

The Silent Spring that Sparked a Thunderous Uproar: How Rachel Carson's Scientific Communication Ignited the American Environmental Movement

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“It was a spring without voices. On the morning that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh.”¹

Effective communication begins with the first line of Rachel Carson’s *Silent Spring*, arguably the most influential book of the modern American environmental movement. Published in 1962, Carson’s pivotal book was primarily responsible for inspiring a wave of environmental awareness that galvanized Americans into action by challenging their ever-increasing reliance on chemical pesticides.² This message was communicated through Carson’s extraordinary ability to combine literature and science in an understandable way, her chilling comparisons to nuclear fallout, the growing societal uneasiness during the 1960’s regarding pesticides, and the introduction of ecology into American vernacular. Carson’s communicative techniques in *Silent Spring* were so effective that the book ignited a worldwide uproar that catapulted the environment into the public consciousness and government policy, sending a powerful message which remains relevant and inspirational to this day.

¹ Rachel Carson, *Silent Spring*, (Greenwich, CT: Fawcett Publications, Inc, 1964), 14.

² Linda Lear, *Rachel Carson: Witness for Nature* (New York, NY: Henry Holt and Company, Inc., 1997); See also: William Souder, *On a Farther Shore: The Life and Legacy of Rachel Carson* (New York: Crown Publishers, 2012); Victor B. Scheffer, *The Shaping of Environmentalism in America* (University of Washington Press, 1991); Eliza Griswold, "How 'Silent Spring' Ignited the Environmental Movement," *The New York Times Magazine*, September 21, 2012, <https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html>.

Historical Background

The insect-killing capabilities of the chemical dichloro-diphenyl-trichloroethane,³ commonly known as DDT, were discovered during World War II.⁴ Inexpensive and easy to produce, the pesticide saved soldiers from deadly insect-borne diseases, and the product developed under wartime circumstances soon became a household necessity.⁵ After the war, the pesticide industry grew rapidly.⁶ DDT and other pesticides were imbued in products including soap, paint, and fabric,⁷ while clouds of pesticides were sprayed in houses, schools, and parks across the United States.⁸ By the 1960's, DDT was truly everywhere.

Although successful in addressing health issues such as the reduction of deadly disease-carrying mosquitoes, DDT and other pesticides produced a multitude of unintended consequences for the environment, wildlife, and humans.⁹ With *Silent Spring*, Rachel Carson sought to inform readers of the dangerous effects of pesticides and challenge Americans' reliance on these harmful chemicals.

³ "DDT - A Brief History and Status," United States Environmental Protection Agency, accessed December 2, 2020, <https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status>.

⁴ Kinkela, *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*.

⁵ Kinkela, *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*.

⁶ Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement* (Washington, D.C.: Island Press, 2005).

⁷ *Rachel Carson*, directed by Michelle Ferrari (2017; PBS American Experience), https://www.amazon.com/American-Experience-Rachel-Michelle-Ferrari/dp/B01MR5GK5X/ref=sr_1_3?dchild=1&keywords=rachel+carson&qid=1619709083&sr=8-3.

⁸ Linda Lear, "Rachel Carson's 'Silent Spring'." *Environmental History Review* 17, no. 2 (1993), <https://www.jstor.org/stable/3984849>.

⁹ Kinkela, *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*.

The Arrival of *Silent Spring*

Trained as a biologist,¹⁰ Rachel Carson rose to prominence in 1951 with the publication of her bestselling book *The Sea Around Us*,¹¹ which established Carson as a popular writer. In all of her books, Carson communicated biology as the study of the intricate and beautiful complexities of life, instilling in her readers a “sense of wonder,”¹² and this strategy fueled much of Carson’s success as a writer.

In *Silent Spring*, Carson’s writing style is descriptive and understandable, communicating complex scientific concepts to a wider audience with deliberate use of literary techniques. *Silent Spring* received such wide readership due in part to Carson’s ability to interweave scientific facts with figurative language, combining her love of biology and literature.¹³ She incorporates real-world examples and data to support her assertions and appeals to the reader by utilizing rhetorical questions throughout her writing. Carson also extensively uses imagery throughout *Silent Spring* to emphasize her argument. The title “Silent Spring” exemplifies Carson’s imaginative approach – the literary techniques of imagery and alliteration in those two simple words serve to highlight the deadly consequences of pesticides by illustrating a spring without birds.

A prime example of Carson’s masterful use of literary techniques is the opening chapter, “A Fable for Tomorrow.” A powerful allegory, the only fictional chapter in the book illustrates a perfect, beautiful town where “all life seemed to live in harmony with its surroundings.”¹⁴

¹⁰ Rachel Carson, "Remarks at the Acceptance of the National Book Award for Nonfiction," 1952, in *Lost Woods: The Discovered Writing of Rachel Carson*, ed. Linda Lear (Boston: Beacon Press, 1998).

¹¹ Rachel Carson, *The Sea Around Us* (New York: Oxford University Press, 1951).

¹² Lear, *Rachel Carson: Witness for Nature*.

¹³ Lear, *Rachel Carson: Witness for Nature*.

¹⁴ Carson, *Silent Spring*, 13.

Carson uses beautiful imagery to set the stage: “In autumn, oak and maple and birch set up a blaze of color that flamed and flickered across a backdrop of pines.”¹⁵ The scene shifts as Carson describes a strange white power that covers and sickens everything in sight. Plants wither, crops and animals die, and children become sick.¹⁶ Thus Carson juxtaposes the idyllic town setting with the horrible consequences of pesticides, masterfully utilizing this literary technique to set up her following scientific arguments by appealing to the reader’s emotions and personal experience.

Carson’s depiction of this mysterious white power, deposited by aerial pesticide spraying, resonated deeply with readers.¹⁷ *Silent Spring* was published in the midst of the Cold War, when Americans lived in fear of nuclear attack and the consequences of radioactive fallout.¹⁸ Carson used that fear to her advantage, knowing that the public was well aware of another white powder that could travel great distances, accumulate in humans, and cause cancer and birth defects: radioactive Strontium-90.¹⁹ This striking comparison proved to be very effective, communicating Carson’s concern about pesticides in a way that imparted the deadly consequences of America’s focus on synthetic chemicals.

Although pesticide use was ubiquitous by 1962, unease about the reliance on synthetic chemicals increased as people became more concerned about mounting evidence of insufficient testing.²⁰ In 1959, public alarm surged when pesticide residues were found in cranberries from

¹⁵ Carson, *Silent Spring*, 13.

¹⁶ Carson, *Silent Spring*, 13.

¹⁷ Paul Brooks, *Rachel Carson: The Writer at Work* (Sierra Club Books, 1998).

¹⁸ Ralph H. Lutts, "Chemical Fallout: Rachel Carson’s *Silent Spring*, Radioactive Fallout, and the Environmental Movement," *Environmental Review: ER* 9, no. 3 (Autumn, 1985), <https://www.jstor.org/stable/3984231>.

¹⁹ Lutts, "Chemical Fallout: Rachel Carson’s *Silent Spring*, Radioactive Fallout, and the Environmental Movement."

²⁰ Lear, *Rachel Carson: Witness for Nature*, 305 - 362.

the Northwest.²¹ Around this same time, massive government eradication efforts sprayed pesticides on more than 20 million acres in the South yet failed to control destructive fire ant colonies.²²

Against this backdrop, readers of *Silent Spring* were ready to believe Carson's terrifying assertion that pesticides and herbicides were pervading every aspect of daily life. The cranberry scare proved that Americans were not aware of contaminants in their food, while the fire ant debacle demonstrated that pesticide campaigns could be costly and ineffective.²³ Carson's book thus affirmed Americans' worst fears that they were being "poisoned" without their knowledge, and this atmosphere contributed to the persuasiveness of *Silent Spring*.

