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Scaling Up

Joachim Radkau and the Project of Global Environmental History

To introduce this special issue of Social Science History, my essay sketches the historiographical context out of which grew Joachim Radkau's (2008) book Nature and Power: A Global History of the Environment *(German edition 2002 [2000]). It notes a few of the problems that Radkau and other historians face when undertaking a solo synthesis of research mainly at the local and regional levels. In addition to the issues of selecting themes, geographic extent, and temporal depth, questions of purpose have to be considered. Should global environmental history devote itself to producing a usable past for policies of the present and future? Should it, rather, take a prospective approach to reconstruct environmental thinking and practice as it was in a previous time, the better to identify unintended consequences and ambiguities in the historical past and to avoid presentism and anachronism while recognizing that history offers teachable moments? Radkau hews more to the second of these approaches than to the first, and his book provides the focus and a point of departure for the rest of the essays in the issue.*

Two questions frame this special issue of *Social Science History*: How does one historian attempt the near impossible and write a global history of the environment? If one tries, what will other historians think of the result? Joachim Radkau (2002 [2000]) took up the challenge in *Natur und Macht.* An English translation appeared in 2008 under the title *Nature and Power: A Global History of the Environment* (Radkau 2008). The conversation that follows is about

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both the book and global environmental history generally. It began as a panel session of the Social Science History Association meetings in Chicago in 2010. Several of the speakers agreed to extend their thoughts for this publication, including the main speaker, Radkau, whose *Nature and Power* was the subject under review at the panel. Three other speakers in Chicago signed on to the plan—Tamara L. Whited, Anne E. C. McCants, and Peter C. Perdue—and the chair assumed editorial duties. Two other eminent scholars in the field, J. R. McNeill and Harriet Ritvo, agreed to join us. At the request of the editor, the essay by Radkau is not a response to the other essays. Rather, it is a reflection on the main themes and issues in the book aimed not only at environmental historians but also at a broader audience of readers and nonspecialists. It opens the conversation. There follow the essays of those who were asked to offer thoughts about the book *and* the problems of doing global environmental history from the perspectives of their own reading and research. A varied and stimulating discussion is the result.

Now "thirty-something," environmental history—at least in name—was an American invention with origins in the late 1960s and the 1970s. Since then it has evolved into a polycentric world of research and scholarship, and it continues to attract a growing number of practitioners, students, and readers in many countries of the world. Although the pioneering scholarship of the 1970s typically pursued questions in national and regional frameworks of the United States, early works of intellectual and cultural history attended less to geography than to tracing past ideas about nature wherever they could be found and deciphered. Two landmarks were Clarence J. Glacken's (1967) *Traces on the Rhodesian Shore* and Donald Worster's (1977) *Nature's Economy*. Amid the increasing scale and depth of global exchange and critiques of national and Eurocentric history, interest in world history grew, as did the attention to global environmental history. Arguably, new work in global environmental history can be dated from Alfred W. Crosby's (1972) seminal work on the Columbian exchange that set out the transnational scope of biological exchanges between the Americas and Europe. As the literature in the field expanded into Africa, Australia, China, India, Latin America, and elsewhere, the ability to write synthetic work at the world scale improved. As the recognition of global-scale environmental problems spreads and sharpens, the need for global synthesis appears more urgent. With Radkau and others, the era of global environmental history is under way (Hughes 2001; Mannion 1991; McNeill 2000; Mosley 2010; Pyne 1997; Simmons 1996, 2008).

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Doing global environmental history is fraught with choice. What theoretical frameworks might prove helpful? What approach, what tools, what scales of space and time? What themes would help marshal the evidence, guide the analysis, and facilitate a coherent narrative? Might world-system theory lend a guiding hand? Or perhaps the concept of social metabolism would be useful. As for organizing themes, Aristotle's earth, air, fire (energy), and water are worthy of consideration.

