

#12 earthcare



By Carolyn
merchant

The word ecology derives from the Greek word "oikos" meaning house. Ecology then is the science of the household—the Earth's household. The connection between the Earth and the house has historically been mediated by woman.

During the past two decades we have witnessed the rise of both the environmental and women's movements. Not surprisingly many persons have explored the connections and implications of the

identities between nature and women and between ecology and feminism. Both movements are liberatory and democratic in their outlook and reformist or revolutionary in their politics. Yet, however positive and hopeful these connections may be, they also have their dangers for reinforcing traditional forms of oppression.

Well before the current linking of feminist and environmental concerns, the connection between home and environment

had been established by a 19th century woman ecologist. Ellen Swallow [Richards], upon graduating from Vassar College in 1871, became the first woman to enter the Massachusetts Institute of Technology. Upon completion of her studies as a special chemistry student, she continued on at M.I.T. as an instructor in the fields of sanitary chemistry and nutrition. She set up a laboratory where women could conduct experiments and was an enthusiastic supporter

of women students. In 1892 she developed a science of environmental quality which she called "ecology." She envisioned it as a science concerned with industrial health, water and air quality, transportation, and nutrition. Soon it became known as "home ecology" and then "home economics."

Her research and published work helped to establish the principles of the ecology of earth and home through books such as *Air, Water, and Food; Euthenics, the Science of Controllable Environment; Sanitation in Daily Life; The Cost of Cleanliness; Home Sanitation; and The Chemistry of Cooking and Cleaning*. Clean air, safe water, and good food were the requirements of a healthy human life. Fresh, clean air, free of the pollutants of offensive factories, was necessary to human health; fouling a stream caused injury to one's neighbor below; and fertile soil was required to grow nutritious food. Any individual who selfishly used these life-sustaining elements squandered the human inheritance. Each family and city were points in the Earth's larger cycles of water flow and vaporization, of soil dissolution and deposit, and of plant scavenging, cleansing, and purification.¹

Seventy years after Ellen Swallow founded the science of ecology, another woman environmentalist, Rachel Carson, made the question of the life of the Earth a public issue. Her book *Silent Spring* (1962) focused attention on the death-producing effects of the chemical insecticides accumulating in the soil and in the tissues of living organisms. Together with the possibility of nuclear war, pesticides posed an insidious, hidden threat to the future of life on Earth. DDT, chlorinated hydrocarbons (such as aldrin, dieldrin, chlordane, and heptachlor), and organophosphates (such as parathion and malathion) were deadly

women and the environmental movement

elixirs, bombarding human beings from the moment of conception to the moment of death. As residues in the soil, distributed through surface and underground waters, they concentrated in the food chain, progressively contaminating and poisoning all life. The genetic resistance of some insects to particular pesticides and the extreme sensitivity of some of the natural enemies of these insects to the new chemicals frequently brought about ecological imbalances in which one pest was simply traded for another. "We stand now," Carson concluded, "where two roads diverge." The "less traveled" fork—the road of biological control by natural enemies and of alternative control technologies—"offers our last, our only chance to reach a destination that assures the preservation of our earth."²

The following year, Betty Friedan's controversial *Feminine Mystique* hit the grocery stores. Friedan attached the post-World War II mystique that had sent women back from the factories into the home to have babies, chauffeur children, bake gourmet meals, and entertain their husband's business associates. The suburban housewife and mother had become the model of female fulfillment.

A decade passed before the confusion and anomie associated with the "I'm just a housewife" mystique began to surface for middle-class women. The "problem that had no name" could not be solved by psychoanalysis, sex therapy, love, diet, or waxing the kitchen floor. "The trapped housewife" burst

from the home and into the public arena.

Despite reassurances from homemakers like Phyllis (*Sixpence in her Shoe*) McGinley that cookies and dustmops could be creative adventures, the women's movement began to grow. The demand for equity in the workplace, in education, and in the bedroom spawned the liberal feminist phase of the movement. Friedan argued that inner growth and development, self-assertion, autonomy, and, above all, education would be the keys that would transform a deadened, dependent, forfeited female into a vigorous, creative woman with a plan for a fulfilling new life.³

Women and Nature

Although the environmental and women's liberation movements emerged simultaneously in the 1960s and many women participated in both, the systematic interconnections between the two were developed by the feminists of the 1970s. Feminist theory analyzed the woman-nature connection from several perspectives.