Additionally, Rachel Carson introduced a new term into public vernacular: "ecology,"²⁴ a concept relatively unknown outside the scientific community.²⁵ In *Silent Spring*, Carson describes how DDT from aerial spraying sinks into the soil, remaining for years, where organisms such as earthworms absorb the toxic chemical into their bodies. When these soil organisms are eaten, the DDT is passed to predators, bioaccumulating to toxic levels for animals higher on the food chain - including humans.²⁶ This ecological theme is reiterated throughout *Silent Spring*:

We spray our elms and the following springs are silent of robin song, not because we sprayed the robins directly but because the poison travelled, step by step, through the now

²¹ "The Great Cranberry Scare of 1959," The New Yorker, 2015, accessed December 4, 2020, <https://www.newyorker.com/tech/annals-of-technology/the-great-cranberry-scare>.

²² Pete Daniel, "A Rogue Bureaucracy: The USDA Fire Ant Campaign of the Late 1950's," *Agricultural History* 64, no. 2 (1990), <http://www.jstor.org/stable/3743800>.

²³ Lear, *Rachel Carson: Witness for Nature*.

²⁴ LaMont C. Cole, "The Impending Emergence of Ecological Thought," *BioScience* 14 (1964), <http://shipseducation.net/pesticides/library/cole1964a.pdf>.

²⁵ Yaakov Garb, "Change and Continuity in Environmental World-View: The Politics of Nature in Rachel Carson's *Silent Spring*," in *Minding Nature: The Philosophers of Ecology*, ed. David Macauley (New York: The Guilford Press, 1996).

²⁶ Carson, *Silent Spring*, 101 - 102.

familiar elm leaf-earthworm-robin cycle. These matters... reflect the web of life - or death - that scientists know as ecology.²⁷

This depiction of the interconnection and interdependence of living organisms communicated to the public the essential notion that the welfare of every American indirectly depended on protection of the environment.²⁸ By imparting this idea to her readers, Carson held the public accountable for their actions, thus making environmentalism relevant to all Americans.

Many effects of DDT in wildlife and humans didn't manifest themselves immediately, but after months or years of pesticide accumulation. With compelling imagery, Carson explains how pesticide residues in raptors cause eggshells to soften and break in the nest, eliminating the next generation.²⁹ In humans, cancer, genetic mutations, and other negative reactions develop over years, which helped foster the misconception that DDT was harmless.³⁰ The effects of pesticides on wildlife and human health were substantial, and Rachel Carson used her literary skills in *Silent Spring* to communicate that the definition of pesticide toxicity included the slow accumulation of pesticides over time.

It's possible that if Rachel Carson had written *Silent Spring* from a more biocentric worldview that challenged the existing political structures of the United States, she wouldn't have received as much attention as she did by presenting her argument in relation to human health.³¹ Just months before *Silent Spring* was published, the book *Our Synthetic Environment*

²⁷ Carson, *Silent Spring*, 169.

²⁸ Garb, "Change and Continuity in Environmental World-View: The Politics of Nature in Rachel Carson's *Silent Spring*."

²⁹ Carson, *Silent Spring*, 100 – 105.

³⁰ Linda Lear, "Rachel Carson's 'Silent Spring'." *Environmental History Review* 17, no. 2 (1993), <https://www.jstor.org/stable/3984849>.

³¹ Garb, "Change and Continuity in Environmental World-View: The Politics of Nature in Rachel Carson's *Silent Spring*."

was published. The author, Murray Bookchin, makes the same argument as Carson,³² but his communication strategies are much less nuanced – the book fails to make use of the persuasive literary techniques that Carson so artfully utilized. Furthermore, Bookchin harshly attacked American social and political norms at the time by claiming that the “assault from pesticides was inevitable in the modern industrial capitalist society.”³³ In contrast, while Carson’s communication strategy in *Silent Spring* certainly awakened and shocked Americans to the dangers of pesticides, the book’s relative moderation fostered widespread readership and acceptance.³⁴

The Reception of *Silent Spring* and the Beginning of a Worldwide Controversy

Silent Spring was an instant bestseller.³⁵ The book that warned of a silent spring sparked a storm of noise, creating a controversy with far-reaching impacts. Americans were awakened to the dangers of the chemicals that they applied on their lawns and sprayed in their homes, learning that these pesticides had dangerous consequences for humans.³⁶ Biographer Linda Lear writes that Carson produced a “revolutionary book in terms that were acceptable to a middle class emerging from the lethargy of postwar affluence and woke them to their neglected responsibilities.”³⁷

³² Murray Bookchin, *Our Synthetic Environment* (New York: Knopf, 1962).

³³ Garb, "Change and Continuity in Environmental World-View: The Politics of Nature in Rachel Carson’s *Silent Spring*."

³⁴ Michelle Mart, "Rhetoric and Response: The Cultural Impact of Rachel Carson’s *Silent Spring*," *Left History* 14, no. 2 (2010), <https://lh.journals.yorku.ca/index.php/lh/article/view/35786>.

³⁵ Lear, *Rachel Carson: Witness for Nature*, 411 - 418.

³⁶ Carson, *Silent Spring*.

³⁷ Lear, *Rachel Carson: Witness for Nature*, 4.

As the American public absorbed Carson's startling message, a controversy was raging between the pesticide industry and those who agreed with Carson's indictment. Hundreds of newspapers, magazines, and scholarly journals debated *Silent Spring*, offering either exultant praise for Carson's stance against the industry or scathingly insulting the book and its writer.³⁸ One *New York Times* book review wrote that "it is high time for people to know about these rapid changes in their environment, and to take an effective part in the battle that may shape the future of all life on earth."³⁹ Another reviewer in the journal *Pacific Discovery* wrote that *Silent Spring* was a "biological warning, social commentary, and moral reminder"⁴⁰ – an opportunity for Americans to examine the path on which they had set themselves.

The chemical industry retaliated. Alarmed by the public outcry over pesticides and chemicals, the industry attacked Carson by questioning her status as a biologist, the fact that she was a woman, and her scientific credibility.⁴¹ Many critics condemned Carson for the fact that she did not have either a doctorate degree or a professional research and teaching position.⁴² Attacks on Carson's gender were also common, with opponents arguing that Carson was an overly sensitive nature lover who had no business condemning the chemical industry.⁴³ Using gendered language to condemn Carson's scientific ability, the critic Edwin Diamond wrote that

³⁸ William Souder, *On a Farther Shore: The Life and Legacy of Rachel Carson* (New York: Crown Publishers, 2012).

³⁹ Lorus Milne and Margery Milne, "There's Poison All Around Us Now," *The New York Times Book Review*, September 23, 1962.

⁴⁰ Robert L Rudd, "The Chemical Countryside: A Review of Rachel Carson's 'Silent Spring'," *Pacific Discovery*, November 1962, <http://shipseducation.net/pesticides/library/rudd1962.pdf>.

⁴¹ Lear, *Rachel Carson: Witness for Nature*, 429 - 430.

⁴² Linda Lear, "Rachel Carson's 'Silent Spring'." *Environmental History Review* 17, no. 2 (1993), <https://www.jstor.org/stable/3984849>.