That the use of theory by environmental historians was an uncommon occurrence prompted the geographer Jason W. Moore (2003) to revisit Immanuel M. Wallerstein's (1974) seminal book *Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* to suggest how world-system theory and Marxist sociology could be fruitfully used to produce theoretically informed studies of global environmental history. A similar theoretical thrust among ecologists and sociologists centers on the notion of unequal ecological exchange stemming from the structure of the world economy. Some research in that framework applies the analytic scheme of social metabolism to the historical study of unequal exchange and consequences (Decker et al. 2000; Schandl and Schulz 2002). One example with historical depth studies British imports of guano from Peru and Chile to replace natural nutrients in overworked soils during the late nineteenth century (Clark and Foster 2009). In *Rivers of Empire* Worster (1985) draws on Karl Wittfogel's theory of hydraulic society to argue that the authoritarian tendencies inherent in maintaining large-scale irrigation systems—usually associated with empires of the Middle East and China—aptly characterized the water management of the American West and the damage to the environment that resulted. Other authors draw attention to commodity chains, transport, and communication as a triad of revealing, integrative concepts and activities (Clark 2009). In agrarian history Geoff Cunfer and Fridolin Krausmann (2009) are leading an international team of interdisciplinary researchers applying a social metabolism approach to study the structure and functioning of agrarian production. Defining the then new subfield of historical ecology, Carole L. Crumley (1994) argues that both theoretical perspectives and empirical research need to be multiscalar, incorporating the global and the local, the national and the regional.

This is not to say that environmental historians have their heads in the sand when it comes to relevant theory. The historian William Cronon (1991) draws on the geographic model of Johann Heinrich von Thünen to frame his

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classic study of Chicago as the agent of vast environmental change through much of the midwestern and western United States. More recently, in their collection of essays, *The Environment and World History*, the historians Edmund Burke and Kenneth Pomeranz (2009) use the concept of "developism" to provide the theoretical target to which the empirical essays cohere. Other historians interested in relevant theory collaborate with specialists in other disciplines—sociology, anthropology, ecology, political ecology, geography, and earth science, to name several. The historians J. Donald Hughes, Robert Marks, and McNeill (a contributor to this issue) joined the human ecologist Alf Hornborg, the ecological economist Joan Martinez-Alier, and others to publish a set of essays that brings empirical case studies to cohere around the theoretical combination of world-system and Marxist theory (Hornborg et al. 2007).

Although collaborative, interdisciplinary efforts are growing, and to the great benefit of the field to be sure, the results typically appear in essay collections that report specialized research by individuals or teams. To write a synthetic work in a single voice is a different matter, one of particular difficulty, requiring a vision of the big picture and a command of literature in several languages. However new and stimulating studies in an essay collection may be, the well-wrought synthesis brings the history of global environmental change to a much larger audience in addition to prompting debate among specialists.

The English historian I. G. Simmons (2001, 2008) moved from the national to the world scale in writing a global synthesis by using energy regimes to organize his study of environmental change from 10,000 BCE to the present. His books lead us from hunting and gathering peoples equipped with the tool of fire to our fossil fuel–based world of today mainly by presenting macroscopic patterns and trends. Hughes (2009) is more of a truffle hunter. He presents a succession of specific case studies to illustrate broader patterns and turning points, beginning with "the primal harmony" of the preagrarian Serengeti people, then moving to the ancient world's initial divorce between nature and humanity via the city of Uruk and onward to the medieval, early modern, and modern eras, eventually reaching the world of Hurricane Katrina and global warming today. Building on the classic work of Crosby (1972), Charles C. Mann (2011) has ventured a good deal farther into the Columbian exchange in his book, *1493*. His journey over 500 years and across the world follows the global paths of commodities, beginning with sil-

