

**Women and Nature:  
Responding to the Call  
By Carolyn Merchant\***  
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In 1962, Rachel Carson published *Silent Spring*, bringing to international attention the idea that Nature was in trouble from hidden threats such as pesticides and radiation from nuclear testing. A year later Betty Friedan published *The Feminine Mystique* revealing the problem that women were hidden as housewives in the post World War II return to domesticity.<sup>1</sup> At the time, I was a graduate student in the history of science studying the rise of the seventeenth century Scientific Revolution. The connections between women in science and the environmental movement were beginning to take shape. For me the major questions became: How was the Scientific Revolution complicit in the environmental crisis? What was the role of women in the rise of early modern science? Did it matter that Nature in Western culture was depicted as female?

My own work on behalf of Nature and women emerged a decade later when I began writing a book that came to be called the *Death of Nature: Women, Ecology, and the Scientific Revolution*.<sup>2</sup> The Scientific Revolution of the 17<sup>th</sup> century and the rise of modern science through the work of Copernicus, Kepler, Galileo, Descartes, and Newton, set us on the path to what we accept today as science. The main transition that characterized the Scientific Revolution was the change from an organic worldview of

Nature as a living organism and a nurturing mother to the idea of Nature as a machine. Matter was made up of dead, inert atoms; human bodies and animals were considered to be machines, and scientists following in the wake of Isaac Newton thought of the cosmos as a vast machine with God as a mathematician and engineer.

Mainstream science now considered Nature to be dead matter, a change that reconceptualized the human relationship to nature from an I-thou relationship, or subject to subject relationship, to one that saw Nature as outside of humans and objective. Nature became an object of experimentation and manipulation.

The experimental method evolved from a vision of extracting Nature's secrets to the process of devising experiments on living nature depicted in the female gender. Francis Bacon urged his contemporaries to hound Nature in her wanderings, to extract her secrets, to vex her, and to transform and fundamentally alter her. Bacon's vision, which he meant as an method for improving the lot of humankind, eventually led to 17<sup>th</sup> century experiments on animals. Scientists experimented with transfusions, such as exchanging the blood of dogs with each other and humans with sheep. They put birds and mice in bell jars and evacuated the air pressure to observe the results. These were graphic examples of Nature depicted as female and scientific experiments that considered animals as machines.<sup>3</sup>

Since the seventeenth century, using science, technology, and capitalism, forests have been cut, swamps drained, deserts irrigated, and wilderness transformed into farms and gardens. The mainstream narrative of Western culture is a story of the recovery of the garden of Eden lost in the fall from paradise. Nature is depicted as a fallen women (Eve) while Adam is the hero who redeems the fallen land using technology, science, and

political power. Science and technology give humanity power over a nature that is passive, manipulable, and subordinate to humans.<sup>4</sup>

Through mechanistic science, technology, capitalism, and the Baconian hubris that the human race should have dominion over the entire universe, humanity has gained an increasing ability to destroy nature *as we know it*. In the mechanistic framework of classical physics, nature was rendered passive and inert, subject to prediction and control through linear differential equations. Technologies and attitudes of domination stemming from the Scientific Revolution have acted as a legitimating framework, enabling humans to threaten nature with deforestation and desertification, chemical pollution, destruction of habitats and species, and ultimately with nuclear fallout, ozone depletion, and global warming.

Over much of the world, the domination of nature and the mechanistic world view have provided an underlying rationale for the transformation of nature from wilderness to farms to industrial production. On the American continent, using science, technology, and biblical imagery, settlers changed the eastern wilderness and then the western deserts into cultivated gardens. They subdued the "wilderness," replenished the earth, and appropriated Indian homelands as free lands for settlement. In New England, European settlers transformed a "hideous and desolate wilderness" into pastoral farmlands in the space of a few decades. In the Chesapeake region, by the early eighteenth century, tobacco planters had converted an "unjustly neglected" and "abused" Virginia into a ravishing garden of pleasure. During the eighteenth and nineteenth centuries, migrants from the original colonies and immigrants from Europe settled and "improved" the

valleys of the Appalachian Mountains, and the lowlands of the Mississippi and Ohio River systems.<sup>5</sup>

The rhetoric of the westward movement to extend the nation's hegemony from the Atlantic to the Pacific is filled with language that casts nature as female object to be transformed and men as the agents of change. Eve as virgin land to be developed, as fallen nature to be redeemed through reclamation, and as fruitful garden to be harvested and enjoyed are central to the particular ways in which American lands were developed. The extraction of resources from "nature's bosom," the penetration of "her womb" by science and technology, and the "seduction" of female land by male agriculture reinforced capitalist expansion.<sup>6</sup>