⁴³ Michael B. Smith, "'Silence, Miss Carson!' Science, Gender, and the Reception of 'Silent Spring'," *Feminist Studies* 27, no. 3 (2001), <https://www.jstor.org/stable/3178817>.

Carson was “emotional” and “alarmist,” arguing that the whole controversy was due to a woman’s overreaction.⁴⁴

Finally, the very communicative techniques which appealed to Carson’s public popularity fueled condemnations of the book. Many critics, some of whom were well respected scientists, argued that Carson’s literary style negated her scientific credibility.⁴⁵ These critics pointed specifically to the first fictional chapter to disqualify the facts in the rest of the book. A widely circulated parody published by the chemical industry, entitled “The Desolate Year,” satirized Carson’s writing style by describing, in mocking, overly descriptive language, the widespread death and disease that would result in a fictional world *without* the use of pesticides.⁴⁶ The arguments of Carson’s opponents present powerful evidence of the impact that *Silent Spring* had on Americans - many people did not agree with Carson’s indictment, but her book undoubtedly fueled worldwide public controversy and debate.

The Impact of *Silent Spring* on Americans, Government Policy, and the Environmental Movement

The public outrage ignited by *Silent Spring* caused many changes in environmental policy in the years following its publication, bringing the environment into the mainstream political agenda for the first time.⁴⁷ Early in 1963, President John F. Kennedy’s Scientific Advisory Committee released a report on pesticide use, acknowledging the lack of research on chemical

⁴⁴ Edwin Diamond, "The Myth of the “Pesticide Menace”, " *Saturday Evening Post*, September 28, 1963, <https://www.saturdayeveningpost.com/reprints/the-myth-of-the-pesticide-menace/>.

⁴⁵ Lear, *Rachel Carson: Witness for Nature*, 432.

⁴⁶ "The Desolate Year," *Monsanto Magazine*, October 1962, <http://shipseducation.net/pesticides/library/monsanto1962.pdf>.

⁴⁷ Linda Lear, "Rachel Carson’s “Silent Spring”." *Environmental History Review* 17, no. 2 (1993), <https://www.jstor.org/stable/3984849>.

pesticides and recommending further inquiry and research into the issue.⁴⁸ Soon afterwards, fueled by public outrage over the limited evidence of the hazards of pesticides, a Senate committee held hearings to examine the possible dangers of pesticides. Invited to testify on May 15, 1963, Rachel Carson presented a clear and concise case summarizing the dangerous effects of pesticides and describing the urgent need for regulation and further research.⁴⁹

Translated into more than 30 languages, *Silent Spring* sparked worldwide environmental movements,⁵⁰ the creation of legislation, and the founding of regulatory agencies in many countries.⁵¹ Responding to *Silent Spring*, public uproar in Sweden prompted quick and wide-ranging government actions, an example which was followed by England, France, Germany, the Netherlands, and many other countries.⁵²

Silent Spring transformed the way Americans perceived their relationship to the environment and awakened them to the dangers of pesticides. By 1970 in the United States, the growing public interest in environmental protection produced, as Victor Scheffer writes, “the most important body of conservation law ever created,”⁵³ including the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ), and the Environmental Protection Agency (EPA). The EPA, specifically, directly attributes its origin to

⁴⁸ *The Uses of Pesticides: A Report of the President's Scientific Advisory Committee*, The White House (Washington, D.C.: Government Printing Office, May 15, 1963), <https://timpanogos.blog/2012/12/10/use-of-pesticides-report-of-the-presidents-science-advisory-committee-may-15-1963/>.

⁴⁹ Subcommittee on Reorganization and International Organizations of the Committee on Government Operations, *Interagency Coordination in Environmental Hazards*, 88th Congress U.S. Senate 206 - 46 (1963).

⁵⁰ “‘Silent Spring’ Turns Fifty,” Voice of America, 2012, accessed January 8, 2021, <https://www.voanews.com/usa/silent-spring-turns-fifty#:~:text=More%20than%20six%20million%20copies,now%20a%20National%20Historic%20Landmark>.

⁵¹ Stoll, “Rachel Carson’s *Silent Spring*, a Book That Changed the World.”

⁵² Stoll, “Rachel Carson’s *Silent Spring*, a Book That Changed the World.”

⁵³ Scheffer, *The Shaping of Environmentalism in America*.

the influence of Rachel Carson.⁵⁴ True to this legacy, in 1972 one of the EPA's earliest actions was to ban the domestic use of DDT in the United States.⁵⁵ Furthermore, in 1976, the Toxic Substances Control Act was passed, which authorized the EPA to ban or severely restrict all six chemical compounds discussed in *Silent Spring*.⁵⁶

Despite *Silent Spring*'s persuasive depiction of the hazards of pesticides, the book had a limited influence on pesticide and chemical sales.⁵⁷ In the U.S., the use of pesticides similar to DDT doubled in the two decades following the publication of *Silent Spring*,⁵⁸ with more than 2 billion pounds applied annually in the United States by the late 1980's.⁵⁹ When DDT was banned in 1971, chemical companies pivoted to aggressively market the pesticide overseas.⁶⁰ The use of DDT in foreign countries remains a common practice and contested issue to this day.⁶¹

Conclusion

Rachel Carson's effective communication transformed public opinion of the relationship between humans and the environment. Her strategic techniques included clear comparisons of pesticides and nuclear fallout, astutely tapping into the public's rising uneasiness with chemicals,

⁵⁴ "The Origins of EPA," Environmental Protection Agency, accessed December 17, 2020, <https://www.epa.gov/history/origins-epa>.

⁵⁵ Kinkela, *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*.

⁵⁶ Stoll, "Rachel Carson's *Silent Spring*, a Book That Changed the World."

⁵⁷ Philip M Boffey, "20 Years After 'Silent Spring': Still a Troubled Landscape," *Science Times, The New York Times* (New York, NY), Tuesday, May 25, 1982, <https://timesmachine.nytimes.com/timesmachine/1982/05/25/issue.html>.

⁵⁸ Michelle Mart, "Rhetoric and Response: The Cultural Impact of Rachel Carson's *Silent Spring*," *Left History* 14, no. 2 (2010), <https://lh.journals.yorku.ca/index.php/lh/article/view/35786>.

⁵⁹ Philip Shabecoff, "'Silent Spring' Led to Safer Pesticides, but Use is Up," *The New York Times*, April 21, 1986, <https://timesmachine.nytimes.com/timesmachine/1986/04/21/035886.html?pageNumber=14>.

⁶⁰ Kinkela, *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*

⁶¹ Tina Rosenberg, "What the World Needs Now is DDT," *The New York Times Magazine*, April 11, 2004, <https://www.nytimes.com/2004/04/11/magazine/what-the-world-needs-now-is-ddt.html>.

while also introducing the concept of ecology and the interconnectedness of natural systems. Most notably, Carson had the ability to communicate complex scientific topics with lyrical literary skill. Carson successfully brought the environment to the U.S. political agenda and impacted the passage of legislation that shaped environmental protection. Rachel Carson is remembered as the woman who ignited the environmental movement and galvanized action against the pesticides industry. As former Vice President Al Gore put it,

“*Silent Spring* came as a cry in the wilderness, a deeply felt, thoroughly researched, and brilliantly written argument that changed the course of history. Without this book, the environmental movement might have been long delayed or never have developed at all.”⁶²

In the last chapter of *Silent Spring*, Carson presents the reader with a choice. Reminiscent of Robert Frost’s classic poem, “The Road Not Taken,”⁶³ Carson writes, “We stand now where two roads diverge.”⁶⁴ Just as readers in 1962 had a choice, the final message of *Silent Spring* resounds through history, where that choice is still as relevant in modern times as it was almost sixty years ago. Today society faces the multifaceted challenges of global climate change, and effective scientific communication is more crucial than ever in addressing this enormous issue. Communication of scientific data and information is key to fostering a citizenry empowered to make informed decisions that will impact personal behavior and government policy. The lessons of *Silent Spring* and Carson’s skill with scientific communication can inform the ways in which we address environmental issues moving forward.

