

“*SILENT SPRING* IS NOW NOISY SUMMER”:
THE PUBLIC AND POLITICAL ASCENDANCY
OF RACHEL CARSON’S SEMINAL WORK

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Abstract

Due to the unlikely context of its publication and the vitriol of the attacks it encountered, we are obliged to examine how Rachel Carson’s seminal work gained widespread public support and affected political action. By tracing Carson’s creation of *Silent Spring* and the maturation of the public debate that ensued, this paper seeks to elucidate how *Silent Spring* achieved such wide cultural and political influence. First, this paper studies Carson’s research, highlighting the critical aspects of this step that led to *Silent Spring*’s success as both a scientific and literary work. Next, a rhetorical analysis of *Silent Spring* reveals a vital aspect of its ability to permeate the “national consciousness”: its capacity to connect with critical audiences. Finally, this paper examines the aftermath of its publication—the public controversy, the role of the media,

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and the immediate actions of the government—to shed light on *Silent Spring's* ascension in both the public and political spheres.

Introduction

Miss Carson, every once in a while in the history of mankind a book has appeared which has substantially altered the course of history.... One can think of many examples, such as *Uncle Tom's Cabin*, for instance. Your book is of that important character, and I feel you have rendered a tremendous service.¹

– Senator Gruening (D-Alaska) to Rachel Carson

Concerned by the growing use of potentially dangerous synthetic pesticides following World War II, scientist and author Rachel Carson embarked on a mission to warn the public of these compounds' unsung adverse effects. As a biologist, she was alarmed by a lack of research and proper testing. As a writer, she believed she had a duty to communicate these risks to the public. She was convinced that by instilling a love of nature within the populace while exposing to them the omnipresent dangers posed by emerging chemicals, she could spur political action.² The product of this endeavor, *Silent Spring*, challenged the culture of silence that the agrochemical industry had cultivated and the United States government had endorsed in their apathy. Her book invited the public to engage with environmental issues and sparked conversations not only about pesticides, but about the role of science in society and the interconnectedness of life.³

Immediately after its publication, *Silent Spring* aroused public debate that consumed headlines, President Kennedy's press conferences, and the chambers of Congress. The chemical industry responded with an organized effort to sway public opinion in their favor by challenging Carson's (and her book's) authority. By publishing and disseminating disparaging reviews that (both directly and indirectly) attacked her contentions, they sought to paint her as unprofessional and unqualified. Despite this campaign, Carson's book is considered one of the most influential works of the 20th century. Within a decade of *Silent Spring's* publication, the Environmental Protection Agency was erected and Carson's

words began laying the groundwork for environmental legislation as evidenced by the Clean Air Act (1970), the banning of dangerous synthetic pesticides such as DDT (1972), and the passage of the Emergency Planning and Community Right-to-Know Act (1986), eerily reminiscent of the Jean Rostand quote Carson used to close the second chapter of her book: “The obligation to endure gives us the right to know.”⁴

When *Silent Spring*'s prodigious success is juxtaposed with the agrochemical industry's intense campaign to discredit it, the question arises: How did *Silent Spring* achieve such cultural and political influence despite assaults on its credibility and the unlikely context of post-war scientific progress?

This paper will answer the previous question by analyzing the publication of *Silent Spring* and the industry-led debate that ensued, seeking to understand by what means *Silent Spring* acquired such success. Upon examining Carson's motivations, her research and writing, and eventually, the public debate that her book created, the complexity of the answer to this question becomes apparent. The success of *Silent Spring* cannot be traced to a single moment or action that allowed Carson to triumph over the campaign to discredit her. Rather, *Silent Spring*'s enduring legacy is the result of its masterful research and writing, the failure of the campaign against it, and the fervent interest of the public in its message.

Formative Experiences with Nature, Writing, and Science

In 1907, Rachel Louise Carson was born in Springdale, Pennsylvania, a small town characterized at the turn of the twentieth century by its “rural charm.”⁵ Although she was the daughter of an insurance salesman and loving housewife-mother, historian Linda Lear contends, “Rachel Carson was first of all a child of the Allegheny River, its woods and wetlands...” From her earliest memories, Carson was a curious child, and one who took a keen interest in the natural wonders of her town.⁶ Throughout her entire childhood, she took full advantage of the bucolic cornucopia that was Springdale, examining wildlife or taking scenic walks. In

a letter years later, Carson recounted, “as long as I can remember, I have been interested in the world of nature, in wild creatures, and in natural, unspoiled beauty.”⁷ During these formative years in Springdale, Carson cultivated the curiosity and love of nature that guided not only her writing, but her entire life.

Carson’s curiosity was not restricted to the outdoors. Rather, from a young age, she was an avid reader, too. Carson explained how her early love of reading manifested in an interest in writing, admitting, “I suppose I must have realized someone wrote the books, and thought it would be fun to make up stories, too.”⁸ Success quickly followed Carson’s early ventures in writing when, at just eleven years old, she was published in the *St. Nicholas* magazine and won an award for her excellent literary style. These humble beginnings were an early indication of the lyrical prose that would become one of Carson’s hallmarks.

After graduating high school, Carson attended the Pennsylvania College for Women (now Chatham College). Intending to major in English, she continued writing constantly, and retained the natural world as one of her most beloved muses. Her teachers and peers soon recognized her literary talents, but Carson’s academic success extended beyond literature. For the first time, now in college, she was exposed to the field of science. She instantly fell in love with the study of biology because it gave her an understanding of *how* the world worked, rather than limiting her to simply admiring it.⁹ Eventually, Carson switched her major to biology, and upon graduation, continued her studies at Johns Hopkins University. While there, her father died, forcing Carson to become the sole provider in her family, and in desperate need of work.¹⁰

Early Work in the Bureaucracy and Nature Writing

In 1936, Carson reached out to the Division of Inquiry at the U.S. Bureau of Fisheries seeking a job. Although they could not offer her a full-time position, they hired her to help write and produce a short radio series that the current staff was struggling to make interesting for listeners.¹¹ Carson quickly realized that her

new work allowed her to combine her fascination with biology and her long-time passion for writing.¹²

After the series was finished, Carson remained at the Bureau, writing reports and essays. One time, when she turned in an introduction for a brochure, her supervisor informed her that she would need to re-write it, “but send this one to the *Atlantic*,” he said.¹³ Carson noticed that the research taking place at the Bureau could serve as inspiration for her own literary ventures. The *Baltimore Sun* regularly published her stories on aquatic life and even paid her \$20 for each piece she wrote.¹⁴ Where other writers struggled to effectively communicate the complexity of the natural world, Carson excelled. In both her official publications on behalf of the Bureau and in her freelance submissions to newspapers and magazines, Carson masterfully communicated the intricacies of life below the waves to the public.¹⁵ Carson’s work eventually attracted the attention of Simon and Schuster which, in 1937, approached her about expanding one of her articles into a book.

Yearning to commit fully to freelance writing, Carson eagerly accepted the offer. As she researched, she took advantage of the volume of information—war records, maps, and government publications—available to her at the Bureau. Four years later, in November 1941, Simon and Schuster published *Under the Sea Wind*. However, with Americans focused on the bombing of Pearl Harbor, the book never gained serious popularity. Carson continued her work at the Bureau, and embarked on another book, *The Sea Around Us*. Carson’s second book was also published amidst conflict (this time in Korea), but *The Sea Around Us* provided “an antidote to anxiety” for Americans who were frightened by the uncertainty of war.¹⁶ In September, Carson’s book reached number one on the bestsellers list.

The publication of *The Edge of the Sea* in 1955 completed Carson’s ocean trilogy. Although she feared that this book would not be as successful as her previous, Editor William Shawn assuaged these concerns when he offered to print one of the book’s chapters in the *New Yorker*. Soon after, *The Edge of the Sea* was nominated for the National Book Award in nonfiction.

Carson's trilogy was a personal and professional triumph. The revenue that her books had generated eliminated the economic concerns that had defined her early life. In the literary community, Rachel Carson was a respected name. Even more importantly for her, though, these books solidified her love of the natural world and her commitment to sharing it with the public.

A New Scientific Age

As Carson was writing these books, a new world was unfolding around her. Dubbed "the age of the wormless apple," post-World War II America was radically different than it had been just six short years prior. Global war had spurred massive technological advances that (after the war) filtered into daily life. In August 1945, *Time* magazine published an article that served as an early indication of America's growing faith in and reliance upon science. It recognized two new scientific achievements for their vital role in the Allied victory: the atomic bomb and dichloro-diphenyl-trichloro-ethane (DDT), a relatively new synthetic pesticide.¹⁷

DDT was first synthesized in the late nineteenth-century, but it was not until Paul Müller, a Swiss chemist, discovered its pesticidal properties in 1939 that it gained popularity. Early testing in the United States was conducted by the Bureau of Entomology and Plant Quarantine (BEPQ) in 1941. Edward Knipling, the head of the Orlando laboratory, remarked: "our chief worry was can [DDT] be used safely on man."¹⁸ Seeing no immediate harm to humans, DDT appeared even more "promising" when Raymond Bushland of the U.S. Sanitary Corps revealed that DDT was not only "highly effective," but "longer lasting than any other louse treatment known to be in use."¹⁹ Nearly all of these early tests investigated exclusively whether DDT was an effective pesticide, rarely straying from this scope to investigate whether it posed any adverse effects to humans or wildlife.²⁰ The Food and Drug Administration (FDA) quickly approved DDT for use in the war.

In the Pacific theater, DDT was employed ubiquitously by the U.S. military to slow the spread of malaria among its troops.²¹

Halfway across the world, in Naples, Italy, DDT was used to combat a typhus epidemic. American soldiers doused men, women, and children all with the insecticide. *Life* magazine captured many of these scenes and printed them for readers, an insight into the tragedies of war and the triumph of man. Historian David Kinkela contends that DDT's use and strategic media coverage in Italy "drew on themes evoking paternal notions of U.S. interests abroad."²²

When the Cold War began just several years later, the United States used DDT and other synthetic pesticides for similar strategic interests. The war—characterized by scientific achievement—augmented reliance upon these "miracle" substances. Kinkela notes that these wartime contexts clarified for the American government that in possessing DDT and similar chemicals, they held the key to development and also had an effective weapon to fight communism.²³ Therefore, the United States' interests with DDT abroad can be seen as two-fold: first, they sought to create a higher quality of life for their allies by fighting insect-borne diseases and famine, but also they sought to utilize it as an instrumental aspect of foreign policy.

Meanwhile, DDT and other chlorinated hydrocarbons grew in popularity at home. As the Cold War developed, synthetic pesticides transitioned from a military-grade chemical to many housewives' weapon of choice. One chemical manufacturer's (DuPont) advertising slogan reflected the general sentiment of Eisenhower-era science: "Better living through chemistry," they declared. The emerging agrochemical industry gained enormous power—economically, politically, and culturally. Chemical companies' advertisements funded newspapers and filled their pages. In a 1963 issue of the *Illinois Technograph*, Union Carbide purchased a nearly-full page advertisement depicting a man's hand protecting crops from the ravages of "boll weevil, codling moth, leaf rollers, thrips and beetles," among others. "Holding the line... for a richer harvest," it read.²⁴ These new insecticides promised a seemingly simple and harmless solution to the problems of famine and disease that had plagued the world for centuries. For the first time ever, humans seemed to have unbridled power and potential in

bending nature to their will. Edward O. Wilson, a Harvard professor and Pulitzer Prize-winning writer who witnessed this period of science, remarked,

For the sake of our prosperity and security, we rewarded science and technology with high esteem and placed great trust in the seeming infallibility of material ingenuity. As a consequence, environmental warnings were treated with irritable impatience. To a populace whose forebears had within living memory colonized the interior of a vast continent and whose country had never lost a war, arguments for limit and constraint seemed almost unpatriotic.²⁵

Indeed, both the government and citizenry alike agreed that they had an enormous asset, and they fully intended on using it. The interests of the federal government, particularly the Department of Agriculture (USDA), quickly became muddled with those of the agrochemical industry. The Agricultural Research Service (ARS), a subsidiary of the USDA, believed that their “allegiance” was to farmers, and that they should use the wonders of chemistry to support efforts in national food production.²⁶

Even sectors of the American government tasked with the regulation and testing of pesticides paid little attention to the broader implications of their use. Although the U.S. Department of the Interior (USDI) should have been conducting extensive testing, Dr. Dewitt, the Chief of Wildlife Pesticide Studies, struggled to achieve much progress with a meager annual budget of \$52,000.²⁷ In retrospect, John George, an official in charge of the Department’s wildlife pesticide field studies admits,

We should have been doing food chain studies and other vital work. As it was, Dr. Dewitt performed important pen studies on bob-white quail and pheasants that helped to establish the chronic toxicity of persistent pesticides. And I proposed a nation-wide bald eagle study in 1958. But we got neither funds nor attention.²⁸

Despite the advocacy of a few scientists and bureaucrats, concerns of ecological upset were largely relegated to the periphery.

