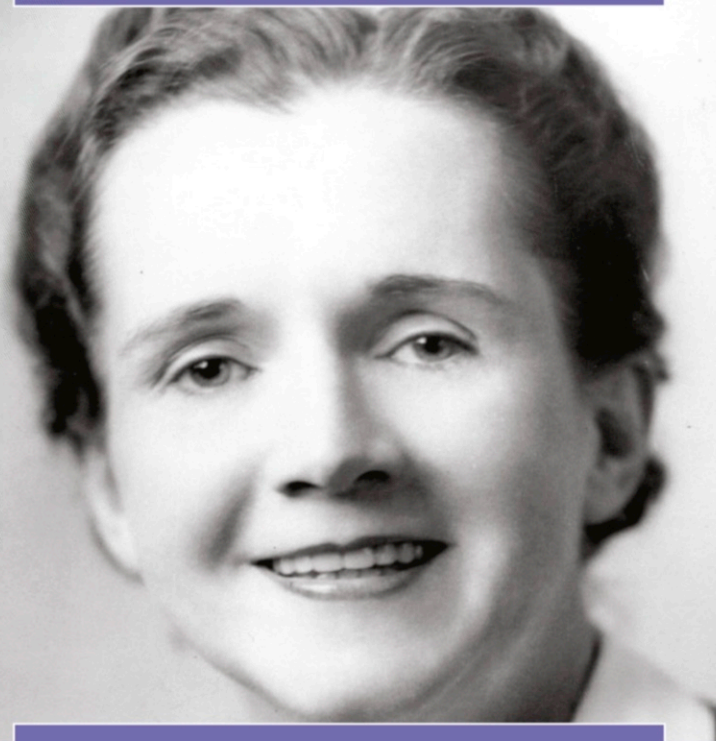


Rachel Carson

Challenging Authors

Karen F. Stein



SensePublishers

Rachel Carson

Critical Literacy Teaching Series: Challenging Authors and Genre

Volume No 2

Series Editor:

Paul Thomas, Furman University

Editorial Board :

Karen Stein, *University of Rhode Island*
Shirley Steinberg, *McGill University, Montreal*
Jeanne Gerlach, *University of Texas-Arlington*
Leila Christenbury, *Virginia Commonwealth University*
Renita Schmidt, *Furman University*
Ken Lindblom, *Stony Brook University*

This series explores in separate volumes major authors and genres through a critical literacy lens that seeks to offer students opportunities as readers and writers to embrace and act upon their own empowerment. Each volume will challenge authors (along with examining authors that are themselves challenging) and genres as well as challenging norms and assumptions associated with those authors' works and genres themselves. Further, each volume will confront teachers, students, and scholars by exploring all texts as politically charged mediums of communication. The work of critical educators and scholars will guide each volume, including concerns about silenced voices and texts, marginalized people and perspectives, and normalized ways of being and teaching that ultimately dehumanize students and educators.

Rachel Carson

Challenging Authors

By

Karen F. Stein

University of Rhode Island, Kingston, RI, USA



SENSE PUBLISHERS
ROTTERDAM/TAIPEI

A C.I.P. record for this book is available from the Library of Congress.

ISBN: 978-94-6209-066-8 (paperback)

ISBN: 978-94-6209-067-5 (hardback)

ISBN: 978-94-6209-068-2 (e-book)

Published by: Sense Publishers,
P.O. Box 21858,
3001 AW Rotterdam,
The Netherlands
<https://www.sensepublishers.com/>

Printed on acid-free paper

All Rights Reserved © 2012 Sense Publishers

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

DEDICATION

*For my daughters Arielle and Lisa who are working to build a better world,
and to the future generations who will inherit the world we leave.*