Some feminists, such as Mary Daly, Sherry Ortner, and Susan Griffin, operated on the assumption that recent cultures are all fundamentally patriarchal and denigrate women in significant ways by identifying them with nature. Others, such as Merlin Stone, Dolores LaChapelle, and Adrienne Rich, argued that in an earlier prehistoric past, when mother goddesses and the Earth Mother were widely worshiped, women seem



Lulu Gant of Limerick Ecology Action (Montgomery County, Pennsylvania) demonstrates at the Harrisburg labor/safe-energy march held on the first anniversary of the nuclear power plant accident at Three Mile Island. (Photo by Lesley Haas)

to have had a higher status. Women today, they suggested, could perhaps recapture this earlier age of nature worship through ceremonies, rituals, poetry, and a new language and thereby reinstate the ancient ideal. A revolution in symbol structures could help to transform the patriarchal-technological culture that brought about the separation of people from nature and the lower status of women. In a new age of consciousness, the Earth as symbol of life, beauty, and spiritual fulfillment could regenerate respect for nature and reunify all human beings with other organisms and the planet.⁴

One of the most popular writers on woman and nature, Susan Griffin, has beautifully expressed the power of the symbolic fusion of women with earth:

I know I am made from this earth, as my mother's hands were made from this

*earth, as her dreams came from this earth and all that I know, I know in this earth . . . all that I know speaks to me through this earth and I long to tell you, you who are earth too, and listen as we speak to each other of what we know: the light is in us.*⁵

The importance of symbol in generating the emotional response that can lead the way to a new ethic and to new behavior patterns toward the Earth and toward women is undeniable. A revolution in root metaphors away from "The Machine," which has guided industrial society since the 17th century, is now taking place in American culture. From Earth Day 1970, *The Whole Earth Catalogue*, and Friends of the Earth, to *Mother Earth News*, *New Woman*, *New Earth*, the "Minding the Earth" radio series, and "Spaceship Earth," the new symbolism is pervasive. Only *One Earth*, *The Wooing of Earth*, and "A Theology

of the Earth," all titles of works by René Dubos, reflect a new unitary outlook binding together the people and other organisms of the planet.⁶

But this symbolism can be double-edged. The identification of women and nature implicit in phrases like "virgin lands," "man's war on Mother Nature," "penetrating the secret springs of Nature," and "wrestling with Nature herself to decode her messages" are suggestive of sexual assaults that render both women and nature passive and submissive. Science and philosophy from Aristotle and Francis Bacon to sociobiology and nuclear physics have used language and symbol to devalue women through identifying them with nature. Sociobiologists write of "rape" by mallard ducks, "lesbianism" in kittiwakes, and "homosexuality" in roundworms. Members of the Department of Energy have reputedly called solar energy effeminate, while a geologist who was asked about Mount St. Helens' next eruption replied: "We don't know her intentions. . . . We haven't been able to probe her deeply enough with our instruments."⁷

Despite the obvious need for new symbols and a new language, many feminists also recognized that without a simultaneous revolution in the social, sexual, and economic structures that exploit both women and Nature, the symbolic revolution cannot succeed.

The psychological approach to the woman-nature question elaborated by writers such as Dorothy Dinnerstein, Evelyn Fox Keller, and Nancy Chodorow locates the origins of female subordination in biological functionalism. Woman's primary role as reproducer places her in intimate contact with her offspring during most of their childhood. The female child identifies with her mother and emulates her social role, defining herself through the self of her mother. She thus achieves adulthood through a merging of her self with that of another female, a process of fusion. In contrast, the male child, in attaining adulthood, develops in antithesis to his mother, seeing her as "other" rather than as self, and achieves manhood through a process of separation.

The result is a dual psychology, with the female psyche rooted in fusion, em-

pathy, identification, and wholeness and the male psyche based on separation, distinction, division, antithesis, and dualism. Because child-rearing by the mother seems to be a nearly universal phenomenon, households and cultures are founded on dualities that result in patriarchy, the separation of mind from body, of people from nature, subject from object, and the domination of woman and nature as "other."⁸

One possible solution is to alter the early childhood household arrangements so that men participate in child-rearing. Blurring, fusing, and sharing of roles in both workplace and home could result in an increasing number of nurturing males, and hence in a culture with a manifest concern for the welfare of nature, children, and future generations.

Another approach advocated by feminists such as Shulamith Firestone is the liberation of women through reproductive technology. This approach includes a spectrum of possibilities that would give women the right to choose when and if they wish to bear and raise children: male and female contraceptive devices, voluntary vasectomies and tubal ligations, amniocentesis and genetic counseling, and, ultimately, test-tube reproduction and cloning.⁹

Science and technology are here viewed as potentially liberating and progressive, yet these approaches also raise a host of difficult ethical questions about the nature of control over life itself. For example, amniocentesis allows the woman to know the sex of her unborn child and thus to decide whether or not to abort the fetus. If through contraceptive and genetic technology families decide to have one or two children and to make the first child a male, then an increase in the proportion of males in society could result. If the psychological approach to the woman-nature question is valid, and if first children tend to be more highly motivated, aggressive, and domineering than second children, then the outcome could be an increase in dominating males, with negative implications for women and nature.

The social-economic analysis of the woman-nature question accepts many of the insights of the foregoing feminists but is critical of the idea of uni-

versal sex oppression and of the dichotomies "public-private" and "self-other" as explanatory categories. Rather than postulating a separate sex/gender system as the framework of analysis, this approach examines the historical context of male and female gender roles in different systems of economic production.

