

CHANGES IN THE GENRE: A BRIEF SURVEY OF EARLY MID-ATLANTIC ENVIRONMENTAL HISTORIES

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*W*illiam Pencak, editor of *Pennsylvania History*, wrote in 1996:

Pennsylvania's history cannot be understood without reference to the regions around it. Pennsylvania's role in the development of the Southern backcountry and the Ohio Valley, trade and culture in the Delaware Valley, and the contrasting rise of New York and Pennsylvania as the nation's leading industrial and commercial states in the nineteenth century are only three obvious areas in which understanding Pennsylvania benefits from a regional perspective.¹

Pencak was explaining to readers why the journal had decided no longer to focus narrowly on Pennsylvania history, but rather, as its new subtitle would declare, to become *A Journal of Mid-Atlantic Studies*. Pencak's stated reasons focus explicitly on aspects of cultural, social, and economic history, but his observation that the history of Pennsylvania cannot be fully understood without reference to broader regional trends holds just as true for environmental history. Rivers and streams, winds and rain, migratory wildlife and the commercial incentives that so often

drive human-environmental interactions are notoriously poor observers of political boundaries.

And yet, one of the most obvious lacunae in the current historiography of the colonial Mid-Atlantic is that the region lacks an iconic environmental study, such as William Cronon's *Changes in the Land*, to call its own. Nor, for that matter, can the Mid-Atlantic boast of an *Ecological Revolutions*, a *This Land*, *This South*, a *New Face on the Countryside*, or any comparable text. In the first two of these titles, William Cronon and Carolyn Merchant in a very real sense managed to *create* an ecologically defined New England. Albert E. Cowdrey and Timothy Silver did the same for the South in the latter two titles.² Regions formerly delineated by historical politics suddenly became distinct regional ecosystems (of sorts). The myriad transformations undergone by local landscapes during the colonial period suddenly assumed a larger significance as they took their place within a regional pattern that could roughly be described as the transition from a Native American subsistence ecology to a different, yet still-stable, colonial subsistence ecology, and, finally, to the emergence of an overly rapacious commercial ecology. Merchant even took this metanarrative of environmental declension a step further, declaring early New England "a mirror on the world" in which regional ecological transformations repeated, at an accelerated rate, changes that had already overtaken Europe and would soon, even more rapidly, overtake the developing world.³

These historians, and others who have followed their example, have given us the history of the northernmost among the original thirteen colonies, and of the South, but what of the middle? Peter Mancall's *Valley of Opportunity: Economic Culture along the Upper Susquehanna*, the first environmental history monograph with an exclusively Mid-Atlantic focus, appeared almost a decade after Cronon and Cowdrey's works and limited its attention to the upper Susquehanna Valley—the sprawling hinterland where today New York meets Pennsylvania.⁴ Although a vast region, and one with a rich colonial history, this seminal history of the Mid-Atlantic environment did not approach in its geographic pretensions the standard for a synthetic regional history that had been set by Cronon, Cowdrey, Merchant, and Silver.

The best synthetic environmental history that embraces the Mid-Atlantic fails to treat the region as a unique historical-ecological unit. ABC-CLIO's excellent *Nature and Human Societies* series of environmental histories

lumps the Mid-Atlantic into a volume titled *Northeast and Midwest United States*. To make matters worse for those seeking a uniquely Mid-Atlantic environmental historiography, the volume's author, John T. Cumbler, gives pride of place to the colonial history of New England. The cultural diversity of the Mid-Atlantic—with its Dutch, Swedish, German, and Scots-Irish settlers—along with its distinct geography and climate seemingly do little to alter the larger processes at work amidst European settlement. Despite cultural differences, Cumbler observes that settlers in New York, New Jersey, and Pennsylvania were “just as involved in the international trade” and “shared a variety of lifestyle experiences with their New England cousins.”⁵ In Cumbler's analysis, it was these common European traits, which Mid-Atlantic settlers shared with their neighbors to the northeast, that most influenced their impact upon the local environment and led to a list of ecological effects familiar to any historian of the early American environment, whatever his or her regional focus. It seems Carolyn Merchant's New England mirror reflects upon the Mid-Atlantic as well.