TABLE OF CONTENTS

Acknowledgements	xi
Introduction: Rachel Carson, Environmentalism, and the Web of Life	xiii
1 Biography	1
Rachel Carson: “The Poet Laureate of the Sea” (Ballard)	1
Childhood	2
Education	4
Career at the Fish and Wildlife Service and Early Publications	7
Career after Leaving the Fish and Wildlife Service	9
Political Activity	11
Honors, Awards, and Public Speaking	12
Carson's Last Years	14
2 Nature Writing: A Whirlwind Tour	19
3 Books About the Sea: “Who has known the Ocean?”	29
<i>Under the Sea Wind</i>	30
<i>The Sea Around Us</i>	34
<i>The Edge of the Sea</i>	44
4 “Words to Live by: ”Carson's Other Writings: Field Notes,	
Essays, Reviews, and Government Brochures	51
Government Publications	51
Essays in Newspapers and Magazines	52
Speeches	54
TV Script "Clouds"	56
<i>The Sense of Wonder</i>	56
Letters to Dorothy Freeman	58
5 <i>Silent Spring</i> (1962)	61
Background on Pesticides Before DDT	64
Development and Use of DDT	67
Carson Takes on the Challenge	74
<i>Silent Spring</i> : Summary and Discussion	76
Timeliness of the Book	91
Reasons for the Book's Popularity	93
Chemical Company Reactions	93

TABLE OF CONTENTS

Reviews of the Book	97
CBS Reports	99
Carson's Testimony in Congress	102
Related Speeches and Articles	103
Carson's Rhetorical Strategies	103
6 After <i>Silent Spring</i> : The Legacies of Rachel Carson	107
Posthumous Awards and Honors	107
Women Marine Biologists and Oceanographers	108
Continuing Controversies	109
Updates: Delaney Clause to Food Quality Protection Act	110
Cancer and Environmental Toxins	111
Environmental Ethics	114
Environmental Justice	114
Updates and Revisits: <i>Silent Spring Revisited</i>	115
Carson's Views of Factory Farms	118
Organic Farming	122
The DDT and Malaria Controversy	123
Continuing Research on DDT's Health Effects	124
Sustainability	125
Ecofeminism	129
7 Teaching Rachel Carson	131
Ideas for Student Projects	133
Teach the Controversies	134
Problem Based Learning	135
8 Resources	141
9 Epilogue	173
Appendix 1 Rachel Carson Chronology	175
Appendix 2 History of DDT (Dichloro-Diphenyltrichloroethane)	179
Appendix 3 History of U.S. Environmental Legislation	183
References	185

ACKNOWLEDGEMENTS

It is my pleasure to acknowledge the many people whose help was invaluable in making this book. Above all thanks must go to Rachel Carson herself whose books about the sea combine science and poetry, and whose *Silent Spring* enlightened us about the dramatic impact human actions have on our environment, and turned the U.S. in a new direction. This book builds upon the work of many people who are not named here, numerous scholars who have studied and written about the environment and about Carson. It also owes a debt of gratitude to the many activists who have worked and advocated on behalf of the environment.

Thanks to Paul Thomas, editor of the Challenging Authors series, for his patience, encouragement, and advice.

Great thanks to my home institution, the University of Rhode Island, for providing support in several important ways: an Arts and Humanities Seed Funding grant that enabled me to purchase books about Carson and to travel to consult the Rachel Carson papers at the Beinecke Library at Yale University; the Dean of Arts and Sciences, Dean Winifred Brownell, who granted me released time to work on the manuscript; the John Hazen White Sr. Center for Ethics and Public Service, that provided a Fellowship and a community of scholars; and the URI Foundation that provided a URI Council for Research Career Enhancement Award that allowed me to spend a summer working on the manuscript. Librarians helped me search various databases to find needed information. Thanks for the support and encouragement of the English Department Chairs, Stephen Barber and Ryan Trimm.

Much gratitude goes to Linda Lear for her thoroughly researched biography of Rachel Carson, for her edited collection of Carson's little known writings, and for her endowment of the beautiful Lear Carson Special Collections Library at Connecticut College that provides a space and materials for research.

Thanks to the librarians at The Linda Lear Collection of Rachel Carson Books and Papers at the Shain Library, Connecticut College, New London, Connecticut.

Connecticut College special collections librarians: Benjamin Panciera, Ruth Rusch Sheppe '40 Director of Special collections and Archives, and Nova M. Seals, Librarian for Special collections and Archives.

Nancy Baer led me to the Bill Moyers program about Rachel Carson.

Thanks to the many librarians at the Beinecke Rare Book and Manuscript Library Reading Room at Yale University, New Haven, Connecticut who graciously provided me numerous boxes of Carson's papers, and helped me get a taxi one rainy day. Especial thanks to Natalia Sciarini, Morgan Swan, and Leah Jehan who e-mailed me files of relevant documents.

