

BREAKING THE SILENCE: EXAMINING RACHEL CARSON AND THE
ENVIRONMENTAL MOVEMENT

by

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Rachel Carson has achieved legendary status in the environmental movement. Her literary contributions introduced generations of people to the intricate splendors of the sea, and she is credited with introducing and legitimating the idea of ecology in public discourse. Carson's final work, *Silent Spring*, regarded as one of the formative tomes of environmentalism, is credited with launching the modern environmental movement. Given Carson's prominence for the environmental movement, it is important to delve through the layers of mythology that surround her to examine the ideas, beliefs and arguments that she employed. Through close analysis of particular arguments made by Carson, the environmental movement may better understand the limitations of their own strategies as they apply to current situations. With this in mind, I will examine arguments that Carson has made, along with the assumptions behind those arguments, in *The Sea Around Us* and *Silent Spring*.

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CHAPTER I

INTRODUCTION

Rachel Carson is widely recognized as one of the founders of the environmental movement (Lear, Introduction to *Lost Woods* x), a harbinger of ecofeminist views before the term was invented (McCay 106-8) and an outstanding natural history writer (McCay; Brooks, *The House of Life*; Lear, Introduction to *Lost Woods*). She was the “most acclaimed science writer of her generation and a literary figure of first rank” (Lear, Introduction to *Lost Woods* ix) who established a reputation as a talented scientist and popular public writer by the time of her death in 1964 (Lear, “Rachel Carson’s *Silent Spring*” 25). She was a meticulous scientist and extraordinarily professional writer (Brooks, Foreword xi) whose demand for accuracy and precision was “legendary among her government colleagues, assistants and editors” (Lear, Introduction to *Lost Woods* x). She was a perfectionist in both science and writing (Brooks, Foreword xii), as her keen sense of responsibility to her readers demanded. Her deep desire to learn about and teach others about the natural world fueled her literary and life pursuits.

Carson has achieved legendary status in the environmental movement. Her literary contributions introduced generations of people to the intricate splendors of the sea, and to the magnificent wonders of the natural world. She is credited with introducing and legitimating the idea of ecology, and the idea of interconnectedness of all living things, in

public discourse. Her regard for the natural world was deep and sincere. This led to her recognition as a potent teacher, writer and philosopher as well as an early environmental thinker.

Shirley Briggs, a close colleague of Carson and former Director of the Rachel Carson Council, wrote:

To assess Rachel Carson's accomplishments and their effects now... requires cutting through a good deal of curious mythology. Some has come from her opponents, but much has come from her admirers as they tried to make Carson fit their preconceptions. (3-4)

Given her prominence for the environmental movement, it is important to delve through these layers of mythology to examine the ideas, beliefs and arguments of Carson that are reflected in her written words. For this reason, it is exceedingly important to examine the written arguments of Carson regarding the environment. The intention of this work is to scrutinize some of the strategies that Carson used in her written works. The purpose of this investigation is to better understand the implications of ideas that we, as participants in the environmental movement, have inherited and continue to utilize and pass on.

Biographical Introduction to Carson

Rachel Carson was born on May 27, 1907 in Springdale, Pennsylvania into a family consisting of her mother, father, sister Margaret and brother Robert. She grew up on 64 acres of woods and fields acquired by her father with the hope of later selling it off at a profit. Although her father's scheme never panned out, her homestead provided her with an

early acquaintance with the natural world (Brooks, Foreword 15-16; Lear, *Witness for Nature* 10; Waddell 3-4). Rachel Carson, even as a child, aspired to be a writer. Her very first essay, "A Battle in the Clouds" was published in *St. Nicholas*, a magazine for children, in 1918 (Gartner 9). It was followed by many more as Carson continued to write her way through school. Many of Carson's earliest essays were about the sea though she had never seen the ocean, having spent her whole life in land-locked Springdale.

After graduating from high school in 1926, Carson enrolled in the Pennsylvania College for Women (later Chatham College) as an English major. In her junior year at the College, under the influence of her favorite professor Mary Scott Skinker, she switched her major to Zoology. She graduated in 1929 and then spent the summer studying at the Marine Biological Laboratory at Woods Hole, Massachusetts where she had received a fellowship. This was the beginning of a deep and lasting relationship between Carson and the ocean that would inspire her first three books and her deep reverence for nature (McCay 9; Lear, *Witness for Nature* 60).

In the fall of 1929 Carson began in the Master's Program at Johns Hopkins University and in 1932 she achieved her master's degree in marine zoology. Following that, she taught at Johns Hopkins and University of Maryland for a few years until her father died in 1935. Her father's death, during the Great Depression, left her family destitute and Carson got a temporary position as a writer for US Fish and Wildlife Service in order to support them. The following year, 1936, Carson achieved a fulltime position as a writer with U.S. Fish and Wildlife Service. She was one of the first women to work for the Service and she eventually was promoted to Chief of Publications before retiring.