One scholar has described the Mid-Atlantic region as the “Rubik's Cube” of early American historiography: “a problem tantalizingly apparent in the literature, obviously important and ripe for interpretation, yet one that routinely defies synthetic description.”⁶ The high degree of cultural heterogeneity provides the most obvious stumbling block for any Mid-Atlantic historian struggling toward a regional synthesis. The region's broad diversity in ecology and landscape only adds to the problem. By contrast, New England offers an easier subject because all of its colonies (at least those that became states) were, in a sense, offspring of Massachusetts. The political and cultural affinities that this engendered makes the region, arguably, better suited to being viewed as a distinct historical region. The similar environmental consequences of these shared political and cultural institutions, combined with a comparatively homogenous geography (but only comparatively so), make it easier to accept New England as a discrete ecological region.

David Stradling's *The Nature of New York* offers an alternative model for studying the environmental history of the Mid-Atlantic; by focusing on a single colony or state, he sidesteps the cultural and geographical heterogeneity of the region. His excellent environmental history of the Empire State emphasizes how economics and politics have worked together to remake the New York landscape from the Native American economies of the seventeenth century through to the present. Unfortunately, the insightful analysis that

Stradling brings to the nineteenth and twentieth centuries can only leave the early Americanist feeling cheated. *The Nature of New York* races through the state's colonial history at a sprinter's pace, reaching the nineteenth century about halfway into the first chapter and scarcely looking back after that. The meager analysis offered for the period prior to 1800 is a sort of Cronon lite: a list of now-familiar ecological transformations characterized by the dispossession of native peoples and the depletion of natural resources occasioned by what Stradling calls "the profit motive" and what Cronon referred to as "the market" or "capitalism."⁷ Such a move is frustratingly familiar throughout early American environmental historiography and implicitly represents (or at least perpetuates) a mistaken belief that *real* environmental change, and thus environmental history, did not begin in the territory that today makes up the United States until the first stirrings of industrialization around the turn of the nineteenth century.

Still, Stradling's stated intention is to provide an environmental history of New York *state* (a polity that did not exist until the late eighteenth century), and judged by this standard it is indeed an excellent work. His model is a compelling one. Since political decisions and lawmaking do so much to influence how different resources are utilized, conserved, or exhausted, focusing on a single governmental jurisdiction contains an undeniable logic. Focusing on the state, rather than the region, can provide much-needed clarity and coherence of argument. But what of William Pencak's challenge, with which this essay opened, to place state history within a broader regional perspective? Ironically, Stradling himself, by providing such a well-written environmental history of New York, does much to dispel the idea that heterogeneity, at least geographical heterogeneity, can be blamed for the absence of a synthetic environmental history of the Mid-Atlantic region. "Clearly," Stradling admits, "the state of New York is not a meaningful ecological unit, but it is home to a remarkable variety of ecosystems."⁸ If ecologically diverse New York and its equally diverse colonial and native populations can serve as the subject for so ably written an environmental history, why not the Mid-Atlantic as a whole?

Let me be clear: in this essay I write to praise colonial Mid-Atlantic environmental history, not to bury it. Although a synthetic regional environmental history of the early modern Mid-Atlantic has yet to appear, environmental histories of subregions within the Mid-Atlantic proliferate. Many of these stand as exemplars in the field. In fact, it is hard to escape the suspicion that Peter Mancall had things right all along. *Changes in the Land* challenged historians to view all of the natural world not merely as a stage,

with men and women the historical players, but also to recognize plants, animals, and natural forces as historical actors in their own right. Though more interested in economics and less in ecosystems than was *Changes in the Land*, Mancall's *Valley of Opportunity*, in a sense, takes up Cronon's earlier call and sees it through to its logical conclusion. Rather than attempt to delimit nature within artificial political boundaries, Mancall allowed the contours of the natural landscape to define his study. The winding courses of the Susquehanna and its many tributaries do not merely set the stage for this history of commerce and ecology; they actively carve out the ground that it is to cover. There is a great deal of logical consistency in such an approach. As Mancall points out, it was "the contours of the valley inhabitants' world—their mountains and rivers and vales" that "defined settlement patterns and trade routes." It was the natural resources produced by the valley—its timber, coal, soil, and animal wealth—that shaped its early economy.⁹