Deborah Mongeau, Government Publications Librarian at University of Rhode Island found important government documents for me, and helped search for Carson's still elusive radio scripts about fish. The librarians at the URI Oceanography School provided books from their collection and information about the *Coast Pilots*. Other University of Rhode Island librarians, especially Sarina Wyant, helped me locate material, format citations, and navigate search engines.

Students at the University of Rhode Island computer Help Desk patiently guided me through complex formatting issues.

ACKNOWLEDGEMENTS

Michael Keith inspires me by his example of research, scholarly, and creative productivity. He provided clues for tracking down the elusive “Romance Under the Water”/ fish tales scripts. Alas, I have not been able to find these yet.

Colleagues at the University of Rhode Island generously shared insights and information. Rebecca Nelson Brown provided information about organic gardening and lawn care. J. Stanley Cobb and James Quinn provided information about the North Cape oil spill. Tom Dupree provided graphs, information and anecdotes about the gypsy moth spraying program in Rhode Island. Ted Durbin of the University of Rhode Island Oceanography School gave me a contemporary oceanography textbook which greatly enhanced my knowledge of oceanography. Larry Englander enthusiastically offered information about insect resistance to pesticides and patiently answered many questions about insects. Tom Mather discussed environmental ethics, insects, and malaria with me and asked important questions that led me to re-think sections of the manuscript. Rainer Lohmann shared information about organic pollutants. Frank Heppner shared information about bird populations.

Jenn Brandt and Steve Canaday shared information and resources about Problem Based Learning that inspired me to learn more and to develop problems for my classes.

With the help of three wonderful students at the University of Rhode Island, undergraduate Zoe Papagiannis and graduate students Rebekah Greene and Sara MacSorley, I have compiled a list of print and on-line sources that will lead you to learn more about topics related to Carson. Barnaby McLaughlin analyzed information about Carson's attitudes toward animals.

Jeannine Dougherty, Dorothy Read, and Arielle Stein read portions of the manuscript and offered comments and suggestions as well as leads for further research.

Carlyle Storm shared information about DDT and malaria.

Hugh McCracken encouraged me when my energy or attention flagged and celebrated with me when I completed portions of the manuscript.

This work would not be possible without the many contributions of scholars and activists in a variety of fields. Any inaccuracies are my own responsibility.

INTRODUCTION

RACHEL CARSON, ENVIRONMENTALISM, AND THE WEB OF LIFE

Rachel Carson is perhaps the most significant environmentalist of the twentieth century. In fact, she is often considered the founder of contemporary environmentalism. Her books about the sea invite readers to share her celebration of its wonders. *Silent Spring*, her graphic and compelling description of the damage caused by the widespread aerial spraying of organochlorine pesticides such as DDT, opened our eyes to the issue of pollution and to the interconnectedness of systems, indeed, of all living beings with each other and with the planet itself.

During World War II DDT was hailed as a hero, a wonder drug that saved the lives of soldiers and civilians threatened by insect-borne diseases. Paul Müller, the man who discovered DDT's potent insecticidal properties, was awarded the Nobel Prize for Physiology and Medicine. After the war DDT became the pesticide of choice to protect agricultural crops from insect damage. But it was widely spread in urban as well as rural areas. Spray trucks traveled through city streets spraying DDT widely in hopes of both curtailing a polio epidemic and protecting trees planted along city streets from insect attack. Only a few birdwatchers and scientists noticed that birds, fish, and other wildlife were dying in areas that had been sprayed.

Carson, a quiet, reticent woman, took on the task of investigating the consequences of such widespread use of DDT. At a time when science and technology were hailed as the tools that had won the war and now would lead America forward to even greater heights of power and well-being, her work challenged the fundamental assumptions of science and technology. She questioned the practices and belief systems of economic entomologists, pesticide manufacturers, agribusiness, government regulatory agencies and common citizens. Indeed, she challenged the very vision of American scientific, technological, moral, and political supremacy in the Cold War period.

Silent Spring immediately became a best-seller. The book was effective because it assembled scientific evidence and interpreted complex technical information so that it was accessible to a wide reading public. It resonated with mounting fears of the dangers of pollution, sparked by the knowledge of radioactive fallout, pesticide residues in food, and the tragedy of birth defects caused by thalidomide, a drug prescribed to pregnant women. The book provoked denunciations by chemical companies, but it led to public outrage, and to Congressional hearings that ultimately resulted in a ban of DDT in the U.S.