Anthropologists such as Eleanor Leacock, Patricia Draper, and Mina Caulfield argue that many hunter-gatherer societies seem to exhibit relatively egalitarian relations between men and women. Moreover, many of these groups establish ritual behaviors that maintain a steady-state equilibrium between population and resources. Here nature and culture are not separate dichotomies in which nature is devalued and culture elevated. The nonhuman world is alive, sensitive, intelligent, and on a par with the human portion. In some cultures animals are members of separate societies governed by special spirits; particular rocks and trees are sacred; and the Earth is a living nurturing mother. Women and men perform different tasks and have different roles, but each is essential to the survival of the group as a whole and neither is devalued. The society is geared to the production of use values (food, clothing, heating, shelter, etc.) as the material basis for sustaining life.¹⁰

In the precapitalist household mode of production that prevailed in much of

colonial America, although a patriarchal culture was transported across the Atlantic, the sexual division of labor functioned as a family survival strategy in which the labor of both males and females was equally essential to the household and the village community. In this system of production, nature appears as a resource, but is not yet the basis for commodity consumerism.

Early capitalist societies, on the other hand, have tended to exploit middle- and upper-class women in the private sphere as reproducers and psychic resources, while lower-class women may bear in addition the burden of working as wage laborers in the public or productive sphere. Likewise, nature is exploited as a free resource, making it possible for a privileged class to reap large profits at the expense of the Earth.¹¹ As Karl Marx put it: "Natural elements entering as agents into production, and which cost nothing no matter what role they play in production, do not enter as components of capital, but as a free gift of Nature to Capital."¹²

For the advocates of the social-economic approach, women, wage laborers, minorities, and nature must all be liberated through a revolution in modes of production and a simultaneous sexual revolution. Political action on both fronts must be undertaken in concert and with mutual support.

The Mother's Day March in Washington, D.C., May 10, 1981. Sponsored by the Mother's Day Coalition, the demonstration was a protest against both nuclear warfare and nuclear power. (Photo by Pat Patrick)



Feminism and Ecology

The simultaneous emergence of the women's and environmental movements over the past two decades raises additional questions about the relationships between feminism and ecology. Is there a set of assumptions basic to the science of ecology that also holds implications for the status of women? Is there an ecological ethic that is also a feminist ethic?

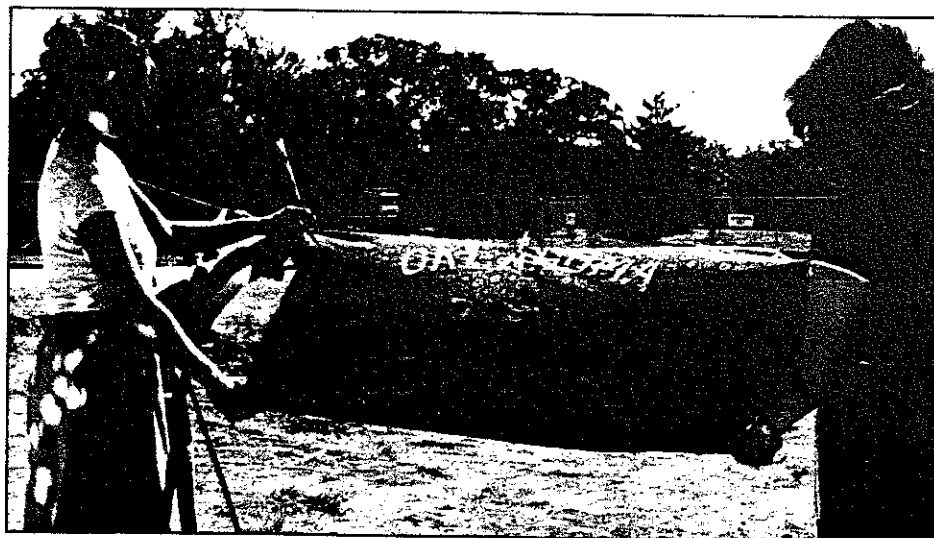
The structures and functions of the natural world and of human society interact through a language common to both. Ethics in the form of description, symbol, religion, and myth help to mediate between humans and their world. Choices are implied in the words used to describe nature: choices of ways in which to view the world and ethical choices that influence human behavior toward it. Ecology and feminism have interacting languages that imply certain common policy goals. These linkages might be described as follows:

1. *All parts of a system have equal value.*

Ecology assigns equal importance to all organic and inorganic components in the structure of an ecosystem. Healthy air, water, and soil—the abiotic components of the system—are as essential as the entire diverse range of biotic parts—plants, animals, and bacteria and fungi. Without each element in the structure, the system as a whole cannot function properly. Remove an element, reduce the number of individuals or species, and erratic oscillations may appear in the larger system.

Similarly, feminism asserts the equality of men and women. Intellectual differences are human differences rather than gender- or race-specific. The lower position of women stems from culture rather than nature. Thus policy goals should be directed toward achieving educational, economic, and political equity for all.