The Inspiration for *Silent Spring*

Subsequently, the 1950s were characterized by a collection of government-planned (and implemented) spraying campaigns

to rid the country of pestilent insects. Rather than control, the USDA and similar institutions advocated for “eradication,” motivated by the recent availability of extremely lethal insecticides, and partially by Cold War rhetoric, as well.²⁹ In 1957, the ARS launched an effort to wipe the fire ant from the United States. They justified their actions, writing,

The imported fire ant feeds on various crops that are grown in the South causing serious damage to unprotected animals such as newborn calves and pigs and newly hatched quail and poultry. In areas of heavy infestation the ants may chase brooding hens from their nests.³⁰

However, Edward O. Wilson (who coincidentally was the first person to unofficially document the fire ant’s existence in the U.S.) contends that the fire ant “was never an economic pest in the same class as the boll weevil, gypsy moth, European corn borer, and other destructive insects.”³¹ Regardless, over the course of the next three years, more than 20 million acres of forest and field across the Southern United States were dusted with the toxic chlorinated hydrocarbons dieldrin and heptachlor, a prime example of “national impetuosity.”³²

Predictably, enormous wildlife kills followed. Hunters and observant citizens alike objected, but as one bureaucrat at the U.S. Fish and Wildlife Service (FWS) described, during this era, “Department of Agriculture representatives...consistently downgraded the biologists’ findings and discounted any appreciable damage to fish and wildlife.”³³ To one concerned citizen, the USDA replied: “domestic Tom cats are probably more harmful to birds than the overall effects of the economic poisons now being used by the USDA against the fire ant.”³⁴ The enormous public-relations campaign launched to combat conservationist outcry foreshadowed the opposition that *Silent Spring* would face less than a decade later. The fire ant campaign failed miserably; not only was the USDA tasked with navigating a public relations disaster, but their eradication attempts were unsuccessful.

While this campaign consumed the South, attempts to curb the ravages of Dutch Elm Disease and the Gypsy Moth defined the North. Similarly, officials communicated no serious risk to the

public. Unintentionally, a Professor at Michigan State University and a graduate student documented the effects of the spraying on robins throughout the town. “The campus is serving as a graveyard for most of the robins that attempt to take up residence in the spring,” documented Dr. Wallace. He and his student revealed that “in spite of the assurances of the insecticide people that their sprays were ‘harmless to birds’ the robins were really dying of insecticidal poisoning; they exhibited the well-known symptoms of loss of balance, followed by tremors, convulsion, and death.”³⁵ Despite the ubiquitous use of these chemicals, there was still not a widespread understanding of the dangers they posed to animals.

A few citizens during the late 1950s, however, publicly protested the governments’ eradication efforts. On January 12, 1958, the *Boston Herald* published a letter from a concerned Massachusetts citizen who was upset over the harm pesticides were bringing to animals and humans alike. Seventeen days later, another citizen, Olga Huckins, submitted a similar letter to the *Herald* in protest. Carson knew Huckins personally. They first encountered each other when Huckins, a writer herself, had admirably reviewed *The Sea Around Us* in 1951. In her scathing letter, Huckins asserted that the state’s “placid assurances” have “become absurd” with undeniable evidence of bee and bird death as a result of mass spraying. She further explained that the shower of toxic chemicals had violently killed seven of her songbirds and a host of other harmless insects, but not their intended target, the mosquito. She advocated a different pursuit:

The remedy of this situation is not to double the strength of the spray and come again. It is to STOP THE SPRAYING OF POISONS FROM THE AIR everywhere until all the evidence, biological and scientific, immediate and long run, of the effects upon wild life and human beings are known.³⁶

Upon receiving a copy of this letter, Carson wholeheartedly agreed.³⁷ Just days before, Carson had mailed a letter of her own. To her dearest friend, Dorothy Freeman, Carson had outlined the intended topic of her new book, ironically: “Life and the relations of Life to the physical environment.” In her letter, she admitted:

It was pleasant to believe, for example, that much of Nature was forever beyond the tampering reach of man—he might level the forests and dam the streams, but the clouds and the rain and the wind were God’s....

It was comforting to suppose that the stream of life would flow on through time in whatever course that God had appointed for it without interference by one of the drops of the stream—man.³⁸

But the events of the past decade had shattered this belief. As she continued to hone in on the subject of her next book, she followed a court case in which a group of prominent Long Islanders had filed for an injunction against state and federal authorities to stop the spraying. Carson realized the impact this case would have on pesticide use, and also on broader questions of citizens’ rights and government responsibility.³⁹

For a past employee of the U.S. Fish and Wildlife Service, these events were difficult to ignore. Carson realized that in these abuses lay a story. However, she quickly learned that this was not of interest to the outlets she approached. *Good Housekeeping* described Carson’s proposal as “something which under no circumstances should we consider,” adding, “We doubt whether many of the things outlined in this letter could be sustained.”⁴⁰ It was not only the publishing world which had reservations about this topic. Her friend, Dorothy, initially disliked it, too. Attempting to explain to her the importance of this research project, Carson revealed how profound her motivations really were: “You do know, I think, how deeply I believe in the importance of what I am doing. Knowing what I do, there would be no future peace for me if I kept silent.”⁴¹

After receiving a referral from a friend, Carson found an outlet in the form of the *New Yorker* when the editor, William Shawn, welcomed her story. During the Spring of 1958 (as Carson realized the story would warrant both a magazine article *and* a book), Carson settled on the topic of pesticides’ effects on nature and met with her publisher at Houghton Mifflin to begin preparations for what would be her most masterful work.

Researching and Writing *Silent Spring*

Carson started collecting evidence in the Winter of 1958 when she still believed she was only writing “a magazine article that would also serve as a chapter of a book on this subject.”⁴² She began her research by passively compiling an extensive collection of documents—Congressional transcripts, research papers, and news articles—but her sources soon evolved to include personal contact with experts, as well. The enormous collection of evidence amassed for the Long Island spraying case served as a starting point for Carson’s query as well as her networking. Marjorie Spock, one of the plaintiffs, sent Carson several documents to help with her research.⁴³ Among them was a paper written by the scientist (and Director of the Dutch Pest Control Service) C. J. Brijèr on the little-known topic of insect resistance. In April 1958, Carson wrote to Brijèr inquiring about his research and asking for more material. Brijèr eagerly supplied her with the information she requested and even made a point to say “Your name is well-known in our country and so is your very well written book, *De Wereldzee* [The Sea Around U.S.].”⁴⁴ Carson recognized the effectiveness of this pattern (reading extensively first and later reaching out to experts to fill in the holes in her research).

Over the next four years, she replicated this pattern numerous times and eventually developed an elaborate system of colleagues and informants across the United States and Europe that she used to extend the depth of her research and the scope of her book. Because *Silent Spring* discussed topics that lay outside of mainstream science and that challenged (what Lear defines as) the “gospel of technological progress,”⁴⁵ Carson’s contacts became invaluable, not only for augmenting her research, but for making it possible. Her network of scientists was especially vital in constructing and supporting her most subversive contentions. Carson’s most controversial claim in *Silent Spring* was establishing a link between pesticides and cancer (and similar biological disruptions). An analysis of her research into the role of synthetic chemicals in the study of oncology reveals an especially poignant example of the importance of her global scientific contacts.

Carson consulted the list of experts who had testified in the Long Island spraying case (and the relevant evidence highlighted at the trial) as a starting point for this specific section of her research. Among those who had testified was Dr. Malcolm Hargraves, a hematologist from the Mayo Clinic who focused on the link between chemicals and blood disorders, such as leukemias. His willingness to speak publicly about the groundbreaking research he was conducting made many colleagues view him skeptically (for they believed such discussion was premature).⁴⁶ His communication with Carson served as the bedrock of one of her most prominent themes: the effect of pesticides on humans. He supplied her with a list of hundreds of individuals who had been afflicted by spraying-related health issues. Furthermore, he alerted her of another example of pesticide misuse, a USDA eradication program in Memphis, Tennessee employing the toxic chlorinated hydrocarbon, dieldrin.⁴⁷

Carson was presented with the opportunity to meet Hargraves in November of 1958 when the National Wildlife Federation asked her to speak about insecticide-related human health risks. While she still attended the panel (as a spectator), she ultimately turned down NWF's offer, citing that she felt that "it would be premature and unwise for me to disclose the facts I have on this phase of the subject, for, I feel they are pretty terrific and should not be revealed until they can form the part of the total impact of the book."⁴⁸ Carson understood from the beginning that *Silent Spring* would face enormous opposition, namely from the agrochemical industry and its supporters. Anticipating challenges in evidence acquisition from some sources if word of her project got out, she attempted to keep her work as confidential as possible while she prepared her "attack as a whole."⁴⁹

Carson's correspondence with Hargraves was vital, but it was the work of another scientist that allowed her to begin assembling the pieces of the puzzle. Again, Spock aided Carson's research, this time bringing to her attention the work of Morton Biskind. Biskind was a retired toxicologist whose seminal research focused on the effects of industrial chemicals on human enzyme systems

(and their possible relationship with cancer). Biskind's work—his papers and studies (several of which were included in *Silent Spring's* list of principal sources)—allowed Carson to begin to understand *how* pesticides might be carcinogenic. Her communication with Biskind served as advanced courses in endocrinology, expanding her understanding of the complex factors at play.

Eventually, her correspondence with Hargraves and Biskind led her to the work of Dr. Wilhelm Hueper, one of the most prominent scientists then investigating synthetic pesticides. Hueper, a specialist on environmental cancers at the National Cancer Institute, was among only a handful of scientists who classified DDT as a definite carcinogen. To Carson, his work became a vital element of her research, and between December of 1959 and late 1960, she interviewed him several times for what would become her most controversial chapter (14: "One in Every Four").

Analysis of Carson's inquiry into the relationship between pesticides and cancer lends insight into the complexity and significance of her contacts. Because she was writing a book that required innovative research and argued a myriad of claims that she knew would be branded as subversive, a great deal of her sources and evidence were dispersed throughout the world, on the fringe of mainstream science. Subsequently, many of the reports and research papers that were vital to her own query were conducted by individual scientists (sometimes with the help of a small group of colleagues), a trend exemplified by Hargraves' colleagues' skeptical view of him and Hueper's dissenting view of DDT as a carcinogen even within the National Cancer Institute. Therefore, finding all of the research necessary to complete a book that was critical of "the gospel of technological progress" required enormous networking. With data only sparsely available, Carson was forced to rely on the connections of the scientists she communicated with to compile the evidence necessary for her indictment. In almost every letter she received, whether it was written to directly help her research or not, she learned of a new subtopic to investigate, a new piece of evidence to include, or a new scientist to contact.

In other areas of her scientific research (unrelated to cancer), her connections were equally important. Her correspondence with George Wallace of Michigan State University served as the foundation for her chapter “And No Birds Sing.” As one of the only available studies that detailed the poisonous effects of pesticides on robins beyond civilian observation, Wallace’s work was vital.⁵⁰ Carson’s research, however, extended beyond the limits of the scientific field.

Naturally, as her book was partly conceived as a rebuke to bureaucratic “myopia,” she also conducted an extensive investigation into the policies and practices of government agencies, such as the USDA (specifically the ARS). Though she attempted to avoid as much conflict as possible, inevitably, the ARS learned that Carson was writing a book and consulting with scientists who had been branded subversives such as Dr. Malcolm Hargraves and Clarence Cottam. Even before the ARS discovered her project, she encountered resistance.

On one occasion, she had written to a USDA official in Texas inquiring about the extent of the fire ant program. Not only did he deny that the campaign had caused any wildlife deaths, but he replied, “Because of your obviously intense interest in this subject, I should appreciate knowing your affiliation in preparing your report.”⁵¹ William Brown, a scientist from Cornell University (and one of Carson’s many scientific contacts) had warned her early on, “One of the difficulties is that the government branches dealing with the pertinent research are either inarticulate or bound to various degrees of administrative reticence....They have branded me as a ‘troublemaker’ and are so cagey with me that it is laughable.”⁵²

Thus, when her research through traditional channels became restricted, Carson reached out to dissenters in the USDA and biologists at the USDI for back-channel information. Among her many contacts (from her time at FWS and afterwards), two were especially helpful: Reece Sailer and Harold Peters. Sailer had been an entomologist at the Bureau of Entomology and Plant Quarantine at the ARS where he rose through the ranks of the

bureaucracy. Unlike many of his colleagues, Sailer believed in the efficacy of biological controls, rather than the broad-spectrum spraying that the ARS vehemently advocated. Sailer was one of Carson's confidential informants, and among them, one of her most reliable.