Although Carson is perhaps now best known for *Silent Spring*, she had previously achieved recognition and won awards and honors for three lyrical natural history studies of the ocean: *Under the Sea Wind* 1941, *The Sea Around Us* 1951, and *The Edge of the Sea*, 1955.

My introduction to Rachel Carson came one summer many years ago when I vacationed with friends on an island off the coast of Massachusetts. My hosts had a copy of Carson's *The Edge of the Sea*, a book that describes different shoreline environments. We spent

INTRODUCTION

several days visiting the beaches on the island, taking along Carson's book as a guide to what we saw. Since that summer, much of what Carson wrote about has resonated throughout my life.

I've been fortunate to live on the East Coast and to enjoy the seashore. I have eaten fresh-caught fish at local restaurants, canoed and kayaked down a river to the ocean. I walk along the shore throughout the year, and swim in the ocean during the summer at various beaches. The beach and ocean present a different spectacle every day, as human and animal visitors come and go; the colors, textures, and the atmosphere are shaped by the sky, the wind, the temperature, and the tides. Like Carson, I have seen the ocean in many moods. I have watched sunrise paint the sand and the ocean gold, rose, and violet. I have experienced nature's awesome power in the hurricanes that batter the shore, and I have enjoyed the calm of sunset at low tide. But I have also seen the damage that humans can inflict.

On our local beaches in mid-March the small sand-colored piping plovers return from their southern sojourns and scrape shallow depressions in the sand to lay their eggs. When they hatch, the tiny plover chicks hop along the sand, looking like cotton balls on sticks. Human encroachment on plover habitat dramatically reduced their numbers to levels where they were declared an endangered species. Recent government policies, such as closing some beach areas and monitoring plover nesting areas are helping to build up the population, although the birds remain vulnerable to attacks by raccoons, foxes, rats, gulls, and dogs.

One of the many threats to the ocean is pollution from a variety of sources, including sewage. When I arrived at the university where I currently teach, several years after the publication of *Silent Spring*, the town was planning to install sewers in some areas to replace some of the septic systems then in use. I attended a talk by a civil engineer about sewage. At that stage the sewage plant was only going to include primary treatment (rather than the more thorough treatment which is now in place) of the waste. When I inquired if that minimal treatment was going to cause ocean pollution, he replied that "The solution to pollution is dilution," in other words, spread the waste around in the water and dilute it. I was appalled at the response, but I came to learn that it was the standard thinking about waste disposal at the time. Curious about the current state of our wastewater treatment, I was happy to note that the town recently received from the Environmental Protection Agency a Regional "Operations and Maintenance Wastewater Excellence Award" as reported on March 5, 2008 (<http://yosemite.epa.gov/opa/admpress>).

Carson, along with many of us and with most others who studied or fished in the ocean during her lifetime, believed that the ocean's resources of fish stocks were copious and inexhaustible; for a time she even thought that we would turn increasingly to fish for food as we damaged the land. However, as large fishing fleets trawl the ocean bottom the fish stocks are declining. In her non-fiction work *Payback*, Canadian author Margaret Atwood points to the harm that trawling inflicts on the ocean as she depicts a society that has lost respect for nature. Trawling "is like taking a front-end loader and scraping up your entire front garden and shredding it, keeping a few pebbles, and dumping the rest of it down the drain" (*Payback* 191). Due to declining fish stock many of the fishermen in my state have sold their boats, the local fish processing cooperative has closed, and an increasing number of expensive pleasure yachts are replacing the fishing boats that used to ply the waters.

People come to the tidal flats to dig up quahogs (edible hard shell clams), but every day the local newspaper prints a map of the areas closed to shell-fishing because of pollution. Our beaches are wide expanses of white sand, and tourists as well as residents enjoy the

pleasures of sand and surf. However, there are a number of days each summer when swimming is prohibited due to pollution when bacterial counts are high. Management of coastal resources has become a significant and controversial issue.

