

Rachel Carson: Humanizing nature

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Abstract

Rachel Carson was instrumental in changing the way the world viewed conservation. Her initial written works demonstrated the idea that humans were not the center of the earth's ecosystems by describing the environment from the viewpoint of non-human creatures (Cafaro, 2011, para. 45-48). Carson's most eminent publication, *Silent Spring*, was released at the beginning of the 1960s (Cafaro, 2011, para. 25). The book advocated Carson's concept of enlightened anthropocentrism through the insistence that new scientific innovations should be questioned as to why, whether, and for what purpose they are put into practice (Walker & Walsh, 2012, p.19). Another issue sparked by *Silent Spring* regarded whether humans should alter nature for our purposes or attempt to leave it unchanged (Cafaro, 2011, para. 67). *Silent Spring* helped to spark a national debate about scientific responsibility, limitations on advances in technology, and chemical pesticides in general (Lear, 2013, p. 1). The fact that her arguments stimulated such intense discussion is a testimony to how influential she truly was. Furthermore, *Silent Spring* led to the banning of dichlorodiphenyltrichloroethane (DDT) production by 1972, along with the implementation of government regulations to safeguard the environment (Hecht, 2012, p. 154; Lear, 2013, p. 1). Carson also made individuals realize that what they put into the environment must be regulated in order to keep the effects from haunting them for generations to come. This undeniable truth continues to resonate today.

Introduction

Rachel Carson, recognized as the author of *Silent Spring*, was born over a century ago in a small town in Pennsylvania (Feldman, 2009, para. 8; Lear, 2013, p.1). By the age of 19, Carson was pursuing a college degree in marine biology, notable because science was a male-dominated field at the time, and publishing her first nature article (Feldman, 2009, para. 11; Lear, 2013, p.1). Carson completed her degree and accepted a position with the U.S. Fish and Wildlife Service (Blanchard, 2000, p. 53). During that part of her career, she was able to use accessible literature to provide education to the public about nature, specifically its interconnectedness and the destructiveness of human actions against it (Blanchard, 2000, p. 53).

Her literary skills led to a full-time career as a nature writer in the early 1950s (Feldman, 2009, para. 5). Carson's initial works, *Under the Sea-Wind* (1941), *The Sea Around Us* (1951), and *The Edge of the Sea* (1955), showcased her belief that humans are not the only relevant beings by describing the environment from the perspective of non-human creatures (Cafaro, 2011, para. 45-48). With the publication of *Silent Spring* at the beginning of the 1960s, Carson brought the need to equate humankind with the rest of the environment into focus, explaining the chemical pesticide problem with regards to the human value of maintaining natural biodiversity, our moral responsibility to protect non-human lives, and future human health concerns that could result from chemical contamination (Cafaro, 2011, para. 25).

Silent Spring had a crucial impact, sparking controversy and wildly differing reactions from industries associated with creating and administering pesticides, government, environmentalists, and the general public (Lear, 2013, p. 3). Carson's statements about the dangers of chemical usage were met with heavy criticism from some corners, especially chemical industry representatives and the scientists that they funded, and exaltation from others, particularly environmentalists (Lear, 2013, p. 3). The fact that Carson's arguments stimulated such intense discussions is a testimony to how influential she was, positively or negatively, as a scientist and a writer. Her legacy continues in both ideological contributions and physical tributes, such as Hawk Mountain Sanctuary (Lear, n.d., para. 49). According to Lear (n.d.), this non-profit eco-tourism reserve is inspired by Rachel Carson's previous love of birdwatching in that area (para. 49).

Rachel Carson's Inspiration

Just as Carson inspired the creation of Hawk Mountain Sanctuary, her mother inspired Carson by teaching her about the land on which she lived (Feldman, 2009, para. 8). According to many, her rural upbringing played a significant part in inspiring her love

of organisms and the environment, and her decision to study and write about them (Feldman, 2009, para. 8). An important motivating factor for Carson to contribute to biology in a literary fashion was the enjoyment that she found in reading books, especially those about nature (Feldman, 2009, para. 9).

Both books and personal experience taught Carson about nature throughout her life, helping to develop her individual and spiritual closeness to the environment and its creatures (Cafaro, 2002, p. 65). She wanted humans to understand the intrinsic value of nature, which she believed that people could not truly comprehend without first-hand experience (p. 68). Her belief that an emotional response was key to the desire to learn about the environment led to the technique with which she wrote her first three books (Blanchard, 2000, p. 53).

