

#59

THE DEATH OF NATURE

A Retrospective

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The shadows lengthened on the red, yellow, and brown pillars of the canyon walls. A panoply of moving colors bathed hundreds of eroded limestone spires, as the sun sank over the sculpted peaks. In front of me, my two young sons, ages 11 and 13, picked their way along a narrow trail across a maze of rock outcrops that dropped precipitously to the river below. We watched as a red-tailed hawk ascended the updrafts to an aerie on the high peaks. The view was breathtaking, the colors magnificent, the rocks vibrant and alive.

The summer was 1975, the place Bryce Canyon, Utah; and the three of us were exploring the canyon lands of the American West. After our evening meal in the park campground, the boys fell into an exhausted slumber. I lay awake pondering the irony of the living rocks. Science viewed them as dead and inert, yet for much of human history, those very rocks had been alive—growing and reproducing like plants and animals. It was then that the title of a book I had been crafting for several years emerged into clear relief: *The Death of Nature* (1980) was christened.

Thinking back on that summer of magic, I am awed by the concatenation of personal, intellectual, and social events that led to the formation of the book's thesis. The influences on my life and their intersections with history seem an odd coupling of chance occurrences, mundane events, and strange flashes of understanding. During the 1960s and 1970s, the women's movement sparked by Betty Friedan's *The Feminine Mystique* (1963), the environmental movement propelled by Rachel Carson's *Silent Spring* (1962), and the social upheavals of the civil rights and antiwar movements formed my nascent social consciousness.

I entered the environmental movement in the fall of 1959 in a baptism by fire. On my first date with my ex-husband, we went out and burned a Wisconsin prairie. The following spring, a multicolored carpet of exquisite native wildflowers adorned a hillside that had been nearly obliterated by encroaching aspens. Working together to save native prairies for the nature conservancy, debating the consequences of Rachel Carson's exposé of pesticides, and pondering the impact of world population on food supplies, I absorbed an environmental ethic early on in the emerging ecological movement.

I spent most of the 1960s as a graduate student in the University of Wisconsin's provocative program in history of science studying the origins of the modern scientific revolution and drafting a dissertation on Gottfried Wilhelm Leibniz's concept of living force. I had always been in love with science, especially physics, and was awed by the beauty of its mathematical derivations, simplicity of explana-

tion, and clarity of worldly description. My childhood and high school joy over biology turned to a fascination with chemistry in college, ultimately leading me to the pursuit of physics and then history of science in graduate school. Raising two sons sensitized me to the problems of housewife and career, and I devoured Friedan's *Feminine Mystique* (1963) when it appeared. I applied for and received one of the nation's first fellowships designed to support women with children who were attempting to finish graduate school, a task I ultimately accomplished.

By the late 1960s, the stage was set for the three themes that would subsequently comprise the subtitle of *The Death of Nature: Women, Ecology, and the Scientific Revolution*. Lacking, however, was the conceptual glue that would soon knit them together. The events of the 1970s in my new home in Berkeley, California, would provide that sinew. I began teaching physical science at the University of San Francisco (USF) amid the social turmoil over the bombing of Cambodia, the emergence of Earthday 1970, and the questioning of the role played by science in the new electronic battlefield directed at North Vietnam. With our Chinese American neighbors, my sons and I joined in San Francisco peace marches and worked to integrate the Berkeley schools.

As a young woman on fire with the conventional beauty of science, I was poised at a unique moment in which my personal experiences came into juxtaposition with the social implications of the scientific domination of nature. I began investigating the character of science in terms of its implications for women and nature.

Inspired by the widespread questioning of 1950s assumptions about science, society, and mainstream values, I started reevaluating the meaning of my earlier work in the history of science. The history of mechanics as a system of matter in motion, on which I had done my graduate work, took on new implications when set against a renaissance cosmology of animate spirits and ensouled beings in which everything was alive. What role did the history of the scientific revolution play in the way we, in the late-20th century world, were conducting our lives? What historical alternatives, both real and utopian, had challenged some of the excesses of mainstream society? Such questions stimulated my work as a teacher, and I turned to students, colleagues, and friends in seeking answers.

At USF, I introduced a new course on science and society and began teaching the social context of the rise of modern science in my history of science courses. Then in the summer of 1972, I traveled to Italy to participate in the Enrico Fermi Institute's course, History of 20th-Century Physics, in which issues of the social responsibility of science took center stage. From Boston philosopher of physics Robert Cohen, I learned that the scientific revolution had been explained by historian Boris Hessen (1931/1971) and sociologist Edgar Zilsel (1953) as phenomena arising out of early capitalist development and emerging middle-class crafts and trades. Cohen also introduced me to William Leiss's new book *The Domination of Nature*, which appeared in the fall of 1972. I began to understand some of the specific ways in which economic and social changes could influence the choices and underlying assumptions available to scientists as they pursued their theoretical work.