Carson wrote for Fish and Wildlife by day, and worked on her own material late into the night. Given her time constraints, it is amazing that Carson was able to complete her first two books at all. At the time that her first book, *Under the Sea Wind* was published, on November 1, 1941, Carson had published many excellent magazine and journal articles. She shaped these articles from information she came across at Fish and Wildlife. *Under the Sea Wind* was a success with the reviewers; but, unfortunately, didn't sell well. This lack of reader interest in the first of Carson's books was due to Pearl Harbor occurring just a few weeks after it was published (Gartner 30-45; Lear, *Witness for Nature* 90-94).

In contrast, however, Carson's second book, *The Sea Around Us*, was published in 1951 and was an immediate success. This book maintained its place on the *New York Times* bestseller list for a record eighty-six weeks (Brooks, *The House of Life* 19) and was translated into forty languages (Lear, Introduction to *Lost Woods* ix-xi). It was described as "...enough to have changed the future of life on this earth" (Lear, Introduction to *Lost Woods* ix). The success of this book brought her financial stability so that, in 1952, she was able to retire from Fish and Wildlife and devote all of her time to writing. The financial success of the book also allowed her to purchase her treasured Southport cottage on the coast of Maine. (Brooks, *The House of Life* 159; Lear, *Witness for Nature* 324-25)

When *The Sea Around Us* was published, Carson had already begun work on *The Edge of the Sea*. This book, the last in her trilogy about the sea, was published in 1955. By the time that Carson had published her third book, her reputation as an impressive literary figure and eloquent writer was well established. (Lear, *Witness for Nature*; Lear,

Introduction to *Lost Woods*; Brooks, *The House of Life*)

Writing her fourth and final book would prove to be no easy task for Carson. She was plagued by chronic and serious health problems throughout the process. She also endured the strain of family sickness, and death while constantly taking on the responsibility of caring for old and young family members. When she began *Silent Spring*, Carson lived with her mother, her niece Marjorie and her grandnephew Roger, in a house in Silver Springs, Maryland. In 1957, tragedy struck the household with the death of Marjorie who left behind 5 year-old Roger. Carson then cared for Roger until her death (Freeman, 216). Then, in 1958 Rachel was devastated by the death of her beloved mother. Carson had only rarely spent time apart from her mother prior to her mother's death and the permanent separation of death deeply pained her. Shortly after her mother passed on, Carson began to experience a series of debilitating and life-threatening illnesses, including breast cancer, which disrupted her life, and her writing.

Despite the tremendous physical, and emotional burden of finishing *Silent Spring*, Carson was able to do so. In June 1962 the New Yorker serialized 10 chapters of *Silent Spring*; inciting a storm of controversy that has rarely been duplicated. On April 3, 1963 CBS aired a special televised report entitled "The *Silent Spring* of Rachel Carson". On this program, Carson was allowed to voice the concerns, doubts and unnerving facts that had convinced her to write *Silent Spring*. On May 15, 1963 the President's Science Advisory Committee issued their report, *Use of Pesticides*, which vindicated many, if not all, of Carson's claims in *Silent Spring* (Waddell 4). A bit more than a year later, on April 14, 1964, Carson succumbed to the misdiagnosed and aggressive breast cancer that had

threatened her completion of *Silent Spring*. She was not alive to see the EPA form in 1970 or the banning of DDT in 1972, but both of these historical events can be traced back to Carson's work (Dunlap 234-36). In 1980 President Jimmy Carter posthumously awarded her the Presidential Medal of Freedom, the highest award the government can bestow on a citizen (Gartner 28).

Carson's Impact

In retrospect, Carson is described as an "improbable revolutionary" (Rothman 87; Lear, "Rachel Carson's *Silent Spring*" 15). She was not a crusader at heart (Brooks, Foreword, x), but became one out of responsibility; she felt she had to do something about the reckless and endangering uses of pesticides. She never thought of herself as a public figure, nor did she desire such a role. She was a quiet, modest, and reserved person who "had little enthusiasm for small talk" (Brooks, foreword xi). And yet, her final book, *Silent Spring*, established her as

..one of the century's most important writers and social commentators, whose call to alarm took us all in a new direction and was the catalyst for the contemporary environmental movement (Lear, Introduction to *Lost Woods* x).

She had one subject, pesticides, that she knew well and she was able to use this subject to start an ecological revolution, though this was not necessarily her intention in writing the book (Briggs 5). With *Silent Spring*, Carson questioned the accepted views on nature and shook the foundations of the chemical industry:

DDT is a very small part of this operation. The really scary thing was that she was questioning the whole attitude of

industrial society toward the natural world. This was heresy and this had to be suppressed. This is what caused a really hysterical reaction against *Silent Spring*, and it is the thing now that has made her almost a prophet among the young (Briggs 6).

Indeed, there is no shortage of praise for Carson and *Silent Spring* in environmental circles today. We are now aware that the implications of *Silent Spring* were far broader than the immediate crisis with which it dealt. It awoke us to a specific danger, namely the poisoning of the earth with chemicals, but it also awakened us to the dangers of a view of nature that degrades all life on our planet. Perhaps more importantly, *Silent Spring* introduced the possibility of change inspired by environmental concerns:

Silent Spring will continue to remind us that in our overorganized and overmechanized age; individual initiative and courage still count; change can be brought about ... by altering the direction of our thinking about the world in which we live (Brooks, Foreword xviii).

