmotiv* of an endless story.

On the whole the underlying philosophy of *Nature and Power* is the idea that institutional power is important for nature protection and for a sustainable management of natural resources but that a mere top-down strategy without a basic consensus with the resident population is not effective. Of course, that is an ambiguous premise. Mark Dowie (1995), in his critical history of American environmentalism, is not ambiguous. His whole book is composed on the division of "grassroots activists" against "mainstream environmentalism" (ibid.). But even the cult of grassroots democracy is something of a myth. Analyzed from close-up, in informal citizen groups there sometimes is less free discussion and less transparency than in political parties and parliaments. In Germany the 1,100 pages of *Die Grünen im Bundestag* (Boyer and Heidemeyer 2008) that document the early years of the German Greens—when many felt revulsion against state, parliament, and party politics—is revealing and shocking. Yet the reader comes to understand why Joschka Fischer, Otto Schily, and other combatants eventually became convinced adherents of administrative regulations (Radkau 2009).

I have also been criticized for underestimating the climate factor in history. In fact, I have been rather reserved with regard to the increasing how-climate-made-history literature (Radkau 2008a: 33–34) that became so trendy during the last two decades. It seems to me that until now the influence of climate on human history has rarely been demonstrated in a convincing way. This demonstration is most easy for those authors who have no other historical factors than climate on their minds. Even now the talk of "climate refugees" risks diverting attention away from the real causes of flight and migration. But while I have doubts about the much asserted influence of climate on history, in no way do I deny that in future climate might indeed make history.

Ranjan Chakrabarti drew my attention to the affinity between my title and Michel Foucault's concept of *biopouvoir*, a new dimension of power, foremost since the eighteenth century, connoting the generative behavior of humans when applied to natural forces through agriculture. However interesting his suggestion, the basic idea of my title was in fact expressed by Francis Bacon four centuries ago: "Naturae non imperator nisi parendo" (Only by obeying nature may we dominate nature) (Glacken 1967: 471 ff.).Of course, I do not

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deny that we also use certain laws of nature to destroy nature—not every form of nature but precisely that aspect of nature we love and need. A lot of environmentalist literature presumes that the realms of good and evil are situated far apart from one another, that there is a world of harmony with nature on one side and a world of ruthless exploitation of nature on the other. Sometimes this view may be correct, but on the whole it does not seem realistic. Respect for and exploitation of nature, understanding of and domination of nature, love for and rape of nature—each and all have always been more or less close together.[3] That is the main reason that sweeping judgments in environmental history are often misleading and that we have to look carefully at the details. My global history of the environment aims to encourage detailed regional research; in no way does it pretend to substitute grand narrative for meticulous field research.

Nature and Power begins the march through the millennia with fire, with the primordial slash-and-burn agriculture and the fire practices of hunters: fire as the archetype of power by nature and against nature (Radkau 2008a: 41–45). After finishing the German edition, I wrote a school textbook on environmental history, and for that purpose I had to simplify my whole procedure (Radkau 2002a). For premodern times I chose the three great "commons," woodlands, water, and pasture (alliterated in German as *Wald*, *Wasser*, *Weide*), as central to world history. On the fate of these commons we have Garrett Hardin's (1968) "Tragedy of the Commons," which was fundamental for modern environmentalism and even more influential after the downfall of communism. "Tragedy" provides the underlying logic for Diamond's *Collapse*. Hardin's logic is certainly not absurd, but logic alone does not make empirical research superfluous. Further, Hardin's thesis pertains much more to a "global commons" than to the local commons of the historical village, so the tragedy of the commons is not the only possible story at every level of analysis (see Radkau 2008a: 71–73).

The importance of looking to the functioning of the commons at lower scales of analysis and experience occurred to me in the spring of 1996, when I was hiking with my wife in Bhutan, the remote Himalayan country where the traditional culture had remained more intact than nearly anywhere else in the world. It was there that I was overcome by a feeling: *I have a dream*. This was the inspiration for writing *Nature and Power.* After finishing the book, I even suspected that my Bhutan epiphany imposed itself too much in *Nature and Power* (ibid.: 284–86). The contrast to neighboring Nepal—so similar in

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its geographic conditions—which I had known well for a long time, was stark and striking. Nepal had become a terrifying model for overpopulation, misled "development," and lack of a fundamental national consensus, even if the massive deforestation was overstated (ibid.: 280–86).