Before Silent Spring

Bratton (2004) states that in order to make public education about oceanic regions more salient, Carson adopted a writing technique that involved taking the perspective of undersea creatures, such as Scomber the mackerel in *Under the Sea-Wind* (p. 7). Taking readers on a journey as a mackerel through polluted waters was meant to illustrate that the human impact on oceans is harmful and cannot be ignored (p. 14). Carson thought that humanizing the smallest of creatures and allowing people to view the world through their eyes would be an excellent way to inspire environmental awareness (p. 13).

As well as being entertaining, Carson's early literature functioned to build up her scientific credibility (Cafaro, 2011, para. 44). According to Lear (2013), Carson's second book, *The Sea Around Us*, was what first encouraged the public to recognize Carson as a trusted voice in science (p. 1). Another aspect that set Carson apart from the uneducated environmentalist advocates was her dedication to the biological field, advertised by her involvement in everything from the prevention of pollution, to the restoration of natural habitats, to the deterrence of inappropriate waste dumping (Cafaro, 2002, p. 76). One thing that she tried not to be too vocal about, in an attempt to prevent undermining the point of *Silent Spring*, was animal rights (Cafaro, 2002, p. 76). Without the foundation of her early literary works and environmental projects to build upon, Carson's most prominent literary creation would not have been so acclaimed.

Another factor that increased the impact of *Silent Spring* was that the concerns about environmental damage by chlorinated hydrocarbon compounds, most markedly dichlorodiphenyltrichloroethane (DDT) and polychlorinated biphenyls (PCBs), began back in the 1930s (Rosner & Markowitz, 2012, p. 127). The importance of DDT (adapted for use as an insecticide in 1939 after being first synthesized in the 1800s) in

Silent Spring is due to its position as the first and best illustration of how dangerous pesticides and chlorinated hydrocarbons can be (Rosner & Markowitz, 2012, p. 128).

Langston (2012) explains that DDT was originally seen as a miraculous new technology that would perform services, such as pest control, with minimal risk to humans (p. 225). During World War II, the Allies used DDT to protect soldiers from malaria and civilians from typhoid (p. 226). Against the recommendations of scientists from the American army, the public was allowed to continue marketing and using DDT after the war (p. 226). By that time, pesticides were already harming the environment to a drastic extent, causing the deaths of fish, animals, and birds, as well as contaminating soil and water (Lear, 2013, p. 2). As the use of DDT persisted regardless of its negative effects, World War II ended, the Cold War started, and Rachel Carson began working on *Silent Spring*.

Silent Spring

Being mindful that World War II had ended less than two decades before, Carson strategically paralleled the arguments in *Silent Spring* with atomic fallout to explain that continued use of unsafe chemical pesticides could lead to the ultimate termination of life on the planet (Lear, 2013, p. 1). She tried to use relatable language to make her writing accessible to everyone and to avoid a direct contrast of human and non-human interests (Cafaro, 2002, p. 59). Other coincidences that made Americans so interested in *Silent Spring* were the recent evidence that thalidomide caused birth defects, and that aminotriazole, a weed-killer, contaminated American cranberries (Allen, 2013, p. 186).

In *Silent Spring*, Carson argued that DDT and similar advancements were evidence of humans trying to control nature and all synthetic chemicals would lead to nothing but misfortune for our species (Cafaro, 2011, para. 36-41). As well as the unquestionable benefits of mankind's progress, *Silent Spring* challenged other assumptions: that the public's health was kept safe by rules put in place by regulatory bodies, that technical experts understood the consequences of their research, that technical advances always brought more benefit than harm, and that ecological change did not affect humans (Hecht, 2012, p. 150).

Lear (2013) states that Carson wanted the public to realize that businesses and scientists were not considering the long-standing effects of chemical accumulation in ecosystems (p. 2). *Silent Spring* was meant to encourage people to demand answers about environmental destruction and consequent future health concerns, as well as to suggest that the agricultural chemical industry might be allied with the government, which was granting them permission to use products that had not been researched fully (p. 2).

Carson's book also outlined her disapproval of economic gain at the expense of the earth's beauty and diversity, of humans destroying nature, and of the increasing homogenization of the natural environment (Cafaro, 2002, p. 66).