Following in Mancall's footsteps, other environmental historians of the colonial Mid-Atlantic have allowed natural systems, rather than political boundaries, to define their inquiries. Among these, John R. Wennersten's *The Chesapeake: An Environmental Biography* stands out for special praise. *The Chesapeake* takes as its subject both the eponymous estuary and its entire watershed. An entire natural system of streams, brooks, rivers, and coastal waters, as well as the lands that line their banks, not just provide the backdrop for the book, but also serve as some of the primary actors in this history. Wennersten finds many of the same symptoms of environmental degradation that historians have identified elsewhere, though tobacco's dramatic impact upon soil fertility does set the Chesapeake experience apart from other regions. He illustrates the dynamic relationships that existed between the land-based economic activities of natives and settlers and the natural processes of the rivers, streams, and coasts along which they lived. Ecological impacts like the clearing of trees for timber and the creation of agricultural land, the reader is told, "have serious consequences for the rivers of the Chesapeake basin and ultimately for the estuary itself." Increased flooding from deforestation, increased erosion, and increased silt flows all meant that the problems of the land would eventually wash downstream to plague the ecosystems of rivers and coast.¹⁰ Put another way, Wennersten explores not just the "changes in the land" that humanity's often-heavy ecological footprint has occasioned, but also the changes in the waters that inevitably followed. In turn, he offers a new model to which environmental historians can aspire.¹¹

A number of authors, working in a vein similar to Wennersten, have produced monographs that offer an entrée into the environmental history of the Mid-Atlantic for a broader and more popular audience. Worth especial mention in this category are Susan Q. Stranahan's *Susquehanna: River of Dreams*, Arthur Parker's *The Monongabela: River of Dreams, River of Sweat*, and Tom Andersen's *This Fine Piece of Water: An Environmental History of Long Island Sound*.¹² Each of these works offers the casual reader an excellent survey of over four hundred years of regional environmental history within their chosen geographical purview. In doing so, they all too quickly, from the perspective of a colonial historian, pass over the early history of the Mid-Atlantic (a criticism which is less true of Stranahan's work). Still, each is well worth mentioning as a thoroughly engaging introduction to the field for readers who might otherwise assume environmental history to be a dry topic little worth their consideration.

Alongside such regional studies, Mid-Atlantic historians have long excelled at the particular genre of urban environmental history. It is easy to see why, especially when looking at the colonial period: Philadelphia and New York dominated the commerce of their hinterlands and, along with Boston and Charleston, stood as the great metropolitan centers of British colonial America. Cities offer a sort of hybrid subject for the environmental historian, one that is less obviously "natural" than, say, river basins or estuaries. On the one hand, cities are definitely political units and their borders, like those of states, are artificial constructs of the human mind. On the other hand, a city's built environment and dense human population offer a unique ecosystem that can differ markedly from surrounding landscapes.

Philadelphia's Dock Creek has provided a prime case study for environmental historians interested in the intersections of commerce, ecology, and politics in early America's urban centers. Multiple authors, stretching back to Charles S. Olton in the 1970s, have traced how Philadelphia's urban artisans had, by the eighteenth century, transformed this waterway into a great open sewer.¹³ At least in Olton's case, Mid-Atlantic historians have been doing environmental history since before it was fashionable. And the environmental history of Philadelphia has remained relevant, especially with the recent publication of an impressively thorough multi-volume study of Philadelphia's Wissahickon Valley, entitled *Metropolitan Paradise: The Struggle for Nature in the City*, by historian David Contosta and landscape architect Carol Franklin.¹⁴

But it is New York City, perhaps unsurprisingly, that has won the lion's share of attention. Betsy McCully's *City at the Water's Edge* offers a somewhat uneven treatment of New York's environmental history. McCully often displays a better feel for natural science than for her early modern historical subjects. Three whole chapters ably elucidate pre-human geology and ecology, but her cultural analysis of the Lenapes falls flat. In McCully's telling, following the arrival of European traders, the Lenapes enthusiastically entered the international market and wholly discarded their past culture in exchange for the tools and baubles that the newcomers offered. Respect for the animal spirits that once governed the hunt disappeared seemingly overnight. She focuses on a political history of Indians clashing with European settlers, and of Dutch investors struggling to make back the money that they had sunk into this colonial venture. McCully serves up Cronon once again—Dutch (and later English) settler societies whose only thought is how they might best transform the natural landscape to their commercial advantage—but the setting has changed. The coast looms larger, as do the myriad creatures that inhabit it. It is frustrating, though, that McCully has little to say about colonial-era environmental impacts. Her narrative moves from Dutch settlers confronting a new land, complaining about the labor required to keep pastures clear, and then, within a single page, the glory of seemingly inexhaustible colonial-era oyster beds gives way to the onslaught of nineteenth and twentieth pollution.¹⁵