The Bhutan experience persuaded me to make Karl Polanyi's (1957 [1944]) *Great Transformation* a basic concept of my book (38, 41, 202). Even Hans-Ulrich Wehler, on the whole an ardent adherent of progress and modernization, regards Polanyi (1886–1964) as one of the few ingenious minds of the social sciences of his time. When the subsistence economy—which, to be sure, comprises local markets—has an inherent closeness to nature, according Polanyi, it has an affinity to human happiness, too, if we recall that the most satisfying work is all that we are doing for nature and for ourselves, not merely as a means for other purposes. In a worldwide ranking of happiness, the Bhutanese people are one of the happiest peoples of the world. The Polanyi thesis fitted into my rediscovery of the merits of the old peasant commons in the course of my research on forest history in the 1980s. I am not alone in that rediscovery. Elinor Ostrom (1990, 1992, 1998; Ostrom et al. 1999) won the 2009 Nobel Prize in economics for exactly that idea, the possibility of self-governing commons.

Of course, the self-control of the commons, according to Ostrom's logic, works only in a local frame, where all users of the commons know and observe each other and are able to exclude foreigners. It is not a reliable recipe for the protection of the "global commons": the oceans, the atmosphere. Here Hardin's tragedy of the commons might occur. On the problems of the global commons, I have been repeatedly criticized for being too skeptical with regard to global environmental governance. Whereas the atmosphere of the 1990s was influenced by the euphoria of the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, the experiences of the last decade rather confirmed my skepticism.

The Historical Commons: Woodlands

Let us start with woodlands as commons. For my part, I entered environmental history through forest history (after having worked many years on the history of nuclear energy), and I think *Nature and Power* bears the traces of that approach, whose emotional roots reach back to my childhood. Forest history, after all, offers a classic example of the close connection between nature

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and power. In a presentation in 2002 (Radkau 2003)[4] and in greater detail in my book *Wood* (Radkau 2012; first German edition 1987), I proposed the following thesis. It is a key question of environmental history whether power is manifested in forest clearance or, on the contrary, in forest conservation. All around the world, from early times to the modern age, the expansion of a ruler's authority has been associated with clearances. The woodlands were regarded by the rulers as the strongholds of wild, untamed, lawless peoples. But a major change occurred in central and western Europe in the sixteenth century, when forest laws gained central importance in the construction of the territorial state. In other parts of the world the nexus of forest conservation and centralized political authority seems to be found only sporadically before modern times—in Iran, in some parts of northern India, and in Manchuria. According to John Robert McNeill, in its Manchurian lands the Qing dynasty erected a belt of forests, a "willow palisade," in an attempt to keep both the Chinese and the Mongols out of Manchuria—a futile effort at border control but a state project of conservation nonetheless.

Since the Rio environmental summit *sustainable development* has become a magic phrase all over the world. One paradox of Rio is that, because Third World countries led by Brazil and Malaysia imposed a veto, no decisions could be taken on forestry, the very area where "sustainability" had for centuries had the most clearly defined meaning (Radkau 2012: 284). The German term *nachhaltig* (sustainable) was first introduced in 1713 by the *Sylvicultura oeconomica*, composed by the Saxonian chief mining superintendent Hans Carl von Carlowitz, who raised an alarm about an alleged great scarcity of wood (see Radkau 2012: 173). In a popular German book the journalist Ulrich Grober (2010: 111–19) celebrated the career of *Nachhaltigkeit* (sustainability) since the sixteenth century as a great triumph of the best idealist Western spirit, with special praise of Carlowitz.

But *Nachhaltigkeit* became a driving force of forest politics exactly because it was not only an ethical ideal but more an exercise of power in behalf of saline and mining interests against peasants who expanded their pastures into forests reserved to meet the immense demand for firewood of those largest premodern wood consumers (Radkau 2009). This example of power in the service of sustainable forest exploitation, differing in motivation from policies inspired by idealistic preservation or conservation, points to an important if often overlooked dimension of research in environmental history, one that I explored in *Nature and Power*, though not to some historians'

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satisfaction. In exploring this relationship of nature and power, we should exercise caution. Even today we should be attentive to whether the sustainable development of the Rio summit will be used by governments to limit or abolish the traditional forest rights of the villages, with the result that the peasants become the enemies of forestry. Because no government can have a police officer guard every tree, forest protection requires at least a minimum of consensus with the residents affected.