Twentieth century industrial America reaped the benefits of resource extraction in the creation of the world's foremost economy, highest standard of living, and international leadership in science, technology, and engineering. Yet by the 1960s, when Rachel Carson wrote *Silent Spring*, the effects of that technology on the "death of nature" were becoming apparent to those who listened to the world around them. Like Carson they heard silence. How can we hear nature's call in a world rendered mute? From the 1960s onward, my life as a historian, feminist, and environmental activist has intersected with the lives and legacies of those who have gone before me. What emerged from those intersections was a new philosophy of feminist environmental activism—ecofeminism.

In 1974, anthropologist Sherry Ortner published, "Is Female to Male as Nature is to Culture?" Not only were women connected with Nature described as female, she argued, but women and Nature were together denigrated, while men and culture were valorized over much of the world both historically and currently. How does one get out of

this dilemma? In the 1980's the reversal of that subordination emerged in the philosophy of ecofeminism—women became activists in saving a natural world depicted in the female gender that was being degraded through science and technology developed by male dominated culture. When, in 1980, I first learned of a conference organized by Ynestra King and others entitled, "Women and Life on Earth: Ecofeminism in the '80s," I had just published *The Death of Nature*. People said to me: "Ok, nature is dead, now what?" Ecofeminism seemed to me to be the antidote to nature's death and Carson's *Silent Spring*.<sup>7</sup>

In subsequent research it became abundantly clear to me, that most of the work in the conservation and preservation movements of the 20<sup>th</sup> century, although attributed to men, had actually been done by women. Women in the General Federation of Women's Clubs, the Daughters of the American Revolution, the Audubon Clubs, and the Garden Clubs worked to set aside thousands of acres of land as national, state, and local parks, wildlife refuges, and wilderness areas. Although attributed to men, it was actually a woman scientist, Ellen Swallow Richards, who in 1892 introduced the word ecology to the United States. Richards developed human ecology, the study of the interrelated effects of clean air, pure water, and fertile soil for human health and nutrition. In the 1970s and 1980s, it was women who followed the lead of Rachel Carson by protesting pesticides in local parks, toxic chemicals in well water and school yards, and herbicides in national forests. And it was women who constituted over 85 percent of the grassroots movement to reverse the effects of toxics on the environment. Women as scientists and activists thus came strongly and forcefully to the aid of Nature.<sup>8</sup>

In 1977, Native American women formed an organization called WARN—"Women of All Red Nations." They took on the issue of reproductive health in response to high radiation levels from uranium tailings on reservations, high rates of aborted and deformed babies, children who became ill from playing in uranium mining tailings, and husbands who were dying of lung cancer from working in the mines. One of the principles guiding the actions of Native Americans was "Respect for our Mother Earth, who is a source of our physical nourishment and spiritual strength."<sup>9</sup>

In 1978, Lois Gibbs made Love Canal (near Niagara Falls, New York) famous as a hazardous waste site, an area Hooker Chemicals and Plastics Corporation had used as a toxic dump and on which a housing development and school were subsequently constructed. Gibbs's son had numerous health problems and her daughter contracted leukemia. She discovered that many women in her neighborhood had also experienced reproductive and health problems. Lois Heisner, a housewife and former Hooker Chemical employee, described her life and the trauma of having two prematurely born children, one with a birth defect. Kay Schroeder's daughter was "born with a cleft pallet, two rows of bottom teeth, and a congenital hearing problem." Schroeder found that five out of 24 children in the area in which she lived were retarded. Gibbs, Heisner, and Schroeder joined with other women in leading the community to obtain retributions from the state of New York.<sup>10</sup>

Cathy Heins of East Grey, Maine became "fighting mad" when she lost a child and her daughter began to suffer dizzy spells. As a result, she founded the Maine Citizen's Coalition on Toxics and became active in the National Toxics Campaign. She said, "Women are mothers of the Earth who want to take care of it." These are only a few

of the many examples of women who have become environmental activists when they or their families are affected by unseen chemical or environmental hazards.<sup>11</sup>

Yet this very success of women as environmental activists created a new dilemma. If Sherry Ortner's 1974 syllogism was even partially true, did these approaches taken by women activists actually reinforce their connections to a Nature that is subordinate in Western culture to men? Are women liberating themselves and Nature or are they merely cementing their own domination and subordination in a patriarchal culture?