Sadly, I saw firsthand the havoc and destruction that an oil spill can bring, when on January 19, 1996, a barge transporting heating oil ran aground at Moonstone Beach, one of Rhode Island's most undeveloped beaches, adjacent to a national wildlife refuge. The barge spilled over 2700 metric tons of No. 2 fuel oil that were spread by the high winds and rough seas. Stinging, acrid fumes assailed our nostrils and brought tears to our eyes as far as the town six miles away. Community members gathered to attempt to clean the blackened, oil-covered shorebirds—usually unsuccessfully. It was estimated that approximately 9,000,000 lobsters were destroyed as well as loons and other shorebirds. Fisheries in the area were closed for a time, which brought economic hardship to the local fishing industry, an important component of the community's economic structure. Legal suits followed as damage estimates were set and appealed. It took four years for the court cases to be resolved, and 10 years for a lobster restoration program to be implemented. According to oceanographers C. M. Reddy and J. G. Quinn "this spill was the most damaging man-made accident in the history of the state of Rhode Island" (Reddy and Quinn 446).

Another of the issues that Carson addressed, that of toxic pesticides quite literally came home to me. (Of course, no doubt I am unknowingly eating food that contains all manner of pesticide residues, and wearing clothing, walking on rugs, and drinking from bottles treated or produced with various toxic chemicals.) One of the government spraying programs that Carson castigated in *Silent Spring* is the gypsy moth spray program. The gypsy moth is an invasive species that was brought to Medford, Massachusetts by a researcher who hoped to crossbreed the moths with silkworms and create an American silk industry. Some of the moths escaped and reproduced, spreading widely through the Northeast and now as far west as Wisconsin. Years after the publication of *Silent Spring* spraying programs to control gypsy moths continued although the insecticide had changed. Planes flew overhead in my rural neighborhood in Rhode Island spraying a chemical somewhat less toxic to humans, Sevin (carbaryl). Nevertheless, there are precautionary statements for people to heed when using this chemical, and it is toxic to aquatic wildlife and especially to bees. At the time of the spraying I was keeping a beehive, and requested that they not spray my property. The town posted a helium balloon on our lot boundary to signal not to spray that area. I doubted that the spray would respect the marked property lines on a half-acre lot, and I suspected that the bees would not be especially careful to stay on their side of the boundary. In any event I moved my hive elsewhere. Rhode Island has long ago stopped the spraying program. There are natural predators of the gypsy moth in New England that keep its population in check most of the time. Gypsy moth populations have a cycle of proliferating for a few years and then crashing from virus disease when the population gets too large. (Please see chapter 5 for further discussion of the gypsy moth spray program.) Rachel Carson would have recommended that authorities rely on such natural cycles and other forms of biological controls. Although she did not state that chemical means should never be used, she urged that research into all the effects of pesticides be considered, and that caution and moderation prevail if and when spraying was deemed necessary.

Carson's vision of the interconnected web of life informed her understanding of ecology and inspired new ways of thinking about natural systems and about the human impact on the world in which we live. Her words invite us to learn about the environment we inhabit and

INTRODUCTION

challenge us to become better informed about the manifold implications of environmental issues such as global warming and pollution. Her concept of the interconnectedness of natural systems is increasingly relevant to our time as globalization produces a more intricate and tightly woven fabric of connections across the planet.

This book participates in the *Critical Literacy Series: Challenging Authors and Genres*, edited by Paul Thomas. The book is intended for the general reader, and for teachers and students. This project takes a new approach to Rachel Carson, using the perspectives of ecofeminist theory and other theories of environmentalism, and demonstrating Carson's relevance to contemporary issues. Carson is a challenging author. She challenges our belief that science and technology can control the natural world. She asks us to recognize our place in the world around us and to treat the earth respectfully. Her work calls us to rekindle our sense of wonder at nature's power and beauty, and to tread lightly on the earth so that it will continue to sustain us and our descendants.

Carson teaches us that the earth and the oceans are living entities, shaping and shaped by their interactions with the living creatures that inhabit them. Among these creatures, humans are having the greatest impact, and our alteration of the environment is turning out to be greater than Carson imagined possible.

Carson's short life was richer and fuller than we had realized before Linda Lear's biography was published in 1977. She visited and corresponded with a host of friends and colleagues. Her life and writings integrate a broad spectrum of ideas and issues. All her work melds scientific information with literary grace, and draws upon reason and emotion, fact and imagination. She infused her science and nature writing with poetry, explaining that she did not put the poetry into her writing about the sea; the poetry was already there. She argued for government transparency, for people's civic rights, for public engagement and activism.