A contrarian position to the appraisal of the sustainable tradition in forestry is presented in James C. Scott's (1998) influential book *Seeing like a State*, a critique and historical argument against top-down state projects of environmental manipulation that produce disastrous consequences. Although unintended by Scott, the argument might be seen as characteristic of current American conservative opinion that strongly supports deregulation. For Scott, the famous German forest reforms of about 1800, with their magic term *Nachhaltigkeit*, marked the fatal Fall of environmental management: the start of a systematic enforcement of an unnatural order on nature. "The German forest became the archetype for imposing on disorderly nature the neatly arranged constructs of science" (ibid.: 15).

To be sure, the merits of German forest reformers have traditionally been overstated. In the 1980s, when I questioned the notion that they saved Germany from catastrophic deforestation, I provoked a lasting controversy and was considered for a time as the foresters' enemy. Nonetheless, Scott, who relies on secondary accounts without using German sources, goes too far. The "science" to which the leading foresters of 1800 referred was not exclusively top-down knowledge but relied on the practical experience of the lumberjacks, too. Even the great Prussian forest reformer Georg Ludwig Hartig, whose forest rules later came to epitomize a rigidly schematic approach, frankly admits in his memoirs how much he learned from these men at the bottom of the forest hierarchy. Of his early years in Hesse he wrote that he once instructed his woodcutters to fell a thirty- to forty-year-old beech tree. This caused a great stir among the woodcutters. They thought it a sin and a scandal that "such a young beech should be butchered almost before it could stand on its feet" (Radkau 2012: 196–97)—the beech tree, like people, had a right to life. Hartig at last agreed that only the trees that were growing poorly should be could down, a compromise that met with the approval of the lumberjacks and meant nothing less than the invention of Hartig's practice of "thinning" the forest (*Durchforstung*) (Radkau 2012:

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196–97). The other leading Prussian forest reformer, Wilhelm Pfeil, set the "iron law of the local" against Hartig's general rules and emphasized that German forestry—in contrast to French centralism—was "solely the product of Germany's division into various states" (Radkau 2008a: 229), with the effect that many governments ruled not far away from their forests. Hartig's "iron law" supported the autonomy of local foresters.

Too much attention to Germany reminds me that it is important to move beyond Eurocentrism. Doing so is a challenge even for those who undertake the task. From the standpoint of Chinese history, Robert B. Marks (2007) criticizes the Eurocentrism in the majority of works on global history and presents impressive evidence on the superiority of Chinese culture and economy in former epochs. Yet when he describes the connection between China and Europe as the result of New World silver and its use to advance Europe's long-distance trade with China (Marks 2007: 46–47, 79–82, 113–15), it seems to me that he takes a distinctively modern Western viewpoint. Without being a Sinologist, I would regard the greatest economic and environmental achievement of Chinese culture to be what Justus Liebig discovered and admired in the highly developed sustainability of wet-rice agriculture (Radkau 2008a: 103–11). From the viewpoint of environmental history, this seems to be the crucial point and at the same time the most important alternative to the traditional Western model of agrarian sustainability: the *équilibre agro-silvo-pastorale*, the balance of tillage, pasture, and woodland (Bertrand 1975). But this ecological balance of the West was frequently shaken. Was the Chinese "mulberry dike–fish pond" ecosystem (Zhong 1982; see also Radkau 2008a: 357n47) perhaps more stable? Were Liebig and Franklin Hiram King (1989 [1911]), author of *Farmers of Forty Centuries* (see Radkau 2008a: 104), right in holding Chinese agriculture in high esteem, believing it superior to the West, especially through the recycling of "night soil"? Future global historians might try to find out.

