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Environmental History versus History of Science

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Atkins, Peter, Ian Simmons, and Brian Roberts. *People, Land and Time: An Historical Introduction to the Relations Between Landscape, Culture and Environment*. London: Arnold, 1998. xii + 286 pp. including chapter references and index. $29.95, paper.

Bocking, Stephen. *Ecologists and Environmental Politics: A History of Contemporary Ecology*. New Haven: Yale University Press, 1997. xiv + 271 pp. including chapter references and index. $40.00, cloth.

McCay, Bonnie J. *Oyster Wars and the Public Trust: Property, Law, and Ecology in New Jersey History*. Tucson: The University of Arizona Press, 1998. xxxi + 246 pp. including chapter references and index. $45.00, cloth.

ENVIRONMENTAL HISTORY VERSUS HISTORY OF SCIENCE

How should the environment be included in historical analysis? This review will compare and contrast different answers to this question from the viewpoints of environmental history, political ecology, and the history of science, respectively. These approaches reflect the differences between natural science, social science, and cultural approaches to history and the environment. They also represent differences with respect to giving historical agency to the environment.

Environmental history, as we learn in *People, Land and Time,* well captures the major characteristics of a growing field. It is a book written for

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an undergraduate course in geography at University of Durham (UK), and it serves as a fine introduction and summary of recent research in environmental history. The book has a long historical timeline, an interdisciplinary perspective, a global approach, and a clear moral and political agenda.

The call for an inclusion of nature in the study of history is the very foundation of environmental history or, as the authors explain: "environmental history is a response to criticisms that both history and human geography have taken too little interest in the physical environment" (p. 275). In this new way of understanding history, nature is to be understood as something more than scenery or a passive resource for humans to enjoy. Rather, it is an acting force and agent that causes history to change (p. 224); *People, Land and Time* has this principle at its core. Natural forces such as volcanoes (depicted on the book cover), sea, wind, droughts, rain, and sun all change human cultures. Human activity, on the other hand, changes nature. This history of dialectic interrelationship between the agency of nature and culture over time is the subject of environmental history.

Charles Percy Snow once described the historical development of modern academic life as a division of "two cultures," one scientific about nature and one humanistic about culture (Snow, 1959). Ever since Snow's observation, critics of modernity have tried to link them together, and the authors of this book are no exception. Yet there remains an important tension in *People, Land and Time* between natural and cultural geography or scientific and humanistic approaches to history. The authors try to bridge this divide through a "cross-disciplinary mix" in research and teaching (p. vii). The consequence is a mixed bag of ways of studying environmental history, ranging from comparative literature to geology. This attempt to cross disciplinary boundaries, as Donald Worster argued in an influential article (1988), is one of the hallmarks of the study of environmental history.

Yet despite all the good interdisciplinary intentions, there is still a sense of "two cultures" in *People, Land and Time*. Some of the book seems to have been written by a natural geographer, while other parts (Chapters 16–20) are written by an author with a background in cultural studies. Though this division of labor might be a practical solution when sharing authorship, it cannot be regarded as a successful solution for overcoming the divide that Snow pointed out. Indeed, such a division of labor reinforces the nature-culture boundary instead of breaking it down, since it confirms that the authors were unable to bring into harmony a "range of voices" (p. vii).

The cultural studies section of the book is based on a critical theory that "*read[s]* the landscape as if it were a text or a painting" (p. 219), a view of nature which contradicts the first naturalistic section of the book. Critical theory, as Steven Vogel has argued convincingly (1996), operates without a concept of nature; one is therefore left to wonder how this part of the book

applies to the first. Indeed, students reading the third part are almost invited to deconstruct the first.

The overall agenda of the book is to promote reconciliation between humans and the environment. The historical roots of this idea go back to the romantics and Jean-Jacques Rousseau. Rousseau's notion of a natural peaceful contract between humans and their environment has more recently been adopted by the French philosopher and historian Michel Serres (1995). To Serres, it is of utmost importance to accept nature as an agent in history in order to understand the human place in the world and thus find a way out of the environmental crisis of our age. Between Rousseau and Serres, the work of a host of poets, philosophers, explorers, naturalists, and geographers serves as the cultural and scientific background to understanding current environmental history.