The way out of this dilemma for me has been to re-think Nature, not as a mother, virgin, or witch, but as a partner. Nature is active in the sense that we can work with it to fulfill basic human needs and to heal the damage we as humans have done to the environment. Men and women can work with each other as partners, not as dominant or subordinate over each other and over Nature. The ethic that I have developed over the past several years is what I call a partnership ethic—one that considers Nature as a community in interaction with a human community in a local environment. A partnership ethic states that "the greatest good for the human and nonhuman communities lies in their mutual living interdependence." A partnership ethic means that both women and men and people of all races and classes can work together to save the planet.<sup>12</sup>

White women, Native American women, black women, Asian women, and Hispanic women are working together to bring about change. Kay Kiker of Alabamans for a Clean Environment (ACE), states, "ACE has about 350 members, and we are biracial. That was one mountain that we had to climb. A lot of people left ACE because we decided to be a biracial group, but we have gotten beyond that." Sue Greer of People

Against Hazardous Landfill Sites (PAHLS), in Wheeler Indiana, advises, "If you want to win a local environmental fight in a multi-racial community, it is essential to actively recruit and welcome people of color into your group. . . . In the long run, the future of the grass roots movement for environmental justice is a broad-based, multi-racial movement."<sup>13</sup>

Women are supportive of biracial, multiethnic efforts to forge coalitions between people of color and white people in order to bring about transformation. Women, who produce the next generation, are particularly concerned with the effects on their own bodies and those of their families. As Cora Tucker, a black activist for the environment, put it, "Everything is a woman's issue, because [of] every child that's born, some woman had it." The environment, therefore, is a feminist issue.<sup>14</sup>

On the side of activism, women and men can work together in partnership to save the planet. But what about science? Are we still combating the effects of a legitimating mechanistic worldview? The emergence of the science of ecology in the twentieth century has created a framework of people within nature rather than outside it. As a philosophy, ecology embraces the interconnections among all parts of a whole, a set of dynamically interacting parts that take their meaning from the whole, and a process-oriented view of the natural world. Yet as ecology has developed, it too has assumed some of the characteristics of mechanistic science. An ecosystem is a system of biotic and abiotic components that can be described by linear differential equations and the laws of thermodynamics applied to equilibrium or near equilibrium situations. The goal of the mechanistic approach to ecology is to predict and control nature. But this goal, it seems, can be only partially realized.<sup>15</sup>



In the late twentieth century, developments in postmodern science and philosophy have called into question the efficacy of the mechanistic worldview, the idea of Enlightenment progress, and the ethics of unrestrained development as a means of dominating nature. Both ecological and mechanical systems are vulnerable to chaotic forces created by unusual weather patterns or geological events generated from outside the system. The work of Ilya Prigogine on far-from-equilibrium thermodynamics, of Edward Lorenz on unpredictability, or how a small effect (such as a butterfly flapping its wings in Brazil) can result in an outcome of very large magnitude (such as a tornado in Texas), and of scientists investigating complexity (science at the edge of chaos) have led to a re-evaluation of mechanism. Mechanistic science, as the science of everyday life, is incredibly important in allowing us to predict and control most of our daily interactions with the world around us. Yet such successes are limited in scope and describe the unusual rather than the usual. Chaos and complexity theory push us to rethink the human place in nature and our ethical relationship to it. That new relationship is what I have called partnership with nature.<sup>16</sup>

If we, as humans, place ourselves above nature, we convince ourselves that we can predict the results of introducing chemicals and wastes into our surroundings and control farm, forest, and fishery harvests through such ideas as logistic curves and maximum or optimum sustained yields. To combat that hubris, we need to bring the pendulum back into balance so that there is greater equality between the human and nonhuman communities.<sup>17</sup>

Partnership ethics makes visible the connections between people and the environment in an effort to find new cultural and economic forms that fulfill vital needs,

provide security, and enhance the quality of life without degrading the local or global environment. It creates both a structure and a set of goals that can enable decision-making, consensus, and mediation to be achieved without contentious litigation. It relates work in the sciences of ecology, chaos, and complexity theory to new possibilities for non-dominating relationships between humans and nonhuman nature.

A partnership ethic means that Nature is not below us, as something to be dominated and controlled, as it was in the Scientific Revolution. Nor is Nature above us as something whose effects we simply accept fatalistically, living the hand that Nature deals. Instead we interact with Nature as an equal in a relationship of give and take. Our relationship with Nature is embedded in a dynamic tension between humanity and the natural world. We can use the sciences of restoration ecology, biological control, and conservation biology, along with the concepts of chaos and complexity, to restore Nature's diversity and fecundity, while at the same time fulfilling humanity's needs for food, clothing, shelter, and energy. We can fulfill the basic needs that we all have as humans, while allowing Nature the freedom to survive and thrive.