In my recent introductions to the Japanese and Turkish editions of *Nature and Power* I considered promising prospects for taking a global environmental approach in a new look at the histories of both countries. Of course, there are great geographic and cultural distances between the two cases, but in certain ways there seems to be a striking similarity. In Japan the later Edo era of the Tokugawa dynasty from the seventeenth to nineteenth centuries was despised by the Meiji reformers and their followers as an era of stagnation and decline. In a similar way the later Ottoman era during the

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same centuries was despised by the reformers among the followers of Kemal Atatürk. But these criticisms of decline are open to alternative interpretations. From an environmental point of view, one could laud, for example, the highly developed wet-rice agriculture in early modern Japan. Drawing on the work of Conrad D. Totman (1989), one could also praise the impressive signs of a growing sustainable forestry in Japan since the eighteenth century, a development in Totman's book that offers a unique example of a reinterpretation of the whole history of a country based on forest history. Elements of the Western and Eastern models of sustainability seem to be combined in premodern Japan.

The Historical Commons: Water

The rice paddies of early modern Japan lead us away from Eurocentrism to another major theme of my book: water. As in Japan's Edo era, the combination of Western and Eastern models of sustainability might be discovered in the Ottoman Empire of the same centuries, namely, through the existence in Egypt of a classic model of a sustainable irrigation economy and in Anatolia of a combination—though not without tensions—between nonirrigated agriculture and half-nomadic animal husbandry. Not surprisingly, for Ottoman officials in Istanbul the fertile Nile valley was a paradise on earth, an irrigated paradise that they would have liked to replicate in Anatolia.[5] Given the ecological problems of large-scale artificial irrigation in an arid area, their hesitations in implementing such a scheme were fortunate. Indeed, according to Alan Mikhail (2011: 242–96), whose work on the agriculture in premodern Egypt represents the first great breakthrough into the environmental history of the Ottoman Empire, the project of an artificial "second Nile," launched around 1800, marks the Fall of a heretofore sustainable economy. That project represented the beginning of modernization under the influence of the West. By documenting such cases where the adoption of modern Western concepts of progress and development proved failures or worse, the environmental approach may assist non-Western countries in seeking ecological lessons in their own histories. In many non-Western regions the water supply is first and foremost *the* environmental problem overshadowing all others (Radkau 2008a: 87). What we today call "environmental awareness" probably developed earliest in connection with water (ibid.: 88). Moreover, the world history of waterworks offers, with forest history, the other great

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connection between nature and power: power against nature, power over nature, but also power *by* nature and according to forces of nature—"naturae non imperator nisi parendo." The reviewer of *Nature and Power* in the French *Annales*, Frédéric Graber (2001), found it first and foremost remarkable that I try to rehabilitate Karl August Wittfogel's model of the hydraulic society known as the Asiatic mode of production after numerous authors argued that the Wittfogel model was wrong. Even Mikhail's (2011: 31–37) environmental history of Ottoman Egypt, which refers to the classic model of the hydraulic society, contains a chapter titled "Beyond Wittfogel." In sum, it seems that many accept some of Wittfogel's ideas but are at pains to distance themselves from the author himself.[6]

Quite correctly, Graber points out that I use the Wittfogel model not as a master theory but as a heuristic instrument. Moreover, I understand the Wittfogel model not in a deterministic sense but in a "possibilistic" sense, in keeping with how I think we should understand nature in environmental history generally: the nature of Nature is characterized by chances and challenges, not exact prescriptions.[7] To be sure, Wittfogel overstated the causal relation between irrigation and centralized bureaucratic rule, and he underestimated the local knowledge without which irrigation systems could not work; on these points his critics are right. But as I write in *Nature and Power*: "While irrigation does not *compel* a centralized bureaucracy, it contains for an ambitious government great temptation to expand the systems of artificial irrigation as far as possible as a way of stabilizing and expanding one's own power and increasing the tax revenue. And that precisely is what makes it ecologically risky" (Radkau 2008a: 91). Donald Worster (1985) found these same tendencies in the water management systems that developed in the American West. And as Mark Elvin (pers. comm., October 6, 1999) wrote to me in reference to the environmental history of China, "It would appear that KAW's ghost cannot be exorcized."

Wittfogel (1896–1988) was one of the German refugees who went to the United States after 1933 about whom I wrote my dissertation in the late 1960s, at a time when many of them were still alive. I corresponded with Wittfogel, too, and became more and more fascinated by his life and work (Radkau 1983b). Originally an ardent communist, he considered the hydraulic society as presenting a direct way to communism without a capitalistic interlude, but when he was put to work in a Nazi concentration camp in 1933 draining moors, he experienced firsthand the despotic and murderous poten-

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tial of hydraulic engineering. This experience seems to have effected a surprising turn in his theory that made artificial irrigation the offspring of totalitarian rule. He never applied his theory to Nazi Germany, however.