One common feature among the romantics is the assumption of an ancient innocent nature where humans lived as noble savages or "children of nature" in harmony with themselves and a well-balanced natural world. One assumption in *People, Land and Time* is that of a harmonious environment with hunter-gatherers living in a natural balance with the forces of nature. This harmony would disappear with the arrival of agriculture, an event which serves as the origin of a historical development that would lead to the environmental problems of our age.

Social anthropologists have recently challenged the assumption that natural harmonies were lost with the arrival of agriculture. They argue that primitive agricultural societies may instead have created and maintained these harmonies, not ruined them (Fairhead & Leach, 1996). Though the authors question the "children of nature" thesis in the beginning of the book with examples of hunter-gatherers hunting species to extinction (pp. 3–7), they do conclude that human life in wilderness is desirable and that one should long for the life and ethics of those "secret groves of classical Greece" (pp. 267–268). This commemoration of the past, which builds on the argument by J. Donald Hughes (1975, 1994), serves as a critical comparison of the development and alternations of the environment by modern society.

Interestingly, the authors repeat the old Christian narrative of the fall of mankind: There was once a true garden of Eden of untouched ecosystems, but due to human knowledge about hunting and agriculture humanity was driven out of the Paradise of secret groves into a corrupt world of the exploitation of natural resources. This began a process that over the years has evolved into the modern environmental havoc of our age. The only hope for salvation is a shift from seeing nature as a resource to actively conserving and protecting wilderness. "No other single change in human history can have had a greater effect upon the landscape," the authors ar-

gue, than the "discovery of agriculture" (p. 13). It can lead to "social and political collapse" for humankind and to devastating "environmental degradation" (p. 53). Only a few environmentalists can lead the natural world back to its true state of harmony. In this narrative, the authors put forth conservation of wild landscapes as the hope for creating peace between humans and their environment. This dream of a transformation from "noble savages" to "noble gentlemen" (as Rousseau put it) through a contract of peace between humans and nature is the agenda of this book.

The story in *People, Land and Time* unfolds as an ever-increasing environmental tragedy. The power of technology and private ownership slowly transformed the landscape with the spread of agriculture (p. 25). Yet it was the environmental consequences of early urbanization that truly began the process of large-scale environmental degradation (p. 33). Inspired by William Cronon's interpretation of Chicago as being built by nature's commodities (1991), the authors argue that it was the hydraulic water systems in Mesopotamia that caused the rise and fall of these ancient cities (pp. 27–37). This is one of the many examples in the book of how human abuse of nature has caused a collapse of civilizations.

The task of a textbook is to provide an overview of the field so that students can understand environmental history as a whole. The authors are well aware of the truism that the way one understands the past implies a way of seeing problems in the contemporary world. The moral agenda in favor of environmentalism is an integral theme of the book. Students reading it cannot miss the "important lessons for us today" which is that "a civilization that over-exploits its environment for short-term gain will eventually pay the price" (pp. 62–63). This moralizing tone continues throughout the book.

The authors are also clear on what is to blame for all environmental ills: the advance of global capitalism. The "landscapes of Fordism" (p. 193) due to the production of cars combined with "rational ordering of life" (p. 210) in modern science is to blame for it all. The structure of the book runs accordingly: "Part 1: The Pre-Industrial World," "Part 2: The Transition to Modernity," "Part 3: The Modern Era," and, finally, "Part 4: The Global Era." It is a story of decline and fall of ecological diversity.

The history of the British Empire is left out, despite the fact that the book's primary audience is British students. They are spared a not-so-glorious history, except for a short paragraph on landscapes as symbols of imperial power (pp. 222–224, 257). One looks in vain for references to the culture of landscape management, conservation, exploration, exploitation, racism, and population management that British geographers promoted for centuries. The book presents several case studies of landscape planning and agricultural closure of commons in England and Scotland without refer-

ence to the imperial context of these debates. This enables a narrative from the "modern era" to the "global era" (or from the nation-state to global capitalism), even though one can argue that Britain was more global in its landscape usage 100 years ago than now.