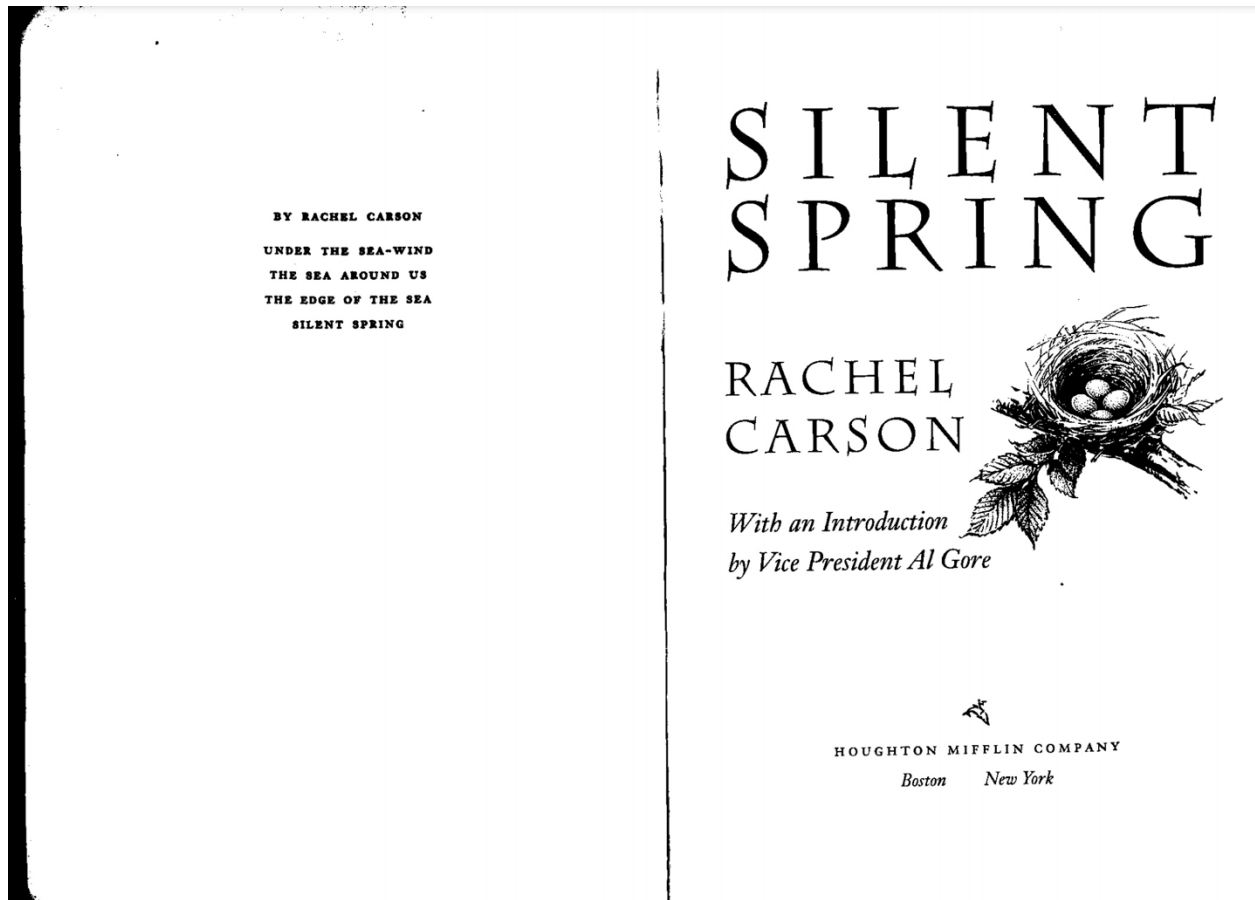
⁶² "Introduction by Vice President Al Gore," Clinton White House, accessed December 9, 2020, <https://clintonwhitehouse2.archives.gov/WH/EOP/OVP/24hours/carson.html>.

⁶³ Robert Frost, “The Road Not Taken,” Poetry Foundation. <https://www.poetryfoundation.org/poems/44272/the-road-not-taken>.

⁶⁴ Carson, *Silent Spring*, 244.

Appendix:

***Note:** I utilized a large number of primary source documents to form the basis of my research (see bibliography), but the main primary source document I focused on in my paper is undoubtedly Rachel Carson's four hundred page book *Silent Spring*. I've opted to attach just the first chapter of the book in this appendix, since "A Fable for Tomorrow" is the most frequently referenced chapter throughout my paper.



To Albert Schweitzer
who said

"Man has lost the capacity to foresee
and to forestall. He will end by
destroying the earth."

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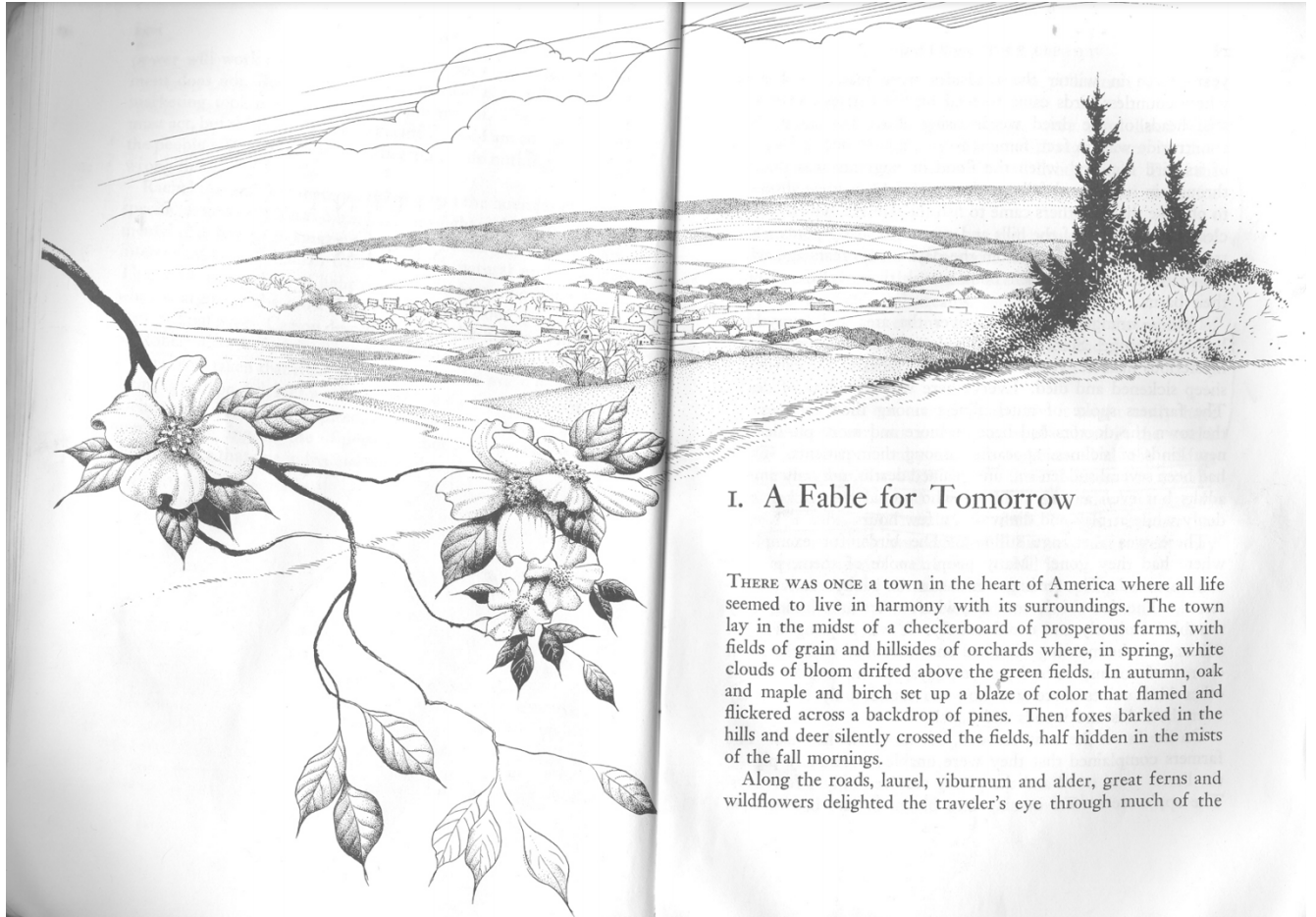
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I. A Fable for Tomorrow