Although he never mentions Wittfogel, David Blackbourn (2006) does apply the hydraulic theory in his brilliant and seductive work on the making of the modern German landscape, *The Conquest of Nature*.[8] He suggests the idea (though he does not say it explicitly) that Nazi rule was in its material core a hydraulic despotism and thereby served as the completion of a continuity inherent in German history since Frederick the Great.[9] What may be true for modern Germany may not hold elsewhere. For example, the Nazi waterworks were peanuts in comparison with the Hoover Dam and the gigantic works of the Tennessee Valley Authority (TVA) during the New Deal era. Hence the large-scale cooperation and coordination needed by big waterworks does not necessarily breed totalitarian rule but, on the contrary, may be used to resuscitate grassroots democracy even though these democratic effects seem to have been overstated by enthusiastic New Dealers.[10]

Comparison and transnational study can thus reveal the varied motivations and outcomes of differing ideas and practices across time and political space. Moreover, in the German case, Blackbourn overlooked evidence that hydraulic engineering was not only an endeavor to overcome nature but at the same time an offspring of environmental insights, much as happened in old China. Johann Esaias Silberschlag, a leading Prussian hydraulic engineer of the eighteenth century, remarked that rivers, "like wilful friends . . . are eager to serve only as long as one treats them politely; if one comes even a little too close to their streambed, their revenge does not easily find an end" (quoted in Radkau 2008a: 200). His riverine diplomacy echoes the riverine pedagogy of the ancient Chinese hydraulic engineers, who saw the rivers as children whose mouths should not be stopped up (ibid.). Even Hans Walter Flemming (1957), the superintendent of the Reichsverband der Deutschen Wasserwirtschaft from 1940 to 1945, warned that the modern water supply networks abolished the traditional water awareness and led to a thoughtless use of water. Therefore "the faucet might turn out to be a symbol of destruction." And at the peak of the nuclear power euphoria of the 1950s, he added: "But also in future we will live not by atomic energy, but by water! . . . Perhaps the biggest danger lies in the over-estimation of technology" (ibid.: 17).

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The Historical Commons: Pasture

This takes us to the third of the great commons of history: pasture. When I held a seminar on environmental history in the Mongolian capital Ulan-Bataar in 1999 and explained Hardin's "Tragedy of the Commons," which became influential even in Communist China, I asked my audience whether the whole steppe could be divided into private property according to the Hardin lesson (Radkau 2012: 308). The whole audience replied spontaneously and unanimously, "No!" The world history of pasture offers striking examples of the varied and often ambiguous connections of nature and power, especially if we recall the millennium of the great nomadic conquests from late antiquity until the beginning of modern time. Whereas in arable agriculture sustainable management of the soil was promoted by settledness, the mobility of the nomadic pastoralists prevented the destruction of the scarce vegetation of the steppe.

As I learned in Ulan-Bataar, in 1892 the religious head of the Mongols called on his people "to destroy the many Chinese who are turning the soil yellow and dry with their plowing" (Radkau 2008a: 67). That does not mean that the nomads were always the best stewards of nature, as some ethnologists like to believe. The concentration of power constructed by the nomadic empires was hardly in harmony with the nature of the steppe. And nobody could exactly determine what sustainability meant in the immense steppe regions. I agree with McNeill's (1992: 279) thesis even for the Mediterranean, with its comparatively small regions: "Instability is an inherent condition of pastoralism." He continues, "Overgrazing has haunted the landscapes of the Mediterranean for centuries and probably millennia" (ibid.: 280). The steppe's physical characteristics do not determine history, but the instability of human pastoralism may promote the dynamics of nomadism.

Such instability might be increased by the temptations of trade. According to Andrew C. Isenberg (2000: 62), those Native Americans who became hunting nomads after the European introduction of the horse eventually committed ecological suicide:

> First, dependence on the bison left the equestrian nomads subject to unpredictable changes in the semi-arid grassland. Second, by abandoning their ecological safety nets and embracing the emerging Euroamerican market, the plains nomads bound their fate to the Euroamerican economic and ecological complex. In the 19th century, the dynamic

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grassland environment, commercial exploitation of the bison, and epidemic disease would bring an end to the nomads' dominance of the western plains.[11]

To be sure, scholars who hold to the notion of the "ecological Indian" would have reason to object to this proposition, arguing instead that this ecological collapse was in fact a side effect of the European invasion into the Americas.