As such, Carson's book was instrumental in creating a national debate over scientific responsibility, limitations on advances in technology, and chemical pesticides (Lear, 2013, p. 1). Environmental consciousness also became a widespread concept across the globe (Lear, 2013, p. 1). Carson sidestepped the radical, economic aspect of her accusations against DDT in *Silent Spring*, although the book led to a ban on DDT production by 1972, along with the implementation of government regulations to safeguard the environment (Hecht, 2012, p. 154; Lear, 2013, p. 1).

Reacting to Rachel Carson

Ord (2009) argues that governmental policies were what most angered Carson's opponents in the chemical industry, who labelled her as being against progress of any kind (p. 7). Chicago's Velsicol Chemical Company threatened to take legal action against her publisher because of Carson's allegedly libellous statements about "Elixirs of Death" (Ord, 2009, p. 7; Travis, 2012, p. 109). A gas chromatography consultant at Shell claimed the head science coordinator of his company was angry at Carson for what he called exaggerations, and further postulated that chemists there had already begun to take notice of pesticides before Carson's book was released (Travis, 2012, p. 109).

In fact, it is imperative to recognize that the information presented within the pages of *Silent Spring* was not entirely novel. Rosner and Markowitz (2012) express that, although the understanding of the hazards of chemical contamination to the environment and the lives of humans and non-humans is often traced back to Carson's book, the investigation of chlorinated hydrocarbons began decades prior to the publication of *Silent Spring* (p. 132). Interestingly, Carson alludes to this history within the book (p. 126).

Subsequently, Travis (2012) states that Dow and Shell had devised instruments to detect and measure chlorinated hydrocarbon residues back in the 1950s, but the activities of Dow and Shell were not well-known at that time (p. 111). Even though the industry possessed the technology to take steps against chlorinated hydrocarbon contamination as far back as the 1950s, no nationwide action was taken in the U.S. until partway through the 1970s, following the debut of *Silent Spring* (p. 129). To their discredit, chemical industry supporters who rallied against Carson after *Silent Spring* was published did not seem aware that industries could have prevented the hydrocarbon contamination either (p. 111).

According to Hecht (2012) and Ord (2009), Robert White-Stevens, a biochemist and spokesman for the chemical industry, was the most public critic against Carson, primarily because of an antagonistic debate that aired on Columbia Broadcasting System (CBS) Reports (p. 151; p. 7). Following the broadcasted debate between White-Stevens and Carson in 1963, Carson's governmental opponents conceded their lack of knowledge of the consequences of chemical pesticides, and industry scientists countered that with forecasts of economic crashes without the continued use of chemicals (Lear, 2013, p. 3). Critics made DDT a symbol of the technological advancements and modernization of the world and, therefore, condemned Carson's criticisms of DDT as an attack against progress in general (Hecht, 2012, p. 151).

Congress and President John F. Kennedy took an interest in Carson's allegations in *Silent Spring*, even though scientists and big businesses began to portray Carson as an overexcited, obsessed, emotional woman who romanticized nature (Lear, 2013, p. 3). Remarkably, the FBI launched an investigation regarding communist tendencies in Carson's work, but they came up with nothing (Allen, 2013, p. 188). Not only was the FBI investigation fruitless, Carson's opponents also failed to discredit the science behind her claims (Ord, 2009, p. 7).

Even though Allen (2013) states that many facts in *Silent Spring* would now have to be revised due to recent scientific progress, Carson did convey what was known scientifically at the time in a way that the general public could understand (p. 188). Most strikingly, her book brought two U.S. presidents, Kennedy and Nixon, to see DDT as a real public issue and take action in that regard, further undermining her opponent's protestations (p. 188). Despite such evidence of *Silent Spring's* success, Carson's critics are still rallying against her today (Hecht, 2012, p. 155).

In the 21st century, there is an increased ecological conscience, so Carson's critics now focus on the power of DDT as a combatant of malaria (Hecht, 2012, p. 154). According to Allen (2013), libertarians and right-wing Republicans of today, such as Competitive Enterprise Institute with their website "Rachel was Wrong," are claiming that *Silent Spring* is at fault for the millions of annual deaths caused by malaria (p. 183). Novelist Michael Crichton proposes that the banning of DDT can be likened to Hitler's reign in the amount of fatalities that it caused (Allen, 2013, p. 183). These people, and others, suggest that Carson created a fearful generation that would not use chemicals with life-saving properties (Hecht, 2012, p. 153). Demonizing Rachel Carson now occurs primarily with free-market thinkers, not so much to promote DDT, but as an argument against environmentalism and governmental regulations on the use of chemicals (Allen, 2013, p. 183; Hecht, 2012, p. 152).