THERE WAS ONCE a town in the heart of America where all life seemed to live in harmony with its surroundings. The town lay in the midst of a checkerboard of prosperous farms, with fields of grain and hillsides of orchards where, in spring, white clouds of bloom drifted above the green fields. In autumn, oak and maple and birch set up a blaze of color that flamed and flickered across a backdrop of pines. Then foxes barked in the hills and deer silently crossed the fields, half hidden in the mists of the fall mornings.

Along the roads, laurel, viburnum and alder, great ferns and wildflowers delighted the traveler's eye through much of the

year. Even in winter the roadsides were places of beauty, where countless birds came to feed on the berries and on the seed heads of the dried weeds rising above the snow. The countryside was, in fact, famous for the abundance and variety of its bird life, and when the flood of migrants was pouring through in spring and fall people traveled from great distances to observe them. Others came to fish the streams, which flowed clear and cold out of the hills and contained shady pools where trout lay. So it had been from the days many years ago when the first settlers raised their houses, sank their wells, and built their barns.

Then a strange blight crept over the area and everything began to change. Some evil spell had settled on the community: mysterious maladies swept the flocks of chickens; the cattle and sheep sickened and died. Everywhere was a shadow of death. The farmers spoke of much illness among their families. In the town the doctors had become more and more puzzled by new kinds of sickness appearing among their patients. There had been several sudden and unexplained deaths, not only among adults but even among children, who would be stricken suddenly while at play and die within a few hours.

There was a strange stillness. The birds, for example — where had they gone? Many people spoke of them, puzzled and disturbed. The feeding stations in the backyards were deserted. The few birds seen anywhere were moribund; they trembled violently and could not fly. It was a spring without voices. On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh.

On the farms the hens brooded, but no chicks hatched. The farmers complained that they were unable to raise any pigs — the litters were small and the young survived only a few days. The apple trees were coming into bloom but no bees droned

among the blossoms, so there was no pollination and there would be no fruit.

The roadsides, once so attractive, were now lined with browned and withered vegetation as though swept by fire. These, too, were silent, deserted by all living things. Even the streams were now lifeless. Anglers no longer visited them, for all the fish had died.

In the gutters under the eaves and between the shingles of the roofs, a white granular powder still showed a few patches; some weeks before it had fallen like snow upon the roofs and the lawns, the fields and streams.

No witchcraft, no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves.

This town does not actually exist, but it might easily have a thousand counterparts in America or elsewhere in the world. I know of no community that has experienced all the misfortunes I describe. Yet every one of these disasters has actually happened somewhere, and many real communities have already suffered a substantial number of them. A grim specter has crept upon us almost unnoticed, and this imagined tragedy may easily become a stark reality we all shall know.

What has already silenced the voices of spring in countless towns in America? This book is an attempt to explain.

Annotated Bibliography

Primary Sources:

Bookchin, Murray. *Our Synthetic Environment*. New York: Knopf, 1962.

In this book, published just months before *Silent Spring*, Bookchin focused on the very same issues and arguments as Rachel Carson, yet failed to receive the same sort of recognition or readership. I used this source in my paper to highlight the difference between the communicative techniques of Carson and Bookchin despite their nearly identical subject matter, and to demonstrate how the success of *Silent Spring* can be attributed in large part to Carson's deliberate communicative choices.

Carson, Rachel. *The Edge of the Sea*. Boston: Houghton Mifflin Company, 1955.

The Edge of the Sea is Rachel Carson's third book and second bestseller. Like her other books, this is a beautiful example of the power of Carson's writing and her ability to communicate so effectively with the American public about biology. The lyrical and understandable style demonstrated in this book is evident throughout *Silent Spring*, where Carson took a relatively unknown issue and brought it to the center of public attention using these same communicative techniques.

———. "The Real World Around Us," 1954. In *Lost Woods: The Discovered Writing of Rachel Carson*, edited by Linda Lear, 147-63. Boston: Beacon Press, 1998.

In this speech, Carson talks about how she came to love both biology and literature, and then goes on to discuss her belief in the importance of communicating science with the general public. This source was helpful because it gave me insight into Carson's passion for scientific communication in her own words.

———. "Remarks at the Acceptance of the National Book Award for Nonfiction," 1952. In *Lost Woods: The Discovered Writing of Rachel Carson*, edited by Linda Lear, 90-92. Boston: Beacon Press, 1998.

In this speech, Carson focuses on the fact that many readers were surprised by her skillful blending of science and literature, responding that "the notion that 'science' is something that belongs in a separate compartment of its own, apart from everyday life, is one that I should like to challenge." Since Carson's ability to communicate with the public in *Silent Spring* was due partly to her skillful blending of science and literature, this was an important primary source for me.

———. *The Sea Around Us*. New York: Oxford University Press, 1951.

The Sea Around Us was an instant bestseller and the first book that made Rachel Carson a household name. Carson's lyrical language beautifully illustrates the life of the sea and foreshadows one of her themes in *Silent Spring* - the ecology and interconnectedness of wildlife and humans. I used this source to demonstrate Carson's fame prior to *Silent Spring* and to show that the same themes are present throughout all of her works.

———. *Silent Spring*. Greenwich, CT: Fawcett Publications, Inc, 1964.

In *Silent Spring*, Rachel Carson masterfully employs detailed, descriptive imagery and uses examples of the dangers of pesticides to warn Americans of their blind reliance on chemical pesticides. Carson communicated with the public so effectively in *Silent Spring* through her skill with writing, her chilling comparisons to nuclear fallout, and her introduction of the term "ecology" into mainstream American consciousness. As the very foundation of my topic, this source was extremely pivotal for my research as a whole and provided multiple quotes I included in my paper.

———. "Women's National Press Club Speech," 1962. In *Lost Woods: The Discovered Writing of Rachel Carson*, edited by Linda Lear, 201-10. Boston: Beacon Press, 1998.