That fall, two additional events conspired to change my outlook and launch the writing of the book. While teaching my new science and society course, I heard high praise from science writer Daniel Greenberg for Theodore Roszak's *Where the Wasteland Ends* (1972). Not only was Roszak's book a startling critique of mechanistic science and an exploration of alternative time-told approaches, such as the Gnostic tradition and William Blake's art and poetry, but it heralded a new holistic ecological worldview. It was through Roszak's subsequent kindness that

the manuscript of *The Death of Nature* made its way to the desk of my editor John Shopp of HarperCollins in San Francisco.

On the very same day that I learned of Roszak's (1972) remarkable book, I also met fellow historian of science David Kubrin. Kubrin, who had done a graduate dissertation on Isaac Newton and published a highly regarded article on "Newton and the Cyclical Cosmos" (1967), attended a lecture given by our British colleague Peter Harman. Harman noticed a guy in the audience sewing patches on his clothing and from the nature of his postlecture question deduced that this must indeed be the well-known Kubrin. Early the next year, I began attending a small class on the rise of modern science given by Kubrin at an alternative school in San Francisco. Kubrin introduced me and others to the pamphlet "Witches, Midwives, and Nurses" by Barbara Ehrenreich and Deirdre English (n.d.) as well as to ideas that took seriously the work of the alternative magical tradition in science history. It was Kubrin's idea that the key concept of early modern science was that matter was dead. In a 1972 article, titled "How Sir Isaac Newton Helped Restore Law 'n' Order to the West" and a later article called "Newton's Inside Out!" (1981) Kubrin explored the role that Newton played in suppressing magical and alchemical ideas in society and in his own mind and promoting the mechanical view of nature. My work on Leibniz and Kubrin's work on Newton provided grist for an emerging analysis of the rise of modern science in which a world of living and vital forces gave way to a dead mechanical system that supported the new capitalist tendencies of early modern society.

What ultimately emerged as *The Death of Nature* began as a series of three essays I started writing in the summer of 1973. The first was on women and witches in the 16th and 17th centuries, the second interpreted the change from magic to mechanism, and the third rethought the meaning of science and utopias from Campanella and Andrae to Francis Bacon. I began giving papers on "women and nature" and on "natural philosophy and the environmental crisis" to local, national, and international meetings of the History of Science Society and the American Historical Association.

Under the threat of recessionary layoffs at USF in 1976, I applied for and received four fellowships and grants, enabling me to rework and expand the initial essays into a book-length manuscript that covered the period of the entire scientific revolution. Despite the economic hardships of the layoffs and part-time employment, the times were intellectually heady. With great excitement, I read and absorbed hundreds of articles and books on the period. Everything seemed to fit together and to make sense of a period I had begun to know intimately and love deeply. As the book neared completion, I accepted employment at the University of California, Berkeley, in an environmental studies program in the College of Natural Resources. After revisions and final editing *The Death of Nature* was launched in June of 1980.

The book's debut was surprising. A friend invited me to take a tour of Berkeley's Telegraph Avenue, where it was displayed in several bookstore windows. Another friend who gave me a book party reported the incredulity of a local bakery: "You want 'death' on a cake?" I gave talks that week on the UC campus to the Women's Studies program and at Cody's bookstore to large numbers of people. The *California Monthly* featured an early review. I was soon asked to give an endowed lecture at Harvey Mudd College, the first of many such invitations over the years. For an academic book, which my editor said was ahead of its time, this response was gratifying. There were three obvious audiences for its themes: feminists, environmentalists, and historians of science and technology. Yet, the book also garnered

interest from political scientists, sociologists, philosophers, geographers, English teachers, and scientists. More than 100 reviews of the book have appeared during its lifetime. Among those who appraised, reviewed, or discussed the book were Christopher Hill, Everett Mendelsohn, Houston Baker Jr., Fritjof Capra, Walter Pagel, Evelyn Fox Keller, Donna Haraway, Helen Longino, Susan Griffin, Stephen Brush, Joan Rothschild, Margaret Jacob, Bruno Latour, Nina Gelbart, Tore Frängsmyr, Ronnie Ambjörnsson, Shigeru Nakayama, John Perkins, Audrey Davis, Margaret Osler, Rita Arditti, Joseph Meeker, Harold Gilliam, Murray Bookchin, Jim Swan, Kirkpatrick Sale, David Ray Griffin, and Jerry Mander (see the appendix).

