

Paradigm Shifts in Environmental Thinking: Autonomous Nature by Carolyn Merchant

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Carolyn Merchant's book **Autonomous Nature** traces paradigmatic shifts in environmental thinking from a long-term perspective. Derived from her ever-enduring interest in and perpetual investigations of chaos and complexity theories, Merchant probes into the roots and evolution of the terms *natura naturans* ("Nature naturing," or nature creating, evolving, and changing) and *natura naturata* ("Nature natured," or nature as experienced in the everyday world) from ancient times through the Scientific Revolution. In so doing, she argues that we should re-conceptualize the human-nature relationship not as one of order and predictability but as one of unruliness and unpredictability. This beautifully written book not only offers a new way to understand the interdependencies between the human and non-human world, but also provides insights into tangible issues such as climate change and environmental justice in the twenty-first century.

The book has two parts. Part I is entitled "Autonomous Nature," in which Merchant examines natural disasters and the roots of a dualistic Nature—Nature as an unpredictable, disorderly, ever-changing force and Nature as predictable everyday events—in Greco-Roman philosophy, medieval Christian thought, and the Renaissance. Each of the three chapters in Part I starts with a catastrophe, including the eruption of Mount Vesuvius in 79 CE, a major earthquake in northern Italy in 1348, and the bubonic plague outbreaks of the fourteenth century, and then she proceeds to examine how key philosophers, artists, and writers have conceptualized Nature and how the contemporaries of the catastrophes she explores understood the dialectical relationship between *natura naturans* and *natura naturata*. Merchant notes that the economic, technological, and intellectual advances in the period from the late Middle Ages to the

Renaissance gave rise to human confidence in controlling Nature, which sets the stage for Part II.

Merchant subsequently discusses the development of experimentation and mathematics during the seventeenth-century Scientific Revolution. By summarizing the works of natural philosophers, such as Francis Bacon, Rene Descartes, Thomas Hobbes, Robert Boyle, Baruch Spinoza, Isaac Newton, and Gottfried Wilhelm Leibniz, Merchant argues that through experimentation and mathematics, “‘Nature naturing’ would yield ‘her’ secrets,” and “‘Nature natured’ could be described, predicted, and managed” (80). Merchant’s analysis of the Lisbon Earthquake of 1755 speaks to the limits of predicting and controlling unruly, recalcitrant nature, which heralded the rise of chaos and complexity theories in the twentieth century, when the paradigm of a mechanistic view of nature shifted to a dynamic, complex view of nature derived from *natura naturans*.

Merchant’s analysis gives voice to an ever-changing nature as a historical actor, emphasizes the interdependencies between the human and the nonhuman worlds, and advocates environmental justice. In her epilogue, Merchant states that “*the earth as we know it today*” might be very different in the future due to nuclear apocalypse, climate change, genetically engineered species, and so on (150). Thus, she calls for a new ethic—“partnership ethics,” which include: “equity between the human and nonhuman communities; moral consideration for both humans and other species; respect for both cultural diversity and biodiversity; inclusion of women, minorities, and nonhuman nature in the code of ethical accountability; and an ecologically sound management that is consistent with the continued health of both the human and the nonhuman communities” (162).

Building on her classic work **The Death of Nature** (1983), Merchant extends the discussion on gendered nature in pre-modern world in this book. She asserts that “many of the significant terms were gendered male or female and associated with ideas of order/disorder; form/matter; intellect/receptacle; being/becoming; lawful/unruly, and so on” (23). By the era of the Renaissance, female Nature, which had long associated with unpredictability and chaos, was blamed for natural disasters and pestilence. Such genderization of Nature not only provided the framework for controlling and rationalizing Nature during the Scientific Revolution, but also laid the foundation for the development of chaos and complexity theories in the twentieth century.

The new paradigm focusing on the unpredictability and disorder of Nature has prompted me to rethink the study of water control in the Chinese context. Conventionally water, or Nature, was only the setting for political events to take place; the characteristics of water were often not considered as participating in historical events. Merchant's argument brings active nature back into the picture. I have chosen to focus on waterway transportation in nineteenth- and twentieth-century China to illustrate the participatory role of nature and the interdependencies between human and natural regimes. Transportation mediates between human society and autonomous nature: it was subject to institutional regulations and human maneuvering, as well as a variety of natural factors, including water velocity, sedimentation, climatic conditions, and the waterscape of the rivers, at a given technological level. By looking at the interplay between autonomous nature (water) and social institutions, we understand better the dynamic human-nature relationships in Chinese history.

Merchant's book makes an important contribution to the fields of environmental history, the history of ideas, and the history of science. As we now live in the Anthropocene, questions about how far humans can predict autonomous nature or how human activities can affect and alter ecosystems become more and more significant—and urgent. Among extensive discussions on how to cope with climate change, Merchant's book offers a philosophical, scientific, and historical lens with which to study the urgent environmental issues we all must face and think about. Let me end with Thomas Merton's poem, quoted in Merchant's book, to ponder again the contradictory and dialectic characteristics of Nature (149):

There is in all visible things an invisible fecundity,

a dimmed light,

a meek namelessness, a hidden wholeness.

This mysterious Unity and Integrity is

Wisdom, the Mother of all, *Natura naturans*.