This speech consists of a repudiation of the chemical industry and their supporters who harshly criticized *Silent Spring*. Additionally, Carson specifically questions the lack of "communication of scientific knowledge to the public," asking her audience to consider

the failure of the pesticides industry to share information about the negative effects of pesticides. This source gave me a sense of how Carson responded to critics, as well as her ideas on scientific communication.

Cole, LaMont C. "The Impending Emergence of Ecological Thought." *BioScience* 14 (1964): 30-32. <http://shipseducation.net/pesticides/library/cole1964a.pdf>.

This article highlights the concept of ecology, a very important idea that Rachel Carson brought to public attention with *Silent Spring*. In this article, Cole talks about DDT and its disruption of ecological balance. In fact, this article discusses how the Ecological Society of America created a Committee on Public Affairs, demonstrating the broad reach of every aspect of *Silent Spring*'s communicative techniques, not only her main argument against pesticides.

Cottom, Clarence, and Elmer Higgins. "DDT and Its Effect on Fish and Wildlife." *Journal of Economic Entomology* 39, no. 1 (February 1 1946), <https://academic.oup.com/jee/article-abstract/39/1/44/2203569>.

This article demonstrates that as early as 1946, biologists at the Fish and Wildlife Service (FWS) were aware of the ill effects of DDT and concerned about how the information had not been communicated with the general public. This is a very good example of scientific writing that didn't have a wide impact due to its lack of readership, and I used this source to highlight the significance of *Silent Spring* for its ability to communicate with many people.

"The Desolate Year." *Monsanto Magazine*, October 1962.

<http://shipseducation.net/pesticides/library/monsanto1962.pdf>.

In this widely circulated parody of *Silent Spring*, "The Desolate Year," the chemical industry provides a mocking alternative to Carson's persuasive imagery, describing a world without pesticides in which mosquitoes, ticks, and scores of other insects destroyed crops, animals, and humans in a world ruled by disease and decay. This source illustrates how far the pesticide industry was willing to go in their wish to refute Carson's argument, and I used it to demonstrate the powerful negative response to *Silent Spring*.

Diamond, Edwin. "The Myth of the "Pesticide Menace"." *Saturday Evening Post*, September 28, 1963. <https://www.saturdayeveningpost.com/reprints/the-myth-of-the-pesticide-menace/>.

This article provides an example of an anti-Carson point of view. The author, Edwin Diamond, calls *Silent Spring* "emotional" and "alarmist," and his criticism is all the more surprising given the fact that Diamond was briefly Carson's collaborator and research assistant on *Silent Spring*. I used quotes from this article in my paper to illustrate the gendered language that was often used against Carson in attempts to disqualify her argument.

"Fallout: When and How to Protect Yourself against It." 15 minutes, 1955, accessed January 7, 2021, https://www.youtube.com/watch?v=saLwgBKJT7o&feature=emb_logo.

The purpose of this short informational broadcast was to educate the public on the dangers of fallout and how people could protect themselves from radiation. This was a very prevalent issue at the time, and I used this source in my paper to demonstrate the terrifying comparison Carson created in *Silent Spring* between pesticides and fallout.

George, John L., Philip A. Butler, Oliver B. Cope, D. Glen Crabtree, James B. DeWitt, William H Sticel, Paul F. Springer. *Pesticide-Wildlife Studies: A Review of Fish and Wildlife Service Investigations During 1961 and 1962*. U.S. Department of the Interior, (Washington, D.C.: U.S. Fish and Wildlife Service, 1963).
<https://spo.nmfs.noaa.gov/sites/default/files/legacy-pdfs/CIRC167.pdf>.

This FWS Circular describes the results of a study conducted in 1961-62 on the effects of DDT on wildlife and fisheries. Published slightly after *Silent Spring*, this concludes that the effects (and consequential dangers) of various pesticides on wildlife was high. This publication is an example of a report that contained important data but lacked communication techniques, which I used to further emphasize the significance of *Silent Spring*'s impact and influence.

Linduska, Joseph P., and Eugene W. Surber. *Effects of DDT and Other Insecticides on Fish and Wildlife, Summary of Investigations During 1947*. United States Department of the Interior: Fish and Wildlife Service, (Washington, D.C.: 1947).

<https://spo.nmfs.noaa.gov/sites/default/files/legacy-pdfs/CIRC15.pdf>.

This is an early FWS Report on the hazardous effects of DDT on fish and wildlife, and like the reference above, it is an excellent example of a scientific report that contained important data but was unsuccessful in communicating with the public. I used this source to reinforce my argument that the scientific community was aware of the dangerous effects of pesticides by the late 1940s, and yet that information was not communicated with the public effectively until *Silent Spring*.

Milne, Lorus, and Margery Milne. "There's Poison All around Us Now." *The New York Times Book Review*, September 23, 1962.

As the title of this review so aptly conveys, *Silent Spring* brought the terrifying and dangerous realities of everyday pesticide use to the attention of the American public. In a glowing yet sobering review of *Silent Spring*, the authors conclude that Rachel Carson galvanized Americans to face the growing dangers of chemical pesticides and to stand up for the environment. I included a quote from this source in my paper as an example of one of the many positive reviews that *Silent Spring* inspired.

"Our Next World War - Against Insects." *Popular Mechanics*, April 1944, 66 - 70.

<https://books.google.com/books?id=Jd8DAAAAMBAJ&pg=PA3&lpg=PA3&dq>.

This magazine article demonstrates that as early as 1944, the American public began to wage a "war against insects." This article describes a number of promising ways that pesticides were fighting insects and provided me with a good example of the foundations of domestic reliance on chemical pesticides.

Pfeiffer, E.W. "Radioactive Fallout, the Effects of Nuclear War, and Civil Defense." *The People's Voice* (Helena, MT), April 28, 1961.

<https://chroniclingamerica.loc.gov/lccn/sn86075189/1961-04-28/ed-1/seq-2/#date1=1940&index=9&rows=20&words=fallout+Fallout&searchType=basic&sequen>

[ce=0&state=&date2=1963&proxtext=fallout&y=12&x=9&dateFilterType=yearRange&page=1.](#)

This newspaper article reports on the effects and dangers of radioactive fallout and is just one example of hundreds of similar articles published during the height of the Cold War. This article also noted the effects of fallout on natural resources, which provides a great comparison to the arguments Carson makes in *Silent Spring* about the very similar effects of pesticides on the environment. I included this in my paper to demonstrate the widespread fear of fallout that pervaded the United States during this era, a fear Carson used as a persuasive comparison in *Silent Spring*.

Rudd, Robert L. "The Chemical Countryside: A Review of Rachel Carson's 'Silent Spring'." *Pacific Discovery*, November 1962, 10-11.

<http://shipseducation.net/pesticides/library/rudd1962.pdf>

This review of *Silent Spring* is a favorable one, briefly summarizing the dangers of pesticides Carson covered in her book and coming to the conclusion that Carson's pivotal work is a "biological warning, social commentary, and moral reminder." I included this quote in my paper as an example of a favorable perspective in the growing controversy over Carson's message in *Silent Spring*.

U.S. Congress. Senate. Subcommittee on Reorganization and International Organizations of the Committee on Government Operations. *Interagency Coordination in Environmental Hazards*. S. Res. 27, 88th Cong., 206 - 46, June 4, 1963.