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ver and passing on to sugar, rubber, potatoes, and more. In imperial China, we learn, the Peruvian/Bolivian sweet potato (yam), which accompanied the Spanish galleons bearing silver for trade with Chinese merchants in Manila, proved to have a huge ecological footprint. Quickly becoming a staple in the dry upland regions unsuitable for rice cultivation, it fed a growing population, while its spread cleared upland forests, causing erosion and catastrophic flooding of lowlands. This and other engaging narratives of biological and material exchange—the trade in human bodies for coerced labor, the spread of malaria and yellow fever, the rise of the potato and the potato blight in Europe, and so on—and myriad environmental consequences come to life in the portraits of major figures and sympathetic accounts of migrants, sailors, workers, slaves, and displaced pastoral groups all caught up in the processes of capitalist extraction and trade.

The task of the global environmental historian is also complicated by the question of purpose: what are or should be the aims of a work? As in historical studies generally, there are sharp divisions over the answer. Proponents of a "usable past" argue that global environmental history should inform not only our understanding of the world of today but also the environmental policies of states and international organizations. This is a position strongly argued by Sverker Sörlin and Paul Warde (2007) in a recent article surveying the field of environmental history. Other advocates of usable global environmental history hold that the very purpose of the field is to provide specific knowledge for the contemporary age. So conceived, global environmental history serves as a bridge between the social and the natural sciences, offering explanations of long-term change in dynamic systems that often elude the nonhistorical sciences (Corona 2008). Meanwhile, on the other side of the divide are historians who think that the historian's foremost task is to recover the past as it was experienced by historical actors, that is, to recover their ideas, outlooks, and actions; the circumstances in which their actions took place; and the effects of their endeavors that *they* recognized.

These different aims and approaches can be seen in two early works of cultural environmental history, Carolyn Merchant's (1980) *Death of Nature* and Keith Thomas's (1983) *Man and the Natural World*. Merchant, looking back from today, argues retrospectively that the origins of the contemporary ecological crisis lay in the scientific revolution and the expansion of capitalism in the seventeenth century. Placing humans above nature and affirming their ability to dominate external nature for gain, a potent combination vastly

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more entrenched today, needs to be checked if not dismantled. Prospectively, Thomas follows his English witnesses forward in time, beginning with the sixteenth-century biblical belief that humans, the masters of the universe by divine creation, had the right to do with plants and animals as they wished. The right to mistreat or torture animals was thus a common belief exercised in practice. Something new, argues Thomas, emerged in the later eighteenth century in a redefinition of humans' place in nature and the extension of humane principles to animals. Rather than outside or above nature, humans were to be seen as fully part of nature themselves. Rather than domination, they should look to harmony and benevolence as the proper way to relate to plant and animal life, including the granting of moral standing to animals.

If Merchant's accounts illustrate the retrospective character of the usable past school of historical study, Thomas exemplifies the prospective approach of a different historiographical tradition. In *1493* Mann too adheres to the prospective view, careful to explain historic meanings and outlooks and to point out anachronisms. In the opening chapter he thus explains why he uses "Cristóbal Colón" (Spanish) as the more accurate name for the explorer we have come to know as Christopher Columbus. Sometimes he combines the prospective and retrospective perspectives with good effect. His account of the spread of malaria in Africa, Europe, and North and South America is a good example, for he draws on modern epidemiology to explain the varied patterns of the disease that contemporaries described as a debilitating illness that sometimes produced fatal fevers and chills. A similar blending of perspectives can be found in James H. Winter's (1999) study of environmental change in Victorian England. At several points in the book, Winter gives voice to Victorians who decried the worst effects of industrialization, effects that William Wordsworth (1837) denounced as the "Outrage done to Nature." Winter's general interpretation is retrospective. The scale of change and environmental damage during the Victorian period was not, he concludes, so great, because it pales in comparison to the massive, worldwide ecological transformations of the twentieth century.

