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RACHEL CARSON AND THE AMERICAN ENVIRONMENTAL MOVEMENT

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Abstract: *Providing an overview of Rachel Carson's life as a scientist and writer, the author explores the impact of Carson's seminal 1962 book* Silent Spring; the *subsequent backlash from the chemical industry and medical community; the early success of DDT; the culture of the 1960s; and the influence of Carson's work in the United States and the United Nations. The urgency of Carson's prophetic work remains today as the global community faces even greater environmental challenges.*

Key words: *Rachel Carson,* Silent Spring, *DDT, environment, ecology*

Introduction

I want to tell you a story about the "mouse that roared." This is the story of a woman who responded to opportunities and showed enormous strength of character.

In the early 1960s, a friend in Massachusetts asked Rachel Carson why all the song birds in her yard had died along with the mosquitoes. Carson, a petite marine biologist, was persuaded to tackle this question. Her landmark book, *Silent Spring,* was first published in three installments in the *New Yorker* magazine beginning June 1962 and then in a single volume by Houghton Mifflin that September. In it Carson called for a major paradigm shift in our thinking – a bold proposal for post-war America where "science was god, and science was male" (Lear, 2002, p. xi). All hell broke loose. Negative comments from scientists, the medical community, politicians, and chemical company executives – a veritable international controversy – threatened to destroy her. Carson's writing and scientific career seemed to be at an end. Targeted in a vicious and financially underwritten campaign to discredit her scientific integrity, Carson was vilified as a "hysterical female," a

"pseudo-scientist," "probably a communist," a "bird and bunny lover" and a charlatan researcher (Watson, 2002, p. 116; Lear, 1997, pp. 428-440).

The controversy over *Silent Spring* – what former Vice President Al Gore has termed the "power of an idea" against the "power of politicians" (Gore, 1994, p. iv) – fueled public debate and "people began to think about the chemicals they were handling, what they were doing to the environment, and what scientists weren't telling them [. . .] they began to question the very direction of technology" (Watson, 2002, p. 115). Rachel Carson – the mouse that roared – was heard.

An inventory of the chapter titles of the book that is still read today reveals why this text is considered one of the fifty most influential books of the twentieth century: "Elixirs of Death," "Surface Waters and Underground Seas," "Realms of the Soil," "Earth's Green Mantle," "The Human Price." Notice that each chapter focuses on a natural resource and demonstrates lyrically and scientifically how chemicals are damaging the environment. Chemicals infiltrate our soil, air, water, and insert themselves into the food chain, as well as into animal and human tissue. In fact, chemicals have the potential to alter the genetic structure of everything in nature.

One example of chemical pollution from Carson's book is worth sharing: At the shipping docks in Mobile, Alabama, fire ants, who had "hitchhiked" to North America on packaging crates, created havoc in Alabama and then spread into the adjacent states of Florida and Mississippi. The 1958 eradication effort of using dieldrin/heptachlor to kill the ants affected not only the insects, but also the livestock, wildlife, and bird population. Unfortunately, although many ants were killed, the species rebounded, producing more pests than ever and creating a veritable "Vietnam of Entomology." Using such examples, coupled with an exhaustive list of research studies, Carson attacked the chemical industry for its irresponsibility and blamed the United States government for not demanding an accounting from the chemical companies, even – in many cases – subsidizing risky research and development initiatives. In Carson's view, insecticides were in reality biocides – substances that killed not one species, but life, itself. Carson's scientific background and critical thinking offered us a new concept of the ecology of the human body, namely that the human body is permeable, and that toxins in the environment can be absorbed into our system. With singular clarity, Carson proposed an addition to the Bill of Rights of the U.S. Constitution: the "right of the citizen to be secure in his own home against the intrusion of poisons applied by other person."

Why is Carson's insight so startling? Bits and pieces of the dangers of pesticides had been known for decades, but no one had yet studied the whole picture of their properties and their long-term effects. Carson's study called for an

end to "broad spectrum" insecticides and the promotion of biological – not chemical – controls for pests. Now almost fifty years later, we can verify that *Silent Spring* became the catalyst for our current environmental movement. Carson's "third eye" allowed her to see beneath the surface to a new truth about nature, namely, the interdependence of all creation: soil, air, water, animals, and human beings.

Rachel Carson's Early Life

One might ask: where did this woman come from? How did she achieve public notice with one book? Born in a small rural town outside Pittsburgh, Pennsylvania near the Alleghany River, Rachel Carson loved to read and her mother encouraged her to enjoy the wildlife, plants and birds around her. As a child, she became fascinated with fossils from the ancient sea in that geographic area and began to see connections between and among species. As her biographer Linda J. Lear notes,

> From childhood on, Carson was interested in the long history of the earth, in its patterns and rhythms, its ancient seas, its evolving life forms. She was an ecologist – fascinated by intersections and connections but always aware of the whole – before that perspective was accorded scholarly legitimacy. (Lear, 2002, p. xii)

Moreover, she witnessed first-hand her town of Springdale, Pennsylvania succumb to chemical emissions and industrial waste, as neighboring Pittsburgh rose to prominence in the iron and steel industry (Lear, 2002, pp. xii, xiii). Because Carson had a talent for words and wrote her first story at age ten, she majored in English at college, but switched to biology when she discovered she had a "subject to write about." After college she studied at Woods Hole Marine Biological Laboratory in Massachusetts and completed a master's degree in zoology in 1932 at Johns Hopkins University, working as a lab assistant in public health and experimental genetics. About the same time that she was hired by the U. S. Bureau of Fisheries to write radio scripts on ocean life and edit field reports for the scientists on staff, Carson began writing for a Baltimore newspaper, investigating the pollution of oyster beds in the Chesapeake Bay from industrial waste runoff. During her fifteen-year career with the United States government, she rose to become Editor-in-Chief of all publications for the U.S. Fish and Wildlife Service and supplemented her income by writing articles for popular journals. In the early 1940s she published *Under the Sea-Wind*, the life of a sandlerling (a sea bird similar to a sandpiper). Her 1951 book, *The Sea Around Us,* won the National Book Award and enabled her to

resign from government service to pursue writing full time. *The Edge of the Sea* (1955) made Carson the most popular science writer in the United States.