In my Washington, DC, paper "Exceptionalism in European Environmental History" I suggested that the combination of tillage and pasture was the main reason for the comparative ecological stability of European agriculture (Radkau 2003: 28–29). On this point I followed the thinking of preindustrial agrarian reformers, who held that the proper balance between agriculture and animal husbandry was endangered by a lack of dung (see the chapter "Wo Mistus, da Christus," Radkau 2008a: 205–12). Because this balance was not always present in historical Europe, it cannot be considered the shining model for the rest of the world without needed qualification. Moreover, as McNeill noted about my paper, the combination of field and pasture—in Europe and elsewhere—is by no means the only means of achieving sustainable agriculture, and the best counterexamples are the irrigation cultures of Egypt and China. Perhaps the most critical point is the extent to which an intensive irrigation region or society that lacked sufficient ecological reserves of woodlands and pastures promoted overpopulation and overuse of the natural resources in the long run and to a greater degree than in the European areas of tillage, pasture, and woodland.

Global Environmental History: Prospects and Pitfalls

Twenty years ago, in the summer of 1992, I participated in a course of lectures at Basel University (Switzerland) on environmental history. The lectures were published in a special issue of the *Environmental History Newsletter* that was concluded by a paper by two graduate students with the provocative title "Why Is Environmental History Boring?" (Hodel and Kalt 1993). They complained about the monotony of the declensionist pattern of environmental history, again and again the same story and after the first sentences you know the rest. Environmental history as a sounding board for ecological despair.[12] Likewise, it remains important that environmental historians do something more and better than running after current (and changing) green trends and

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turns. A comprehensive history of the interrelation of humans and nature is more than a history of garbage and poisonous effluents. To be sure, smoke has existed since ancient times, but it was not a central problem of antiquity. Today the worldwide expansion of cattle breeding has become destructive for the environment, but even though green vegetarians and animal rights activists make the domestication of animals the primeval Fall of humanity, we should not misjudge the fact that a combination of agriculture and animal husbandry stabilized the ecology of the peasants' economy for many centuries. Three prominent German reviewers, two of them female, found it most remarkable that I made the waste-devouring pig the "hidden hero" of environmental history (Augstein 2000; Schmidt-Sinns 2000; Thadden 2000).

Global history, of course, easily runs the risk of becoming banal history, because nobody is able to do pioneering research everywhere in the world. Scholars often have to accept willy-nilly secondary research and conventional wisdom. Moreover, global history unavoidably is always in danger of becoming superficial. Courses on global history have become much more prominent parts of history curricula in the United States than they have in Europe. In many overviews of global history since early modern times, we find more or less the same story that we know in advance: the story of industrialization, modernization, urbanization, technological innovations, economic growth, population growth, growing world traffic, and global networks—no surprises, no eureka, no "aha!" experiences.

The environmental approach offers the chance for a somewhat more innovative type of global history, as the relation between humans and nature holds many surprises, a lot of zigzag developments, and no single master story either of progress or of decline. To be sure, there exist typical dynamics of environmental destruction that we find in history again and again, but they do not unfold with the inexorableness of natural laws, for human beings are often able to pursue counterstrategies (Radkau 2008a: 8). These may differ from time to time, from culture to culture, and from one country to another, but there are specific insights that can be gained most clearly through a wide transnational and comparative perspective, one that is arguably better than specialist studies of limited regions and times. That holds true for my thesis that the pioneering role of the West in the Industrial Revolution cannot be explained by an extraordinary shortage of wood but rather by a relative abundance of forests and relatively efficient forest protection in comparison with the high civilizations of the Near and Far East. My desire to provide conclu-

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sive proof for my new view of forest history was one of the motivations for embarking on global history.