Known as the Ribicoff Hearing, this subcommittee investigation represents the height of Rachel Carson's communication as it impacted government policy. This source is Carson's testimony that the poisonous pesticides in widespread use were extremely dangerous to Americans, the environment, and wildlife. I used this transcript to demonstrate the entrance of the environment into government policy that occurred as a result of *Silent Spring*.

The Uses of Pesticides: A Report of the President's Scientific Advisory Committee. The White House (Washington, D.C.: Government Printing Office, May 15, 1963).

<https://timpanogos.blog/2012/12/10/use-of-pesticides-report-of-the-presidents-science-advisory-committee-may-15-1963/>.

This report was released shortly after the publication of *Silent Spring*, covering the benefits and disadvantages of pesticides on humans and the environment, as well as recommendations for further research, regulation, and education. The publication of this government report is largely attributed to the influence of *Silent Spring*, which brought the pesticide problem to public attention. I used this source to further show the impact Carson had on both public opinion and government action.

Secondary Sources:

Boffey, Philip M. "20 Years after 'Silent Spring': Still a Troubled Landscape." *Science Times*, *The New York Times* (New York, NY), Tuesday, May 25, 1982, 41, 47.

<https://timesmachine.nytimes.com/timesmachine/1982/05/25/issue.html>.

This newspaper article gave me a perspective of the impacts of *Silent Spring* two decades after its publication. This source summarized the decrease in pesticide residues in Americans, while throwing into sharp contrast the increase of pesticide sales and overall use in the U.S. While this article acknowledged Carson's pivotal role in starting the environmental movement, it discussed the book's general failure to impact overall public pesticide use, and this was key information that I included in my paper.

Brooks, Paul. *Rachel Carson: The Writer at Work*. Sierra Club Books, 1998.

This book about Rachel Carson was written by her editor, Paul Brooks, providing me information about Carson's writing style and *Silent Spring* from the point of view of someone who was well acquainted with her writing. Brooks discusses the ways in which Carson communicated her love of science and literature in each of her books and includes excerpts from her books and speeches.

Daniel, Pete. "A Rogue Bureaucracy: The USDA Fire Ant Campaign of the Late 1950's."

Agricultural History 64, no. 2 (1990): 99-114. <http://www.jstor.org/stable/3743800>.

This article describes the United States Department of Agriculture's campaign to use pesticides to eradicate invasive fire ants, which were destroying crops and livestock throughout the southern U.S. This campaign ultimately failed, and became a significant event that increased public awareness that pesticides were not the infallible remedy to pests promoted by the chemical industry, as I noted in my paper.

"DDT - A Brief History and Status." United States Environmental Protection Agency, accessed December 2, 2020, <https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status>.

This website from the EPA provided a good overview of DDT and its chemical properties, as well as a short account of its history and use before the pesticide was banned in 1972. This article also discusses the current status of DDT in the United States and around the world, which was helpful background information for my paper.

Ferrari, Michelle. "Rachel Carson." In *American Experience*, 1 h 53 min, 2017, accessed November 2, 2020, https://www.amazon.com/American-Experience-Rachel-Michelle-Ferrari/dp/B01N7RO8QA/ref=sr_1_1?dchild=1&keywords=american+experience+rachel+carson&qid=1612806833&sr=8-1.

This documentary summarized the life, achievements, and legacy of Rachel Carson in an educational and understandable way. A good basis for my research, this source also included portions of Carson's appearance on the 1963 CBS Reports broadcast on *Silent Spring*. It was extremely helpful to see clips of Carson laying out her arguments for the public in a calm and intelligent way - highlighting her ability to effectively communicate her message with the public through speech as well as writing.

Garb, Yaakov. "Change and Continuity in Environmental World-View: The Politics of Nature in Rachel Carson's *Silent Spring*." In *Minding Nature: The Philosophers of Ecology*, edited by David Macauley. New York: The Guilford Press, 1996.

This was an excellent article that examined the effectiveness of Rachel Carson's literary techniques in *Silent Spring* and explained why she was ideally suited to present a case against pesticide use. This source's discussion on Carson's emphasis on ecological connections and her intentional avoidance of a harsh biocentric point of view was pivotal for my exploration of Carson's communicative techniques in *Silent Spring*.

"Introduction by Vice President Al Gore." Clinton White House, accessed December 9, 2020, <https://clintonwhitehouse2.archives.gov/WH/EOP/OVP/24hours/carson.html>.

In this web page, Al Gore discusses the impact of *Silent Spring*, on the United States, on politics, and on him personally. In addition, he presents the problems still faced by the United States in terms of the environment, pollution, and pesticides. I used a quote from this source in my paper to illustrate the impact and reach of Rachel Carson on the political landscape.

Gottlieb, Robert. *Forcing the Spring: The Transformation of the American Environmental Movement*. Washington, D.C.: Island Press, 2005.

This book described the environmental movement in the United States, from the early 20th century to modern day, and attributes a large part of the birth of the environmental movement in the 1960's to Rachel Carson and her enormous influence. This source was very helpful to my research because it catalogued the many impacts of *Silent Spring*, including the public and government reaction to the book, which was pivotal information I used in my paper.

Griswold, Eliza. "How 'Silent Spring' Ignited the Environmental Movement." *The New York Times Magazine*, September 21, 2012, accessed November 13, 2020, <https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html>.

This article summarized Carson's personal and professional life, the publication of *Silent Spring*, the controversy over her book, and the lasting implications that it has had. Written on the 50th anniversary of *Silent Spring*'s publication, this article provided an excellent overview of this topic and Carson's role in communicating the pesticide problem to the public.

Kinkela, David. *DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World*. Chapel Hill: The University of North Carolina Press, 2011.

This book provided an in-depth look at the broad history of DDT and the controversies over its use as a pesticide. Specifically, this book looked at the *Silent Spring* controversy through the lens of DDT use both before and after the publication of the book, as well as the environmental policies that arose out of *Silent Spring*'s publication. This was a key resource for me in providing historical background for my paper.

Lear, Linda. *Rachel Carson: Witness for Nature*. New York, NY: Henry Holt and Company, Inc., 1997.

This book was the main biography on Rachel Carson I used for my research. This definitive work delves into Carson's life and her relationships with those around her with remarkable clarity and detail, describing her personal life as well as her professional life. Lear writes about the publication of all of Carson's books, as well as the controversy over *Silent Spring*, and this book was my go-to source for information on Rachel Carson.

———. "Rachel Carson's 'Silent Spring'." *Environmental History Review* 17, no. 2 (1993): 23-48. <https://www.jstor.org/stable/3984849>.

This article focused on Carson's impact and the public reception to *Silent Spring*, particularly in the years after Carson's death, which is not covered in the biography by the same author. Lear covers the intentional communicative techniques used by Carson to assure wide readership of her book and included quotes by critics, which were essential to my understanding of the many differing opinions on *Silent Spring*.

Lutts, Ralph H. "Chemical Fallout: Rachel Carson's *Silent Spring*, Radioactive Fallout, and the Environmental Movement." *Environmental Review: ER* 9, no. 3 (Autumn, 1985): 210-25.
<https://www.jstor.org/stable/3984231>.

In this journal article, Lutts argues that the effectiveness of *Silent Spring* came not only from the growing public awareness of environmental hazards and Rachel Carson's skill as a writer, but also from the ever-present threat that was all too familiar to the American public: radioactive fallout. This source was key in forming my argument about the ways in which Carson communicated her message with the public.

Mart, Michelle. "Rhetoric and Response: The Cultural Impact of Rachel Carson's *Silent Spring*." *Left History* 14, no. 2 (2010).
<https://lh.journals.yorku.ca/index.php/lh/article/view/35786>.