The construction of narrative is at the heart of the practice of environmental history (Simmons, 1993). The argument that nature is a place for telling stories is the most interesting and convincing aspect of the book: "Today we are confronted by many possible alternative readings of our surroundings," the authors note, "and one purpose of cultural geographers and other social scientists is to provide insights into what these analyses might be" (p. 222). They encourage students to investigate "the role of power, pleasure and otherness in landscape creation" (p. 230). This claim is backed up with several interesting case studies, such as those of allotment gardens, war cites, and Israeli control of water resources in occupied territories. Such student exercises in understanding how to read and order the landscape could also have been used effectively to analyze the scientific order and political agenda of *People, Land and Time*.

Bonnie J. McCay's excellent book about the history of oyster industry in New Jersey, *Oyster Wars and the Public Trust*, has some features in common with environmental history, although she prefers to see her work as a contribution to the field of "political ecology" (p. xi). Political ecology and environmental history share an interest in understanding the history of landscapes and natural resources, but it is methodologically situated in the social, rather than the natural, sciences. Political ecology is an attempt to use a broad spectrum of anthropological tools to research a focused topic, such as the history of oystering along the New Jersey coastline in the nineteenth and twentieth centuries.

McCay tells a fascinating story about the changing culture of property rights to a natural resource. It is a dramatic account of people fighting for the right to harvest oysters. The drama unfolds between poor fishermen arguing for common property rights and rich citizens seeking the privatization of a sea resource as a firm footing for oyster industrialization. The title *Oyster Wars* is accurate. People fought for their personal interests as well as for what they thought to be the most socially and environmentally responsible way to manage sea resources.

The oyster is a "boundary" object, flourishing in the tidal zone with brackish water. Its habitat is warm water, usually a couple of meters below sea level on muddy ground that can be exposed on low tide. It is thus neither a sea nor a land creature, living neither in fresh nor salt water. Its unique biological status makes it difficult to handle socially and legally, and its boundary status makes it a perfect object for anthropological investigation, as social structures often surface around such objects.

Although anthropology plays an important role in understanding the social tensions concerning oyster harvesting, it is as a contribution to legal history that this book is most convincing. Most of the primary sources McCay uses are legal documents and the narrative of the book centers around a series of court cases. Anthropological perspectives are used only to contextualize them.

The point of departure is Gerret Hardin's "The Tragedy of the Commons" article from 1968, which argues that common property will suffer from the self-interest of individual citizens. Oyster harvesting is the perfect example for the kind of logic Hardin discusses. It is an easily accessible resource located in a common area. One should therefore conclude that all rational agents would maximize personal profits at the expense of others and thus create a tragedy for the common pool of oysters. The best solution to this tragedy, as Hardin sees it, is to privatize a natural resource so that it would be in the self-interest of those who own the oyster beds to maintain them.

McCay does not agree. In *Oyster Wars*, she sets out to prove that it was in the best interest for all that the state took ownership of oyster beds as a trustee for public use. She follows the communitarian argument that through communal regulations people can manage resources for the common good. Most of the book is devoted to contextualizing and reviewing a series of legal cases where the ownership and access to oyster beds were disputed, and she argues convincingly that the legal doctrine of public trust is founded on these cases. The aim and agenda of the book is to defend communitarian solutions to management of common problems.

The book is not merely a summary of dry legal arguments but is in fact a rich story encompassing the ecological, cultural, social, and political context of the legal disputes surrounding the commoditization of oysters in the early eighteenth century in the new settlements of New Jersey. Oysters were an easily accessible resource which did not demand complicated equipment or specialized knowledge. For example, farmers unaccustomed to seafaring boats found an extra source of income in harvesting oysters. However, the abundance of oysters did not last, and conflicts of ownership emerged with the arrival of new immigrants.