Rachel Carson's Legacy

Carson supported government regulations, such as limits on the amount of chemicals that can be released into the environment, that industry representatives wished to retaliate against. According to Leisher (2008), Carson posited that an effective government can implement regulations to maintain aspects of the environment that are beneficial to humans, while allowing progress to continue safely (p. 478). She contributed the idea that the support of governments, notably with regards to the administrative and financial details of protected areas, is invaluable in monitoring and safeguarding biodiversity effectively, especially in developing countries (p. 478). *Silent Spring* led to many countries banning DDT and to legislation such as the U.S. Clean Water Act (Cafaro, 2011, para. 1). Carson's efforts also helped to form the U.S. Environmental Protection Agency in 1970 and several international agreements that enforced the banning or restriction of some main synthetic chemicals (Langston 2012, p. 225).

Walker and Walsh (2012) state that *Silent Spring* highlighted the idea of scientific uncertainty, which had been an ongoing debate in the time period when the book was released, as an argument against the use of chemicals (p. 3). By addressing this concept, Rachel Carson invited ordinary people to ask questions and voice their concerns about science-related issues (p. 21). Realizing that scientists cannot always know the long-term effects of industrial-use chemicals laid the foundation for the modern use of the same in global warming, Gulf oil drilling, and nuclear power debates (p. 4). According to Carson, new scientific innovations should be questioned as to why, whether, and for what purpose they are put into practice (p. 19). Another issue sparked by *Silent Spring*, regarding whether humans should alter nature for our purposes or attempt to leave it unchanged, continues to be debated today as evidenced by the simultaneous development of both conservation biology and progressive biotechnology (Cafaro, 2011, para. 67).

For example, Carson put pressure on chemical, water, and waste industries to use new chemical instrumentation for trace analysis, which is still needed today, to thoroughly test chemicals that they use for dangerous properties (Travis, 2012, p. 111). Two of Carson's other insights continue to be relevant for evaluating endocrine-disrupting chemicals (EDCs) and their effect on the health of humans and the environment: that chemical residues have transgenerational effects, and that scientists are unable to isolate human considerations from those of the environment in which we live (Langston, 2012, p. 228). Following the publication of *Silent Spring*, people gained a clearer understanding of how interconnected humans are with nature and how

vulnerable that makes us to the results of our own actions (Allen, 2013, p. 187). Also, according to Langston (2012), many journalists began emphasizing the cross-generational alteration of sexual traits and gender expression that DDT had the potential to cause (p. 227). Current research has indeed shown that EDCs may alter DNA processes and promote problems with reproduction in future generations (p. 228).

Carson inspired people to take heed of her warnings and introduced the idea of using human dimensions and shared principles in the context of conservation to illuminate environmental issues and generate interest in them (Blanchard, 2000, p. 56). On the other hand, Langston (2012) clarifies that despite the attention that Carson drew internationally to the problem of pollution, chemical use has risen in the decades following her death (p. 225). Currently, the chemical industry is worth two trillion dollars a year on a global scale, creates millions of jobs, and continues to consume excessive amounts of natural resources (p. 225). Over 70, 000 distinct industrial chemicals are produced and retailed each year, and double that amount of new chemical compounds has been synthesized since 1952 (p. 225). As a result, more than a billion pounds of chemicals permeate the environment and our bodies annually, the exact danger that Carson warned us of (p. 225).

Conclusion

Rachel Carson was correct in her adamant criticism of chemical use in the chemical industry. She altered the way in which people considered humans' effect on the environment while encouraging people to take an interest in it. Nonetheless, she failed to make the difference that she envisioned, partially as a result of her earlier, more fantastical literature. Instead of establishing her scientific prowess as Lear (2013) claimed, her previous books, like *Under the Sea-Wind*, may have undermined her claims in *Silent Spring* by providing evidence of emotionalism, and paving the way for misogynist comments from her critics later on (p. 1).

Conversely, Carson's artistic outlook on nature inspired her need to take part in many environmental projects and bring awareness about the dangers of chemical contamination to innumerable people. Her work was critical in generating environmental consciousness internationally and in leading the government to take steps to regulate the chemical industry's impact on nature. In conclusion, most claims regarding Carson were unfounded and driven by anger against the imposed regulations. Rachel Carson was not a villain; she was a hero.

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