Meanwhile, Harold Peters was an avid ornithologist who, like Sailer, had started his career at the USDA, but later transferred to FWS. Lear describes his contribution to Carson's research:

When Carson needed confirmation of wildlife losses, the percentage of ingredients of chemical sprays used in different geographical areas, or the facts about rumored USDA harassment of FWS field agents and suppression of data, Harold Peters supplied it. His information was accurate, his sources reliable, and his contacts absolutely invaluable. As a bonus, his chatty letters overflowed with observations and information that no one else could have supplied.⁵³

These connections allowed *Silent Spring* to include material that was necessary for a proper indictment of the agrochemical industry and certain government activities; the information she acquired created a more detailed, more accurate and a more compelling picture of the problem.

As Carson collected enough evidence to start writing individual chapters, the problem remained of how to connect all of the material she had uncovered. As Carson had researched, she constantly uncovered new angles and arguments to include (one of the main reasons her project expanded from a magazine article into a full book). *Silent Spring* was the first time such a comprehensive study of human involvement in ecological processes had been created, making the manuscript an immense organizational challenge. Although the extensive evidence she compiled presented challenges in her writing, it was necessary for a complete examination of the problem. In February 1959, after having spent the past six weeks focused on the human health hazards of pesticides, Carson wrote to her editors, Paul Brooks and William Shawn, with an update:

I have a comforting feeling that what I shall now be able to achieve is a synthesis of widely scattered facts, that have not heretofore been considered in relation to each other. It is now possible to build up,

step by step, a really damning case against the use of these chemicals as they are now inflicted upon us.

She added, “Now it is as though all the pieces of an extremely complex jig-saw puzzle are at last falling into place.”⁵⁴ Equally important as her capacity to collect and analyze scientific research was her ability to craft it into compelling conclusions.

As Carson made progress and word of her project began circulating throughout her allies’ scientific circles, she received numerous encouraging letters from colleagues and other scientists she knew only by reputation, glad that she—with her “writing ability” and “public appeal”—was “working on a book on this subject.” These letters were critical in motivating her as she faced challenges in research and writing, but more importantly, as she battled a graver personal threat.⁵⁵ In November 1960, an oncologist diagnosed Carson with cancer. Earlier that year, Carson had undergone an operation to remove a tumor, but that doctor had falsely informed her that it was not malignant. Health setbacks riddled the remainder of Carson’s work on *Silent Spring* (and ultimately, ended her life).

As Carson completed chapters of her book, she turned once again to the elaborate network of colleagues she had created during her research. This time she asked them to edit and fact-check her chapters. Clarence Cottom, a prominent biologist and personal friend, provided ten pages of detailed notes including a list of sources Carson could turn to in order to strengthen her case in anticipation for the criticism that some would inevitably cast upon it. Frank Egler was another critical member of this process. Already, Egler had served as one of the principal sources for the chapter, “Earth’s Green Mantle.”⁵⁶ Now, he supplied twelve pages of feedback, knowing first-hand the ridicule that Carson would be subjected to.⁵⁷ As the Fall of 1961 faded into Winter, Carson completed her manuscript. In January, she sent it to Brooks, Shawn, and her literary agent, Marie Rodell. Four years of masterful research and innovative networking had given rise to “a brilliant achievement.”⁵⁸

Silent Spring Rhetorical Analysis

Although much of *Silent Spring*'s profound legacy is the result of events that ensued from its publication, the role of the substance of the book—its content, its rhetoric, and, ultimately, its ability to connect with critical audiences—in its reception and ultimate success cannot be ignored. Understanding the literary devices and arguments Carson employed is central to interpreting the debate that surrounded the book. Less directly, as *Silent Spring* has served for the inspiration of a number of political reforms, it is vital to understand how it communicated with readers and what it discussed. There are three main aspects of *Silent Spring* that allowed it to effectively connect with the public as an influential piece of scientific literature (unrelated to the assistance that the aftermath of publication afforded it).

First, *Silent Spring* intrigued the public by including topics that were of particular and immediate relevance to them, usually inviting them either explicitly or implicitly to become active participants in environmental discourse. Although her research revealed that almost all of the implications of pesticide use would eventually affect humans (whether directly or indirectly), Carson gave particular weight to her most groundbreaking conclusions, and subsequently, oftentimes the issues that would resonate most with readers. In December 1959, as she was “trying to put together a chapter on cancer and hazards related to pesticides,” she wrote Paul Brooks explaining, “Until recently, I saw this as part of a general chapter on the physical effects on man. Now it looms so terrifically important that I want to devote a whole chapter to it—and that perhaps will be the most important chapter of the book.”⁵⁹ Recognizing the importance of her cancer research, Carson acknowledged the interest her book would generate among the public if it discussed problems that directly affected them. Specifically, she knew that an assertion of such magnitude would compel citizens to read *Silent Spring* or engage in conversation. Brooks predicted this in 1959, stating simply “The immediate human application of all this is what’s going to sell the book.”⁶⁰

Carson's decision to emphasize this link should not be mistaken for a mere marketing technique. Rather, she explained, "To tell the truth in the beginning I felt the link between pesticides and cancer was tenuous and at best circumstantial; now I feel it is very strong indeed. This is partly because I feel I shall be able to suggest the actual mechanism by which these things transform a normal cell into a cancer cell."⁶¹ In 1958, she set out to probe the problem of pesticide misuse. The vast research and many contacts she compiled, however, raised new directions for her book and, ultimately, allowed Carson to make conclusions beyond what she had expected at her project's conception.

Carson further connected with readers by stressing that they deserved to be active members of the discourse because they were the ones who would feel the ramifications of environmental degradation. "The obligation to endure gives us the right to know," she reminded them (quoting Jean Rostand). Throughout *Silent Spring*, Carson explained that they had not agreed (at least knowingly) to the disastrous human health and ecological ramifications of unchecked technological progress. In concluding her eighth chapter, "And No Birds Sing," she begs the reader:

Who has placed in one pan of the scales the leaves that might have been eaten by the beetles and in the other the pitiful heaps of many-hued feathers, the lifeless remains of the birds that fell before the unselective bludgeon on insecticidal poisons? Who has decided—who has the *right* to decide—for the countless legions of people who were not consulted that the supreme value is a world without insects, even though it be also a sterile world not graced by the curving wing of a bird in flight?⁶²

By expanding her book from a discussion simply about the importance of nature to one that encompassed citizens' rights and the makings of a social movement,⁶³ Carson reminded citizens of their place in the current problem (often as victims) and invited them to join the discourse around pesticide use.

Her use of certain rhetorical devices also aids her in galvanizing citizens. After describing the brutal bird deaths as a result of continued spraying, she beseeches the reader: "By acquiescing an act that can cause such suffering to a living creature, who among

us is not diminished as a human being?”⁶⁴ Philosopher Philip Cafaro has dubbed these “short emphatic ethical statements and arguments”, “Rachel Carson’s environmental ethics.”⁶⁵

These moral questions are supported by the underlying tone of the book. Rather than simply enumerating examples of man’s destruction of the balance of nature, she counters them with descriptions of the beauty of nature and its importance to human posterity. Nature writer and philosopher Kathleen Dean Moore describes this as “the Yin Yang, this combination of opposites, the terrible truth and the irresistible hope.” Carson employed this technique because she “understood that a love of nature is a necessary condition for saving it. So a sense of wonder is in some ways a sense of self-preservation.”⁶⁶ By reminding citizens of the beauty and power of nature, Carson sought to galvanize them to take a stand against its desecration.

Second, Carson set *Silent Spring* in the context of the period, drawing upon evidence that the public could recognize and themes that reflected broader societal concerns. In Carson’s discussion of pesticide misuse, she referenced four ARS eradication campaigns (that of the Dutch elm disease carried by the elm bark beetle, the gypsy moth, the Japanese beetle, and the fire ant). Different campaigns resonated with different geographic locations, but each example provided a local context for readers to understand a national problem. In her discussion of the fire ant campaign, she began by recounting the history of the fire ant and the origins of the campaign. Her description of the “barrage of government releases, motion pictures, and government-inspired stories portraying it [the fire ant] as a despoiler of southern agriculture and a killer of birds, livestock, and man” was familiar to many in the nine southern states that had been saturated with dieldrin and heptachlor. She added, “Never has any pesticide program been so thoroughly and deservedly damned by practically everyone except the beneficiaries of this ‘sales bonanza.’”⁶⁷ Surely, Carson could not have ignored this campaign (or the three others she referenced) in a proper discussion of pesticide (mis)use, but these events served as more than examples in her

book; they connected with readers who witnessed them firsthand. Biologists, hunters, and observant citizens who had participated directly in the public outcry against the fire ant campaign and similar projects were especially sympathetic to these descriptions.

Silent Spring also referenced greater concerns. In drawing a connection in the book between synthetic chemicals and the atomic bomb in their shared capacity for absolute destruction, Carson also set her research in the broader context of postwar scientific progress. Brooks had proposed this idea to Carson when she was writing, explaining “the parallel between effects of chemicals and effects of radiation is so dramatic that people can’t help getting the idea. In a sense, all this publicity about fallout gives you a head start in awakening people to the dangers of chemicals.”⁶⁸ The first chemical Carson mentions in *Silent Spring* is Strontium 90, a radioactive substance. Not only does this reference segue into her explicit comparison of pesticides and nuclear fallout, but it evoked a memory from most readers of an episode in 1958-1959 that had proved the existence of chemical dangers. During these two years, reports had been released stating that Strontium 90 had entered the food chain, residing in cow milk, and eventually accumulating in humans. Underlying fears as well as timely episodes like this created optimal circumstances for the book’s release.⁶⁹ Carson capitalized on this in her writing.

Finally (and most importantly), Carson effectively navigated the challenge of retaining the complexity and technicality of her research while writing *Silent Spring* in a manner that was comprehensible to the general public. From its earliest pages, it is clear that *Silent Spring* was written with its non-scientist readers (just as much as its audience in academia) in mind. Carson’s first substantive chapter, “Elixirs of Death,” reads much like an introductory organic chemistry textbook, recounting the history and basic facts of DDT, the current chemical landscape, and an overview of toxicology complete with several molecular formula models.

As Carson transitioned into discussions of the groundbreaking research she had uncovered and synthesized, she did so again with the reader in mind. Attempting to describe the process

of biomagnification to her readers, she explained “the intricate cycle of events by which the robins’ fate is linked to the elm tree by way of the earthworms”:

The trees are sprayed in the spring (usually at the rate of 2 to 5 pounds of DDT per 50-foot feet, which may be the equivalent of as much as 23 pounds per acre where elms are numerous) and often again in July, at about half this concentration. Powerful sprayers direct a stream of poison to all parts of the tallest trees, killing directly not only the target organism, the bark beetle, but other insects, including pollinating species and predatory spiders and beetles. The poison forms a tenacious film over the leaves and bark. Rains do not wash it away. In the autumn the leaves fall to the ground, accumulate in sodden layers, and begin the slow process of becoming one with the soil. In this they are aided by the toil of the earthworms, who feed in the leaf litter, for elm leaves are among their favorite foods. In feeding on the leaves the worms also swallow the insecticide, accumulating and concentrating it in their bodies.... As few as 11 large earthworms can transfer a lethal dose of DDT to a robin. And 11 worms form a small part of a day’s rations to a bird that eats 10 to 12 earthworms in as many minutes.⁷⁰

Carson commonly invoked examples of daily life manifestations of ecological concepts to frame her discussions of complex biological processes. Rather than simply referencing laboratory or empirical evidence, she employed examples that readers could more readily connect with in order to elucidate such topics as endocrine disruption or evolutionary insect resistance. Additionally, her literary talents add beauty to every chapter, and although this would be a source of contention in the debate that followed *Silent Spring*’s publication, they allowed Carson to craft a book that was not only comprehensible to the public, but compelling to them.

In analyzing Carson’s success, Moore writes, “Rachel Carson was one of very few people who combined three essential skills, good scientific data and research, a beautiful and compelling writing style, and a powerful moral framework.”⁷¹ Ultimately, it was this “moral framework” that became the bedrock of all of her assertions and the foundation for the modern environmental movement.

Upon reading her manuscript in early 1962, William Shawn declared Carson’s masterwork “full of beauty and loveliness and

depth of feeling.” “You have made it literature,” he commended her.⁷² Carson’s innovative research techniques, her capacity to synthesize complex evidence, and her gift for writing allowed *Silent Spring* to become a literary success. But, its ability to permeate into the collective national consciousness (and thus, inspire both a cultural and subsequently political movement) ultimately lay with the aftermath of its publication.