The book is a fascinating story of the ongoing conflict between the public and outsiders; between those who are members of the tribe with access to a common good and those who challenge the hegemony of communitarian virtues. The doctrine of public trust emerged as a legal device for securing the public's access to a natural resource at the expense of outsiders. It was a doctrine that empowered the community at the expense of its dissidents.

The public trust doctrine was originally established to protect the local

community from poor settlers. These new settlers were seen as public enemies in small coastline communities, since they were possible oyster harvesters, and handled accordingly. The colonial assembly, as early as 1719, instituted laws preventing nonresident "strangers" from harvesting the asset. McCay describes how local citizens actualized their communitarian virtues by arresting immigrants picking oysters, handing them over to the police, and getting half of their few belongings as a reward (pp. 8–9). This deep-seated hostility to new immigrants, vagrants, and foreigners represents the cultural background of the emerging doctrine of public trust. It became a legal maneuver to secure the rights of locals at the expense of intruders well into and beyond the nineteenth century.

It was not only newly-arrived immigrants and poor vagabonds who challenged the right to harvest shellfish-entrepreneurial citizens, free-spirited individuals, and big businesses all made attempts to gain access to and control of oyster beds. It was in response to their strategies of control, McCay argues, that the doctrine of public trust emerged. The issue of class was at the core of the conflict, as wealthy investors sought to establish private property rights of oyster beds at the expense of humble farmers and watermen. These conflicts took the form of fine legal hairsplitting in court as well as rebellious fishermen literally attacking the wealthy industrialists in rage. McCay has done an excellent job exposing the full range of these debates and conflicts, showing that no oyster was left unturned in attempts to control the beds.

There were two ways for entrepreneurial citizens in New Jersey to maximize personal opportunities from oyster harvesting. They could either claim that the oyster beds were private land and thus hinder trespassing, or they could claim private possession of the oysters regardless of landownership. Some oyster beds could be accessible only through private land or only when the beds were exposed at low tide. Rights to such beds was a muddy issue. Much legal power was mobilized to make the case that sea beds were public land up to the high tide level. Thanks to the judgment in favor of public trust in these cases, beaches today are common property. Equally interesting is the case of legal rights to oysters planted in the common by private citizens. Can picking these oysters be considered theft or simply an exercise of a common right? Individuals were planting oysters in order to harvest them later for profit, not to feed pirates plundering their fields. The "pirates," on the other hand, argued that the privatization of sea beds constituted a threat to common property and that harvesting such oysters was a civic duty (as well as a profitable exercise). John Locke's labor theory of property came quickly to the forefront when these cases came to court. Mixing one's labor with the land is one thing, but what about sea beds? Here one party argued for exclusive rights to labored production,

while the opposite party held that this doctrine represented the destruction of common rights of others. This debate has relevant parallels with the current debate about bioprospecting and property rights to genetic material (Svarstad and Dhillion, 2000).

It is through a series of court cases reviewed by McCay that a larger history of the public trust doctrine emerges. The highlight is a case in 1842 involving oyster prospecting (or piracy depending on one's point of view) that went all the way to the United States Supreme Court. The Court ruled that the United States was the acting trustee for its citizens as the legitimate owners of tide-washed and submerged lands. Through this ruling, American citizens had a common right to fish and navigate on tidal and navigable waters, while nonresident immigrants and "strangers" had no such rights. After the ruling, the responsibility of managing the common became a task for the state, who could now act legally to secure the interest of its public.

However, the new doctrine of public trust was only partially successful. Individuals continued to plant or move oysters to the extent that by the mideighteenth century few natural beds remained (p. 62). The issue of ownership reemerged in another series of court cases as people harvested their neighbor's plantations with reference to the public trust ruling. New legal battles emerged as a consequence. The public trust doctrine was specified and gradually legally solidified. The rich history of this case-by-case strengthening of the public trust doctrine through oyster disputes occupies most of McCay's book. She describes how the oyster—as a totem animal—became the example for settling general issues concerning community rights and ethics.