Silent Spring is featured in Robert Down's *Books That Changed America* as the book that launched the modern environmental movement. Scholars of American environmental rhetoric and history willfully assert that "Carson's book established rhetorical conventions that would become standard fare in the environmentalist debate" (Glotfelty 159). Indeed, the modern environmental movement is often said to have begun with *Silent Spring* (Hynes 9; Killingsworth and Palmer 65; Lear "Rachel Carson's *Silent Spring*" 23; Waddell 1; Brooks, Foreword xviii). *Silent Spring* is often referred to as one of the formative tomes of environmentalism. Consider the following quotes, just two of many that openly praise the book as a milestone in the environmental movement:

Silent Spring was a landmark in the development of an

ecological perspective. It did much to accelerate the new environmentalism and generated the most widespread public consideration of environmental ethics to that date. (Nash 78)

Silent Spring became one of the seminal volumes in conservation history: the Uncle Tom's Cabin of modern environmentalism. (Fox 292)

Al Gore recently praised Carson's final book, noting that, "in 1992, a panel of distinguished Americans selected *Silent Spring* as the most influential book of the last fifty years" (Waddell 2). Yet Carson received praise, admiration, and accolades for her work with modesty. Upon finishing *Silent Spring*, she wrote simply to her close friend Dorothy, "I had done what I could – I had been able to complete it – now it has its own life" (Freeman 394).

Why Should We Examine Carson's Work?

The conceptual systems upon which action and thought are based are metaphorical in nature. As Lakoff and Johnson argue, some metaphors are shown to reinscribe particular conceptual systems, while others contradict those systems. They postulate, "If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor" (3). Their work demonstrates that language, an important component of conceptual systems, is based in metaphor. And "since communication is based on the same conceptual system that we use in thinking and acting, language is an important source of evidence for what that system is like" (Lakoff and Johnson 3). It is important to look at specific uses of language to examine the larger systematic metaphors at work.

The majority of these cultural metaphors do not operate on a conscious level. As Lakoff and Johnson point out, “our conceptual system is not something that we are normally aware of” (3). Often these metaphorical conceptual systems are inherited via culture, are not reflected upon and are, in turn, handed down to others. It is important, therefore, to critically examine these conceptual systems lest they pass on destructive or harmful ideas and values. As discussed above, language is the best method for examining these larger metaphorical conceptual systems.

Applying this idea to Rachel Carson’s work, it becomes clear that the linguistic systems within her work support and oppose particular conceptual systems. As Merchant warns, “It is important to recognize the normative import of descriptive statements about nature...The norms may be tacit assumptions hidden within the descriptions in such a way as to act as invisible restraints or moral ought-nots”(4). In this way, metaphors operate in Carson’s work to reinscribe particular traditions of thought, practice and particular views of the world, particularly the natural world. Carson’s language, therefore, should be examined in order to understand, and to bring to consciousness, the underlying metaphorical conceptual systems.

In Carson’s case, these metaphorical systems operate at two different levels. At one level, Carson is making an obvious argument for or against something. At a deeper level, Carson uses language, imagery and metaphors that support the implicit assumptions and conceptual systems behind that argument. It is this level of Carson’s arguments that I will concentrate on in this work. Rather, it is my contention that, at this deeper level, Carson’s language, metaphors and imagery reinscribe conceptual systems

with deep limitations and flaws.

The most important reason for doing such an analysis is to bring these metaphorical systems, embedded in the very same arguments that environmentalists call upon today, to the level of our awareness¹. When we become more aware of the larger metaphorical systems working within our conscious arguments, it will be easier to recognize their limitations and change them. Because Carson is so central to the environmental movement, and because so many of the arguments that Carson makes in these two works are still employed by the environmental movement today, this is an important investigation. In order to come up with better ways to live with and in nature, and better ways to argue for this sort of life, we need to examine, and learn from, the limitations of the subtle assumptions underlying Carson's more obvious arguments.

Carson is not to blame for her particular use of language in either of her works. The deeper conceptual implications of her language use and metaphor choices resulted from her situation in a particular historical moment and literary context, just as ours do today. Often, the constructions that Carson uses in her work reflect and reinforce particular metaphorical systems common to that historical moment. For example, Carson's uses "he" as a universal pronoun in both *The Sea Around Us* and *Silent Spring*. This reflects a deeper conceptual system at work in Carson's writing and thinking, a conceptual system that accepted male as primary and central. However, Carson was not aware of working within, or of reinforcing, such a system. Readers today have become aware of the patriarchal conceptual system

¹ I openly acknowledge that it would be impossible to bring all metaphors and conceptual assumptions to the level of awareness; every aspect of action and thought is tied up in various metaphorical assumptions. However, I find it important to attempt to bring as many as possible to this level of awareness.

working behind this metaphor of “he” and deem this universal term sexist and unacceptable.