Pre-Publication Efforts

Once the manuscript was complete, Houghton Mifflin launched their pre-publication advertising campaign. The expansive promotional effort sought to generate publicity and attention (especially from influential figures and publications). Advance copies were expedited to trade journals and advertisements were placed in regional and national newspapers and magazines. Meanwhile, Houghton Mifflin “travelers” (field representatives) circulated the country visiting libraries, schools, and environmental organizations. In addition to promoting the book, they reported back to Houghton Mifflin public sentiment on a host of issues that could affect how readers might react to *Silent Spring*—generally, they believed it would be well-received.⁷³ Meanwhile, the *New Yorker* was busy fact-checking and tailoring *Silent Spring*. In June, they planned to serialize three abridgments of Carson’s book.

After the installments were released, Houghton Mifflin’s pre-publication objectives shifted from promoting *Silent Spring* to preserving its and its author’s credibility. To this end (and keeping in line with publishing tradition), advance copies were distributed to important figures. Such efforts generated discussion in prominent political circles as well as environmental and women’s organizations. Moreover, when the book was published, Carson would have a formidable team of influential allies to advocate on her behalf. In Rodell’s words: “Since Rachel is undoubtedly going to be attacked from some quarters as a crackpot and subversive, a back-log of highly respectable people who have read the book and discussed it with her will be an enormous help.”⁷⁴

On May 14, Carson hosted a luncheon with a group of prominent women to reconnect with old contacts and friends and to win popular support for her book. The guest list included Agnes Meyer (owner of the *Washington Post*), a former Secretary of Labor, Senator Maurine Neuberger, and the Presidents of such organizations as the League of Women Voters, the National Federation of Women's clubs, and the Garden Clubs of America. Though only eight women were able to attend, each of the sixteen invitees received an advance copy of *Silent Spring*.⁷⁵

Shortly after, Carson attended the White House Conference on Conservation where she spoke with a host of delegates (most of whom had received advance copies) including Interior Secretary Udall and the director of the Sierra Club, David Brower. Many in attendance had also received personal notice from Houghton Mifflin of *Silent Spring*'s coming serialization in the *New Yorker* starting on June 16.⁷⁶

Other factors sought to guarantee a large public readership. Among the most important of these were two bulk orders Houghton Mifflin received early during the summer. On June 11, (five days before the first installment was released) Brooks wrote to Carson informing her that *Silent Spring* had been chosen for the Book-of-the-Month Club's (BOM) October selection. Her editors and literary agent were overjoyed with this accomplishment, and Carson's letter to Dorothy Freeman reflected it:

No one could say whether total sales and income will be greater this way but what gives me deep satisfaction is the feeling that this, added to other things we know of, will give it an irresistible initial momentum. And BOM will carry it to farms and hamlets all over the country that don't know what a bookstore looks like—much less *The New Yorker*. So it is very, very good and tonight I am deeply and quietly happy.⁷⁷

As Carson importantly understood, bulk orders from book clubs with nationwide readership would play a critical role in disseminating her message. Not only did the selection guarantee a greater readership, but it also served as "momentum"; a Book-of-the-Month club offer indicated that an author's work would have "wide appeal."⁷⁸ In a promotional report for the club's members, Supreme Court Justice William O. Douglas asserted: "This book is the most

important chronicle of this century for the human race.”⁷⁹ 150,000 copies of the handout were generated in the first printing alone, and newspapers’ comments on the advertisement augmented its reach. Less than two weeks later, Consumer’s Union ordered 40,000 copies of *Silent Spring*, warranting a special softcover printing.⁸⁰ Consumer’s Union’s purchase ensured that Carson’s book would be distributed directly amongst the public, a critical audience.

Publication and Public Reaction

As the date set for *Silent Spring*’s first installment approached, the public was already gripped by another (similar) debate. Rather than acting as a distraction, though, the Thalidomide controversy offered a practical example of the dangers of unregulated science that Carson warned of in her book. The controversy arose when Richardson-Merrell, a pharmaceutical company, petitioned the FDA to sell the drug Thalidomide in the U.S. One official, Dr. Frances Kelsey, blocked their request citing that the research presented was insufficient. Although she faced pressure to approve the drug, she held steadfast. Kelsey was later vindicated when scientists discovered that Thalidomide caused shocking birth defects to children when taken in the first trimester by their mothers. When the FDA Commissioner took decisive action on July 23, 1962, it coincided with the serialized release of *Silent Spring*.⁸¹ The timeliness of this tragedy cultivated audiences that would follow and interact with the coming public debate. Carson recounted to a friend a prediction Dr. Hueper made during one of their interviews: “the time now is right for the book, for people are beginning to want the facts—sooner would have been premature, he thinks.”⁸²

Finally, on June 16, 1962, *Silent Spring* was released (albeit abridged) in the first of three installments in the *New Yorker*. This serialization was perhaps the most important of any of Carson’s pre-publication endeavors. An oversimplified examination of its role in Carson’s success would reveal only its importance as a vector by which Carson’s message reached the public. However, its significance is much more complex. Because Carson and Shawn

made the decision to not include her list of principal sources, the *New Yorker* played an important role in legitimizing and defending the series. The magazine's reputation for accuracy, Shawn's confidence in and history of running controversial stories, and (to a lesser extent) its influential readership (rumored to include President Kennedy) made it a medium that was not only conducive to Carson's publication, but also lent it vital credibility. With its most fundamental responsibility to disseminate Carson's prose amongst the public, this series spurred (and marked the beginning of) the *Silent Spring* debate held in the "public sphere," a factor that would, ultimately, solidify the book's impact.⁸³

Silent Spring's serialization in the *New Yorker* precipitated far-reaching consequences. Immediately upon publication of the first article, citizens deluged the magazine with mail, declaring that her "crusade of enlightenment" should be "required reading." Others thanked her for performing "a tremendous public service." The USDA was also inundated, most writing to express "horror and amazement."⁸⁴ Although the *New Yorker* reported receiving only a handful of critical responses, some did write in opposition:

Miss Rachel Carson's reference to the selfishness of insecticide manufacturers probably reflects her Communist sympathies, like a lot of our writers these days.

We can live without birds and animals, but, as the current market slump shows, we cannot live without business.

As for insects, isn't it just like a woman to be scared to death of a few little bugs! As long as we have the H-bomb everything will be O.K. PS. She's probably a peace-nut too.⁸⁵

The greatest attacks upon Carson, however, were staged in the public sphere, disseminated and amplified by the media.

On July 22, 1962, less than a month after the *New Yorker* printed their final installment, "'Silent Spring' Is Now Noisy Summer" appeared on the cover of the *New York Times* financial section. With the headers "Pesticide Industry Up in Arms over a New Book" and "Rachel Carson Stirs Conflict—Producers Are Crying 'Foul,'" John Lee sympathetically examined industry backlash to Carson's forthcoming book. He asserted that industry spokesmen's

greatest grievances were not “error of fact” but that they feel “that she has presented a one-sided case and has chosen to ignore the enormous benefits...that have accrued from the development and use of modern pesticides.” He goes on to list a number of vitriolic statements from relevant industry officials. Coming at a stage early enough in the debate that individuals in industry and government were still debating the best course of action, Lee’s article offers authentic insights into the initial and unedited reactions of major players. He closes with a prediction:

The public debate over pesticides is just beginning and the industry is preparing for a long siege. The book reviews and publicity attendant upon the book’s publication this fall will surely fan the controversy.

“*Silent Spring*” presages a noisy fall.⁸⁶

The Public Controversy

Indeed, *Silent Spring*’s publication in late September was followed indelibly by an oppositional campaign of great proportions. Fueled by what they viewed as a direct attack on their industry and the American way of life, Carson’s adversaries used the media and print culture to discredit her as an individual and challenge the legitimacy of her book. Critical responses to *Silent Spring* generally fell into two main categories: the first sought to promote the benefits of pesticides in an effort to garner public support while the second directly and explicitly criticized Carson and her book, often employing gender as a device.

On August 30, the National Agricultural Chemicals Association (NACA) released a brochure entitled, “Fact and Fancy: A Reference Checklist for Evaluating Information about Pesticides,” heralding the beginning of the industry’s public-relations campaign. “Fact and Fancy” juxtaposed unattributed quotes from *Silent Spring* with “facts” in an attempt to refute Carson’s claims. NACA mailed over 100,000 copies directly to individuals, targeting influential members of society.⁸⁷ In anticipation of the controversy, NACA had already expanded its public-relations department and budget. By the end of their campaign, they had spent more than \$250,000 trying to mitigate the impact of *Silent Spring*.⁸⁸ Because

of their centralization and vast resources, industry organizations, rather than individual manufacturers, were often tasked with coordinating and directing the response to *Silent Spring*. Similarly, agrochemical allies in the government deferred such tasks citing that chemical organizations were not tethered by political restraints or expectations.⁸⁹

This is not to say that individual companies did not take action. Brochures similar to those distributed by the Manufacturing Chemists' Association (and NACA) were authored by industry titans. American Cyanamid distributed a pamphlet entitled "The Role of Agricultural Chemicals in Feeding an Exploding Population," aiming to reinstall public confidence in testing procedures by detailing "The Screening Process" and the company's "intensive" procedures.⁹⁰

Nothing attempted to so desperately garner public support for pesticides as an article that appeared in the October issue of the company Monsanto's corporate magazine. "The Desolate Year" was conceived as a parody of *Silent Spring's* first chapter, "A Fable for Tomorrow." In "A Fable for Tomorrow," Carson had described "a town in the heart of America where all life seemed to live in harmony with its surroundings." Images of this bucolic utopia were soon dashed when "a strange blight crept over the area and everything began to change:" cattle and sheep died, chicken fell ill and "everywhere was a shadow of death." Carson's dramatized story sought to show the possible effects of indiscriminate pesticide use.⁹¹ In contrast, "The Desolate Year" attempted to highlight what America might look like *without* pesticides. According to them, insects would be "Unseen. Unheard. Unbelievably universal."⁹² Advance reprints were hurriedly sent to 5,000 editors, reviewers, and writers. Eventually, more than 25,000 reprints and 10,000 extra copies were circulated.⁹³

Ironically, these brochures were almost always written in opposition to ideas that Carson never actually advocated. Each stressed the necessity of continuing to use chemical products, but Carson never advocated to abandon them completely. In *Silent Spring*, she clearly stated: "It is not my contention that chemical

insecticides must never be used,” reaffirming this point each time she advocated for selective spraying or more responsible pesticide management.⁹⁴ Despite this, publications condemning *Silent Spring* implicitly (and sometimes explicitly) misconstrued Carson’s contentions, portraying them as outlandish and extreme. In his article “The myth of the ‘Pesticide Menace,’” Edwin Diamond, a senior editor at *Newsweek*, used this tactic, despite having been a contributor on the *Silent Spring* project for four months in 1958. In his piece, he stated, “I think the pesticide ‘problem’ can be handled without going back to a dark age of plague and epidemic.”⁹⁵ Such descriptions were no less dramatic than the lurid prose critics condemned Carson for. When Carson noticed that the article had been authored by an old (albeit brief) colleague, she was shocked, but not entirely stunned by his position; Rodell, Brooks, and she believed that Diamond’s article was retaliation for the collaboration ending quite bitterly, or as a short biography at the top of Diamond’s article put it, “a disagreement over how to proceed.”⁹⁶

Secondly, chemical industries assaulted Carson’s authority and *Silent Spring*’s validity. This category was epitomized by several especially popular book reviews. They consistently painted Carson as unprofessional and unqualified, some even writing that she was not a scientist. One of the most widely circulated reviews was written by Fredrick Stare of the National Nutrition Council, an organization funded by the three largest pesticide manufacturers in the U.S.⁹⁷ In his essay, “Some Comments on *Silent Spring*,” he charged Carson with “abandon[ing] scientific proof and truth.” He further sought to color Carson’s book as an illegitimate work of science, asserting that “Dispassionate scientific evidence and passionate propaganda are two buckets of water that simply can’t be carried on one person’s shoulders. The bucket that springs a leak in Miss Carson’s case is the scientific evidence.”⁹⁸

Similarly, William Darby’s review entitled “Silence, Miss Carson,” accused *Silent Spring* of being “dramatic,” its sources repetitive, and its author “uncritical.” At one point, he even suggests, “this book should be ignored.”⁹⁹ Other reviews adopted the

same tone as Stare's and Darby's including "Bias, Misinformation, Half-Truths Reduce Usefulness Of 'Silent Spring'" published in *Agricultural Chemicals*. These reviews were reprinted and widely distributed.