Ecologists and feminists alike will therefore assign value to all parts of the human-nature system and take care to examine the long- and short-range consequences of decisions affecting an individual, group, or species. In cases of ethical conflict, each case must be discussed from the perspective of the in-



Diane Vanlandingham (left) and Patti Harkey of the Oklahoma Solar Energy Association demonstrate the use of their "solar clothes dryer." (Photo by Kay Ahaus, courtesy of Center for Renewable Resources).

terconnectedness of all parts and the good of the whole.

2. *The Earth is a home.*

The Earth is a habitat for living organisms; houses are habitats for groups of humans. Each ecological niche is a position in a community, a hole in the energy continuum through which materials and energy enter and leave. Ecology is the study of the Earth's household. Human houses, whether sodhouses, igloos, or bungalows, are structures in an environment. Most are places wherein life is sustained—shelters where food is prepared, clothes are repaired, and human beings are cared for.

For ecologists and feminists the Earth's house and the human house are habitats to be cherished. Energy flows in and out; molecules and atoms enter and leave. Some chemicals and forms of energy are life-sustaining; others are life-defeating. Those that lead to sickness on the planet or in the home cannot be tolerated. Radioactive wastes or potential radioactive hazards are present in some people's environments. Hazardous chemicals permeate some backyards and basements. Microwaves, nitrite preservatives, and cleaning chemicals have invaded the kitchen.

The home, where in fact women and children spend much of their time, is no longer a haven. The soil over which the house is built or the rocks used in its construction may emit radon (a radio-

active decay product of radium), potentially a source of lung cancer. The walls, furniture, floor coverings, and insulation may contain urea formaldehyde, a nasal, throat, and eye irritant. Leaky gas stoves and furnaces can produce nitrogen dioxide and carbon monoxide, resulting in nausea, headaches, and respiratory illnesses. An underground garage in an apartment building can be an additional source of indoor carbon monoxide. The home's faucets may be piping in carcinogenic drinking water, formed by the action of chlorine on organic compounds in reservoir supplies.¹³

Disinfectants sprayed where people eat or children play may contain phenols, creosols, or ammonium chlorides that can produce toxic effects on the lungs, liver, and kidneys, or act as nervous system depressants. Oven cleaners may contain caustic alkalis.¹⁴

The bathroom and bedroom may feature cosmetics and shampoos that can produce headaches, eye-makeup contaminated by bacteria and fungi, deodorants laced with hexachlorophene, and hair dyes containing aromatic amines that have been linked to cancer.¹⁵

The kitchen may have a microwave oven and the living room a color television emitting low-level radiation when in use. The refrigerator may be stocked with food containing nitrite preservatives, food dyes, and saccharin-filled "low-cal" drinks suspected as potential carcinogens. In the cupboards pewter

pitchers or dishes containing lead glazes can slowly contribute to lead poisoning, especially when in contact with acidic foods. The indoor atmosphere may be filled with cigarette, cigar, or tobacco smoke, containing particles that remain in the air and accumulate even in the lungs of non-smokers.¹⁶ For ecologists and feminists alike, the goal must be the reversal of these life-defeating intrusions and the restoration of healthy indoor and outdoor environments.

3. *Process is primary*

The first law of thermodynamics, which is also the first law of ecology, asserts the conservation of energy in an ecosystem as energy is changed and exchanged in its continual flow through the interconnected parts. The total amount of energy entering and leaving the Earth is the same. The science of ecology studies the energy flow through the system of living and non-living parts on the Earth. All components are parts of a steady-state process of growth and development, death and decay. The world is active and dynamic; its natural processes are cyclical, balanced by cybernetic, stabilizing, feedback mechanisms.

The stress on dynamic processes in nature has implications for change and process in human societies. The exchange and flow of information through the human community is the basis for decision making. Open discussion of all alternatives in which ecologists and technologists, lawyers and workers, women and men participate as equals is an appropriate goal for both environmentalists and feminists. Each individual has experience and knowledge that is of value to the human-nature community.

4. *There is no free lunch.*

"No free lunch" is the essence of the laws of thermodynamics. To produce organized matter, energy in the form of work is needed. But each step up the ladder of organized life, each material object produced, each commodity manufactured increases entropy in its surroundings, and hence increases the reservoir of energy unavailable for work.

Although underpaid environmental-

ists are said to accept free lunches, nature cannot continue to provide free goods and services for profit-hungry humans, because the ultimate costs are too great. Thus, whenever and wherever possible, that which is taken from nature must be given back through the recycling of goods and the sharing of services.

For feminists, reciprocity and cooperation rather than free lunches and household services are a desirable goal. Housewives frequently spend much of their waking time struggling to undo the effects of the second law of thermodynamics. Continually trying to create order out of disorder is energy consumptive and spiritually costly. Thus the dualism of separate public and private spheres should be severed and male and female roles in both the household and the workplace merged. Cooperation between men and women in each specific context—childrearing, day-care centers, household work, productive work, sexual relations, etc.—rather than separate gender roles could create emotional rewards. Men and women would engage together in the production of use-values and would work together to scale down the production of commodities that are costly to nature. Technologies appropriate to the task, technologies having a low impact on the environment, would be chosen whenever possible.