Instead of blaming Carson for living and working within these metaphorical systems, I use her as an example of the limitations of making arguments without being fully aware of their metaphorical implications. Even Rachel Carson, who has long been recognized for her revolutionary relation to nature, could not escape the metaphorical conceptual systems within which she operated. These systems are unconsciously reflected in her work, and unconsciously handed down to reader upon reader. By critically examining these metaphorical systems, we can bring them into the conscious realm where they are open to criticism and discussion.

With this in mind, I will examine the metaphorical implications of various arguments that Carson made in *The Sea Around Us* and *Silent Spring*. These are her two most influential books on which her literary reputation and power rest (Lear, Introduction to *Lost Woods* ix). First, we will discuss how Carson develops the metaphor of mother sea in *The Sea Around Us* and how this metaphor ultimately becomes an argument for a mechanized worldview and exploitation of the sea. In Chapter 3, we will examine Carson’s use of the metaphor of war to construct the relation of humans to nature in *Silent Spring*. Then, in Chapter 4, we will move on to explore the assumptions behind Carson’s construction of an anthropocentric moral argument in *Silent Spring*. In Chapter 5, we will focus on Carson’s over-simplified argument against the farmers as allies to the chemical industry. Throughout these chapters, we will examine the limitations of such arguments, and their implicit assumptions, for the environmental movement today.

CHAPTER II

RACHEL CARSON AND THE SEA AROUND HER

Introduction

Rachel Carson, as we have previously discussed, was a prominent interpreter of science for the public. Her second book, *The Sea Around Us*, was her first success as both a literary artist and as a scientist writing for the public. It is said that, "Carson never worried lest the scientific discipline in which she was trained would dull her pen..." (Brooks, *The House of Life* 7), but no published source has considered the impact that the scientific discipline had on the metaphors that poured from that pen. Carson, for all her radical conceptions of the public's role in science as well as science's role in environmental problems, was working within a particular conceptual system.

This chapter will focus on how Rachel Carson, a trained scientist, constructs particular metaphors in her naturalist writings. The language and ideas that she uses to construct these metaphors will be examined in order to better understand the conceptual systems Carson was working within, and which she was legitimating. This chapter is not meant to deny the power and wonder of *The Sea Around Us*, or the metaphors within it. However, these metaphors also deserve critical examination, as a woman deeply situated in a mechanistic, scientific paradigm created them.

One of the most prominent metaphors in Carson's work, *The Sea Around Us*, is the personification of the sea as mother². At first glance, this metaphor seems to be a powerful metaphor granting the sea a gendered humanity and, therefore, respect and sympathy. But, as Lakoff and Johnson point out, "...personification is not a single unified general process. Each personification differs in terms of the aspects of people that are picked out" (33). The aspects that Carson picks out to construct mother sea demonstrate that the mother sea metaphor is simply an organic idea working within and towards the ends of a larger mechanistic conceptual system.

Before moving forward with this discussion of the mother sea personification, it is important to discuss the concepts of organic versus mechanistic metaphors. These two opposing conceptual systems are clearly described by Carolyn Merchant in *The Death of Nature*. Merchant explains that, "central to the organic theory was the identification of nature, especially the earth, with a nurturing mother" (2). This particular conceptual system viewed the earth as a living and benevolent female being. Contrary to this view, was the mechanistic view of nature, introduced during the Scientific Revolution. This conceptual framework promulgated the metaphor of earth as both an object whose parts could be individually studied and as a resource for human consumption. Human control and domination were encouraged through these metaphors.

The mechanistic metaphorical system did not completely replace the organic worldview, however. Indeed, as Merchant explains, "an organically oriented mentality in

² It is fascinating to note that Carson never introduces any type of male metaphor into this work. One might think that the land would be portrayed as male, or that a male force was somehow involved in the origins of

which female principles played an important role was undermined and replaced by a mechanically oriented mentality that either eliminated or used female principles in an exploitative manner” (2). This process of using organic metaphors to legitimate mechanical worldviews is evident in the development of the mother sea personification in Carson’s *The Sea Around Us*. Beyond simply legitimating such a worldview, Merchant argues that the female earth image, once viewed as a cultural constraint, now functions as a cultural sanction for mastery, domination and denudation of nature (2). Carson’s attitude towards nature and towards the role of science in nature, influenced by a mechanistic conceptual system, functions as such a cultural sanction. A close examination of *The Sea Around Us* reveals that Carson clearly advocates for the mastery, domination and control of the sea through the use and development of the, originally organic, metaphor of mother sea³. In so doing, Carson reinscribes a mechanistic, rather than organic, conceptual system.

Mother Sea

The Power of Mother Sea

Carson first introduces mother sea as a mesmerizing organic metaphor. She explains to the reader,

When they went ashore the animals that took up a land life
carried with them a part of the sea in their bodies, a

life, but no male presence is ever mentioned.

³ The implications of the metaphor in this context are evidence of Donna Haraway’s concept of situated knowledge. Carson is clearly situated as both a woman and a natural scientist and this affects the development of this metaphor. Carson, however, is unfortunately unaware of her situatedness.

heritage which they passed on to their children and which even today links each land animal with its origin in the ancient sea ... each of us carries in our veins a salty stream in which the elements sodium, potassium, and calcium are combined in almost the same proportions as in sea water (13).