The political ecological history McCay writes differs from a typical environmental history of oysters in that she is not willing to grant agency to oysters. Consequently, they are portrayed in her account as unable to change history. At the end of her story she does mention in passing "the irony" that over many years "devastating oyster diseases" made oystering impossible except on natural beds (p. 129). From the point of view of environmental history, this "irony" is key to understanding historical changes and developments in nature. From the nonanthropocentric point of view, microbes are causing oyster diseases. They are agents in history of equal importance to lawyers, fishermen, and capitalists. In contrast with Bruno Latour's account of microbes as active agents in Louis Pasteur's research, for example, McCay's oysters are passive objects to be ruled in accordance with the community's discretion (Latour, 1988). Nor can her account of oysters be compared to the power of natural agents in Alfred Crosby's famous description of ecological imperialism (Crosby, 1986). A full environmental history of oysters would require the use of marine biological tools and evolutionary principles. The environmental historian could object to McCay's book in that there is not enough ecology in its political ecology and that the anthropo-

centric orientation of its legal disputes fails to capture the ecological history of the oysters. In environmental history the cause and consequence of diseases would play a key role in the story, while the social implications of legal disputes and agreements would be secondary issues.

The difference in methodology between environmental history and political ecology represents a difference in views concerning the hierarchy of knowledge. The natural sciences in general, and ecology in particular, form the very foundation for writing environmental history. Political ecology, on the other hand, bases its research on the social sciences in general and anthropology or human ecology in particular. Both welcome interdisciplinary approaches but have different emphases, for reasons such as professional background, aim, and audience. *People, Land and Time* was written by geographers as a textbook for students in geography, while *Oyster Wars* was written by an anthropologist as a defense of the public trust doctrine for the enjoyment of legal scholars. Scholarly training, academic argument, and potential readers produce very different histories of the environment despite cross-disciplinary desires.

This difference in narrative is not necessarily due to difference in environment. The environmental historian William Cronon has pointed this out in an influential reading of dust bowl histories where he argues that nature is "a place for stories" constructed by the personal agenda, audience, and background of an author. Yet, as he also points out with respect to the dust bowl: "You can't put dust in the air [. . .] if the dust isn't there," since history has to obey "not just historical facts but natural ones" as well (Cronon, 1992, pp. 1372–1373). His point is that geological and ecological processes and knowledge set limits to what kind of narrative the historian can construct. Most environmental historians, as well as political ecologists, would agree: There are certain facts of nature that set boundaries for historical interpretations of the environment. In *People, Land and Time*, much geographical, geological and biological research sets the stage for understanding how people have changed the face of the earth for the worse. In *Oyster Wars*, current marine ecological facts about oysters serve as a basis for navigating through legal and historical material.

The environmental historians and the political ecologist discussed here do not place the production of scientific facts in historical context. *People, Land and Time* is a book of environmental history, not a history of how scientists have thought about the environment. In their opinions, the culture of science does not play a part in environmental history. Similarly, *Oyster Wars* hardly discusses the developments in the science of oysters, or the role that facts and scientists played in oystering debates and legal disputes. The subtitle suggests that the book is about property, law, and ecology in New Jersey history, but in fact the book contains not a trace of the

history of ecological science and research. The science of ecology instead serves as the natural setting in which the history of property and law takes place. In both books the "black box" of science remains closed. Natural facts serve as the Archimedean point on which both environmental history and political ecology turn. Though both *People, Land and Time* and *Oyster Wars* differ in terms of agency (with nonanthropocentric and anthropocentric approaches, respectively), they have the same base and belief in scientific facts.

Ecological facts are, however, up for historical contextualization in Stephen Bocking's book *Ecologists and Environmental Politics: A History of Contemporary Ecology*. The history of science is in this respect fundamentally different from both environmental history and political ecology. That Bocking places facts within their cultural and social settings does not mean that he reduces them to merely text or disentangles them from their natural world. The reality of environmental problems also looms within this book, though its contribution to solving them is more subtle in comparison with the books discussed above. What Bocking seeks to do is to understand how and why environmental problems are framed in terms of ecology. In the midst of the "Science Wars" between internalist and externalist explanations of science (which raged while Bocking wrote his book), Joel Kovel remarked that "the ecological crisis is not text, though misshapen and false texts play a major role in its working out. It is, rather, a threat to the life that produces texts" (Kovel, 1996, p. 199). What Bocking shows in his book is that the current ecological crisis is indeed a crisis in texts, if one assumes a distinction between the environment and ecology. The environmental crisis is real, and ecology represents a scientific interpretation of the crisis that the historian can read as text and thus place in historical context.