Thankfully, other historians have recently offered a far clearer environmental picture of New York City's history. Ruth Piwonka reminds us that even in New Netherland, where European settlers found some of the best soils and one of the most agreeable climates along the eastern coast, learning to survive in unfamiliar surroundings was still a challenge. Getting to know the various uses of the local flora was an important first step in overcoming that challenge. But transplanting familiar crops and orchard trees from Europe, along with farmers and horticulturalists skilled in raising them, was just as important, if not more so. Piwonka's study of the Dutch West India Company's efforts to establish an agricultural colony in New Netherland reminds us that the European conquest of North America included an exchange of knowledge when plants and animals from both sides of the Atlantic were brought together.¹⁶ Sara S. Gronim's *Everyday Nature* treats a similar subject a bit differently by focusing on the trans-Atlantic world of ideas about nature rather than on specific ecological changes taking place on the ground. Gronim's work illustrates the fuzzy boundaries that overlap

related genres such as environmental history and the history of science. At the same time she makes a compelling case for the importance of colonial knowledge, particularly that coming out of New York, in fueling the growth of “science” as a particular field of inquiry.¹⁷ Gronim and Piwonka together, therefore, paint the Mid-Atlantic as an exciting and dynamic site for the creation of new knowledge, and for the reworking of what was familiar, in the early modern period.

By far the most amazing recent contribution to the environmental historiography of the Mid-Atlantic (with all due respect to the scholars already mentioned) comes not from a historian, but from the landscape ecologist Eric Sanderson. His staggeringly ambitious Mannahatta Project strives to recreate in block-by-block detail the native landscape and ecosystems of Manhattan Island as they would have appeared in 1609, when Henry Hudson first arrived. The results of this project, showcased both in his book *Mannahatta* and online, are nothing less than awe-inspiring.¹⁸ The Mannahatta Project has resurrected the early-seventeenth-century natural history of Manhattan Island by recreating the complex network of interactions between plants, wildlife, and physical habitats that give rise to living ecosystems. These “Muir webs” are, in Sanderson’s words, “a grid that’s a thousand columns long across the top, and a thousand rows down the other way” entered into a database and then digitally mapped onto the modern landscape of New York City.¹⁹

For all that has been done, many exciting opportunities still exist for environmental historians of the early Mid-Atlantic to explore. A new collection of scholarly essays on the environmental history of the Hudson River, edited by Robert Henshaw of the Hudson River Environmental Society, offers a compelling narrative of the physical and biological changes taking place in the early river valley.²⁰ But it raises even more questions, highlighting the continuing need for a monograph more firmly focused on the history of the Hudson. And what of the region’s other river systems? It would be exciting to do for the Delaware what Mancall has done for the Upper Susquehanna. Even more exciting would be Wennersten’s approach to the Chesapeake basin applied to the greater Philadelphia watershed. Such a work would combine urban history, especially the development of Philadelphia as a bustling colonial port, with the environmental transformations that occurred in the Delaware and Schuylkill basins as inhabitants sought to feed the increasing demands of population growth and colonial commerce. And speaking of the Chesapeake, what about a scholarly history of early modern Long Island Sound? Although it lies at the edge of what we now call the Mid-Atlantic, the Sound served as

a nautical highway connecting New York City consumers with the producers in the New England countryside. Such a study would highlight the environmental impacts of this trans-regional (and trans-Atlantic) colonial trade.²¹