Carson and her colleagues at Houghton Mifflin attempted to counter industry's efforts, but the size, coordination, and public-relations capacity of these commercial titans far outweighed Houghton Mifflin's relatively meager attempts to circulate promotional pieces. The question then arises: why was the public not swayed by the acerbic attacks against Carson and her book? *Silent Spring's* ability to triumph over the vitriol it encountered is the result of two main factors.

First, media involvement augmented the complexity and magnitude of the debate. In drawing in more perspectives into the debate it became more challenging for the chemical industry to discredit Carson while the controversy's sheer size generated great public interest in Carson's message. At its most fundamental level, the media served as a "forum" for public debate. Both pieces in support of and in opposition to Carson's book were published and later disseminated through news outlets. Trade journals, popular newspapers, and literary magazines served as vectors for the respective voices of Carson and industry. The publication of pieces written by Houghton Mifflin, NACA, and similar players were disseminated amongst the general populace and served as the bedrock for a debate that was, ultimately, waged over public confidence. Because this debate was staged in the public sphere, the media's initial passive obligations quickly evolved to include news coverage of a current event, as well. Their shared responsibilities of facilitation and coverage became conflated to the point "that differentiating reviews from general coverage and opinion was sometimes impossible."¹⁰⁰ Articles detailing developments in the (very public) *Silent Spring* dispute became like an extension of the debate itself: each piece that appeared in a public format contributed to citizens' perception of *Silent Spring*.

Thus, as the controversy grew, the media transitioned from a passive facilitator to a major player in the debate, presenting

new perspectives and complicating the discourse. Summarizing this process, historian Priscilla Murphy writes:

Attendant within each one of the thousands of clippings preserved in the Carson Paper archives was a reporter's, columnist's, reviewer's, editor's, or letter writer's perspective. Editors decided what to cover and which letters to print, but they also wrote editorials about the issue. Reporters made decisions about how to describe Carson as well as how to depict squabbles at local garden clubs. Columnists made their pronouncements about whether Carson was hysterical or the pesticide advocates were heavy-handed. And once they moved from journalistic objectivity to advocacy, those in the media became overt partisans in the debate. Even without choosing sides, in speaking in their own voices, they expanded the breadth of the debate and further embellished its terms.¹⁰¹

Geographic contexts played a similar role as personal experiences in fragmenting the debate.¹⁰² Local media sources (primarily town newspapers) often framed their discussions of *Silent Spring* in their respective local contexts. Towns like Whitewater, Wisconsin reviewed it in relation to their Dutch elm disease eradication efforts. Letters from concerned citizens to the editor of the *Whitewater Register* drew parallels between Carson's contentions and local occurrences. One editorial printed by the *Register* in Spring 1963 even used a brief review of *Silent Spring* to segue into a description of one councilman's opinion of the regional eradication campaign.¹⁰³ When the *Silent Spring* debate became laced with local or personal concerns (explicitly or implicitly through writers' experiences) the debate over *Silent Spring*'s authority became conflated with other issues. Media involvement had transformed a once two-sided debate into a public conversation that captured national attention. Simply put, the chemical lobby could no longer win the debate with brochures and bulletins.

Furthermore, the controversy precipitated great public interest, and thus, an enlarged readership. In August 1962, shortly before the book was published, one chemical industry official had warned that "to engage in a public debate with Miss Carson may only call even more attention to her viewpoints that they might otherwise receive."¹⁰⁴ His prediction was soon vindicated when *Silent Spring* reached number one on the national bestsellers list

just two months after its publication. By December, bookstores had sold over 100,000 copies.¹⁰⁵ The public controversy proved greater advertising than any Houghton Mifflin booklet or promotional publication. The controversy was interesting, and people wanted to read the book that had sparked it.

Even for those who did not read *Silent Spring*, the media provided a forum to receive its message. At the height of the controversy, in the Spring of 1963, *CBS Reports* aired a special entitled “The *Silent Spring* of Rachel Carson.” Seeking to highlight the major perspectives of the debate, they interviewed Dr. Robert White-Stevens of American Cyanamid, a myriad of government officials, and Carson herself. In interview clips from her home in Silver Spring, Maryland, Rachel Carson calmly and clearly laid out her argument. Quoting the second chapter of her book, she asked viewers “Can anyone believe it is possible to lay down such a barrage of poisons on the surface of the earth without making it unfit for all life?” Over the course of the 45-minute episode, Carson communicated to viewers the major points of her book: pesticide-related biological disruptions, the inefficiency of current eradication efforts, and the dangers posed by continuing on the current trajectory.¹⁰⁶ An estimated 10 to 15 million citizens watched *CBS Reports* as it aired live, most of whom had not read *Silent Spring*.¹⁰⁷ The ability for *Silent Spring* to capture public attention—aided by the media and exemplified by *CBS Reports*—allowed Carson’s message to permeate the collective national consciousness.

The second factor that helped to sway the controversy in *Silent Spring*’s favor lies with Carson’s coverage in the news. Public depictions of her (intentionally and unintentionally) increased citizens’ receptivity to her, and in doing so, expanded her book’s appeal. When *The Sea Around Us* was published in 1951, Carson learned first-hand of the emphasis that the press placed on authors in addition to the book itself. Speaking honestly, she revealed at a meeting of the American Association of University Women shortly after her book’s release, “I learned the hard way: that people are interested not only in what is between the covers of a book but in the person who put it there.”¹⁰⁸ Thus, as the *Silent Spring* con-

troversy mounted, depictions of Carson became critical tools to connect with readers. Throughout the course of the public debate, Carson and her adversaries established competing narratives concerning Carson's personal and professional character. Among the most pervasive was that of the "reluctant crusader," an image that sought to paint Carson as a citizen who was so distressed by what she saw that she was forced to challenge the titans of industry and government in the name of social responsibility.

Such descriptions of Carson are only partially accurate. The "reluctant crusader" image was predicated on a belief that Carson was uncomfortable in the public-eye and ill-equipped to handle the immense publicity that her book had generated. As one article put it: "Miss Carson [is] a shy, soft-spoken woman miscast in the role of crusader."¹⁰⁹ This element of the description is flawed: Carson actually spoke eloquently and confidently. After her success as a writer with her ocean trilogy, speeches became a common occurrence, and the *Silent Spring* debate continued this trend, presenting opportunities for her to speak in front of various organizations, on national television, and twice in front of Congress. Carson showcased her articulate and deliberate speech at each of these public forums. What the "reluctant crusader" does correctly capture is the deep moral convictions that guided Carson. In a letter to one of her friends at the start of her research, Carson revealed,

This was something I had not expected to do, but facts that came to my attention last winter disturbed me so deeply that I made the decision to postpone all other commitments and devote myself to what I consider a tremendously important problem.¹¹⁰

During the debate, she reiterated these sentiments publicly. *Life Magazine* began their intimate portrait of her with a discussion of her motivations:

"I have no wish to start a Carrie Nation crusade," says Rachel Carson. "I wrote the book because I think there is a great danger that the next generation will have no chance to know nature as we do—if we don't preserve it that damage will be irreversible."¹¹¹

Such imagery painted Carson as a woman with a deep moral commitment as well as a scientist and writer whose professional

actions were purely altruistic, even to the point of self-sacrifice. As scientists were increasingly being entrusted with greater social responsibility, this image of Carson (albeit dramatic) seemed a trustworthy one.¹¹²

Individual traits were used to characterize Carson, as well. Supporters used specific traits to heighten her personal appeal while those in the opposition employed such characteristics to disqualify her and *Silent Spring's* scientific legitimacy. Oftentimes, what changed was not the trait being emphasized, but the individual's interpretation of it—whether they saw it as a positive or negative feature.¹¹³

Because *Silent Spring's* opposition could seldom find factual errors,¹¹⁴ critical reviews spent considerable time discussing Carson's qualifications (or as they would see it, lack thereof) as a scientist. In Stare's widely circulated review of *Silent Spring*, his attempt to dismiss Carson's qualifications is clear. Referring consistently to her as "Miss Carson," he contrasts her seeming lack of training with his lengthy list of degrees (four bolded at the top of the page). Without ever mentioning Carson's masters degree at Johns Hopkins University or her lengthy and accomplished career at the U.S. Fish and Wildlife Service, he lists thirteen scientific positions he has held and a number of "professional societies" he holds membership in. Subscribing to the notion that there exists a dichotomy between beautiful writing and the objectivity of science, reviewers like Stare sought to praise Carson as a "literary luminary" to disqualify her scientific legitimacy. He even writes explicitly: "Many of the reviewers who have dealt with the book have referred to Miss Carson as 'a distinguished scientist.' ...Nothing could be further from the truth. Miss Carson is a distinguished author."¹¹⁵

From the perspective of the general public, however, this barrier between writing and science was not so clear. Carson was described admiringly by *Life* as "not only a trained biologist and a painstaking, deliberate researcher but a superb writer."¹¹⁶ Another article commented that even "As a trained scientist she has never lost the poet's sense of wonder."¹¹⁷ Such descriptions

lauded Carson's capacity to find the beauty in nature and lace it with the sophistication of science. Few had the technical, literary, and investigative skills required for such a professional niche. In emphasizing Carson's literary prowess in an attempt to discredit her scientific authority, Carson's opposition unintentionally solidified her professional appeal.

Descriptions of her personal traits served a similar role: rather than defending her authority, however, they facilitated readers' connections with her. Themes of gender were apparent in nearly every description of Carson in the media. Some were explicit, noting that Carson was "unmarried but not a feminist" while most others carried undertones through adjective selection. Her opposition capitalized on the marginal number of women in the scientific field, branding her as "emotional" and "uncritical." Interestingly, objective and even supportive pieces used clearly gendered portrayals, as well. Perhaps attempting to counter descriptions of Carson as hysterical and fear-mongering, some intimate interviews with her described her as "gentle" and "demure." In *Life Magazine's* close-up with Carson, they showed several photographs of Carson in domestic settings: playing with her cat, bird watching, or playing in the woods with children during a nature walk. The only exception was the cover photograph of Carson next to a microscope.¹¹⁸ Such visual appeals were a poor reflection of the intensity of Carson's research, but undeniably shaped a distinct public narrative around her.

The epitome of Carson's media portrayals came with the release of the widely-watched *CBS Reports* "The *Silent Spring* of Rachel Carson." The episode provided an opportunity to see how she conducted herself and, more importantly, hear directly from Carson. Carson appeared in her home in Silver Spring, Maryland. Her speech articulate and her defenses solid, Carson appeared the thoughtful and well-spoken scientist that she was, not "hysterical," "emotional," and "unqualified" as some had attempted to portray her. After the broadcast, Frank Egler wrote to Carson, "You scored a notable triumph! You yourself came over *beautifully!*" Another

wrote, “You were superb on the television broadcast, and how delightful that Dr. White-Stevens looked so fiendish!”¹¹⁹

As the public debate became arguably more important than the book itself, such portrayals served an important role in “fitting Carson’s image to acceptable narratives of admirable women.” In not only relaying descriptions of Carson, but shaping the narrative around her, the media played an invaluable role in persuading the public to accept her book as a legitimate work of science.¹²⁰

Success in the Political Sphere

The two aforementioned reasons explain how *Silent Spring* achieved cultural success: through the very controversy that tried to discredit it, *Silent Spring* and its contentions became accepted public knowledge. This, however, does not necessarily elucidate how it attained such influence in the political sphere. Like many authors, Carson wrote under the assumption that when the public was informed of a clear problem, they would exert pressure on the government to galvanize political change. From this perspective, the public controversy stirred by *Silent Spring*’s publication should have been enough to effect legislative change. However, contemporary analysis reveals that this perspective lacks practicality. Scott Slovic writes:

this casual scheme is flawed because the public has only limited access to the corridors of power and also, even more importantly, because most people, including people of acute consciousness, have yet to take to heart the idea that “those who believe deeply in a humane ecology must act in accordance with their beliefs.”¹²¹

In other words, to realistically create a political impact, *Silent Spring* required support and a willingness to take action from within the political arena. Carson found this in the sympathetic current Kennedy administration and a Congress that was willing to promote discussion of legislation to reconcile the issues she drew attention to in her book.¹²²

The Kennedy administration demonstrated their intentions to engage with *Silent Spring* almost immediately. At a press conference in August 1962, before it was even published, President

John F. Kennedy announced his plans to investigate *Silent Spring* from a political perspective:

Reporter: Mr. President, there appears to be a growing concern among scientists as to the possibility of dangerous long-range side effects from the widespread use of DDT and other pesticides. Have you considered asking the Department of Agriculture or the Public Health Service to take a closer look at this?

President Kennedy: Yes, and I know that they already are. I think particularly, of course, since Miss Carson's book, but they are examining the matter.¹²³

During these early months, Kennedy also tasked the President's Science Advisory Committee with independently investigating Carson's assertions and the state of pesticide use in America. It would be months, however, before they released their report.