The story that unfolds in *Ecologists and Environmental Politics* is that of scientists mobilizing their discipline as a way of framing a crisis with growing political and social implications. By exposing "the relation between knowledge and power" (p. ix), Bocking shows a series of interesting connections between the science of ecology and the growing interest in environmental politics.

The book consists of three parts. The first section describes the origins of ecological science in Britain in the milieu of nature protection. The next is a discussion of how ecosystem research grew out of atomic research and politics in the United States. The third and final part relates ecological research in Canada with local fishery policy. A thematic focus on how scientific institutions mediate and maintain relations between ecologists and environmental politics links the chapters together.

The point of departure for Bocking is an obvious but important point, namely that ecology is a scientific interpretation of the environment and not

a political movement or source of moral values (p. 1). Influential writers inspired by ecology, such as Rachel Carson, Frank Fraser Darling, and Barry Commoner have made the distinction between ecology and environmentalism confusing. Bocking aims at understanding how and why ecologists are connected to environmental politics. The development of scientific institutions, which over the years provided a steady flow knowledge and advice for resource management and policies, serves as his chief explanation for why ecology in three different parts of the world became a tool for environmental politics.

The first case concerns the origins of the Nature Conservancy in Britain established by its chief patron and promoter Arthur George Tansley. Tansley was the founder of ecosystem theory, the author of numerous articles and books about ecology, and the editor of *Journal of Ecology* and *New Phythologist* as well as several important monographs. In the interwar period he dominated ecological research in Britain, especially after 1927 when he became professor of botany at Oxford University. Bocking argues that his affection for the countryside and his vision of ecology as a socially engaged and responsible science was the most important reason for why Tansley lobbied for the establishment of a governmental institution that could protect natural environments. He was critical of the more radical Social Relations of Science Movement promoted by John Desmond Bernal and others, which argued that the state should steer and plan scientific research. Instead, Tansley argued for a division of labor where scientists had intellectual freedom in their scientific research while governmental organizations took part in the political planning of natural resources preservation. How sciences should connect to politics was, in the case of Tansley, unproblematic, since he personified the link as both emeritus professor of ecology and head of the Nature Conservancy. His idea was that scientific experts were best suited to steer environmental politics, an idea that remained in the Nature Conservancy for years after Tansley left in 1952. Ecologists believed that the right knowledge would lead to the right politics, and that consequently they should be in control. *Ecologists and Environmental Politics* offers detailed descriptions of how a series of ecologists fashioned themselves as the group best suited to steer environmental policies through governmental organizations. Bocking could have placed greater emphasis on the importance of the management tradition within the British Empire in his reading of the role of ecologists in environmental politics (Anker, 2001). There is an imperial inheritance in the Nature Conservancy which is of some importance in understanding the role of experts in planning British environments. However, this is not to say that Bocking has not done a fine job of sorting out the entangled relations between ecologists and nature protection in Britain.

The second case examined in the book concerns ecologists working at the Oak Ridge National Laboratory in Tennessee and at Hubbard Brook in New Hampshire in the United States. This case is a masterful reading of the role of ecosystem research in promoting rational management of society and its environments. Historians of ecology have already discussed some of this research (McIntosh, 1985; Hagen, 1992; Golley, 1993), and Bocking adds much more material and knowledge to the case. He has successfully linked research in atomic energy to ecologists working with an ecosystem approach to the environment. Knowledge about the ecosystem was seen as a contribution to "health physics" and understanding of the environmental aspects of radiation (pp. 68–70). The Oak Ridge National Laboratory employed no less than twenty-two ecologists in 1966 and was the largest research arena for ecological studies. They used computers as one of their chief research tools to generate models simulating cycles of nutrients in nature. The relevance of ecological studies to physics, Bocking argues, was initially unclear, since ecologists were rarely consulted on environmental health issues. They pursued ecological and botanical topics under the banner "basic research" (p. 87) without much interference. It was not until the late 1960s when computer models were used to generate impact assessment analysis that ecological research became relevant to environmental politics. The models provided "an aura of objectivity" (p. 103) with respect to radiation hazards suitable for use in political and bureaucratic decisions.