This is a wondrously powerful concept of connection and universal unity stemming from a common mother. It is a deeply engaging metaphor that unites the reader with the sea, with Carson, and with all life. Mother sea is highlighted as our common origin, as our common beginning. In a beautiful, poetic manner Carson explains that the blood that flows through all creation came from mother sea; so our blood unites us all to one another and to the beginning.

In the final paragraph of this first chapter, Carson celebrates the primacy of mother sea for all life. She states, "and yet he has returned to his mother sea only on her own terms" (15). Mother sea is in complete control, she is primary, and she is powerful. Standing before the sea, humans realize their existence on this planet is fleeting compared to the eternity the sea has known; they are humbled by this awareness. And further, Carson asserts that on or near the water, humans recognize the "truth"; they recognize that their world is a

water world, a planet dominated by its covering mantle of ocean, in which the continents are but transient intrusions of land above the surface of the all-encircling sea (15).

Mother sea is the world. Even the continents, which are interspersed throughout the great sea, are surrounded by and penetrated by mother sea. She is all encompassing, and all

pervasive; this is a water world. Obviously, this passage posits mother sea as the central, dominating figure of the earth. Mother sea is in everything; everything is in mother sea.

Carson further develops the positive, organic notion of mother sea with the introduction of oceanic ecological principals⁴. The chapter "Patterns of the Surface" focuses on the balance, dynamism and interdependency of life in the sea. Carson writes,

With these surface waters, through a series of delicately adjusted, interlocking relationships, the life of all parts of the sea is linked. What happens to a diatom in the upper, sunlit strata of the sea may well determine what happens to a cod lying on a ledge of some rocky canyon a hundred fathoms below, or to a bed of multicolored, gorgeously plumed seaworms carpeting an underlying shoal, or to a prawn creeping over the soft oozes of the sea floor in the blackness of mile-deep water (19).

Mother sea, as portrayed by this passage, is filled with vast, complex webs of life. This life lives together within the ever-changing, but balanced, dimensions of mother sea insinuating an ecological and organic essence.

Considering the climate of the 1951 scientific world, the inclusion of such a metaphor in Carson's work on the sea warrants great respect. Carson's book had a tremendous impact. Ann Zwinger points out the innovation of Carson's ecological vision:

It is hard to put ourselves in the context of the 1950's, it is hard to realize how much we didn't know when *The Sea Around Us* was written, how new so much of Rachel Carson's information was to the general public. She introduced concepts and gave us words that have since become common in our lexicon, words like 'ecology', food

⁴ As Merchant points out in *The Death of Nature*, ecological metaphors also have serious ramifications regarding conceptions of management, and control of nature. This is definitely an area concerning Carson that deserves further attention.

chain', 'biosphere' and 'ecosystem'. (Introduction to 1961 edition of *The Sea Around Us*, xxi)

In many ways, the mother sea metaphor introduced Americans to a fantastic new perspective on the ocean; this view had many positive aspects. Further, it facilitated an engaged relationship between humans and mother sea, a new subject. Precisely because Rachel Carson was a very powerful public "interpreter" of science, it is important to critically examine this metaphor that she handed down, and continues to hand down, to the "non-scientific" public.

The Problem of Mother Sea

Carson's representation of the sea as mother is problematic in a number of ways. More specifically, Carson's development of the mother sea metaphor most often serves to promulgate a mechanistic view of the sea and legitimate scientific exploration of the sea. What follows is an exploration of some of the less positive metaphorical characteristics Carson attributes to mother sea, as well as an examination of the consequences of those characteristics for this text and for views of the oceanic environment⁵.

First, Carson's mother sea is not actually a mother figure, but a watery haven where conditions were ripe for the blossoming of life. In other words, mother sea is more readily portrayed as a womb in this text. Carson refers to mother sea's "warm, dimly lit waters" in which "the unknown conditions of temperature and pressure and saltiness must

⁵ These metaphorical characteristics also have serious implications for the view of and role of women though these implications are not examined here.

have been the critical ones for the creation of life..."(13). This is clearly a description of the female womb. This womb metaphor is made explicitly clear when Carson explains,

And as life began in the sea, so each of us begins his individual life in a miniature ocean within his mother's womb, and in the stages of his embryonic development repeats the steps by which his race evolved, from gill-breathing inhabitants of a water world to creatures able to live on land (14).

It is clear from this passage that the creation of first life is to human embryos as the sea is to a female's womb. Notice that the sea is not associated with the whole mother here, but linked to a specific part of the mother, the womb.

At the same time that this passage reinforces the concept of mother as womb, it also reinscribes an organic analogy that dates back to the Renaissance view of nature and society. This view centered on the fact that there was a parallel between the cosmic, the macrocosm, and the human body, the microcosm (Merchant 5). This organic view is clearly portrayed in the analogous processes of life development in the primeval ocean and within the human womb. This is an illustrative example of the complexity of Carson's utilization of both organic and mechanistic metaphors.