To be sure, *Nature and Power* remains a book primarily for Western readers, and the mass of the material gravitates toward the West. But the underlying concepts follow not only the master narrative of the "rise of the West" but also alternative paths of historical development. As noted above, I started the chronological part of *Nature and Power* with an overview of primeval forms of the relationship between humanity and nature: the management of fire, hunting and domestication of animals, all the forms of subsistence economy, gardens and fruit tree culture, farmers and herders, and the village commons. By that I did not mean to suggest that some inherent law of progress leads the historical development far beyond these original forms. Rather, these patterns became a part of human nature and reverberate down to the present, and there is good reason to reflect on their future significance as well as on the effective meaning of sustainable development, the magic formula of Rio 1992.

Doing good environmental history does not mean that current politics and circumstances have no role in shaping our subjects of study and research. As I remarked in the preface to the English edition of *Nature and Power*, my book was influenced by the German situation around the turn of the twenty-first century, when the Green Party had entered the halls of power on the federal level and in many local and regional governments even before that, "giving rise to the concern that it might succumb too quickly to the temptations of bureaucratic power," the more so as environmental protection has a certain attraction for an intelligent bureaucracy, as we observe in the United States since the times of Theodore Roosevelt and Franklin D. Roosevelt (Radkau 2008a: xvi).

In the meantime the Christian Democrats returned to power in Germany, and there was a general impression that environmentalism was declining. But the Fukushima disaster created overnight a radically new situation. Environmentalism dominated the public with new energy, and Chancellor Angela Merkel embraced Green energy policy with breathtaking speed. Nevertheless, the moment of the greatest triumph of environmentalism might become the most dangerous breaking point for the German Green movement. Already in the past the enforcement of renewable energies, primarily wind power, met with bitter opposition by nature and landscape protectionists. Here different creeds are clashing so intensely that open and rea-

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sonable discussion is absolutely lacking. In this situation it is my hope that a historical approach may prove a useful antidote against self-destructive dogmatic zeal. Such an effort at this conjuncture may be the best an environmental historian can do to help diminish antagonisms in German environmental politics.

Moreover, the results of historical analysis might lead to a sharper awareness of the temptations of bureaucratic power combined with the awareness that environmentalism cannot avoid close cooperation with the state. From the very start, leading environmentalists were well aware that they needed institutional power. Max Nicholson's (1970) book *The Environmental Revolution*, published in the year of the first Earth Day, bears the subtitle *A Guide for the New Masters of the World*. Refusing the usual insinuation of German anti-Greens that environmentalism is a German angst, a typically German hysteria, it seems to me that, on the contrary, environmentalism is a *new enlightenment* that continues the reverence for nature and the natural in the old Enlightenment but that seeks to revise the overweening anthropocentricism of the eighteenth-century cult of nature.[13] The famous *Eclipse of Reason* by Max Horkheimer (1947), published as *Dialektik der Aufklärung* in German in 1947 (Horkheimer and Adorno 1969 [1947]), argues that the Enlightenment essentially suppressed untamed nature and thereby succumbed to the temptations of power. The book became a kind of holy scripture for Leftist intellectuals, perhaps not the least because much of it is no less enigmatic than the Bible. I titled the final chapter of my new book "Die Ära der Ökologie" (Radkau 2011: 614–22), which is in a certain sense a continuation of *Nature and Power*, "The Dialectics of Green Enlightenment."

Germany is a good place to observe this dynamic. The first German Green, who in 1978 called environmentalism "a new enlightenment," was Roland Vogt, a founder of the Green Party and a spokesperson for the peace movement of that time (Mende 2010: 403). But even this convinced pacifist traveled with other leading Greens in 1982 to visit Mu'ammar al-Gadhafi and—according to Schily, later federal minister of the interior, who traveled with him—kissed the Libyan soil upon their arrival at the Tripoli airport (Mangold 2011). Gadhafi had published his *Green Book*, sold also in a German edition, analogous to Mao Ze-dong's *Little Red Book*. Apparently the German Greens, searching for a counterforce against American imperialism, did not understand that Gadhafi's green meant something quite different from the German green.

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In both books "nature and power" is not only a historical connection but also a focus of present and future problems of environmentalism—problems that cannot be addressed by abstinence from any power. Edda Müller, former minister of the environment with several decades of political experience and a strong adherent of Kyoto politics, gave me the *Global Corruption Report: Climate Change* (Transparency International 2011), whose German section she directed. The most important points in the report are (1) that trade in carbon emissions has had little positive effect on environmental health; (2) the dubious reliability of environmental reports by corporations; and (3) the hollow achievements of afforestation schemes that remunerate the mere planting of trees in Africa, for instance, and fall well short of regenerating well-managed forests that require decades of care.