One other issue concerns the question of geographic scale. Should global environmental history focus more or less exclusively on the global scale of human activity and environmental change? In a scholarly conversation about the nature of the new subfield (Corona 2008), Piero Bevilacqua emphasizes that study at the global dimension, important even for investigating erosion in the ancient world, is essential for understanding modern problems, such

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as acid rain. Worster offers a caveat: treating the world as a whole should not exclude attention to local places, for the interconnection of the local and the global is a fundamental historical process. A comparative approach of sufficient scope and multiple cases, McNeill (2000) adds, should also be considered as an illuminating way of doing global environmental history. If transnational comparisons and the making of global and local connections ("glocal") help define the nature and method of the subfield, attention to multiscalar interconnectivity can lead farther in a desirable direction. In addition to global and local, national and regional scales of activity need to be considered in an effort to show how a change at one scale will likely affect actions at other levels of the system.

The globalization of foodstuffs in the second half of the nineteenth century is an example. Powered by steamships, railways, and the telegraph, the huge expansion of wheat production in the Midwest and the Great Plains of the United States meant that American wheat arriving at Liverpool could be sold profitably at a price lower than that of wheat produced in England. As wheat imports rose and the British market remained open, price competition set in motion changes at the regional and local levels. Wheat farming, widespread across southern England in the 1860s, reduced its once extensive claim on the land to a few counties in East Anglia and eventually only to clusters of parishes in Cambridgeshire. Meanwhile, farmers in other regions increasingly devoted themselves to stock raising or dairy farming. Thus did land transformation in the American Midwest and Great Plains move through the scales of production and commerce to alter agrarian land use in the parishes of Dorset County, England (Schwartz 2010).

Against this background we turn to Radkau's solo effort in *Nature and Power*. In his opening chapter he warns that reading the past through the eyes of the present blinds us to complexities, differences, and ambiguities in historical experience. Technology and seeming "inertia" served as environmental constraints in the past, just as limited long-distance migration preserved local knowledge associated with sustainable practices in agriculture and forest use. Fixating on today's overuse of artificial fertilizer can distract attention to the great historical problem of having too little fertilizer and too much soil fatigue. Environmental history, he writes, "deals not only with human beings and their works, but also with sheep and camels, with swamps and fallow land," and with the mundane likes of dunghills and disease (Radkau 2008: 5–6).

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Attentive to the outlooks of historical actors so as not to distort their views and motivations, Radkau writes with conviction that environmental history has useful lessons for the present. In that sense he anticipates Sörlin and Warde's call for a usable environmental history. What distinguishes Radkau's approach and exposition reminds one of what Ernest Hemingway said about his approach to writing (Ross 2001 [1950]; Stephens 1973): to master the art, get into the ring and box a heavyweight, for instance, Ivan Turgenev or Stendhal. In *Nature and Power* Radkau enters the ring often to test the mettle of Crosby, Jared M. Diamond (1999), Thomas Malthus, Wittfogel, and others. One of Radkau's favorite punches is "ambiguity." Being a German historian, he brings lesser-known German scholarship to an Anglophone audience—a welcome contribution. He makes a passing reference to Karl Marx but mentions neither Immanuel Wallenstein's world-system theory nor social metabolism. As McCants notes, he has little patience for economic theory of the neoclassical kind. His theoretical guide is neither Marx nor Wallenstein nor Paul Samuelson but Max Weber.[1] This seems the most evident in Radkau's formulation of institutionalized power and the role of the state in bringing about both change and conservation. From the standpoint of the theoretically inclined, *Nature and History* may seem disappointing for its lack of theoretical heft or for its straightforward narrative history with too little theoretical inflection. Yet for many historians such "defects" will seem a plus.