DDT and its power

Although its scientific properties had been known since 1874, DDT became more well known after it had been used successfully in 1939 to eradicate mosquito larvae; during World War II, American military lavishly sprayed the Pacific Islands with this chemical before an invasion. When malaria and typhus were significantly reduced in developed countries, DDT's inventor, Paul Müller, was awarded a Nobel prize. By the mid-1950s, most U.S. municipalities were spraying DDT in neighborhoods to eradicate tent caterpillars, gypsy moths and the beetles responsible for Dutch elm disease (Lear, 1997, pp. 3-7). Yet all was not well. Carson, in 1945, had submitted an article to *Reader's Digest* detailing the DDT's disruptive influence on the delicate balance of nature. Despite the fact that she had been an occasional contributor to the magazine for almost ten years and had once sought a position as its science editor, her article was not accepted. As her biographer comments: "The *Digest* [. . .] found pesticides an unpalatable subject, and Rachel turned her attention to other research subjects" (Lear, 1997, pp. 118-119).[1] Now in the 1960s, with songbirds dying in her friend's yard, Carson again returned to the topic of the dangers of DDT.

The Culture of the 1960s

It is important to understand something of the culture of the United States in the 1960s. The Cold War between the USSR and the U.S. was in full force. Suspicion lurked on both sides, the nuclear weapons race was escalating, and just a few years earlier the USSR had put Sputnik, the first satellite, into space. At the same time the chemical industry was expanding, bringing new prosperity to the U.S. with jobs in production and research, and DDT was considered the "atomic bomb" of pests and disease. Moreover, the attitude that man can and should control

Note

[1] Lear makes the point that this rejection by *Reader's Digest* was fortuitous because when Carson returned to the subject of pesticides in 1968, she did so not as a federal employee but as a private citizen.

nature was dominant; science was fixated on the molecular revolution, not ecology; scientists were "gods" and science was "male." Into this milieu came Rachel Carson, a woman, a biologist – and a lowly marine biologist at that – with no academic affiliation who wrote articles, not for a narrow and specialized scientific community, but for the general public. On all counts, Rachel Carson was an outsider. But the 1960s was also a time of grassroots unrest with the hippie movement, the Beat Generation, and protests against the war in Vietnam – a veritable age of revolution and new activism. Despite the villainous attack on Carson's credibility by agribusiness, the medical community, and the $250,000 campaign to discredit her, underwritten by the chemical industry, Carson prevailed. President John F. Kennedy, learning of *Silent Spring*, created a special panel to examine Carson's conclusions; Congress initiated hearings on DDT, inviting Carson – who was suffering from breast cancer that eventually took her life the next year – to testify on the urgency of new government policies to protect not only the environment, but human health as well; and grassroots organizations were vocal in their demands to hold the U.S. government accountable for aerial sprayings of DDT.

Effects of Carson's book

The upshot of all this conversation about environment gave birth to the first Earth Day (April 22, 1970) organized by Denis Hayes. That same year Congress passed the National Environmental Policy Act (EPA) and in 1973, the Endangered Species Act – undeniably the most important law responsible for the recovery of populations of alligators, gray whales, bald eagles, peregrine falcons, and brown pelicans. The previous year, 1972, the United Nations began its "Think globally, Act locally" campaign. Rachel Carson had issued a call to all of us that if we cherished our own preservation, we needed to regulate our appetites. We needed to seek biological, not chemical solutions to the problem of pests. Organic farming and the increase in the number of regional farmer's markets, for example, were positive steps toward interacting responsibly with our environment.

But the publication of *Silent Spring* and its aftermath was not magic. Laws protecting our water and air quality, passed during President Bill Clinton's administration (1993-2001), were weakened or repealed during the presidency of George W. Bush (2001-09). Sadly, battles between developers and enemies of federal regulations continue to this day, with the economy or profit margin too often being the deciding factor. Nevertheless, there is hope. The Earth Summit in Rio de Janeiro with the subsequent Earth Charter (1992) is just one example. The Montreal Protocol (1989) agreed to reduce CFCs that damage the ozone layer; the Kyoto

Protocol (1997) and Copenhagen Summit (2009) raised awareness to climate change. And grassroots global organizations like Greenpeace, World Wildlife Fund, the Nature Conservancy, and Conservation International, dedicated to saving the environment, are influencing more and more people.

Significance of Rachel Carson

If one were to identify the significance of Rachel Carson, the "mouse that roared," one would have to recognize first her prophetic voice, a voice that courageously continues to call us to acknowledge and reverence the interdependence of all creation and take action to preserve its integrity. Notable too, was her ability to perceive and analyze the macro scale of human decision-making and its effect on every aspect of the planet. And one should not overlook her meticulous research and lyrical explanation that merited the 1980 Presidential Medal of Freedom (awarded posthumously by President Jimmy Carter). But perhaps Carson's long term influence is to be found in her nuggets of wisdom that can serve as mantras to guide our own ecological responsibility: "The obligation to endure (continue as a species) gives us the right to know" and "The 'control of nature' is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man." *Silent Spring* and the committed life of Rachel Carson continue to call us to a more authentic relationship with ourselves and with non-human nature. And thus, Rachel Carson deserves the final word: "Wonder and humility are wholesome emotions and they do not exist side by side with a lust for destruction."

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