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# How ‘Silent Spring’ Ignited the Environmental Movement

By ELIZA GRISWOLD

On June 4, 1963, less than a year after the controversial environmental classic “Silent Spring” was published, its author, Rachel Carson, testified before a Senate subcommittee on pesticides. She was 56 and dying of breast cancer. She told almost no one. She’d already survived a radical mastectomy. Her pelvis was so riddled with fractures that it was nearly impossible for her to walk to her seat at the wooden table before the Congressional panel. To hide her baldness, she wore a dark brown wig.

“Every once in a while in the history of mankind, a book has appeared which has substantially altered the course of history,” Senator Ernest Gruening, a Democrat from Alaska, told Carson at the time.

“Silent Spring” was published 50 years ago this month. Though she did not set out to do so, Carson influenced the environmental movement as no one had since the 19th century’s most celebrated hermit, Henry David Thoreau, wrote about Walden Pond. “Silent Spring” presents a view of nature compromised by synthetic pesticides, especially DDT. Once these pesticides entered the biosphere, Carson argued, they not only killed bugs but also made their way up the food chain to threaten bird and fish populations and could eventually sicken children. Much of the data and case studies that Carson drew from weren’t new; the scientific community had known of these findings for some time, but Carson was the first to put them all together for the general public and to draw stark and far-reaching conclusions. In doing so, Carson, the citizen-scientist, spawned a revolution.

“Silent Spring,” which has sold more than two million copies, made a powerful case for the idea that if humankind poisoned nature, nature would in turn poison humankind. “Our heedless and destructive acts enter into the vast cycles of the earth and in time return to bring hazard to ourselves,” she told the subcommittee. We still see the effects of unfettered human intervention through Carson’s eyes: she popularized modern ecology.

If anything, environmental issues have grown larger — and more urgent — since Carson’s day. Yet no single work has had the impact of “Silent Spring.” It is not that we lack eloquent and

impassioned environmental advocates with the capacity to reach a broad audience on issues like climate change. Bill McKibben was the first to make a compelling case, in 1989, for the crisis of global warming in “The End of Nature.” Elizabeth Kolbert followed with “Field Notes From a Catastrophe.” Al Gore sounded the alarm with “An Inconvenient Truth,” and was awarded the Nobel Prize. They are widely considered responsible for shaping our view of global warming, but none was able to galvanize a nation into demanding concrete change in quite the way that Carson did.

What was it that allowed Carson to capture the public imagination and to forge America’s environmental consciousness?

**Saint Rachel**, “the nun of nature,” as she is called, is frequently invoked in the name of one environmental cause or another, but few know much about her life and work. “People think she came out of nowhere to deliver this Jeremiad of ‘Silent Spring,’ but she had three massive best sellers about the sea before that,” McKibben says. “She was Jacques Cousteau before there was Jacques Cousteau.”

The sea held an immense appeal to a woman who grew up landlocked and poor as Carson did. She was born in 1907 in the boom of the Industrial Age about 18 miles up the Allegheny River from Pittsburgh, in the town of Springdale. From her bedroom window, she could see smoke billow from the stacks of the American Glue Factory, which slaughtered horses. The factory, the junkyard of its time, was located less than a mile away, down the gently sloping riverbank from the Carsons’ four-room log cabin. Passers-by could watch old horses file up a covered wooden ramp to their death. The smell of tankage, fertilizer made from horse parts, was so rank that, along with the mosquitoes that bred in the swampland near the riverbank called the Bottoms, it prevented Springdale’s 1,200 residents from sitting on their porches in the evening.

Her father, Robert Carson, was a ne’er-do-well whose ventures inevitably failed; Carson’s elder sister, Marian, did shift work in the town’s coal-fired power plant. Carson’s mother, Maria, the ambitious and embittered daughter of a Presbyterian minister, had great hopes that her youngest daughter, Rachel, could be educated and would escape Springdale. Rachel won a scholarship to Pennsylvania College for Women, now known as Chatham University, in Pittsburgh. After graduation, she moved to Baltimore, where she attended graduate school for zoology at Johns Hopkins University and completed a master’s degree before dropping out to help support her family. The Carsons fared even worse during the Depression, and they fled Springdale, leaving heavy debts behind.