The early reviews focused on the connections between science and the domination of nature and on the relationships between women and nature. Reviewers emphasized the argument that the mechanistic worldview lay open a new and brutal exploitation of the environment, of animals, and of a living, vital nature. The shift was part of a rejection of the feminine as a constitutive part of reality and a concomitant oppression of women. The machine metaphor redefined reality as controlling heretofore unruly events. There was praise for the integration of topics as diverse as ecology, natural magic, utopias, witch trials, midwives, women scientists, and for the recasting of the work of such founders of modern science as Francis Bacon, René Descartes, William Harvey, Thomas Hobbes, Isaac Newton, and Gottfried Wilhelm Leibniz. Some commentators admired the book's lively style and correlated illustrations, whereas others found it dry and academic in tone.

More controversial was the issue of how historical events were related to each other and especially to ideas. One reviewer noted that the ideas explored in the book sometimes reflected social values and sometimes seemed to trigger changes. Yet, this was a proverbial problem for historians, she stated, and the strength of the argument was that it avoided simple causations and hasty conclusions. Plausibility, associated values, compatibility, and the simultaneity of events made for a rich and complex argument. Others agreed that this approach resisted an easy determinism in favor of subtlety. Still others were concerned that the book's crusading tone and feminist orientation might create opposition. Yet another objection lay in the problem of the precise relationship between female metaphors that described nature and the social subjection of women.

The book soon found an audience beyond academia. It made its way into congressional circles at a House of Representatives hearing on energy research and production in 1980; was addressed by Ronald Reagan's science advisor, George A. Keyworth II in 1982; and was picked up by *Newsweek* in a 1983 discussion of the mainstreaming of feminist scholarship. The book made its movie debut in the British production of "Crucible: A History of Nature" by Central Television in January 1983, the first third of which was based on *The Death of Nature*.

Soon, foreign journals and newspapers began to take notice of the book and its thesis. Early in 1981, Tore Frängsmyr introduced the topic to the Swedish audience, and the publicity he gave it was followed by reviews in the *Gothenburg Post* and Stockholm's *Dagens Nyheter*, later that year. The book was reviewed in France in 1981, Japan in 1982, Poland in 1983, and in Denmark and Germany in 1984. India gave it a central place in its 1984-1985 report on *The State of India's Environment* (The Second Citizen's Report, 1985), and in 1986, the book received attention in Australia. With its translation into Japanese (1985), German (1987, with a mass market edition in 1994), Italian (1988), Swedish (1994), and Chinese (Green Classics Library, in press), additional foreign language reviews followed. In 1990, a 10th-anniversary second edition appeared in English.

In assessing the impact of the book's 18-year life span, three contributions seem to stand out. The book was an early critique of the problems of modernism and especially mechanistic science and its associated worldview that lent grist to the postmodern deconstruction of Enlightenment optimism and progress. Second, as ecofeminism gained attention in the 1980s and 1990s, the book came to be viewed as an early classic statement of the women-nature relationship. Third, the book pointed the way toward a reassessment of the human ethical relationship to nature by moving away from ideas of domination and toward a new dynamic partnership between people and their environment. Over the years, at numerous gatherings and lectures on several continents, people have told me that *The Death of Nature* has affected their lives, even changed their whole way of thinking. For this, I am very grateful.

Since 1980, my own work has moved beyond *The Death of Nature's* assessment of the scientific revolution and toward a reassessment of the book's implications for American history, the current environmental movement, and a new environmental ethic. In *Ecological Revolutions: Nature, Gender, and Science in New England* (1989), I asked how the issues discussed in 17th-century Europe were played out in America. I attempted to develop a more precise approach to the interactions between ideas, the material world, and social and economic change by articulating a model of revolutionary transformations based on ecology, production, reproduction, and consciousness. These American ecological revolutions bore similarities to the change from an organic to a mechanical worldview brought about by early capitalist development discussed in *The Death of Nature*. In *Radical Ecology* (1992), I expanded the idea of ecological revolutions to an analysis of the environmental movement of the past 30 years, and in *Earthcare: Women and the Environment* (1996), I attempted to develop more precise relationships between women's involvement in environmental movements and symbols of nature as female. Currently, I am working out the details of a partnership ethic between people and the nonhuman environment that removes some of the stigmas associated historically with nature as female and men as agents of domination, and which draws on some of the newer developments in the sciences such as chaos and complexity theory. I have also come full circle back to the issues of the European transformation in a work-in-progress called "Reinventing Eden: Women, Nature, and Narrative."

In thinking back to the poignancy of that summer of 1975 in Bryce Canyon and to my many subsequent encounters with the birds and mountains of the world, accompanied by loved family members and friends, I am brought increasingly to appreciate the power of life on the planet and the need for an ethic of earthcare. If *The Death of Nature* contributes even in some small way to a new environmental consciousness, its legacy will live on.

APPENDIX

Reviews and Discussions of Carolyn Merchant's *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco: HarperCollins, 1980, 2nd ed., 1990).

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