Meanwhile, Secretary Udall of the USDI welcomed *Silent Spring's* publication as a chance to become an advocate for environmental reform. Udall had assigned one of his highest staffers to follow the book's publication, citing that it might offer valuable lessons in public policy and an arsenal of information.¹²⁴ In 1964, with the Departments of Agriculture, Defense, Health, Education and Welfare (and his own Department of the Interior), he established the Federal Committee on Pest Control to act as another level of federal oversight to all pest-control programs. Udall proved a critical ally in government, especially given his position as a top bureaucrat.

Congress showed a similar eagerness to examine the political ramifications of *Silent Spring*. On July 11, 1962, Representative John Lindsay read several paragraphs from the *New Yorker's* third installment of *Silent Spring* into *The Congressional Record*. Lindsay's speech marked the first mention of Carson's book in Congress, but it was followed by supportive public statements from other politicians, such as Senator William Proxmire.¹²⁵ Congress's interest did not fade throughout the course of the controversy. In fact, as public debate waned in the summer of 1963, Carson was invited to testify twice on Capitol Hill: first, on June 4th at a Senate Subcommittee hearing presided over by Connecticut Senator,

Abraham Ribicoff; and next, two days later before the Senate Committee on Commerce.

At the first (more general) hearing, Carson expounded upon the claims in her book and the importance of political action. For more than forty minutes, she spoke of the problem and possible solutions, attempting to galvanize the Senators into action. Lear notes:

Those who heard Rachel Carson that morning did not see a reserved or reticent woman in the witness chair but an accomplished scientist, an expert on chemical pesticides, a brilliant writer, and a woman of conscience who made the most of an opportunity few citizens of any rank can have to make their opinions known. Her witness had been equal to her vision.¹²⁶

On June 6th, she testified at a hearing to consider two bills on pesticide use. As the Chairman stated, “There has been much discussion but little action. The purpose of these hearings is to consider legislation on which the committee can act and act in accordance with the public interest.”¹²⁷

Testimony at this hearing also affirmed the critical role of Carson’s writing and the public controversy in stimulating political action. Senator Monroney pointed out that the bill being debated suggested, “we are going to do to ourselves, in poisoning wildlife and fishery products, almost as much damage as we would do through the fallout of radioactive materials from testing” (a distinct literary technique Carson had employed in her writing). Another Senator acknowledged, “The controversy stirred by Miss Carson’s book has had a tremendous influence in stimulating public interest....”¹²⁸ These Senators’ testimony acknowledged that the factors that facilitated *Silent Spring’s* political and cultural success were interrelated; its political influence was greatly aided by its immense public success and captivating writing.

The greatest political vindication for Carson, however, came three weeks earlier with the publication of the President’s Science Advisory Committee’s report, entitled “Use of Pesticides.” The so-called PSAC Report provided a balanced perspective on the problem. It first acknowledged that “Pesticides have made a great

[positive] impact by facilitating the production and protection of food, feed and fibre in greater quantity and quality; by improving health; and by keeping in check many kinds of nuisance insects and unwanted plants,” but it also made clear their dangers as they were currently used. In one section, the report detailed the biological implications of chemical use on humans, explicitly reaffirming some of Carson’s most controversial claims. Several times, it acknowledged inadequacies in current testing, and called for greater research. Despite being a government publication, it even criticized USDA eradication efforts, noting that although they were a “laudable goal,” they were “seldom realistic.” The final section was entitled “Recommendations” and laid out several immediate actions including launching more investigative studies, reducing the use of especially toxic compounds, and pursuing some of the alternatives Carson had advocated for in *Silent Spring*, such as selective spraying or biological controls. Included on the second page was a message from President Kennedy: “I have already requested the responsible agencies to implement the recommendations in this report, including the preparation of legislative and technical proposals which I shall submit to the Congress.”¹²⁹

The Report was released on May 15, 1963 and was quickly circulated to the public. CBS, which had already played an active role in the public debate, aired an event that evening entitled “The Verdict on the *Silent Spring* of Rachel Carson.” During an interview in the program, Carson declared,

I think it’s a splendid report. It’s strong. It’s objective and I think a very fair evaluation of the problem. I feel that the report has vindicated me and my principal contentions. I am particularly pleased by the reiteration of the fact that the public is entitled to the facts, which after all, was my reason for writing *Silent Spring*.¹³⁰

Although not all industry organizations were entirely pleased with the tone or recommendations of the report, several surprisingly endorsed it, including *Chemical and Engineering News*. Even *Science* magazine—which had published a very critical review of *Silent Spring* just months earlier—admitted that the report “adds up to a daily thorough-going vindication of Rachel Carson’s *Silent Spring* thesis.”¹³¹

In the final moments of “The Verdict on the *Silent Spring* of Rachel Carson,” Eric Sevareid recounted Carson’s triumph:

Miss Carson had two immediate aims. One was to alert the public; the second, to build a fire under the Government. She accomplished the first aim months ago. Tonight’s report by the Presidential panel is *prima facie* evidence that she has accomplished the second.¹³²

Conclusion

Few books have achieved the success that *Silent Spring* did in both public and political life. A careful examination of this book’s journey reveals that its profound impact is the result of several main factors: its masterful research and writing, the failure of the campaign against it, and the intense interest of the public in its message. First, *Silent Spring* is a literary success in its own right. Carson’s extraordinary ability to research allowed her to create a book that would inevitably be impactful. With a great deal of the research she required scattered throughout the world, she cultivated a vast network of colleagues in science, government and conservation in order to assemble the evidence she needed. Although she did not contribute any original data to her book, her investigation was the first time such information was synthesized in a single volume. Her talent for writing allowed her to translate this compilation of technical scientific research into a form that was understandable to both scientists and the public. Second, failed attempts to discredit *Silent Spring* sparked national controversy, and thus, attracted great attention to it. In response to *Silent Spring*’s publication, Carson’s opposition created a campaign to discredit her and her book. However, as the public debate grew and the media extended its depth and parameters, the attempt failed. Instead, the national controversy piqued public interest. Furthermore, positive public portrayals of Carson facilitated citizens’ reception of *Silent Spring*. It was this campaign, and its strategic backfire—more than any Houghton Mifflin pre-publication activity—that embedded Carson’s message in the collective national consciousness. Third, *Silent Spring*’s acceptance (and its attacks’ demise) was facilitated by the public’s keen interest in the subject. With the timely Thalidomide tragedy

and underlying public unrest from the fear of nuclear fall-out, Carson's warnings (that unlimited scientific achievement may bring significant complications) resonated profoundly with the American citizenry. Politicians shared such concerns, taking action almost immediately to solidify *Silent Spring's* place in the political sphere. With the release of the President's Science Advisory Committee's report and her subsequent Congressional testimonies, Carson's claims were vindicated.

Silent Spring's success is most apparent when viewed through two lenses: the cultural and the political. From a cultural perspective, *Silent Spring's* success is extensive. When Carson was writing her book (1958-1962), the term "ecology" was seldom in citizens' lexicons. Even in the field of science, it was a subject relegated to the periphery. Conservation biology—today one of the most rapidly growing disciplines—was non-existent.¹³³ Directly, her book enlightened the public to the dangers posed by synthetic pesticides and similar chemicals. However, *Silent Spring* is much more than a tract against indiscriminate and ill-planned spraying. To quote Terry Tempest Williams, it "is a social critique of our modern way of life, as essential to the evolving American ideals of freedom and democracy as anything ever written by our founding fathers."¹³⁴ *Silent Spring's* impact on American thinking is significantly more profound than simply sowing seeds of skepticism towards unbridled scientific achievement; it is a reminder of the rights of citizens, and our obligation to protect the inherent beauty of nature.

Predictably, *Silent Spring's* social impact was (and continues to be) reflected in political action. Relatively immediate activity in Congress indicated Carson's message's political posterity: even before the publication of the PSAC report, the federal government mandated a study of the pesticides dieldrin and aldrin, both mentioned in *Silent Spring*. Later that year, in June, the Senate considered a bill to increase required consultation with FWS and state wildlife agencies before the beginning of any federal spraying programs. As time progressed, greater research came out in support of Carson's claims, prompting expanded legislative

action.¹³⁵ Eventually, the modern environmental movement was born, marked most notably by the establishment of the Environmental Protection Agency (EPA) in 1970. Finally, in 1972, *Silent Spring* achieved its most fundamental goal: DDT was banned in the United States. Then, in 1975, EPA Administrator Train banned heptachlor and chlordane (both of which Carson criticized for their lethality) after new data proved them to be carcinogenic. Congress passed numerous environmental standards in the following decades—this trend continues today.

As the foundation for modern environmentalism, *Silent Spring* remains a point of contention, especially as malaria continues to ravage countries around the world. Unlike the debate from the 1960s, Carson's central claims are largely established; now, discourse focuses on the possible negative implications of them, not their validity (in many cases). Those who continue to denounce Carson's claims employ many of the same techniques that *Silent Spring's* original critics used, charging her with "misinformation" and blaming her for the proliferation of certain deadly viruses (such as malaria and West Nile virus) that could be controlled with pesticides.¹³⁶ Indeed, pesticides have proven to be effective weapons against the spread of many diseases, but such critiques continue to oversimplify and mischaracterize Carson's position as well as the spirit of *Silent Spring*.

Reflecting on the current state of environmentalism in America, Edward O. Wilson predicted that if Carson were alive today,

The increased public awareness of the environment would please the educator in her; the ranking of her book as a literary classic would astonish the writer; and the existence of new regulatory laws would gratify the frustrated government bureaucrat. The naturalist in Rachel Carson, positioned at the core of her several parts, would take pleasure in knowing that ecocidal schemes such as the sea-level canal and the fire ant eradication program, if broached today, would be widely ridiculed and perish stillborn.¹³⁷

Nonetheless, assaults on the natural environment persist: increasingly lethal pesticides are continuously being synthesized and conservationists are in a constant struggle with the titans of

industry. It is here that *Silent Spring* exerts its greatest importance: it is a timeless message about “humankind’s hubris” and “nature’s integrity.” As America and the world continue to struggle with these themes, *Silent Spring*’s “moral framework” remains essential. In 1962, this message captured the attention of the American public. Today, in both political and public life, its legacy endures.



Endnotes

¹ *Interagency Coordination in Environmental Hazards: Hearings on S. S. Res. 27 Before the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations*, 88th Cong. (1963). Accessed July 10, 2020. <http://michiganintheworld.history.lsa.umich.edu/environmentalism/files/original/a6ee8ee29dbf17f580f7ea0b48699e9c.pdf>.

² Kathleen Dean Moore, Telephone/E-mail interview by the author. February/March, 2020.

³ Rachel Carson, *Silent Spring*, 50th ed. (Boston: Mariner Books/Houghton Mifflin, 2012).

⁴ Jean Rostand, quoted in *Ibid.*, 13.

⁵ Linda Lear, *Rachel Carson: Witness for Nature* (Boston: Mariner Books, 2009), 8.

⁶ *Ibid.*

⁷ Rachel Carson to Raymond J. Brown, “[Letter] n.d., Silver Spring, Maryland. [to] Raymond J. Brown,” October 15, 1946, Rachel Carson Papers: Beinecke Library, Yale University [hereafter “RCP-BLYU”], accessed June 6, 2020, <https://brbl-dl.library.yale.edu/vufind/Record/3535731>.

⁸ Carson to Curtis Bok, July 12, 1956, RCP-BLYU, quoted in Mark Hamilton Lytle, *The Gentle Subversive: Rachel Carson, Silent Spring, and the Rise of the Environmental Movement* (New York: Oxford University Press, 2007), 14.

⁹ Michelle Ferrari and Rafael De La Uz, episode 3, “Rachel Carson,” January 24, 2017, in *American Experience*, podcast, video, accessed June 23, 2019, iTunes.

¹⁰ Lear, *Rachel Carson*, 77-78.

¹¹ Lytle, *The Gentle*, 39.

¹² Lear, *Rachel Carson*, 80.

¹³ Brooks, *House of Life*, 22-23, quoted in Lytle, *The Gentle*, 39.

¹⁴ *Ibid.*, 40.

¹⁵ *Ibid.*, 85.

¹⁶ Ferrari and De La Uz, “Rachel Carson.”

¹⁷ Frederick Rowe Davis, *Banned: A History of Pesticides and the Science of Toxicology* (New Haven: Yale University Press, 2015), 38.

¹⁸ Edward F. Knipling, “The Development and Use of DDT for the Control of Mosquitoes,” *Journal of the National Malaria Society* 4, no. 2, June 1945: 77, quoted in David Kinkela, *DDT and the American Century: Global Health, Environmental Politics,*

and the Pesticide That Changed the World (Chapel Hill: University of North Carolina Press, 2013), 20.