Women and the Environment

An attempt to synthesize the foregoing theoretical approaches to nature and women with a program of environmental action for the 1980s has been made by conferences such as the "Women and Life on Earth" conference held at the University of Massachusetts, Amherst, in March 1980. Over a three-day period 500 women explored the meaning of eco-feminism as a force for the future. They concluded that, as mothers, nurturers, and caretakers, women should direct their creative energies to heal the planet, bringing to the public sphere the care and concern of women for all of life, and that, as feminists, women should work to transform the institutions of modern society that discriminate against

women and minorities.¹⁷

A West Coast eco-feminist conference was held at Sonoma State University in April 1981. The woman-nature connection was also prominently featured at a Women and Appropriate Technology Conference in Missoula, Montana, in April 1979, and at the Future, Women, and Technology Conference at San Diego State University in March 1981, attended by 750 women. A Women in Solar Energy (WISE) Conference preceded the Fifth National Passive Solar Conference in Amherst, Massachusetts, in the fall of 1980.

In addition to conferences, college courses are also focusing attention on the feminism-ecology connection. A special summer institute on "Ecology and Feminism" was held at Goddard College in Plainfield, Vermont, in the summer of 1980 in conjunction with their program in Social Ecology. A student-generated class, "Women and Nature," took place at the University of California, Santa Cruz, in the fall of 1980.

Resistance to a feminist-environmental coalition comes from both movements. Environmentalists react negatively to the intrusion of feminist issues that seem to them to muddy and complicate an already difficult struggle. At anti-nuclear rallies and solar technology conferences, the presence of lesbian feminists challenging male control of technology may seem particularly galling.¹⁸

Feminists likewise express dismay at the untimely desertion of many women to join the "anti-nuke" movement just when issues such as the ratification of the Equal Rights Amendment, anti-abortion legislation, and childcare cuts loom larger than ever. Women who have worked to bridge this gap by negotiating time and energy trades between local organizations report reluctance to reciprocate when the other group needs help.

Just as feminists must contend with anti-abortionists such as Phyllis Schlafley who want women to revert to the old values of home and hearth, many women environmentalists find themselves in marked disagreement with pro-nuclear advocates such as Dixie Lee Ray, former head of the Atomic Energy Commission, and "anti-environmentalists" such as Anne Gorsuch, President Reagan's choice



Dr. Helen Caldicott, a pediatrician at Children's Hospital Medical Center in Boston, is the author of *Nuclear Madness* and the founder of the Women's Party for Survival. (Photo courtesy of Women's Party for Survival)

to head the Environmental Protection Agency.¹⁹

Yet, in the same way that environmental hazards in the workplace and their long-term implications for human health have helped to forge an environmental-labor coalition, so environmental issues that particularly affect women can contribute to the building of a feminist-environmental coalition. Questions of reproductive health, the health of children and loved ones, the future of subsequent generations on Earth, and the implications of technology have caused women to take active stands against the spread of nuclear weapons and nuclear power, radioactive wastes, hazardous wastes, pesticides and herbicides, and to join the appropriate technology movement. Through organizations, the media, pamphlets, public conferences, street theater, art and poetry, they have attempted to arouse public interest and opinion and to influence government policy. The participation of thousands of women around the country and around the world in such activities illustrates the depth of their concern and the power of their activism.

Women also play important roles on the editorial boards and advisory panels of prominent environmental magazines and are highly visible in local, state, and national environmental, research, and lobbying organizations. Louise Dunlap is the enthusiastic founder and Executive

Director of the Environmental Policy Center, the largest Washington environmental lobby, and its affiliated Environmental Policy Institute. Bambi Batts Young, a biochemist with a Ph.D. from the Massachusetts Institute of Technology, is the project director of a research unit on human behavior and toxicity in the environment at the Center for Science in the Public Interest in Washington. Elizabeth Anderson is the knowledgeable director of the Cancer Assessment Group of the Environmental Protection Agency. Pat Hynes is an environmental engineer in the same agency.

Nuclear Technology

The level of participation of women in the environmental movement is highest on nuclear issues. A much larger percentage of women than men consider themselves definitely or somewhat anti-nuclear (58 percent to 41 percent), while equal numbers of women and men characterize themselves as being definitely or somewhat interested in environmental issues (72 percent to 72 percent). The National Organization of Women adopted a resolution in October 1980 "against the use of nuclear power in favor of safer energy methods, including solar power, wind power, organic conversion, hydroelectric power and coal mined safely and burned cleanly." The League of Women Voters has maintained an active role in disseminating public information on nuclear as well as other environmental issues.²⁰

On November 17, 1980, hundreds of women gathered in Washington, D.C., to take part in Women's Pentagon Action, a movement organized in opposition to nuclear power plants, nuclear weapons, the neutron bomb, and the MX missile as violent weapons, damaging to human life, reproductive health, and the natural environment. They also called for freedom from violence on the streets, equal pay for work of equal value, an end to the oppression of lesbians, and freedom of choice in bearing children.²¹ Over the rest of the country women have also formed anti-nuclear alliances, engaged in nuclear power-plant protests, and published anti-nuclear pamphlets and articles.