In sum, *Nature and Power* argues that environmental sustainability can be achieved through the enlightened exercise of power from above *and* below. However difficult it will be to arrive at bringing nature and power into sustainable balance, this is a possibility. Beyond this I do not have a thunderous message to proclaim in the book, neither a message of collapse nor a fully confident "Yes we can." Admittedly, this is an ambiguous position. Perhaps for that reason some reviewers have called me an optimist, others a pessimist.[14] When José Lutzenberger, the courageous Brasilian eco-activist, received the Alternative Nobel Prize on December 9, 1988—two weeks before the murder of Chico Mendes—Jacob von Uexküll (whose father invented the modern German term *Umwelt* [environment]) said of him, "He is not an optimist, he is not a pessimist, he is a 'possibilist'" (Pater and Lutzenberger 1990: 9). The same, I think, applies to me. Neither optimism nor pessimism, possibilism is the best basis for historical research and for political action, too.

Notes

1 "Whilst *Nature and Power* provides many lessons, it also leaves the reader with many unanswered questions, especially with regard to the question of power" (Scales 2009: 600).

2 On the Easter Island question, see Hunt and Lipo 2010; on the decline of the Anasazi and other cultures of the American Southwest, see Wilcox 2010: 113–41.

3 "Unlike what is often believed today, human behavior often entails particularly heavy consequences when it occurs 'in harmony with nature,' with natural trends" (Christian 2010).

4 The presentation took place at the German Historical Institute in Washington, DC,

and was followed by a discussion with John Robert McNeill on the focus of the German edition, *Natur und Macht* (Radkau 2002b [2000]), on European exceptionalism in environmental history (see McNeill 2003; Radkau 2003).

5 See, for the Turkey of today, Turker 2000.

6 See my political rehabilitation of Wittfogel hidden in the notes, Radkau 2008a: 353–54n16.

7 This kind of thinking is found in the great *Study of History*, by Arnold Toynbee, who became my admired ideal when my mother gave me the German abridged edition of his work for my fifteenth birthday in 1958.

8 See Radkau 2008b.

9 Interestingly, in the 1970s the younger Blackbourn criticized the tendency of Bielefeld historians to describe modern German history as a one-way street to Nazism.

10 The classic document is Lilienthal 1944.

11 I am indebted to McNeill for the hint on that important book. Isenberg draws on earlier original research by Dan Flores (1991) and others. See Hamalainen 2001.

12 This challenge forged my intention to present a quite different type of environmental history. My programmatic paper for the German edition of *Nature and Power* bore the title "Unknown Environment: From the Precocious to a Curious Environmental History." Already in my history of nuclear energy in Germany, which emerged from my second, supplementary dissertation (in German, *Habilitationsschrift*; Radkau 1983a) under Hans-Ulrich Wehler's critical eyes, I cared much about a description that could be regarded as fair and objective also by adherents of nuclear energy, even though I risked getting caught between the front lines of intense debate. My intention was that my book might become useful even for antinuclear activists before a court of law, as only a serious study could be. It was not to be a book like Robert Jungk's (1991) *Atomstaat*, which, in contrast to his former lauding of atomic scientists, suggests that nuclear power is the devil's work of old Nazis.

13 The American origins of modern environmentalism are little known in Continental Europe even today.

14 Optimist, see Radkau 2008a: 326 about resonances on the German edition. Pessimist, see J. Donald Hughes (2008) ("The outlook is grim," especially with regard to global environmental governance). But an Internet comment recommends *Nature and Power* for different reasons: "So many books about the environment kind of just yell at you about what a crisis we're in, and you're left thinking . . . ugh, I don't want to know!" (Courtney Misfit, Chicago). René Dubos, whose book with Barbara Ward, *Only One Earth*, became the Bible of the Stockholm summit of 1972 (Ward and Dubos 1972), which stood at the beginning of the worldwide environmental age, was dissatisfied with the overall declensionist view of Lynn White Jr.'s (1967) "Historical Roots of Our Ecologic Crisis." Following the geographer Carl O. Sauer, Dubos discovered signs of sustainability in old cultures, too; these very signs assured him that environmental protection had a chance.

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