Carson became a science editor for the U.S. Fish and Wildlife Service, an agency founded under

the New Deal. Eager to be a writer, she freelanced for *The Atlantic* and *Reader's Digest*, among other publications. Driven by her love of the sea, she wrote on everything from where to go for summer vacation to what to do with the catch of the day to the life cycles of sea creatures. Carson believed that people would protect only what they loved, so she worked to establish a "sense of wonder" about nature. In her best-selling sea books — "The Sea Around Us," "The Edge of the Sea" and "Under the Sea-Wind" — she used simple and sometimes sentimental narratives about the oceans to articulate sophisticated ideas about the inner workings of largely unseen things.

Carson was initially ambivalent about taking on what she referred to as "the poison book." She didn't see herself as an investigative reporter. By this time, she'd received the National Book Award for "The Sea Around Us" and established herself as the naturalist of her day. This was a much folksier and less controversial role than the one "the poison book" would put her in. Taking on some of the largest and most powerful industrial forces in the world would have been a daunting proposition for anyone, let alone a single woman of her generation. She tried to enlist other writers to tackle the dangers of pesticides. E.B. White, who was at *The New Yorker*, which serialized Carson's major books, gently suggested that she investigate pesticides for *The New Yorker* herself. So she did.

"**Silent Spring**" begins with a myth, "A Fable for Tomorrow," in which Carson describes "a town in the heart of America where all life seemed to live in harmony with its surroundings." Cognizant of connecting her ideal world to one that readers knew, Carson presents not a pristine wilderness but a town where people, roads and gutters coexist with nature — until a mysterious blight befalls this perfect place. "No witchcraft," Carson writes, "no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves."

Carson knew that her target audience of popular readers included scores of housewives. She relied upon this ready army of concerned citizens both as sources who discovered robins and squirrels poisoned by pesticides outside their back doors and as readers to whom she had to appeal. Consider this indelible image of a squirrel: "The head and neck were outstretched, and the mouth often contained dirt, suggesting that the dying animal had been biting at the ground." Carson then asks her readers, "By acquiescing in an act that causes such suffering to a living creature, who among us is not diminished as a human being?"

Her willingness to pose the moral question led "Silent Spring" to be compared with Harriet Beecher Stowe's "Uncle Tom's Cabin," written nearly a century earlier. Both books reflected the mainstream Protestant thinking of their time, which demanded personal action to right the wrongs of society. Yet Carson, who was baptized in the Presbyterian Church, was not religious. One tenet of Christianity in particular struck her as false: the idea that nature

existed to serve man. “She wanted us to understand that we were just a blip,” says Linda Lear, author of Carson’s definitive biography, “Witness for Nature.” “The control of nature was an arrogant idea, and Carson was against human arrogance.”

“Silent Spring” was more than a study of the effects of synthetic pesticides; it was an indictment of the late 1950s. Humans, Carson argued, should not seek to dominate nature through chemistry, in the name of progress. In Carson’s view, technological innovation could easily and irrevocably disrupt the natural system. “She was the very first person to knock some of the shine off modernity,” McKibben says. “She was the first to tap into an idea that other people were starting to feel.”

Carson’s was one of several moral calls to arms published at the start of the ’60s. Jane Jacobs’s “Death and Life of American Cities,” Michael Harrington’s “Other America,” Ralph Nader’s “Unsafe at Any Speed” and Betty Friedan’s “Feminine Mystique” all captured a growing disillusionment with the status quo and exposed a system they believed disenfranchised people. But “Silent Spring,” more than the others, is stitched through with personal rage. In 1960, according to Carson’s assistant, after she found out that her breast cancer had metastasized, her tone sharpened toward the apocalyptic. “She was more hostile about what arrogant technology and blind science could do,” notes Lear, her biographer.