Writing this book led me in many more directions than I anticipated when the project began. I learned about Rachel Carson and about the position of women scientists in the U.S. I learned about the oceans and their creatures, about ecology, environmental ethics, environmental justice, the U.S. governmental regulatory process, urban environments, and about the ecological challenges we are currently facing, such as factory farms, toxic pollution, and climate change. Study of Carson's work may lead in a whole range of directions, to the study of oceanography, of the natural environment, or of the ethics, economics, and politics of the environment. This book aims to set Rachel Carson's work into the context of her life and the times in which she lived; to summarize and review her contributions to the literature of the environment; to indicate her continuing influence; and to point to her many legacies across a spectrum of environmental research and activism.

I will address Carson's relationship to ecofeminism and other theories of environmentalism and demonstrate Carson's continuing importance to contemporary issues. Her vision of the interconnectedness of natural systems is increasingly relevant to our time. Her understanding of nature's web of life challenges us to address the manifold implications of global warming and environmental pollution. To enrich and expand our understanding of Carson's work, this book will:

- Analyze Rachel Carson's struggles and achievements as a woman scientist in a male-dominated field
- Discuss briefly several important American environmentalists and nature writers, both those who paved the way for Carson's work and those who learned from and are extending her work

- Discuss the history, economics, and ethics of pesticide use in the U.S.
- Analyze the ethical implications of using DDT to combat mosquito-borne diseases such as malaria
- Analyze the arguments Carson put forth in *Silent Spring* and her other books
- Relate Carson's ideas to current thinking about global warming, ocean pollution and the impact of pesticides and other contaminants on the environment.

Foremost, my aim is to convey the passion for life and the world around us that animated and sustained Carson, and to awaken the sense of wonder that may enrich all our lives.

The book is organized in eight chapters.

Chapter one reviews Carson's biography. In this chapter I draw mainly from the work of Linda Lear who wrote the definitive biography of Carson, *Rachel Carson: Witness for Nature*. Lear consulted archival materials extensively, worked painstakingly with Carson's papers at the Beinecke Library at Yale University, and with collections of papers of people who were important in Carson's life, including George Crile, the physician who supervised her treatment for cancer at the end of her life. Lear also interviewed many of Carson's friends, relatives, colleagues, editors, and others. As a result of her wide-ranging and thorough research she was able to demonstrate Carson's wide network of friends and her passionate engagement with life, and thus to rectify the misimpression left by some earlier biographies that Carson was a reclusive and isolated spinster.

Chapter two looks briefly at Carson's forerunners in the conservation and preservation movements. It looks briefly at the work of such nature writers as Henry David Thoreau, John Muir, John Burroughs, Henry Beston, and especially at several authors that Carson listed as important influences on her own work: William Beebe, Gilbert Klingel, and Thor Heyerdahl.

Chapter three describes the three best-selling books that Carson wrote about the sea, *Under the Sea Wind*, *The Sea Around Us*, and *The Edge of the Sea*. I discuss the process of writing the books, summarize key points of each, and consider the responses to and reviews of the books. Each of the books combines lucid poetic language with careful scientific explanations to present compelling narratives of the ocean, its inhabitants, and its importance in the ecosystem of planet Earth.

Chapter four considers Carson's other writings, consisting of government publications about fish and oceans, articles in newspapers and magazines on topics of nature and the environment, a TV script about clouds, speeches Carson delivered when receiving numerous awards, her posthumously published book *The Sense of Wonder*, and her published letters to her dear friend Dorothy Freeman. Reading these works provides us with a fuller picture of Carson's public and private life.

Chapter five, the largest chapter, is devoted to *Silent Spring*, Carson's impassioned exposé of the dangers posed by widespread pesticide spraying. To set Carson's work in the appropriate context, the chapter first explores the development and history of pesticide use in the U.S. and its surprising relevance to American foreign policy. I then proceed to summarize *Silent Spring*, and to review the reactions to the book. Chemical companies that manufactured pesticides hurried to counteract Carson's message by asserting that pesticides

INTRODUCTION

are safe, by critiquing or parodying the book, and even by trying to prevent the book's publication.