Women in the anti-nuclear movement



Dr. Alice Stewart is the physician and epidemiologist who discovered the danger of x-raying pregnant women. Her recent research documents increased cancer risks for radiation workers. (Photo by Kitty Tucker)

have a martyr in Karen Silkwood, killed November 13, 1974, in an apparent automobile accident on her way to release notes to a *New York Times* reporter and a Washington official of the Oil, Chemical, and Atomic Workers International Union, alleging unsafe occupational health and safety standards at the Kerr McGee Corporation's plutonium plant in Crescent, Oklahoma. Since November 13, 1978, the anniversary of her death has been commemorated as Karen Silkwood Day by hundreds of women activists. A play, "Silkwood," produced by Union Sisters, Inc., of Washington, D.C., commemorating her heroism, toured the country during 1981.²²

The movement also has its visionary prophet in Dr. Helen Caldicott, a pediatrician at Children's Hospital Medical Center in Boston and author of *Nuclear Madness*, who sees a direct connection between women's concern for life and the deadly effects of nuclear technology. An outspoken activist against nuclear war and a member of Physicians for Social Responsibility, she believes that the most potent moral issue facing life today is that, in the event of nuclear war, targeted areas would be demolished within 20 minutes, and within 30 days, 90 percent of all Americans would be dead. Because of massive damage to the ozone layer all birds and mammals would die, leaving a few insect species better able to withstand radiation than other living organ-

isms. Wilderness would vanish.²³

The life of the Earth is a particularly poignant issue for her. "I think I've come to terms with my death," she states. "So it's not even 'I'd rather be here and alive.' I worship this Earth. I just worship nature."²⁴

*I've actually adjusted to the fact that we may not survive. And I wake up every morning and thank God that we're still here and look at the beautiful trees and flowers. And as I go on, my perception and love of nature is heightened: A rose is so beautiful to me now, a gardenia, a tree, or even a blade of grass or an ant. It's so precious. . . I'm much more conscious of the world.*²⁵

Dr. Caldicott believes that women have a special responsibility to mobilize men and the whole human race against nuclear weapons. Even the men who negotiated the test-ban treaties are "wringing their hands" and "saying that it is the women who will stop it."²⁶ Because of her convictions, Caldicott started the Women's Party for Survival.

Men's distrust of emotions, Caldicott believes, derive from our scientific era in which emotions are held to bias the interpretation of data. This has led to a death-producing thanatophoric paralysis of the emotions.

*What women must do is go in there and be absolutely passionate because if we are not passionate we will almost certainly destroy ourselves. Because of the women's liberation movement, women have discovered their power in the positive masculine principle that we use now. We have to combine this with our positive feminine feeling and passion. We have to take over and take the lead.*²⁷

The perspective of many Third-World women on nuclear technology and nuclear weapons was presented at the "Women and Life on Earth Conference" in a paper by Catherine Georgia Carlotti entitled, "W.A.R.S.: Women Against Racism and Sexism." First used against Asian peoples, nuclear weaponry represents for many simply the latest stage in the history of U.S. policies of black enslavement, Native American destruction, and the ideology of manifest destiny that asserts the superiority of whites over peoples of black, red, brown and yellow colors. Carlotti, the director of Fight Back for Children in New York City, asserts that these policies affect minorities, women, and children for

whom "racism is a real condition in United States society. . . . The outcome of our struggle against the people who continue to push nuclear technology hinges upon our capacity to bridge the racist division"²⁸

Petra K. Kelly, a Brussels environmentalist working with the Economic and Social Committee of the World Congress on Alternatives and Environment, is concerned about the deaths of children resulting from the diversion of funds and natural resources to the arms race. Noting that 40 to 70 percent of all Third World agricultural labor is provided by women, who plant, tend animals, and haul water, she extends a "plea to all women to join their sisters who have risen up—who have helped to shape the ecological revolution."²⁹

Radioactive Wastes

On the Pine Ridge Indian Reservation, near Edgemont, South Dakota, water has been found to have an alarmingly high level of radiation from uranium tailings washing into the Cheyenne River. A high rate of birth defects and cancerous deaths has been reported at the Pine Ridge Hospital.

Lorelei Means, one of the founders of

Women of All Red Nations, WARN, is especially concerned about aborted and deformed babies, leukemia victims, and the high rate of sterilization of women on Indian reservations. Another member of the organization, Winona LaDuke, has urged women to try to stop nuclear development: "When we take uranium out of the ground it affects the women first, through the fetuses, and our children."³⁰

WARN was organized in 1977 to discuss the erosion of the family, forced sterilization, and the shrinkage of reservation lands. Not a separatist or women's liberation movement, these Native American women see themselves as powerful spiritual leaders in their communities and as supporters of all Native peoples.