¹⁹ R. C. Bushland et al., "DDT for the Control of Human Lice," *J.E.E.* 37 (1) (1944): 126, quoted in Davis, *Banned: A History*, 41.

²⁰ Kinkela, *DDT and the American*, 21.

²¹ Davis, *Banned: A History*, 77-78.

²² Kinkela, *DDT and the American*, 41.

²³ *Ibid.*, 124.

²⁴ *The Illinois Technograph*, April 1963, 4, accessed August 30, 2019, https://www.ideals.illinois.edu/bitstream/handle/2142/9448/IItech78_7.pdf?sequence=2.

²⁵ Edward O. Wilson, "On *Silent Spring*," in Peter Matthiessen, *Courage for the Earth: Writers, Scientists, and Activists Celebrate the Life and Writing of Rachel Carson* (Boston: Houghton Mifflin, 2007), 28-29; Edward O. Wilson, "Afterward," in *Silent Spring*, 358.

²⁶ Davis, *Banned: A History*, 185; Linda J. Lear, "Bombshell in Beltsville: The USDA and the Challenge of 'Silent Spring,'" *Agricultural History* 66, no. 2 (1992): 156, <http://www.jstor.org/stable/3743851>.

²⁷ Frank Graham, Jr., *Since Silent Spring* (Boston: Houghton Mifflin Company, 1970), 30.

²⁸ John George, quoted in *Ibid.*

²⁹ Pete Daniel, "A Rogue Bureaucracy: The USDA Fire Ant Campaign of the Late 1950s," *Agricultural History* 64, no. 2 (1990): 101-102, <http://www.jstor.org/stable/3743800>.

³⁰ USDA Leaflet no. 350, "The Imported Fire Ant: How to Control It," quoted in *Ibid.*, 99.

³¹ Edward O. Wilson, "On *Silent Spring*" in Matthiessen, *Courage for the Earth*, 31; Edward O. Wilson, "Afterward," in *Silent Spring*, 360.

³² *Ibid.*

³³ An anonymous "high official of the U.S. Fish and Wildlife service," quoted in Graham, *Since Silent*, 28.

³⁴ W.L. Popham to Samuel H. Ordway, Jr., December 26, 1957, Regulatory Crops, Fire Ants, Records of the Agricultural Research Service, Record Group 310, National Archives, quoted in Daniel, "A Rogue," 103.

³⁵ George J. Wallace, "Insecticides and Birds," *Audubon Mag.*, Jan.-Feb. 1959, quoted in Carson, *Silent Spring*, 107.

³⁶ Olga Owens Huckins to the Editor of the *Boston Herald*, "[Letter] 1958 Jan 28, Duxbury, Mass. [to] the Editor of

the [Boston] *Herald*,” January 28, 1958, RCP-BLYU, accessed June 7, 2020, <https://brbl-dl.library.yale.edu/vufind/Record/3535730>.

³⁷ Lear, *Rachel Carson*, 315.

³⁸ Rachel Carson to Dorothy Freeman [hereafter “RC to DF”], February 1, 1958, Freeman, Matha, ed. *Always, Rachel: The Letters of Rachel Carson and Dorothy Freeman* [hereafter *Letters*], 1952-1964. Boston: Beacon Press, 1995, quoted in *Ibid.*, 310.

³⁹ *Ibid.*, 316; Naomi Oreskes in Ferrari and De La Uz, “Rachel Carson.”

⁴⁰ Brooks, *House of Life*, 236-38, quoted in Lytle, *The Gentle*, 127.

⁴¹ RC to DF, June 28, 1958, quoted in Lear, *Rachel Carson*, 328.

⁴² Rachel Carson to Paul Brooks [hereafter “RC to PB”], February 21, 1958, RCP-BLYU, quoted in Lear, *Rachel Carson*, 321.

⁴³ *Ibid.*, 332.

⁴⁴ C. J. Briejèr to Rachel Carson, quoted in Graham, *Since Silent*, 21.

⁴⁵ Lear, *Rachel Carson*, 429.

⁴⁶ Lytle, *The Gentle*, 150.

⁴⁷ Lear, *Rachel Carson*, 332.

⁴⁸ RC to PB, February 14, 1959, RCP-BLYU, quoted in *Ibid.*, 342.

⁴⁹ Rachel Carson to Clarence Cottam, January 1959, RCP-BLYU, quoted in *Ibid.*

⁵⁰ Carson, *Silent Spring*, 103-127.

⁵¹ Unnamed Texas USDA official, quoted in Graham, *Since Silent*, 28.

⁵² William Brown to Rachel Carson, quoted in *Ibid.*

⁵³ Lear, *Rachel Carson*, 345.

⁵⁴ RC to PB and William Shawn, February 14, 1959, RCP-BLYU, quoted in Lear, *Rachel Carson*, 340.

⁵⁵ John J. Biesele to Rachel Carson, quoted in Graham, *Since Silent*, 33.

⁵⁶ Lear, *Rachel Carson*, 345.

⁵⁷ Lytle, *The Gentle*, 163.

⁵⁸ RC to DF, January 23, 1961, quoted in *Ibid.*, 161.

⁵⁹ RC to PB, December 3, 1959, RCP-BLYU, quoted in Lear, *Rachel Carson*, 357.

- ⁶⁰ Paul Brooks to Rachel Carson, December 21, 1959 RCP-BLYU, quoted in Priscilla Coit Murphy, *What a Book Can Do: The Publication and Reception of Silent Spring* (Amherst: University of Massachusetts Press, 2007), 67.
- ⁶¹ RC to PB, December 3, 1959, RCP-BLYU, quoted in Lear, *Rachel Carson*, 357.
- ⁶² Carson, *Silent Spring*, 13-127.
- ⁶³ Linda Lear, "Introduction" in *Ibid.*, x.
- ⁶⁴ *Ibid.*, 100.
- ⁶⁵ Lisa H. Sideris and Kathleen Dean Moore, *Rachel Carson: Legacy and Challenge* (Albany, NY: State University of New York, 2008), 60-61.
- ⁶⁶ Moore, Telephone/E-mail interview by the author.
- ⁶⁷ Carson, *Silent Spring*, 162.
- ⁶⁸ Paul Brooks to Rachel Carson, March, 29, 1960 RCP-BLYU, quoted in Lear, *Rachel Carson*, 374-375.
- ⁶⁹ Murphy, *What a*, 203.
- ⁷⁰ Carson, *Silent Spring*, 108.
- ⁷¹ Moore, Telephone/E-mail interview by the author.
- ⁷² RC to DF, January, 23, 1961, quoted in Lytle, *The Gentle*, 161.
- ⁷³ Murphy, *What a*, 69-70.
- ⁷⁴ Marie Rodell to Anne Ford, April 20, 1962, RCP-BLYU, quoted in *Ibid.*, 46
- ⁷⁵ Lear, *Rachel Carson*, 405-06.
- ⁷⁶ *Ibid.*, 406.
- ⁷⁷ RC to DF, June 13, 1962, *Letters*, quoted in *Ibid.*, 408.
- ⁷⁸ Lytle, *The Gentle*, 164.
- ⁷⁹ William O. Douglas, Report, *Book-of-the-Month Club News* (September 1962), 2-4, quoted in Lear, *Rachel Carson*, 419.
- ⁸⁰ *Ibid.*, 411-19.
- ⁸¹ Davis, *Banned: A History*, 174-77.
- ⁸² RC to DF, quoted in Lear, *Rachel Carson*, 356.
- ⁸³ Murphy, *What a*, 64-66.
- ⁸⁴ Excerpts from citizens' letters, quoted in Ferrari and De La Uz, "Rachel Carson."
- ⁸⁵ H. Davidson, San Francisco, CA. June 29, 1962, quoted in Lear, *Rachel Carson*, 409.
- ⁸⁶ John M. Lee, "'Silent Spring' Is Now Noisy Summer; Pesticides Industry Up in Arms Over a New Book Rachel Carson Stirs Conflict—Producers Are Crying 'Foul' Rachel Carson Upsets Industry" *The New York Times* (New York City, NY), July 22, 1962, Business & Finance, accessed

January 13, 2020, <https://timesmachine.nytimes.com/timesmachine/1962/07/22/issue.html>.

⁸⁷ Murphy, *What a*, 111.

⁸⁸ Lear, *Rachel Carson*, 428.

⁸⁹ Lear, “Bombshell in Beltsville.”

⁹⁰ Robert White-Stevens. *The Role of Agricultural Chemicals in Feeding an Exploding Population*. N.p.: American Cyanamid Company, n.d. Linda Lear Collection of Rachel Carson from the Linda Lear Center for Special Collections and Archives, Connecticut College [hereafter “LLCRC”].

⁹¹ Carson, *Silent Spring*, 1-2.

⁹² “The Desolate Year.” *Monsanto Magazine*, October 1962, LLCRC, 4-9.

⁹³ Murphy, *What a*, 78-111.

⁹⁴ Carson, *Silent Spring*, 108.

⁹⁵ Edwin Diamond, “The Myth of the ‘Pesticide Menace,’” *The Saturday Evening Post*, September 28, 1963, 18, accessed October 25, 2020, http://www.saturdayeveningpost.com/wp-content/flbk/The_Myth_of_the_Pesticide_Menace.

⁹⁶ *Ibid.*, 16; Lear, *Rachel Carson*, 322-326, 461-462.

⁹⁷ Lear, *Rachel Carson*, 438-439.

⁹⁸ Fredrick J. Stare. “Some Comments on ‘Silent Spring.’” *Nutrition Reviews*, January 1963. LLCRC.

⁹⁹ William J. Darby. “Silence, Miss Carson.” *National Agricultural and Chemicals Association News and Pesticide Review*, October 1962. LLCRC, 12.

¹⁰⁰ Murphy, *What a*, 93-129.

¹⁰¹ *Ibid.*, 129-130.

¹⁰² *Ibid.*

¹⁰³ Kathy Brady, “Pesticides and Politics: a Wisconsin Town Battles Bugs and Bureaucracy,” *The Wisconsin Magazine of History* 93, no. 4 (2010): 8, <http://www.jstor.org/stable/27870391>.

¹⁰⁴ “Industry Maps Defense,” *C&EN*, 24, quoted in Murphy, *What a*, 99.

¹⁰⁵ Lytle, *The Gentle*, 176.

¹⁰⁶ “The Silent Spring of Rachel Carson,” *CBS Reports*, April 3, 1962, .mp4 video, 45:51. Internet Archive. Posted by Mmraby, 1962. Accessed July, 2020. <https://archive.org/details/SilentSpringRachelCarson>.

¹⁰⁷ Lear, *Rachel Carson*, 450.

¹⁰⁸ Speech to American Association of University Women, December 8, 1959, RCP-BLYU 99, quoted in Murphy, *What a*, 26.

¹⁰⁹ “Close-up: Gentle Storm Center—Rachel Carson,” *LIFE Magazine*, October 12, 1962, 105.

¹¹⁰ Rachel Carson to Clarence Cottam, November 18, 1958, RCP-BLYU, quoted in Lear, *Rachel Carson*, 336.

¹¹¹ “Close-up: Gentle,” 105.

¹¹² David K. Hecht, “Constructing a Scientist: Expert Authority and Public Images of Rachel Carson,” *Historical Studies in the Natural Sciences* 41, no. 3 (2011): 282, <https://doi.org/10.1525/hsns.2011.41.3.277>.

¹¹³ *Ibid.*, 293.

¹¹⁴ Lee, “Silent Spring,” *Business & Finance*, 97.

¹¹⁵ Stare, “Some Comments.”

¹¹⁶ “Close-up: Gentle,” 105.

¹¹⁷ “Meet Rachel Carson, a Poet and a Scientist,” *The Trentonian*, July 11, 1963, RCP-BLYU, quoted in Hecht, “Constructing a Scientist,” 288.

¹¹⁸ “Close-up: Gentle,” 105-109.

¹¹⁹ Frank Egler to Rachel Carson, April 4, 1963; Christine Stevens to Rachel Carson, April 11, 1963, RCP-BLYU, quoted in Lear, *Rachel Carson*, 450.

¹²⁰ Hecht, “Constructing a Scientist,” 279-285.

¹²¹ Scott Slovic, *Seeking Awareness in American Nature Writing: Henry Thoreau, Annie Dillard, Edward Abbey, Wendell Berry, Barry Lopez* (Salt Lake City: University of Utah Press, 1992), 169-170.

¹²² Christopher J. Bosso, *Pesticides and Politics: The Life Cycle of a Public Issue* (Pittsburgh: University of Pittsburgh Press, 1987), 115, quoted in Murphy, *What a*, 203.