“No one,” says Carl Safina, an oceanographer and MacArthur fellow who has published several books on marine life, “had ever thought that humans could create something that could create harm all over the globe and come back and get in our bodies.” Safina took me out in his sea kayak around Lazy Point, an eastern spoke of Long Island, to see three kinds of terns, which zipped around us over the bay. We then crossed the point in his red Prius to visit thriving osprey, one species of bird that was beginning to die out when “Silent Spring” made public that DDT weakened their eggshells. As we peered through binoculars at a 40-foot-high nest woven from sticks, old mops and fishnets, a glossy black osprey returned to his mate and her chicks with a thrashing fish in his talons. Safina told me that he began to read “Silent Spring” when he was 14 years old, in the back seat of his parents’ sedan.

“I almost threw up,” he said. “I got physically ill when I learned that ospreys and peregrine falcons weren’t raising chicks because of what people were spraying on bugs at their farms and lawns. This was the first time I learned that humans could impact the environment with chemicals.” That a corporation would create a product that didn’t operate as advertised — “this was shocking in a way we weren’t inured to,” Safina said.

Though Carson talked about other pesticides, it was DDT — sprayed aerially over large areas of the United States to control mosquitoes and fire ants — that stood in for this excess. DDT

was first synthesized in 1874 and discovered to kill insects in 1939 by Paul Hermann Müller, who won the Nobel Prize in 1948 for this work. During World War II, DDT applied to the skin in powder form proved an effective means to control lice in soldiers. But it wasn't just DDT's effectiveness that led to its promotion, Carson maintained; it was a surfeit of product and labor. In her speeches, Carson claimed that after the war, out-of-work pilots and a glut of the product led the United States government and industry to seek new markets for DDT among American consumers.

By the time Carson began to be interested in pesticides, in the mid-1940s, concerns related to DDT were mounting among wildlife biologists at the Patuxent Research Refuge in Laurel, Md., which was administered by the U.S. Fish and Wildlife Service, and elsewhere. Controversy over pesticides' harmful effects on birds and plants led to high-profile lawsuits on the part of affected residents who wanted to stop the aerial spraying.

Carson used the era's hysteria about radiation to snap her readers to attention, drawing a parallel between nuclear fallout and a new, invisible chemical threat of pesticides throughout "Silent Spring." "We are rightly appalled by the genetic effects of radiation," she wrote. "How then, can we be indifferent to the same effect in chemicals that we disseminate widely in our environment?"

Carson and her publisher, Houghton Mifflin, knew that such comparisons would be explosive. They tried to control the response to the book by seeking support before publication. They sent galleys to the National Audubon Society for public endorsement.

The galleys landed on the desk of Audubon's biologist, Roland Clement, for review. Clement, who will turn 100 in November, currently lives in a studio on the 17th floor of a retirement community in New Haven, about a mile from Yale University's Beinecke Rare Book and Manuscript Library, where Carson's papers are kept. "I knew of everything she wrote about," he told me over lunch at his home this summer. "She had it right."

**The book**, which was published on Sept. 27, 1962, flew off the shelves, owing largely to its three-part serialization in *The New Yorker* that summer. "Silent Spring" was also selected for the Book-of-the-Month Club, which delighted Carson. But nothing established Carson more effectively than her appearance on "CBS Reports," an hourlong television news program hosted by a former war correspondent, Eric Sevareid. On camera, Carson's careful way of speaking dispelled any notions that she was a shrew or some kind of zealot. Carson was so sick during filming at home in suburban Maryland that in the course of the interview, she propped her head on her hands. According to Lear as well as William Souder, author of a new biography of Carson, "On a Farther Shore," Sevareid later said that he was afraid Carson

wouldn't survive to see the show broadcast.