The summer 1980 Survival Gathering of Native American People in the Black Hills of South Dakota issued a "Declaration of Dependence on the Land"—Mother Earth:

We call for the recognition of our responsibility to be stewards of the land, to treat with respect and love our Mother Earth who is a source of our physical nourishment and our spiritual strength.

*We are people of the land. We believe that the land is not to be owned but to be shared. We believe that we are guardians of the land.*³¹

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Fannie Yazzie, the widow of a Navajo uranium miner, and several of her children. The dangers of uranium mining and radioactive wastes on Indian lands are among the concerns of WARN—Women of All Red Nations. (Photo by Kitty Tucker)



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Chemical Wastes

Lois Gibbs of the Love Canal Homeowners' Association in Niagara Falls, New York, played a critical organizational role in raising public consciousness about the effects of hazardous waste disposal by Hooker Chemicals and Plastics Corporation in her neighborhood of 1,200 homes.

Love Canal, an area partially excavated by William T. Love in 1892, as a link between the upper and lower Niagara River, was purchased by Hooker Chemical and used as a chemical waste dump between 1942 and 1953. Sold to the city of Niagara Falls for one dollar, the site was used by the Board of Education for a school building in 1954. Then in 1978 the New York State Department of Health began investigating numerous complaints from residents in the area.

Lois Gibbs, whose son had experienced health problems since attending the local elementary school, conducted a neighborhood campaign to close the school. She found many people willing to talk to her about their families' health problems.

A much higher than normal rate of miscarriages, birth defects, and stillbirths was found in the neighborhood. A recent study conducted by the women themselves on women who had become pregnant during a period of construction, when dust contamination was higher than normal, revealed that out of 15 pregnancies only one normal baby was born. Additionally many women in the neighborhood were found to have breast or uterine cancer, and a twelve-year-old girl had to have a hysterectomy.

In August 1978 the New York State Health Department recommended that the school be closed; that week Gibbs organized the Love Canal Homeowners Association to pressure for redress from Hooker Chemical. Governor Hugh Carey, who was running for reelection, agreed to have the state buy the homes at fair market value and some 710 families were initially declared eligible to move.³²

Because much of the blue-collar male population of the Love Canal area has found it difficult to accept the fact that they have been unable to protect or provide adequately for their families, the women have assumed a leadership role in bringing the issue to public attention.³³

Love Canal is the story of how lower-middle-class women who had never been environmental activists became politicized by the life and death issues directly affecting their children and their homes. The women of Love Canal, says Gibbs, "are no longer at home tending their homes and gardens. . . . Women who at one time looked down at people picketing, being arrested, and acting somewhat radical are now doing those very things. . . . Now in many households dinner is not ready at 5 o'clock, laundry is not quite done, and the neighbor is taxiing the children around."³⁴

Women researchers have also assumed responsibility for conducting studies of the problem. Adeline Levine, a sociologist at SUNY, Buffalo, who interviewed residents, concluded that the psychological stress resulting from government indecision over relocation and aid, as well as failure to supply information on health effects, was as important a health factor as the negative physiological effects themselves.³⁵

Beverly Paigan, a molecular biologist at Roswell Park Memorial Institute, made a preliminary survey of health effects among the residents. Her results caused a panel of epidemiologists from the Environmental Protection Agency to recommend further scientific investigation. But a committee appointed by Governor Hugh Carey and chaired by Lewis Thomas, head of the Sloan-Kettering Cancer Center, criticized her survey as not presenting "sound epidemiological research." Paigan, in turn, questioned the lack of data introduced to substantiate the conclusions of Thomas's committee as well as the committee's failure to use documented cases of acute health effects. She and other critics point to a possible conflict of interest inasmuch as the Thomas report criticized all but the work of the current New York State Health Department, an institution that has extensive powers over state medical facilities, where all but one of the panel members are administrators.³⁶

In Martinez, California, the children who attend Las Juntas Elementary school are only 1,000 yards away from two hazardous waste dumps operated by IT Corporation and Acme Fill. Seventy-five percent of the trucking trips on the residential street on which the school is located are waste related. Children exposed to odors while walking to the school have been coming home ill. Dorothy Sakazaki, who lives in the area, attempted to get an environmental impact report on the problem:

*We still can't get the road to those dumps out of this community. . . . We're poor people but we still have pride. Trucks have tipped over on that road. We can't even make the place safe for our children.*³⁷