In the third case, concering fisheries in Ontario, Bocking shows how the ecologists engaged society by providing a framework for discussing an important economic resource. Fisheries in the Great Lakes region were in crisis by the early 1970s due to changes in the environment. Fishing management (or lack of such) of the resource was in disrepair. Bocking argues that ecologists first analyzed the problem as being a technical one, and that more and better models for prediction of fish stock would allegedly solve the problem. Not until ecologists had a full comprehensive analysis of the connections between social relations and the lakes did they realize that fundamental changes in society's priorities were needed to solve the crisis in the Ontario fisheries.

The ecologists focused on the health of ecosystems rather than individual species in their impact assessment of environmental problems along the Hudson River and in the Ontario lakes. These assessments generated an environmental political debate in which nature as a whole rather, than a single species, was on the agenda. The ecologists thus initiated arguments which were fundamentally different from the single-species controversy McCay discusses in *Oyster Wars*. The oyster war was not an ecological debate (even if McCay insists on using the term "political ecology"), because the ecological approach was not known by the people she discusses in her

book. They had a single-species focus and hardly thought of the environment as a whole. Bocking shows how an entire way of thinking about the environment grew out of a scientific discipline whose scholars often had clear paternalistic views on how to steer the social and environmental world.

Agency is at the heart of distinguishing methodological differences between environmental history, political ecology, and the history of science. Environmental history has the most inclusive nonanthropocentric approach to agency. Inanimate stones, mountains, plants, animals, humans, as well as natural and human communities all have influence in shaping the face of the earth. Even spiritual forces are important insofar as someone believes in them and acts upon that belief. This methodology represents a blend of natural and social geography in Rousseau's romantic tradition. Political ecology has, by contrast, an anthropocentric notion of agency which only includes human action to understand the history of a species (like oysters) or an environment (like the New Jersey seacoast). This history is a drama about various personalities, interest groups, social classes, and communities politically and legally defending their interests in a natural resource. The methodology of political ecology is a blend of human ecology and social anthropology applied to historical material. Though environmental history and political ecology differ in terms of agency, they have a common belief and basis in science. Both political ecology and the environmental histories discussed above have not included scientists as active agents in social and environmental debates. The history of science shares the anthropocentric notion of agency with political ecology but does not base its narrative on a scientific platform. Instead, it offers a history of scientific personalities and research groups that changed our understanding of the natural world.

At the heart of the differences between environmental history, political ecology, and the history of science lies the self-referential problem. *Ecologists and Environmental Politics* has an approach that views the history of ecological science as a product of human, not environmental, agency. Since Bocking's book may be read as a contribution to the history of thinking in terms of environmental history, it makes little sense to use environmental history as its methodological tool. If he had used this methodology he would have risked entrapment in a self-referential vicious cycle. A book about the history of ecological research tools cannot profitably use those same tools to describe itself. For the same reason, it is difficult for environmental history to include the history of science in its perspective, because that would entail questioning and placing in a cultural history those facts and approaches one uses to describe history. If one converted the title *People, Land and Time* to *Geographers, Land and Time*, an entirely different story would emerge; a history of the science of geography. Similarly, in *Oyster Wars*,

people (and oysters) of the past are understood from the point of view of contemporary anthropology.

These differences between environmental history, political ecology, and the history of science reflect deeper divisions in academia between natural sciences, social sciences, and humanistic disciplines. To rank one way of writing history above the other would be absurd. It would be equally unteneble to make a mishmash of it all in the name of interdisciplinary research. Nor are attempts to reduce everything into one "concillience" of history writing desirable. Instead one should enjoy differences in historiography, as in the case of the fine books reviewed above.

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