¹²³ “The Silent,” .mp4 video.

¹²⁴ Lear, *Rachel Carson*, 406-407.

¹²⁵ *Ibid.*, 410-411.

¹²⁶ *Ibid.*, 454.

¹²⁷ *Pesticide Research and Controls: Hearings on S. S. 1250 and S. 1251 Before the Committee on Commerce*, 88th Cong., 1st Sess. (1963). LLCRC.

¹²⁸ *Ibid.*

¹²⁹ The White House Life Sciences Panel, *Use of Pesticides*, by The President’s Science Advisory Committee (Washington D.C., The United States, 1963), accessed July 7, 2020, <https://www.jfklibrary.org/asset-viewer/archives/JFKPOF/087/JFKPOF-087-003>.

¹³⁰ *CBS Reports*, “The Verdict on the *Silent Spring* of Rachel Carson,” May 15, 1963, Transcript, RCP-BLYU, quoted in Lear, *Rachel Carson*, 452.

¹³¹ *Science*, quoted in Graham, *Since Silent*, 79.

¹³² *CBS Reports*, “The Verdict on the *Silent Spring* of Rachel Carson,” May 15, 1963, Transcript, RCP-BLYU, quoted in Lear, *Rachel Carson*, 452.

¹³³ Edward O. Wilson, “On *Silent Spring*” in Matthiessen, *Courage for the Earth*, 27-28; Edward O. Wilson, “Afterward,” in *Silent Spring*, 357.

¹³⁴ Terry Tempest Williams, “One Patriot,” in Sideris and Moore, *Rachel Carson*, 26.

¹³⁵ In November 1963, pedestrians noticed unusually high numbers of dead fish floating at the surface of the Mississippi River. The abnormality of the situation prompted Louisiana’s Office of Water Pollution Control to examine the situation, but they could not explain the scenario. Eventually, scientists from the (national) Public Health Service, using gas chromatography, discovered that the fish deaths were a result of trace amounts of endrin (a chemical Carson criticized in *Silent Spring*) in the water. Additionally, the endrin was from a Velsicol waste-treatment plant, the same company who had (unsuccessfully) attempted to hinder *Silent Spring*’s publication. This clear vindication on behalf of Carson served as the impetus for several Senate hearings (presided over by Senator Ribicoff) and a clean water bill. Lytle, *The Gentle*, 189-90.

¹³⁶ Angela Logomasini, *Rachel Was Wrong: Agrochemicals’ Benefits to Human Health and the Environment*, report no. 8, 1, November 2012, accessed October 25, 2020, <https://cei.org/sites/default/files/Angela%20Logomasini%20-%20Rachel%20Was%20Wrong.pdf>.

¹³⁷ Edward O. Wilson, “On *Silent Spring*” in Matthiessen, *Courage for the Earth*, 34; Edward O. Wilson, “Afterward,” in *Silent Spring*, 362.

Selected Bibliography

The following abbreviations are used: “RCP/BLYU” for the “Rachel Carson Papers at Beinecke Library, Yale University” and “LLCRC” for the “Linda Lear Collection of Rachel Carson from the Linda Lear Center for Special Collections and Archives, Connecticut College.”

Primary Sources

Brimrose Art. LLCRC.

Carson, Rachel. Letter to Raymond J. Brown, October 15, 1946. RCP/BLYU. Accessed February 16, 2020. <https://brbl-dl.library.yale.edu/vufind/Record/3535731>.

———. *Silent Spring*. 1962. Reprint, Mariner Books, 2002.

“Close-up: Gentle Storm Center—Rachel Carson.” *LIFE Magazine*, October 12, 1962, 105-10.

Darby, William J. “Silence, Miss Carson.” *National Agricultural and Chemicals Association News and Pesticide Review*, October 1962. LLCRC.

Des Moines Register. “I’m One of the Victims.” July 29, 1962. LLCRC.

Diamond, Edwin. “The Myth of the ‘Pesticide Menace.’” *The Saturday Evening Post*, September 28, 1963, 16-18. Accessed October 25, 2020. http://www.saturdayeveningpost.com/wp-content/flbk/The_Myth_of_the_Pesticide_Menace.

Huckins, Olga Owens. Letter to Editor of the *Boston Herald*, “[Letter] 1958 Jan 28, Duxbury, Mass. [to] the Editor of the [Boston] Herald,” January 28, 1958. RCP/BLYU. Accessed February 15, 2020. <https://brbl-dl.library.yale.edu/vufind/Record/3535730>.

———. Letter to Rachel Louise Carson, “[Letter] 1958 Jan 27, Duxbury, Mass. [to] Rachel [Carson],” January 27, 1958. RCP/BLYU. Accessed February 16, 2020. <https://brbl-dl.library.yale.edu/vufind/Record/3535729>.

Interagency Coordination in Environmental Hazards: Hearings on S. S. Res. 27 Before the Subcommittee on Reorganization and International Organizations of the Committee on Government Operations, 88th Cong. (June 4, 1963). Accessed July 10, 2020. <http://michiganintheworld.history.lsa.umich.edu/environmentalism/files/original/a6ee8ee29dbf17f580f7ea0b48699e9c.pdf>.

Lee, John M. “‘Silent Spring’ Is Now Noisy Summer; Pesticides Industry Up in Arms Over a New Book Rachel Carson Stirs Conflict—Producers Are Crying ‘Foul’ Rachel Carson Upsets Industry.” *The New York Times* (New York City, NY), July 22, 1962, *Business & Finance*, 1-12. Accessed January 13, 2020. <https://timesmachine.nytimes.com/timesmachine/1962/07/22/issue.html>.

Lytle, Mark H. Telephone/E-mail interview by the author. United States. February/April, 2020.

“Medics Join Rachel.” In *The Original Romeike Press Clippings*. New York City, n.d. Excerpt from *Quincy, Ill. Herald-Whig*, March 28, 1963. LLCRC.

National Agricultural Chemicals Association. *Fact and Fancy: a Reference Checklist for Evaluating Information about Pesticides*. Washington D.C., 1962. LLCRC.

Pesticide Research and Controls: Hearings on S. S. 1250 and S. 1251 Before the Committee on Commerce, 88th Cong., 1st Sess. (June 6, 1963). LLCRC.

Peters, Harold S. Letter to John F. Kennedy, “Letter to President Kennedy re: Pesticide Brochure,” November 2, 1963. LLCRC.

Robert Cushman Murphy v. Ezra Taft Benson, 270 U.S. (2d Cir. Oct. 1, 1959). RCP/BLYU. Accessed March 5, 2020. <https://brbl-dl.library.yale.edu/vufind/Record/3557160>.

Stare, Fredrick J. “Some Comments on ‘Silent Spring.’” *Nutrition Reviews*, January 1963. LLCRC.

Sweetman, Harvey L. “Bias, Misinformation, Half-Truths Reduce Usefulness Of ‘Silent Spring.’” *Agricultural Chemicals*, February 1963. LLCRC.

“The Desolate Year.” *Monsanto Magazine*, October 1962, 4-9. LLCRC.

The Illinois Technograph, April 1963. Accessed August 30, 2019. https://www.ideals.illinois.edu/bitstream/handle/2142/9448/IITech78_7.pdf?sequence=2.

The National Environmental Policy Act of 1969, as amended, 42 U.S.C. §§ 4321-4347 (Jan. 2, 1970 & Supp. 1975, 1982). Accessed March 16, 2020. https://www.whitehouse.gov/sites/whitehouse.gov/files/ceq/NEPA_full_text.pdf.

The New York Times. “Experts Defend Use of Pesticides.” September 24, 1963, 35. LLCRC.

“The *Silent Spring* of Rachel Carson,” *CBS Reports*, April 3, 1962, .mp4 video, 45:51. Internet Archive. Posted by Mmrary, 1962. Accessed July, 2020. <https://archive.org/details/SilentSpringRachelCarson>.

The White House. “Life Science Panel PSAC, Executive Office Building in DC 5/15/63.” News release. May 15, 1963. LLCRC.

The White House Life Sciences Panel. *Use of Pesticides*. By The President’s Science Advisory Committee. Washington D.C., The United States, 1963. Accessed January 25, 2020. <https://www.jfklibrary.org/asset-viewer/archives/JFKPOF/087/JFKPOF-087-003>.

Toth, Robert C. "U.S. Orders Study of Two Pesticides." *New York Times*, May 5, 1963, 2. LLCRC.

Udall, Stewart L. "Our Battle against a 'Silent Spring.'" *True*, August 1965. LLCRC.

White, Jean M. "Scientist Questions Industry 'Filter' on Research." *The Washington Post*, December 7, 1962. LLCRC.

White-Stevens, Robert. *The Role of Agricultural Chemicals in Feeding an Exploding Population*. N.p.: American Cyanamid Company, n.d. LLCRC.

Secondary Sources

Brady, Kathy. "Pesticides and Politics: A Wisconsin Town Battles Bugs and Bureaucracy." *The Wisconsin Magazine of History* 93, no. 4 (2010): 2-15. Accessed April 30, 2020. www.jstor.org/stable/27870391.

Daniel, Pete. "A Rogue Bureaucracy: The USDA Fire Ant Campaign of the Late 1950s." *Agricultural History* 64, no. 2 (1990): 99-114. Accessed April 29, 2020. www.jstor.org/stable/3743800.

Davis, Frederick Rowe. *Banned: A History of Pesticides and the Science of Toxicology*. N.P.: Yale University Press, 2014.

Graham, Frank, Jr. *Since Silent Spring*. Boston: Houghton Mifflin Company, 1970.

Hecht, David K. "Constructing a Scientist: Expert Authority and Public Images of Rachel Carson." *Historical Studies in the Natural Sciences* 41, no. 3 (2011): 277-302. Accessed February 1, 2020. doi:10.1525/hsns.2011.41.3.277.

Kinkela, David. *DDT & The American Century*. Edited by William H. Becker. Chapel Hill, NC: The University of North Carolina Press, 2011.

Lear, Linda. "Bombshell in Beltsville: The USDA and the Challenge of 'Silent Spring'." *Agricultural History* 66, no. 2 (1992): 151-70. <http://www.jstor.org/stable/3743851>.

———. "Rachel Carson's 'Silent Spring'." *Environmental History Review* 17, no. 2 (1993): 23-48. Accessed February 1, 2020. doi:10.2307/3984849.

———. *Rachel Carson: Witness for Nature*. New York, NY: Henry Holt and Co., 1997. Reprint, New York, NY: Houghton Mifflin Harcourt, 2009.

———. Telephone interview by the author. April, 2020.

Logomasini, Angela. *Rachel Was Wrong: Agrochemicals' Benefits to Human Health and the Environment*. Report no. 8. November 2012. Accessed October 25, 2020. <https://cei.org/>

sites/default/files/Angela%20Logomasini%20-%20Rachel%20Was%20Wrong.pdf.

Lytle, Mark Hamilton. *The Gentle Subversive: Rachel Carson, Silent Spring, and the Rise of the Environmental Movement*. New York, NY: Oxford University Press, 2007.

“Malaria and ‘Silent Spring’ | Retro Report.” Video file. YouTube. Posted by American Experience PBS, January 23, 2017. Accessed June 22, 2019. <https://www.youtube.com/watch?v=t2bZ9lpNGfE>.

Matthiessen, Peter. *Courage for the Earth: Writers, Scientists, and Activists Celebrate the Life and Writing of Rachel Carson*. Boston: Houghton Mifflin, 2007.

“Milestones in EPA and Environmental History.” EPA. Accessed March 5, 2020. <https://www.epa.gov/history>.

Moore, Kathleen Dean. Telephone/E-mail interview by the author. February/March, 2020.

Murphy, Priscilla Coit. *What a Book Can Do: The Publication and Reception of Silent Spring*. Amherst: University of Massachusetts Press, 2007.

“Rachel Carson.” *American Experience*. Podcast video. January 24, 2017, iTunes.

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

Slovic, Scott. *Seeking Awareness in American Nature Writing: Henry Thoreau, Annie Dillard, Edward Abbey, Wendell Berry, Barry Lopez*. Salt Lake City: University of Utah Press, 1992.

Griswold, Eliza. “How ‘Silent Spring’ Ignited the Environmental Movement.” *The New York Times*. Last modified September 21, 2012. Accessed August 9, 2019. <https://www.nytimes.com/2012/09/23/magazine/how-silent-spring-ignited-the-environmental-movement.html?mtrref=www.google.com>.

Stoll, Mark. “The personal attacks on Rachel Carson as a woman scientist.” *Environment and Society Portal*. Last modified 2012. Accessed August 9, 2019. <http://www.environmentandsociety.org/exhibitions/silent-spring/personal-attacks-rachel-carson>.