Mother sea as womb is clearly illustrated at another point in this first chapter. Carson admits that in the beginning, "There was little to induce living things to come ashore, forsaking their all-providing, all-embracing mother" (Carson 8). This is a beautiful description of the moment in the birthing process when an organism leaves the dark, watery warmth and comfort of the womb behind for the bright, cold, shock of daylight. However, the terms "all-providing" and "all-embracing" used above do not

refer to mother as much as to womb. As soon as an organism leaves the womb, the mother can no longer provide all, nor can she embrace all. For example, the baby needs oxygen that, after birth, no longer comes to him/her through the mother, but comes directly from the air. It seems clear that Carson's concept of mother sea is that of a watery womb rather than an actual mother figure.

Just as mother sea is essentialized as womb in *The Sea Around Us*, mother earth has historically been essentialized in a much the same way. As Carolyn Merchant points out in *The Death of Nature*, metaphors of Mother Earth as womb were and are abundant. Traditionally, it was assumed that, minerals and rocks developed in the "womblike matrices" of the earth and that "baser elements" grew into gold (Merchant 25) there. Alchemists, in particular, believed that "Just as the child grew in the warmth of the female womb, so the growth of metals was fostered through the agency of heat, some places within the earth's crust being hotter and therefore hastening the maturation process (Merchant 25)." Aristotelian theory also held that minerals grew within and from the womb of the earth (Merchant 26) and Platonists upheld that view as well (Merchant 27).

Both the images of mother sea and mother earth as womb can be problematic. Statements such as, "...so the members of woman, all her qualities, and her whole nature exist for the sake of her matrix, her womb... (Merchant 26)" clearly show the possible implications of such a view. Both mother sea and mother earth can become primarily identified as womb, as reproductive organ, and then become no more than that. This has adverse effects on both the aspect of nature personified by mother and for the human concept of mother as well.

Indeed, this is the case with Carson's portrayal of mother sea. In fact, mother sea is so narrowly defined as womb in *The Sea Around Us* that it is impossible to incorporate her into the after-birth processes of life. In the first chapter of this book, it is only through birth that mother sea gains a name and an identity. Before the sea gave birth to life, Carson clearly calls it "that primeval ocean" (7) but afterwards, the sea is named the "mother of all life" (4). As *The Sea Around Us* moves beyond discussing birth in the chapters following "The Gray Beginnings", the mother sea metaphor is no longer pertinent and, therefore, disappears as an explicit subject. After the sea has fulfilled its role as a womb and giver of life, it becomes unnamed once again. Mother sea gives birth and then loses her status as a mother. Further, there is absolutely no association of nurturing or caring with the mother sea metaphor either before or after she gives birth. The lack of these characteristic maternal associations further depicts mother sea as simply a womb, and not a mother.

Carson actually uses this organic metaphor of mother sea as womb to legitimate scientific exploration of the sea. She uses the mysterious, unpredictable, and womb-like aspects that she attributes to mother sea to explain why science is compelled to explore the sea in the first place. Late in the first chapter she explains,

Moving in fascination over the deep sea he could not enter, he found ways to probe its depths, he let down nets to capture its life, he invented mechanical eyes and ears that could re-create for his senses a world long lost, but a world that, in the deepest part of his subconscious mind, he had never wholly forgotten (Carson 15).

There are a number of important things to notice in this passage. Human fascination with the sea is clearly a motivator and, in fact, a legitimate reason for invasive, exploratory

procedures. Carson offers the fascination with and the inability to re-enter the sea as acceptable reasons for these invasive procedures. Notice as well, that the sea (although this is the very chapter where Carson introduces the sea as mother of all life) is referred to as "it". The sea becomes an object with this designation, rather than a subject.

The most profound contribution of this passage is to make clear the human desire to return to the womb as motivation for sea exploration. Humans cannot re-enter the womb. Once humans are born, they become a part of the world outside the womb and begin breathing oxygen. This dependency on atmospheric oxygen makes a return to the womb, devoid of atmospheric oxygen, impossible. In the same way, humans cannot return to the sea that is their original mother according to Carson. This passage not only highlights the strong subconscious desire to return to the womb/sea, but also legitimates this desire as a reason for scientific exploration of the sea. This is an interesting legitimization process often used in science. That which we cannot become or be submerged wholly in, should be explained through science.

In addition to the passage above Carson states that,

...compounded with an unconscious recognition of his lineage. He could not physically re-enter the ocean as the seals and whales had done. But over the centuries, with all the skill and ingenuity and reasoning powers of his mind, he has sought to explore and investigate even its most remote parts, so that he might re-enter it mentally and imaginatively (14).

This idea of man fascinated with the womb, the origin of life, is again expressed here, as is the fact that this fascination is acceptable justification for the scientific exploration of mother sea. Carson doesn't question the ethics of the scientific invasion of mother sea she

advocates here. Indeed, to apply rational methods to the examination of her “most remote parts” is encouraged. This passage, in fact, follows a fascinating logical progression. Man cannot re-enter the sea (the womb), but has been granted rational abilities to figuratively re-enter the sea (the womb) using technological exploring devices. Therefore, man should scientifically explore the sea. For Carson, indeed for most science, it is just that simple.