In the course of my life as a feminist and environmentalist, I have burned prairies for the Nature Conservancy, marched in protest against the Viet Nam War, demonstrated with the Livermore Action Group against the development of nuclear power, stood shoulder to shoulder with women from around the world at the Earth Summit in Rio de Janeiro, worked to save land for an East Shore Park in California, promoted gender equality and racial diversity in my university and my profession, written books, and given talks around the world. I consider these to be acts of partnership with Nature. With this new ethic, we can come together to respond to Nature's call.

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Notes

\*Carolyn Merchant, Department of Environmental Science, Policy, and Management, University of California, Berkeley.

<sup>1</sup> Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962); Betty Friedan, *The Feminine Mystique* (New York: Dell, 1963).

<sup>2</sup> Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* (San Francisco: HarperCollins, 1980).

<sup>3</sup> Carolyn Merchant, "The Scientific Revolution and the Death of Nature," *Isis*, 97 (Fall 2006), in press; Merchant, *Death of Nature*, pp. 168-172.

<sup>4</sup> Carolyn Merchant, *Reinventing Eden: The Fate of Nature in Western Culture* (New York: Routledge, 2003).

<sup>5</sup> Merchant, *Reinventing Eden*, Ch 5.

<sup>6</sup> Merchant, *Reinventing Eden*, Ch 6.

<sup>7</sup> Sherry Ortner, "Is Female to Male as Nature is to Culture?" in Rochelle Rosaldo and Louise Lamphere, eds., *Women, Culture, and Society* (Stanford, CA: Stanford University Press, 1974), pp. 67-87.

<sup>8</sup> Carolyn Merchant, "Women of the Progressive Conservation Movement, 1900-1916," *Environmental Review*, 8, no. 1 (Spring 1984): 57-85; Robert Clarke, *Ellen Swallow: The Woman Who Founded Ecology* (New York: Follett, 1973); Shana Cohen, "American Garden Clubs and the Fight for Preservation, 1890-1980," Doctoral Dissertation, University of California, Berkeley, 2005; Lois Gibbs, personal communication; Robbin Lee Zeff, Marsha Love, and Karen Stults, *Empowering Ourselves: Women and Toxics*

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*Organizing* (Arlington, VA: Citizens' Clearing House for Hazardous Wastes, n. d.), p. 25.

<sup>9</sup>*Akwesasne Notes* (Winter 1978): 15; *Ibid* (Summer 1979): 23; *Ibid* (Early Spring, 1980): 22; William K. Tabb, "1980 Black Hills Gathering," *In These Times* (August 13-26, 1980).

<sup>10</sup> Lois Gibbs, "Love Canal," Conference on "Women and Life on Earth," pamphlet series, Amherst Ma., 1980; Constance Holden, "Love Canal Residents Under Stress," *Science*, 208 (June 1980): 1242-44.

<sup>11</sup> Karen Stults, "Women Movers: Reflections on a Movement by Some of Its Leaders," *Everyone's Backyard*, 7, no. 1 (Spring 1989): 1.

<sup>12</sup> Carolyn Merchant, "Partnership Ethics: Earthcare for a New Millennium," in Merchant, *Earthcare: Women and the Environment* (New York: Routledge, 1996), pp. 209-224.

<sup>13</sup> Kay Kiker and Sue Greer, quoted in Andrew Szasz, *Ecopopulism: Toxic Waste and the Movement for Environmental Justice* (Minneapolis, MN: University of Minnesota Press, 1994), pp. 155, 70-1, 192.

<sup>14</sup> Cora Tucker, quoted in Zeff, et al, *Empowering Ourselves*, p. 25.

<sup>15</sup> Merchant, *Reinventing Eden*, Ch 10.

<sup>16</sup> Merchant, *Reinventing Eden*, Ch. 10; Donald Worster, *Nature's Economy* (Cambridge: Cambridge University Press, 1985 [1977]); Worster, "Ecology of Order and Chaos," *Environmental History Review*, 14, no. 1-2 (Spring/Summer 1990): 4-16; James Gleick, *Chaos: The Making of a New Science* (New York: Viking, 1987); Mitchell Waldrop,

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*Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Simon and Schuster, 1992).

<sup>17</sup> Merchant, *Earthcare*, 218.