Because her previous books were each best sellers, Carson's name was widely known when she published *Silent Spring*. Carson faced many personal, professional, and political challenges when writing this book. She had to contend with serious illness of family members, and she suffered from a series of ailments, including the metastatic breast cancer that led to her death. Because her work challenged popular thinking as well as powerful chemical companies and government agencies, she had to be able to substantiate all her facts, and she had to tread lightly when describing particular products and incidents. Because her work was seen as subversive at a time when the political climate was a conservative one, it was often difficult for her to gain access to government materials necessary for her work. Yet she persevered despite many difficulties and wrote a book that brought awareness of the damage that widespread pesticide spraying was wreaking on the environment and on living creatures. The book, a major achievement, led directly or indirectly to government hearings, to the banning of DDT in the U.S., and to the birth of the environmental movement in the United States. It generated controversies that continue to the present time.

Chapter six, "After *Silent Spring*: Rachel Carson's Legacies," looks briefly at some of the implications of her work and points to the careers of some of the women scientists and environmental activists who continue to write about, study, and protect the environment. It explores some of the ongoing environmental issues and controversies related to the book, especially questions about the uses of pesticides in food production and disease control. Related to the concerns about food production is Carson's Foreword to Ruth Harrison's *Animal Machines*, a book about raising veal, chickens, and beef on factory farms. Carson deplored the inhumane practices that Harrison revealed. The chapter will look at the case of malaria, an insect-borne disease, and examine the allegation that Carson is responsible for the deaths of Africans because DDT fell out of favor. It will close with some considerations of the issue of sustainability.

Chapter seven suggests ways to teach Carson's legacies. When people heard I was writing a book about Carson, I was surprised to find that many did not recognize her name, or knew only one facet of her work. I am convinced that we need to teach her work in several different contexts. I will suggest briefly some of the ways we may learn, read, and teach about Rachel Carson.

Chapter eight is a compilation of resources in print, online, films, and DVDs related to the many issues that Carson's life and work address, and to the organizations that her work inspired.

Three appendices provide brief chronologies of Carson's life, the use of DDT, and U.S. environmental legislation.

As I wrote this book I came to feel that I personally knew Rachel Carson, and my admiration for her grew. I was saddened by her untimely death, and felt that I had lost a friend. Please follow me on the journey to learn more about Rachel Carson, the oceans, and the world of nature we inhabit.

CHAPTER 1

BIOGRAPHY¹

Rachel Carson: "The Poet Laureate of the Sea" (Ballard)

In 1886, twenty-one years before Rachel Louise Carson was born, Sarah Orne Jewett published one of her best known stories, "A White Heron." The story tells about Sylvie, a young girl attuned to nature. She knows where the heron roosts, but keeps the location secret in order to protect the bird from a hunter who wished to add it to his collection of stuffed specimens. Like the fictional Sylvie, the real Rachel Carson wandered in the woods in her neighborhood and knew where to find birds and their hidden nests.

Sylvie's name, of course, comes from the Latin word for forest, a symbol of her connection to the natural world. (The name of the bird has changed since Jewett wrote her story: the white heron would now be called an egret.) The hunter took Sylvie out with him for a day of hunting, and she "could not understand why he killed the very birds he seemed to like so much" (Jewett 5). He promised to pay for the information about the heron's location. While the hunter wanted to collect a specimen, Sylvie preferred the living bird. Sylvie's family was poor, and Sylvie was lonely, but she valued the bird's life above the friendship of the hunter and the monetary reward. Jewett ends the story: "Woodlands and summer-time remember! Bring your gifts and graces and tell your secrets to this lonely country child!" (9).

In any event, the young Rachel must have been somewhat like Sylvie, for both loved to roam in the fields and woods, and delighted in seeing and hearing the birds. In fact, one of Carson's early essays, "My Favorite Recreation," published in *St. Nicholas Magazine* in 1922 when she was 15, described wandering with her dog in the woods and finding birds' nests (Lear Woods 13). During one day she found "bobwhites, orioles, cuckoos, hummingbirds," and an ovenbird (Lytle 24). Like Sylvie, Carson did not like the idea of killing the songbirds or other living creatures. According to biographer Philip Sterling, her brother Robert remembered that young Rachel asked him to stop hunting, reminding him that although the sport was fun for him "it can't be much fun for the rabbits" (Sterling 20). Carson wrote that she had been "happiest with wild birds and creatures as companions" (Lytle 18). This love of nature remained with Carson throughout her life, bringing her joy, sustaining her in good and bad times, and animating her books. Indeed, in her essay "Help Your Child to Wonder," posthumously published in book form as *The Sense of Wonder*, Carson writes that "those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts" (Wonder 100). (For further discussion of *The Sense of Wonder* please read chapter 5). And in her great work *Silent Spring* Carson chose the vivid metaphor of silenced songbirds to convey her warning about the threats to life on earth unleashed by widespread pesticide spraying.