The interaction of Native nations in the Mid-Atlantic with their environment offers another fascinating avenue for future studies. For much of the colonial period, up through the end of the War for Independence, large sections of western New York and Pennsylvania lay more firmly under the political hegemony of the Six Nations than under the political authority of colonial capitals in the east. Several authors have already capably explored certain aspects of Iroquoian environmental history (especially those related to the fur trade) as parts of broader studies on Euro-American and Indian relations.²² A dedicated environmental history of Iroquoia—one that accounted for the role of spiritual beliefs, the impacts of evolving agricultural practices, a new disease environment, large-scale migrations, as well as the integration of the region into an expanding world economy—would provide invaluable insight into changes taking place just beyond the frontiers that environmental historians have previously set for themselves in the past. While forefronting Iroquoian ecological parties effects, such a study would also help highlight both the different cultural perspectives and the shared environmental and market incentives that shaped Native approaches to nature in contrast to their new Euro-American neighbors. Alternatively, some researcher might take up the challenge of examining not a place, but a people. For example, what insights might an environmental history of the Lenapes—one that follows their migration from the Delaware Valley to western Pennsylvania and, ultimately, the Ohio territory—reveal about cultural adaptability in the face of new geographies and new environments? This question, commonplace for studies of Euro-American migration to and within North America, still needs to be applied to the history of the continent's native nations.

Finally, colonial Mid-Atlantic history could still benefit from the sort of synthetic regional environmental history that Cronon, Merchant, Cowdrey, Silver and numerous others have provided for their own chosen regions of North America. Although new trends in environmental history make this erstwhile gap less pressing, students of early America must still wonder just *how* the Middle Atlantic's cultural and geographic heterogeneity impacted its broader regional development. If environmental history is the story of competing cultural ideals of nature clashing over how best to exploit the opportunities presented by varied and unique ecosystems, then the celebrated heterogeneity of the Middle Colonies also offers, in a microcosm, a new way

to understand the early modern Atlantic world. Perhaps it is the environment of the colonial Mid-Atlantic, rather than of New England, that truly holds up Carolyn Merchant's "mirror on the world."²³ A regional environmental history of the Mid-Atlantic would provide an invaluable teaching tool for those who focus their scholarly efforts on either the early modern period or upon the Mid-Atlantic as a region.

Scholars of the colonial Mid-Atlantic environment have forged new paths and in the process have fulfilled and even exceeded William Pencak's challenge to view the history of the Mid-Atlantic states within a regional perspective. While space limitations prevent me from discussing all of the excellent studies published in recent years, those I have mentioned illustrate the breadth of this new scholarship. By abandoning political boundaries and conforming instead to the contours of the natural landscape, or alternatively the landscape of the scientific mind, recent environmental historians have connected the environmental history of the Mid-Atlantic states to one another, to other regions of the United States, and, ultimately, to the broader Atlantic world.

NOTES

1. William Pencak, "Editorial Note," *Pennsylvania History* 63, no. 3 (July 1996): 301.
2. William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983); Carolyn Merchant, *Ecological Revolutions: Nature, Gender, and Science in New England* (Chapel Hill: University of North Carolina Press, 1989); Albert E. Cowdrey, *This Land, This South: An Environmental History* (Lexington: University Press of Kentucky, 1983); and Timothy Silver, *New Face on the Countryside: Indians, Colonists, and Slaves in South Atlantic Forests, 1500–1800* (New York: Cambridge University Press, 1990).
3. Merchant, *Ecological Revolutions*, 1.
4. Peter Mancall, *Valley of Opportunity: Economic Culture along the Upper Susquehanna, 1700–1800* (Ithaca, NY: Cornell University Press, 1991).
5. John T. Cumbler, *Northeast and Midwest United States: An Environmental History*, Nature and Human Societies, ed. Mark Stoll (Santa Barbara, CA: ABC-CLIO, 2005), 54, 66.
6. Wayne Bodle, review of *The Delaware Valley in the Early Republic: Architecture, Landscape and Regional Identity*, by Gabrielle M. Lanier, *William and Mary Quarterly* 62, no. 3 (July 2005): 546.
7. David Stradling, *The Nature of New York: An Environmental History of the Empire State* (Ithaca, NY: Cornell University Press, 2010), 5, 16, *passim*; Cronon, *Changes in the Land*, 75–76, 161–67.
8. Stradling, *Nature of New York*, 9.
9. Mancall, *Valley of Opportunity*, 12.
10. John R. Wennersten, *The Chesapeake: An Environmental Biography* (Baltimore: Maryland Historical Society, 2001), 45, 54–55.