As the title suggests, *Nature and Power* centers on the relationship between institutionalized power and the physical world of nature. Persuasively, Radkau argues that institutional power is in fact a double-edged sword. One edge has been used to expand agriculture into new areas, initiating the reclamation of "uncultivated" areas—often populated by nomadic herding groups or marshland inhabitants—thereby setting in motion a cycle of deforestation, overcropping, erosion, and downstream flooding. The other edge of the sword, however, is an instrument of conservation and preservation. Not surprisingly, he is critical of the declensionist school of environmental histories, whose accounts typically begin with an era of preagrarian harmony or ecological balance and then move to recount stories of environmental decline, degradation, and sometimes collapse. In making his case regarding the disruptive and beneficial uses of power, he presents examples of both kinds. One of his chief arguments is that historical European agriculture, despite ecological ups and downs, is a case where power, natural endowments, and good husbandry joined to create a high degree of sustainable farming.

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In the ring with declensionist opponents, Radkau speaks not only of ecological problems then and now but, importantly, of nature's resilience in the face of human assaults and extreme climatic events. He challenges the logic of Garrett Hardin's (1968) "Tragedy of the Commons" by pointing to sustainable peasant agriculture on common lands. Although he begins, as do Hughes and Simmons, with what he calls a primeval symbiosis of humans and nature—slash-and-burn agriculture and herding—he avoids romanticizing this as a golden age of environmental balance before the Fall. Chapter 3, on water, forests, and power, is perhaps the key section of the book, because it presents the strongest version of Radkau's main argument. His evidence comes from ancient Egypt and Mesopotamia, millennial China, and medieval and early modern Europe. His favorable portrait of Chinese agriculture cites the use of both human and animal dung to restore nutrients to densely worked soil and the irrigated rice terraces of upland areas. On issues of hydrology he follows others in showing that imperial power in the management of rivers led to massive dikes and increased the likelihood of catastrophic floods. Yet even the floods, catastrophic as they often were, in the end, he suggests, brought nutrient-rich silt from the uplands to lowland farms. Complexity wins.

The double-edged sword of institutionalized power was at work in Europe too, the best example being the forests. Kings, princes, and nobles claimed ownership of the forests to increase their authority by collecting levies from those granted limited access and by wielding the power of punishment against unauthorized woodland use. The unintended consequence, Radkau argues, was the conservation of much more woodland than widespread access would have permitted. On the theme of water management, he compares the mistakes in the Netherlands via unchecked land reclamation with the far-sighted municipal restrictions in Venice that preserved the lagoon by severely limiting agrarian expansion (Radkau 2008: 117–27).

Throughout the book Radkau engages the scholarship on which he draws, debating accepted generalizations and adding complexities and ambiguities for the reader to ponder. A long epilogue follows this pattern of exposition and argument as he addresses the contested issue of whether environmental history can or should influence the politics of environmental change and management. He affirms that global environmental history offers teachable moments. In this regard, and somewhat surprisingly, he ends by singling out the potential importance of emotional attachments to nature—

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something he associates with Weber but does not pursue in the book. As a part of global environmental history, the recovery of emotional attachments across time and over the world could, he hopes, bring into being a new secular religion of nature.

From this brief introduction to the book and a few of the issues it raises, let me now say something about the conversation that follows. Radkau opens the proceedings by revisiting his aims in the book and updating some of his earlier observations and conclusions. Later, after an appreciation of the book's achievements, Perdue describes important environmental developments in China that are less well known and not found in *Nature and Power*. Given Radkau's emphasis on power, Perdue notes that the policies of the imperial state deserve more consideration than the author has given them. Likewise, more attention to regional and local patterns of practice would be helpful to reveal the varied and often weak impact of imperial commands. Popular resistance against commands from the top or from regional councils often won out, as when fishing in local lakes persisted despite orders from the councils to end the practice. In addition to the complexity of politics at imperial, regional, and local levels, Perdue shows how the environment was affected by transnational trade in commodities that fell outside the state's control. Using Chinese trading in fur, fish, and tea as examples, he points out that trade in these goods carried significant environmental effects and was frequently centered in peripheral regions, where the power of the imperial state was weak or nonexistent. Outside areas of institutional power, he shows us, significant environmental change took place.