The industry's response to "Silent Spring" proved more aggressive than anyone anticipated. As Lear notes, Velsicol, a manufacturer of DDT, threatened to sue both Houghton Mifflin and The New Yorker. And it also tried to stop Audubon from excerpting the book in its magazine. Audubon went ahead and even included an editorial about the chemical industry's reaction to the book. But after "Silent Spring" came out, the society declined to give it an official endorsement.

The personal attacks against Carson were stunning. She was accused of being a communist sympathizer and dismissed as a spinster with an affinity for cats. In one threatening letter to Houghton Mifflin, Velsicol's general counsel insinuated that there were "sinister influences" in Carson's work: she was some kind of agricultural propagandist in the employ of the Soviet Union, he implied, and her intention was to reduce Western countries' ability to produce food, to achieve "east-curtain parity."


But Carson also had powerful advocates, among them President John F. Kennedy, who established a presidential committee to investigate pesticides. Then, in June 1963, Carson made her appearance before the Senate subcommittee. In her testimony, Carson didn't just highlight the problems that she identified in "Silent Spring"; she presented the policy recommendations she'd been working on for the past five years. When faced with a chance to do so, Carson didn't call for a ban on pesticides. "I think chemicals do have a place," she testified.

She argued vehemently against aerial spraying, which allowed the government to dump pesticides on people's property without their permission. She cited dairy farmers in upstate New York, whose milk was banned from the market after their land was sprayed to eradicate gypsy moths. As Carson saw it, the federal government, when in industry's thrall, was part of the problem. That's one reason that she didn't call for sweeping federal regulation. Instead, she argued that citizens had the right to know how pesticides were being used on their private property. She was reiterating a central tenet of "Silent Spring": "If the Bill of Rights contains no guarantee that a citizen shall be secure against lethal poisons distributed either by private individuals or by public officials, it is surely only because our forefathers, despite their considerable wisdom and foresight, could conceive of no such problem." She advised the birth of a grass-roots movement led by concerned citizens who would form nonpartisan groups that she called "citizen's brigades."

The results of her efforts were mixed, and even her allies have different opinions on what Carson's legacy actually means. Carson is widely credited with banning DDT, by both her

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supporters and her detractors. The truth is a little more complicated. When “Silent Spring” was published, DDT production was nearing its peak; in 1963, U.S. companies manufactured about 90,000 tons. But by the following year, DDT production in America was already on the wane. Despite the pesticide manufacturers’ aggression toward Carson and her book, there was mounting evidence that some insects were increasingly resistant to DDT, as Carson claimed. After Roland Clement testified before the Senate subcommittee, he says, Senator Abraham Ribicoff, the Democrat from Connecticut who was chairman of the committee, pulled him aside. “He told me that the chemical companies were willing to stop domestic use of DDT,” Clement says, but only if they could strike a bargain: as long as Carson and Clement would accept the companies’ continued export of DDT to foreign countries, the companies would consider the end of domestic use. Their message was clear, Clement says: “Don’t mess with the boys and their business.”

Though Clement was a supporter of Carson’s, he believes that she got both too much credit and too much blame after “Silent Spring” came out. “It’s a fabrication to say that she’s the founder of the environmental movement,” Clement says. “She stirred the pot. That’s all.” It wasn’t until 1972, eight years after Carson’s death, that the United States banned the domestic sale of DDT, except where public health concerns warranted its use. American companies continued to export the pesticide until the mid-1980s. (China stopped manufacturing DDT in 2007. In 2009, India, the only country to produce the pesticide at the time, made 3,653 tons.)

**The early activists** of the new environmental movement had several successes attributed to Carson — from the Clean Air and Water Acts to the establishment of Earth Day to President Nixon’s founding of the Environmental Protection Agency, in 1970. But if “Silent Spring” can be credited with launching a movement, it also sowed the seeds of its own destruction.

The well-financed counterreaction to Carson’s book was a prototype for the brand of attack now regularly made by super-PACs in everything from debates about carbon emissions to new energy sources. “As soon as ‘Silent Spring’ is serialized, the chemical companies circle the wagons and build up a war chest,” Souder says. “This is how the environment became such a bitter partisan battle.”