It is possible that Rachel Carson read or heard "A White Heron" at some point. Whether or not Carson knew Jewett's story, it incorporates ideas that were important to the young Rachel, and that would resonate in Carson's life and works.

Above all else, Carson was a writer and a scientist. Vivian Gornick has described the excitement of being one of these people: "a scientist or a writer is one who ruminates continuously on the nature of physical or imaginative life, experiences repeated relief and excitement when the insight comes, and is endlessly attracted to working out the idea. . . .

CHAPTER 1

These are people whose most absorbed, alive, and focused hours are spent either writing or doing science" (30). In a college essay, Carson demonstrates that she belongs to that group, asking "Is there any mental joy comparable to having conceived and written a story? . . . If there is, I haven't found it." (CT COLL Box 2 F 11 dated 11/15/27). Carson combined the vocations of science and writing to convey important scientific ideas in lucid prose. Robert Ballard has called her "the poet laureate of the sea" (xviii).

Carson's earliest biographers promulgated a popular image of Carson as a reclusive, isolated spinster. McCay points out that "several of Carson's earlier biographers compared her life unfavorably with [Thoreau's]. His solitary existence at Walden Pond is extolled, while her reclusive life, her attempts to find a quiet spot away from the press of the modern world, are viewed as spinsterish and narrow" (McCay 88). McCay is trying to defend Carson's quest for privacy here, but in her use of the word "reclusive" she is perpetuating the image of a hermit-like woman, which, as more recent biographer Linda Lear has demonstrated, is far from the case. Even Carson's friend and editor Paul Brooks helped to perpetuate that stereotype when he claimed that her life lacked "a broad margin" (xx). As her more recent biographer Linda Lear explains, Brooks was borrowing a phrase from Henry David Thoreau. But whereas Thoreau was claiming that he needed this margin for his privacy and solitude, Brooks was implying that Carson's life was narrow because she did not marry. Lear's biography, based on meticulous and extensive research, presents a fuller, more rounded picture of Carson. Lear conducted research in archives, including the Carson papers at the Beinecke Library at Yale University; she interviewed numerous friends, colleagues, correspondents, and others important to Carson; and she was able to gain access to the then unpublished voluminous correspondence between Carson and her dear friend Dorothy Freeman (now published as *Always, Rachel*). Basing her biography on these materials, Lear corrects the stereotyped misimpression, revealing Carson's extensive network of friends, correspondents, and colleagues, and asserts "I can replace the icon [of a reclusive, "spinsterly" Carson] with a more truly heroic, far richer, and more passionate woman than the world has thus far embraced" (Waddell 214). In this chapter and throughout this book I have relied heavily on Lear's definitive biography of Carson.

Carson studied marine biology and attempted to build a career as a scientist. However, entering the workplace during the Depression at a time when women had few opportunities to do research in scientific fields, she became a science writer, and consequently was able to remain a generalist rather than a specialist. Thus, Carson's view of life remained a large one. Whereas many researchers focus on a small specialized area, Carson's vision was more global. She understood the living world as a web of interconnections and transmitted her understanding in poetic essays and books that were accessible to the general public as well as informative to scientists. She wrote lyrically about the ocean and its creatures in her books and essays about the ocean. Concerned by the damaging impact humans were having on the earth and its creatures, Carson wrote *Silent Spring* to warn us about the network of contamination radiating out from government programs of aerial pesticide spraying.

CHILDHOOD

Rachel Carson was born on May 27, 1907 in Springdale, Pennsylvania to Maria McLean and Robert Warden Carson. She was named for her maternal grandmother, a strong woman who raised her two daughters herself after her husband died. Maria McLean had been a