Equally as problematic is Carson’s portrayal of the sea as non-living in *The Sea Around Us*. In the very same chapter that she names the sea “mother,” Carson refers to the sea as “non-life.” She notes that in mother sea’s “warm, dimly lit waters the unknown conditions of temperature and pressure and saltiness must have been the critical ones for the creation of life from non-life” (7). This description of life’s beginnings is portrayed in terms of a chemical reaction with the discreet (natural science) distinction between non-life and life clearly designated. The sea, the womb that created all life, is the “non-life” that Carson refers to in this line. The waters of the sea are filled with living things, and, in fact, nurture and sustain living things, but Carson doesn’t recognize or describe the waters of the sea as life.

Considering the primacy of the sea in creating life, it is intriguing that Carson does not consider it to be living. It is important to remember, however, that Carson is a natural scientist. As such, she adheres to very particular definitions of life and non-life. According to biological theory, life has distinct properties. Living beings are homeostatic and have complex cellular organization, they reproduce themselves, grow and develop, respond to stimuli and take energy from the environment to change it from one form to another. Living things, as opposed to non-living or inanimate objects, are also adapted to

their environment. (Curtis 26) The sea itself, not considering the life within it, is water composed of both organic and inorganic molecules. These molecules do not fulfill the properties of life we just described and, therefore, fall into the scientific category of non-life. Carson, as a scientist, does not defy the boundaries of these categories, but, in the process, creates a fascinating non-living mother of all life.

Mother sea garners an essential identity as a womb, is designated as non-living and remains devoid of personality, feeling or autonomy in the very first chapter.

Considering all of these attributes, it is not difficult to see how Carson can discuss the penetration, probing, exploding and exploring of the mother in the remaining thirteen chapters of this work. As Merchant points out in reference to mother earth (but equally applicable to the idea of mother sea),

The image of the earth as a living organism and nurturing mother had served as a cultural constraint restricting the actions of human beings. One does not slay a mother, dig into her entrails for gold or mutilate her body...As long as the earth was considered to be alive and sensitive, it could be considered a breach of human ethical behavior to carry out destructive acts against it (3).

So it seems that Carson, by developing mother sea in this way, creates a distant, alienated organic metaphor. Mother sea is not alive and she is certainly not human, in any sense of that word. It is impossible for the reader to develop a relationship, let alone an ethical relationship with mother sea as she is never developed as a unique being. Further, because mother sea is only identified through the birth of life, which occurred millions of years ago, she fails to have a real presence in the present. By developing the mother sea metaphor in this way, Carson allows the reader to deem the invasive methods of scientific

exploration ethical. Carson will have to do further work, however, to convince the reader that scientific exploration is necessary or desired. She accomplishes this by associating the sea with mystery, unpredictability, and wild chaos.

Mother sea also has clearly mysterious connotations in this work as well. In the very first line of the work Carson acknowledges that it is not clear how mother sea came into being: "Beginnings are apt to be shadowy, and so it is with the beginnings of that great mother of life, the sea"(3). Carson points out that there is no evidence or direct report of what happened in those first few moments. The lack of direct observation by humans, for the only witnesses to the sea's birth were the sun, moon and rocks, poses a problem for knowing the ocean's origins:

Many people have debated how and when the earth got its ocean, and it is not surprising that their explanations do not always agree. For the plain and inescapable truth is that no one was there to see, and in the absence of eyewitness accounts there is bound to be a certain amount of disagreement (3).

Without the power of an eyewitness account the beginnings of the sea can never be scientifically understood with any degree of certainty. Carson speaks of consulting the "testimony of the earth's most ancient rocks" and the evidence "written on the face of the earth's satellite, the moon," but she admits that the lack of human observation detracts from the power of these witnesses. She admits this by labeling her theory of the ocean's cosmic origins "story," a term that does not hold much merit in the scientific world: "So if I tell here a story of how the young planet Earth acquired an ocean, it must be a story

pieced together from many sources and containing whole chapters the details of which we can only imagine" (Carson 3). The origin of the sea herself is shrouded in mystery.

Neither is it clear how mother sea actually generated life. As Carson explains,

In what manner the sea has produced the mysterious and wondrous stuff called protoplasm we cannot say. In its warm, dimly lit waters the unknown conditions of temperature and pressure and saltiness must have been the critical ones for the creation of life from non-life. At any rate they produced the result that neither the alchemists with their crucibles nor modern scientists in their laboratories have been able to achieve (7).

Carson admits here to a fantastic event that is incapable of being replicated scientifically. Science just cannot understand how mother sea generated her offspring; it is a complete and utter mystery. More importantly, science cannot replicate the process. This is a fact that only adds to the deeply mysterious nature of the mother sea metaphor.