In a move worthy of Citizens United, the chemical industry undertook an expensive negative P.R. campaign, which included circulating “The Desolate Year,” a parody of “A Fable for Tomorrow” that mocked its woeful tone. The parody, which was sent out to newspapers around the country along with a five-page fact sheet, argued that without pesticides, America would be overrun by insects and Americans would not be able to grow enough food to survive.

One reason that today no single book on, say, climate change could have the influence that

“Silent Spring” did, Souder argues, is the five decades of political fracturing that followed its publication. “The politicized and partisan reaction created by ‘Silent Spring’ has hardened over the past 50 years,” Souder says. Carson may have regarded “Silent Spring” and stewardship of the environment as a unifying issue for humankind, but a result has been an increasingly factionalized arena.

Carson was among the first environmentalists of the modern era to be charged with using “soft science” and with cherry-picking studies to suit her ideology. Fifty years later, the attacks on Carson continue. Her opponents hold her responsible for the death of millions of African children from malaria; in Michael Crichton’s novel “State of Fear,” one character says that “banning DDT killed more people than Hitler,” a sentiment Crichton publicly agreed with. The Web site [rachelwaswrong.org](http://rachelwaswrong.org), which is run by the Competitive Enterprise Institute, a free-market advocacy group based in Washington, makes a similar charge: “Today, millions of people around the world suffer the painful and often deadly effects of malaria because one person sounded a false alarm.”

But much of Carson’s science was accurate and forward-looking. Dr. Theo Colborn, an environmental health analyst and co-author of a 1996 book, “Our Stolen Future,” about endocrine disrupters — the chemicals that can interfere with the body’s hormone system — points out that Carson was on the cutting edge of the science of her day. “If Rachel had lived,” she said, “we might have actually found out about endocrine disruption two generations ago.”

**Today, from Rachel Carson’s** old bedroom window in Springdale, you can see the smokestacks of the Cheswick coal-fired power plant less than a mile away: an older red-and-white, candy-striped stack and a newer one, called a scrubber, installed in 2010 to remove sulfur dioxide. It later needed repairs, but with the approval of the Allegheny County Health Department, it stayed open, and the plant operated for three months without full emission controls. The plants says it is in compliance with current E.P.A. emissions standards for coal-fired plants, though new ones will take full effect in 2016.

Springdale’s board of supervisors supports the plant’s business. As David Finley, president of Springdale Borough put it, the noise from the plant used to bother a handful of residents, but it “sounds like money” to many others. The plant buys fresh water from an underground river that runs through the borough and has paid for things like Little League uniforms and repairs to the municipal swimming pool. Springdale has been nicknamed “Power City” since the days Carson lived there. The high-school sports teams are called the Dynamos; their mascot is Reddy Kilowatt, the cartoon character of the electricity lobby.

A few months ago, two citizens in Springdale volunteered to be representatives in a class-

action suit, which charges that the coal-fired plant “installed limited technology” to control emissions that they claim are damaging 1,500 households. One of the plaintiffs, Kristie Bell, is a 33-year-old health care employee who lives in a two-story yellow-brick house with a broad front porch, a few blocks from Carson’s childhood home. Bell said it was “Silent Spring” that encouraged her to step forward. “Rachel Carson is a huge influence,” Bell said, sitting at her kitchen table after work on a sultry evening last summer. “She’s a motivator.” For Bell, Carson’s message is a call to mothers to stand up against industry to protect the health of their families.

Detractors have argued that the lawsuit is the creation of personal-injury attorneys. (Because of the difficulty of making a clear health case, the plaintiffs are claiming property damage caused by corrosive ash.) But Bell said that it’s not about money. “I never sit outside on my front porch because I don’t know what’s coming out of that smokestack,” she said. One hundred years ago, when Carson was a child, residents of Springdale had the same concern — one that informed Carson’s worldview. “When we start messing around with Mother Nature,” Bell said, “bad things happen.”

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