Whited, a specialist on European forests (see Whited 2000, 2005), places *Nature and Power* in historiographical perspective by comparing Radkau with other recent accounts, organizing them under four themes: traumatic experience of environmental collapse; the question of exceptionalism in European environmental practice; the relationship of forests, industrialization, and sustainability; and hydraulic engineering. To identify the strengths and weaknesses of *Nature and Power*, she draws on Diamond's (2005) *Collapse*, John F. Richard's (2003) *Unending Frontier*, and David Blackbourn's (2006) *Conquest of Nature*. Whited's close, stimulating comparison shows where Radkau's claims sometimes go beyond the evidence and where his insights and argument are compelling.

McNeill evaluates the book from the standpoint of the environmental history of the Americas. He finds that *Nature and Power* is in some sense Rad-

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kau's rejoinder to both the prominence of American environmental history and the misleading extrapolations from the United States to the rest of the world, extrapolations based on narrow bounds of time, space, and ecology. Agreeing with Radkau's critique, McNeill discusses how the very prominence and narrowness of American scholarship becomes a problem in *Nature and Power*, because the author's own treatment of the Americas is limited to the United States. In following US scholarship almost exclusively, Radkau says little about Latin America. Thereafter McNeill reviews some of the literature now available and suggests how it could and should contribute to a global synthesis.

Ritvo's reflection deals both with *Nature and Power* and with the larger question of whether a history of the global environmental is feasible or not. A leading environmental historian, Ritvo (2009) has shown the value of the paradigmatic case study in her recent book on the emergence of modern environmentalism in nineteenth-century Manchester. Is world environmental history, she asks, so big as to ineluctably fail? In big history "there is more and more to leave out, and constructing a unifying or even a coherent narrative arc becomes increasingly problematic." Narrowing the task by selecting themes is one solution, she suggests. Moreover, the effort to craft a global synthesis is admirable and welcome in bringing valuable broad perspectives to specialists and general readers who lack the ability to put together a big picture. *Nature and Power*, she suggests, participates in the admirable endeavor, but it also illustrates the pitfalls involved. The necessity of relying on secondary sources increases the risk of mistakes, just as unqualified claims are often asserted but not supported. In setting his sights so broadly on the global past, she concludes, Radkau frequently overreaches what is possible.

The economic historian McCants considers the book from the vantage point of a watchtower. Surveying the terrain below, she is struck by how the landscape of her own discipline is so sharply disconnected from that of environmental history. Why, she wonders, do the practitioners in each seem to have so little contact and so little to say to each other? She sets out to improve the situation, first by noting the obstacles. She positions environmental historians and economic historians at opposite ends of the epistemological pole: historians rely on concrete examples and stories, while economists look to models and the axioms of neoclassical economics. Whereas environmental historians such as Radkau have little patience with the economist's assumption about the efficiency of the free market and readily point

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to the environmental consequences of capitalism, economists, she suggests, retain more faith in human ingenuity to get us past finite limits of fossil fuels and global warming and into a better future. Besides these differences there exists, she continues, a solid basis for dialogue and collaboration. This could begin with the parties recognizing their shared concerns with scarcity, natural resources, human welfare, conservation, sufficiency, and sustainability. Moreover, economists have a good deal to contribute to historical knowledge. Consider, for instance, how recent economic historians, by applying theory of markets and resource availability, have been able to explain medieval peasants' dogged preference for plows with wood rather than iron shares as matters of rational choice, matters of cost and availability. Contributions from environmental historians are notable as well. Radkau, she notes, exposes the illusion behind the American view that nature *is* wilderness and corrects Crosby's mistaken surmise that European biota came to dominate the New World, for, as Radkau points out, many of the animals and plants of European agriculture originated in Asia.

What follows, then, is a wide-ranging discussion of *Nature and Power* and the challenges of writing a synthetic, global account of environmental history. With each of the individual articles coming from the author's particular angle of vision, there is much food for thought.

Note

1 His biography of Weber further attests to this (Radkau 2009).

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