11. Bodies of water and the resources they offer have proven a fertile ground for Mid-Atlantic environmental history, though space limits prevent me from giving them all the attention they deserve. See Charles Hardy III, "Fish or Foul: A History of the Delaware River Basin Through the Perspective of the American Shad, 1682 to the Present," *Pennsylvania History* 66, no. 4 (Autumn 1999): 506–34; Michael Recht, "The Role of Fishing in the Iroquois Economy, 1600–1792," *New York History* 76, no. 1 (January 1995): 5–30; and Gerald J. Kauffman Jr., "The Delaware River Revival: Four Centuries of Historic Water Quality Change from Henry Hudson to Benjamin Franklin to JFK," *Pennsylvania History* 77, no. 4 (Autumn 2010): 432–65.
12. Susan Q. Stranahan, *Susquehanna: River of Dreams* (Baltimore: Johns Hopkins University Press, 1993); Arthur Parker, *The Monongabela: River of Dreams, River of Sweat* (University Park: Pennsylvania State University Press, 1999); and Tom Andersen, *This Fine Piece of Water: An Environmental History of Long Island Sound* (New Haven, CT: Yale University Press, 2002).
13. Charles S. Olton, "Philadelphia's First Environmental Crisis," *Pennsylvania Magazine of History and Biography* 98, no. 1 (January 1974): 90–100; Richard C. Albert, "The Historical Context of Water Quality Management for the Delaware Estuary," *Estuaries* 11, no. 2 (June 1988): 100–101; A. Michal McMahon, "'Small Matters': Benjamin Franklin, Philadelphia, and the 'Progress of Cities,'" *Pennsylvania Magazine of History and Biography* 116, no. 2 (April 1992): 160, 167–76; Michal McMahon, "'Publick Service' versus 'Mans Properties': Dock Creek and the Origins of Urban Technology in Eighteenth-Century Philadelphia," in *Early American Technology: Making and Doing Things from the Colonial Era to 1850*, ed. Judith A. McGaw (Chapel Hill: Published for the Institute of Early American History and Culture, Williamsburg, Virginia, by the University of North Carolina Press, 1994), 114–47.
14. David R. Contosta and Carol Franklin, *Metropolitan Paradise: The Struggle for Nature in the City* (Philadelphia: Saint Joseph's Press, 2010).
15. Betsy McCully, *City at the Water's Edge: A Natural History of New York* (New Brunswick, NJ: Rivergate Books, 2007), 64–65, 84.
16. Ruth Piwonka, "'... and I have made good friends with them': Plants and the New Netherland Experience," *New York History* 89, no. 4 (Fall 2008): 397–425.
17. Sara S. Gronim, *Everyday Nature: Knowledge of the Natural World in Colonial New York* (New Brunswick, NJ: Rutgers University Press, 2007).
18. Eric W. Sanderson, *Mannahatta: A Natural History of New York City* (New York: Abrams, 2009); and the Wildlife Conservation Society, "Welcome to New York City, 1609," <http://welikia.org/explore/manhatta-map/> (accessed September 12, 2011).
19. Eric Sanderson, "Presentation on the Mannahatta Project by Eric Sanderson at TED2009," <http://welikia.org/download/presentations/> (accessed September 12, 2011). The website www.welikia.org houses Sanderson's even more ambitious follow-up project, a similar recreation of seventeenth-century ecology for all of New York City.
20. Robert E. Henshaw, ed., *Environmental History of the Hudson River: Human Uses that Changed the Ecology, Ecology that Changed Human Uses* (Albany: State University of New York Press, 2011).
21. As mentioned above, Tom Andersen, a journalist and environmentalist, has already produced a fine environmental history of the modern Sound. However, while Andersen does begin his story in the colonial period, he presents what is at best a cursory summary of the social and economic history of the watershed's competing peoples. It is only in his writings about the nineteenth and twentieth

centuries that he truly delves deeper into the ecological changes besetting Long Island Sound and the lands along its shores.

22. Important works include Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650–1815* (New York: Cambridge University Press, 1991); Daniel K. Richter, *The Ordeal of the Longhouse: The Peoples of the Iroquois League in the era of European Colonization* (Chapel Hill: Published for the Institute of Early American History and Culture by the University of North Carolina Press, 1992); and Jon Parmenter, *The Edge of the Woods: Iroquoia, 1534–1701* (East Lansing: Michigan State University Press, 2010).
23. I paraphrase Merchant, *Ecological Revolutions*, 1.