This article explored the immediate and lasting effectiveness of *Silent Spring*, examining the book's impact as a catalyst for the modern environmental movement, but also the reasons why the book ultimately had very little impact on the overall sales of pesticides, which have actually risen since the publication of *Silent Spring*. The author explored this question through the lens of the rhetoric Rachel Carson used in the book along with the many facets of the public response.

"Popular Insecticide: The Sensation of 1948." Accessed December 8, 2020, <https://www.old-time.com/commercials/1940%27s/Black%20Flag%20Super%20Insect%20Spray.htm>.

This webpage contains an example of an ad for pesticides, this one proclaiming that "bugs drop dead!" with the application of the advertised pesticide. I used this in my paper as just one example of the hundreds of ads that championed the use of chemical pesticides, demonstrating the widespread dependence on pesticides by the time *Silent Spring* was published.

"The Origins of EPA." Environmental Protection Agency, accessed December 17, 2020, <https://www.epa.gov/history/origins-epa>.

This webpage from the Environmental Protection Agency (EPA) directly attributes its formation and the passage of many environmental protection laws to Rachel Carson and

the focus of the public on the pesticides issue. I used this source in my paper to help convey the breadth of *Silent Spring*'s impact on government policy and actions that are still in place today.

Palacio, Zulima. "'Silent Spring' Turns Fifty." Voice of America, 2012, accessed January 8, 2021, <https://www.voanews.com/usa/silent-spring-turns-fifty#:~:text=More%20than%20six%20million%20copies,now%20a%20National%20Historic%20Landmark.>

This website included an overview of the impacts of *Silent Spring* and mentioned that Carson's book has sold more than 6 million copies in the United States alone since its publication, and it has been translated into more than 30 different languages. I used these numbers in my paper to demonstrate how renowned *Silent Spring* has become and the widespread readership that the book gained.

Rachel Carson: Legacy and Challenge. Edited by Lisa H. Sideris and Kathleen Dean Moore. Albany, NY: State University of New York Press, 2008.

This book is a collection of essays by writers, activists, and scholars who examine Carson's legacy personally and publicly from a variety of perspectives. I found the sections written by Jane Lubchenco, Michael Smith, and David Pimentel particularly helpful; these writers discussed Carson's scientific legacy, the effect of her gender on the reception of *Silent Spring*, and the modern facts of pesticide use in the United States, respectively.

Rosenberg, Tina. "What the World Needs Now Is DDT." *The New York Times Magazine*, April 11, 2004, accessed January 10, 2021, <https://www.nytimes.com/2004/04/11/magazine/what-the-world-needs-now-is-ddt.html>.

This article demonstrates that the controversy Rachel Carson sparked with *Silent Spring* continues to this day. Rosenberg contends that the malaria outbreak in South Africa could be reduced with the help of DDT, but that Carson's argument in *Silent Spring* has remained in American memory "persistently," which has fostered resistance to the use of DDT overseas. Even in an article that falls just short of condemning Carson's "one-sided

approach” to the problem (as many critics wrote), the author acknowledges just how effective Carson was able to communicate her message with the public and galvanize a movement, one that remains contested to this day.

Scheffer, Victor B. *The Shaping of Environmentalism in America*. University of Washington Press, 1991.

This book details the origins, rise, and impact of the environmental movement in the United States, focusing mainly on the 1960’s and 70’s. Scheffer acknowledges Rachel Carson’s impact on the environmental movement and describes the many policies and government organizations put in place as a result of the environmental movement, such as the National Environmental Policy Act of 1969, the Environmental Protection Agency (1970), and the Council on Environmental Quality. I used this information often in my paper to emphasize the extent of Carson’s influence.

Shabecoff, Philip. “‘Silent Spring’ Led to Safer Pesticides, but Use Is Up.” *The New York Times*, April 21, 1986.

<https://timesmachine.nytimes.com/timesmachine/1986/04/21/035886.html?pageNumber=14>.

This article contends that although DDT was banned in 1971, pesticide use in general doubled since *Silent Spring*’s publication, and by 1986 more than 2 billion pounds of pesticide were being applied annually in the United States. The author of this article doesn’t ignore the reach of Carson’s impact, but affirms that her argument was still as relevant as ever in the 80’s. I used this source to show that even though Carson impacted public thinking and government policy, the pesticide controversy continues to remain a prevalent issue.

Smith, Michael B. ““Silence, Miss Carson!” Science, Gender, and the Reception of “Silent Spring”.” *Feminist Studies* 27, no. 3 (2001): 733-52.

<https://www.jstor.org/stable/3178817>.

In this article, Smith describes how male critics of *Silent Spring* attacked the authenticity of the book and Carson’s research, using her gender against her to claim that she was

“emotional” and that it was “just like a woman to be scared to death of a few little bugs!” Not only was her gender used to discredit her science, Smith argues, the mere fact that a woman was standing up to the chemical industry challenged the very foundations of the still primarily male dominated scientific community, the U.S. government, and society as a whole. This was an interesting look at the nature of Carson’s critics, and one which I incorporated into my paper to illustrate the breadth of the opposition against her.

Souder, William. *On a Farther Shore: The Life and Legacy of Rachel Carson*. New York: Crown Publishers, 2012.

This excellent biography of Rachel Carson was very helpful for my understanding of Carson’s legacy, which had not been fully addressed in the biography by Linda Lear. This book’s extensive bibliography also led me to other key sources that I used in my research.

Stoll, Mark. "Rachel Carson’s Silent Spring, a Book That Changed the World." Virtual Exhibitions, Environment & Society Portal, 2012, updated February 6, 2020, accessed December 7, 2020, <https://doi.org/10.5282/rcc/8842>.

This was an excellent resource that provided detailed information on the public response to *Silent Spring*. This virtual exhibition includes web pages devoted to aspects of the government, industrial, and public responses to *Silent Spring*, both in the United States and in foreign countries, as well as the book’s lasting impact on policy, popular culture, literature, and more. This really gave me an understanding of how far reaching the book has been, both immediately after its publication and continuing through to the present day.

"Summary of the Toxic Substances Control Act." Environmental Protection Agency, accessed January 8, 2021, <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>.

This website describes the Toxic Substances Control Act of 1976, including descriptions of the six chemical pesticides that Rachel Carson primarily discussed in *Silent Spring*. I

used this in my paper to demonstrate her impact on government policy, specifically, the banning of numerous chemicals proved to be harmful to humans and wildlife.

Tototello, Michael. "The Great Cranberry Scare of 1959." The New Yorker, 2015, accessed December 4, 2020, <https://www.newyorker.com/tech/annals-of-technology/the-great-cranberry-scare>.

This article provided information on the cranberry scare of 1959, which was one of the first major national events that brought public attention to the problem of pesticide contamination. I used this source to provide evidence for the importance of *Silent Spring*'s arrival into a landscape of growing uneasiness about pesticides.

Wade, Lisa. "'DDT Is Good for Me-e-e!'" Sociological Images, 2011, accessed December 8, 2020, <https://thesocietypages.org/socimages/2011/06/27/ddt-is-good-for-me-e-e/>.

This webpage contains images of ads that promoted DDT, as well photographs of the trucks that sprayed the pesticide along streets and on lawns, even dousing children on playgrounds and in swimming pools with clouds of pesticides. I included this source in my paper to demonstrate the prevalence of pesticide use in the United States before the publication of *Silent Spring*.