Chambier Bechtel, a 32-year-old mother and a graduate of the University of California, Berkeley, led a movement to clean up the highly toxic chemical PCB (poly-chlorinated biphenyl) after a PCB spill was discovered in a children's play yard in Sonoma, California. "Black oily stuff was everywhere—on the trees hanging over the creek, on the sidewalk and the ground." With Allen Simontacchi, a lineman for the Pacific Gas and Electric Company, Bechtel also visited a school bus stop where, a year earlier, a PCB-filled capacitor on a utility pole had leaked into a water-filled ditch in which children collected tadpoles. Here samples showed 29,000 parts per million (ppm) even after the first cleanup, far in excess of the federally mandated limit of 50 ppm. Soon PG&E workers and their families began calling Bechtel, reporting more spills, exposures, and health problems. Despite fines levied by the EPA on PG&E and a new policy of reporting spills to local homeowners, the PCB problem continues to be of local and national significance.³⁸

Pesticides and Herbicides

In September 1979 the Bureau of Land Management (BLM) began a scheduled spraying of the controversial herbicide 2,4-D on timberland near Grant's Pass, Oregon. While the U.S. Environmental Protection Agency has banned most uses of the defoliant 2,4,5-T on the grounds of a high incidence of miscarriages and birth defects among a group of women near Oregon's Suislaw National

Forest,³⁹ concern exists that 2,4-D, which is chemically similar to 2,4,5-T, is also dangerous, especially to pregnant women. Joann Rosall of Wolf Creek, Oregon, and 100 demonstrators, including pregnant women, conducted sit-ins near the scheduled spray sites.⁴⁰ At the time, Rosall told reporters:

We've been camped here since Monday morning . . . and they're either going to stop or they're going to spray those chemicals right on top of us. . . . If the BLM calls the police to try and move us out, we'll handcuff ourselves to the trees. And we're not bluffing. We've got the cuffs.⁴¹

A BLM spokesperson said that the pregnant women would not be sprayed and might "die of starvation before we [get] to their unit."⁴² The handcuffing action was not necessary but the area was occupied until the spraying season ended in October. Protests over types of chemicals, spraying methods, and adequate notification of intent to spray are continuing.

On November 25, 1979, in a municipal court in Modesto, California, attorney Joyce Carillo of California Rural Legal Assistance represented 14 migrant workers' children who had been exposed to pesticides. The pesticides were dusted on bean and tomato fields from airplanes flying near a summer school, and several children became ill. The chemicals, toxaphene and orthene, both organophosphate pesticides, are suspected of causing health problems. Several compounds in toxaphene have been found to be mutagens and thus potentially carcinogenic, while orthene metabolizes to the toxic chemical *monitor*, which can eventually affect the nervous system.⁴³

In Berkeley, California, Mary Shinoff of the Berkeley Community Health Advisory Board and her colleague Sharon Ann Miller reported on the use of 13 different pesticides in Berkeley parks. They found that the Cedar-Rose neighborhood park and playground had been sprayed with oryzalin, a chemical suspected of causing birth defects, and urged the adoption of a comprehensive city-wide plan to eliminate lack of coordination among agencies using sprays.⁴⁴

Appropriate Technology

For many women who have become



The hands-on skills needed for personal survival and control over one's own life are promoted by the appropriate technology movement. Technical instruction of groups of women by other women is an increasingly popular form of education. (Photo by Debbie Kates)

aware of environmental hazards and nuclear technologies through environmentalism and have become conscious of sexism through feminism, the appropriate technology movement presents an appealing alternative. Here the hands-on skills necessary for personal survival and control over one's own life are revered and disseminated. Renewable energy sources, energy and food self-reliance, and low-environmental-impact technologies are the movement's hallmarks.

Nevertheless the appropriate technology movement has its own ways of reinforcing traditional sex roles. Activist Judy Smith points out that in work situations it is usually the men who direct construction, make decisions, and do the work requiring technical skills, while women disseminate information, educate the public, and perform the more menial hands-on tasks. Moreover, what is defined as appropriate technology may vary according to sex. The solar oven and the organic garden may actually serve to reinforce women's traditional time-consuming role in the kitchen.

Women involved in the appropriate technology movement, however, find great satisfaction in building bridges, solar collectors, greenhouses, and doing

home repairs themselves, without resorting to high-cost contractors. Carpentry and plumbing skills taught to groups of women by other women rather than male "experts" are popular forms of education.⁴⁵

What Is Needed?

For environmentalism to succeed in the 1980s it may be necessary to form coalitions not only with the women's movement but with other organized groups having overlapping interests and goals—labor organizations, the Native American movement, and the appropriate technology movement, for instance. Rather than luring people away from these other organizations, environmentalists, both male and female, must reciprocate with time, letters, and financial support when needed.

Juxtaposing the goals of the women's and ecology movements leads to important conclusions regarding the future of life on earth. Unless the home is liberated from its status as "women's sphere" to that of "human habitat," the feminist movement cannot succeed. Unless the Earth is liberated from the overkill of certain kinds of high technologies and renovated with low-impact "appropriate" technologies, the environ-

mental movement cannot succeed. Environmental, technological, social, and linguistic revolutions must all take place simultaneously. In this way perhaps the future of life on Earth may be sustained.

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