In addition to her puzzling origin and her inexplicable generation of life, the sea is generally portrayed as mysterious in this work. Towards the conclusion of the work, Carson discusses old folk ideas of the sea and how often those perceptions of the sea are correct. She points out that throughout history, the sea has been perceived as mysterious and lists phrases describing the mysterious, unpredictable nature of the sea. She then clearly reiterates her point by saying, "In phrases like these we get the feel of the unknown and the mysterious that never quite separates itself from the sea..." (Carson 211). Carson continually constructs mother sea with this mysterious, unknown quality.

The sea is divided into two main parts in *The Sea Around Us*: the surface water and the depths. Carson portrays both of these parts as mysterious. Carson introduces the

section on the surface waters with a quote from Melville, "There is, one knows not what sweet mystery about this sea..." (Carson 17). She then refers to the "bewildering abundance" of life in the surface waters that has yet to be examined or explained by science: "So here and there, in a few out-of-the-way places, the darkness of antiquity still lingers over the surface of the waters..." (Carson 211).

The depths have a mysterious quality about them as well as a sinister quality. In the chapter entitled "The Sunless Sea" (which falls into the section "Mother Sea"), Carson quotes Melville: "...whose gently awful stirrings seem to speak of some hidden soul beneath" (Carson 17). That hidden soul beneath refers to the depths of the ocean where there are "deep, dark waters, with all their mysteries and their unsolved problems" (Carson 37). It is not clear whose unsolved problems Carson refers to in this line. Surely the organisms living down there do not have unsolved problems, but the depths pose humans with an unsolved problem, namely that they cannot go down there. That point aside, however, it is obvious that these deep sea waters garner a deeply mysterious connotation in this quote. A few lines later, Carson reiterates this idea. She writes, "This region (the sunless sea) has withheld its secrets more obstinately than any other. Man, with all his ingenuity, has been able to venture only to its threshold" (Carson 37). There are "beings no man has ever seen before" (40) in the deep waters of the ocean. Later, she concludes,

We can only sense that in the deep and turbulent recesses of the sea are hidden mysteries far greater than any we have solved" (Carson, 130) and that "It is mainly in thinking of its third dimension (depth)) that we can still apply the concept of the Sea of Darkness (Carson 211).

It is clear from statements like these, and many others that go unmentioned here, that a deeply dark and mysterious connotation veils the depths of mother sea.

While Carson readily admits the mystery shrouding mother sea, she is optimistic that such a mystery can be solved with the right tools. Again and again Carson mentions that the sea has meaning and that this meaning can be read, just as a book is. Often this reading is associated with translation or the idea that the sea's language can be translated for human comprehension. Carson asserts that the waves "tell this instrument many things of the distant Atlantic waters from which they have come, and their messages are translated by its mechanisms into symbols understandable to the human mind" (Carson 111). Also, Carson explains that, "The reading of the sea's sediments has just begun. When many cores are collected and examined we shall certainly decipher many exciting chapters" (Carson 81). She restates this when she explicates that, "The sea's sediments are a sort of epic poem of the earth. When we are wise enough, perhaps we can read in them all of past history. For it is all written here" (Carson 76). Even when discussing the nebulous origins of the universe, Carson maintains this idea. She asserts that the earth's most ancient rocks contain testimony of the beginnings, and that there is "evidence written on the face of the earth's satellite, the moon" (Carson 3) as well. These are but a few of Carson's most overt descriptions of the sea as a book to be read or translated.⁶

⁶ The primacy of literacy, the written word and the metaphor of the book in Carson's *The Sea Around Us*, although beyond the scope of this paper, deserves further examination.

This concept of translating the secrets of nature into meaningful human language can be traced back to seventeenth-century philosophical assumptions about being and knowledge. These assumptions heavily influenced the development of science, and continue to do so in many cases. One of these philosophical principals stated that, "Knowledge can be abstracted from the natural world" (Merchant 228). This meant that there was meaning in nature, and that human could translate that meaning into knowledge. This principal, first of all, treats nature as an object from which knowledge can be gleaned rather than seeing nature as a living, embodied subject. It also insinuates that the role of nature is to provide, or reflect, knowledge for humans. These are both dangerous implications that lead to further justification of scientific experimentation and manipulation of nature as becomes clear in this particular work by Carson.

This concept of translating and exploring the mysterious mother sea adds to the complexity of the mother sea metaphor in other ways as well. Specifically, it adds to the implicitly male imperative for scientific technology used to explore women. These technological and experimental methods are necessary for not only uncovering, but also translating mother sea's deepest secrets and mysteries. As Carson says, "Although only a fortunate few can ever visit the deep sea, the precise instruments of the oceanographer, recording light penetration, pressure, salinity, and temperature, have given us the materials with which to reconstruct in imagination those eerie, forbidding regions" (Carson 39). Ideas such as this were first promulgated by scientists (male scientists) in the Baconian program in which human dominion over nature was to be achieved through the experimental "disclosure of nature's secrets" (Merchant 188). To achieve this

dominion, specifically, scientists such as Joseph Glanville asserted that “arts and instruments should be developed for ‘searching out the beginnings and depths of things and discovering the intrigues of remoter nature’” (Merchant 188).

One of the deepest of these secrets is the sediment layering on the ocean floor that Carson frequently describes. In a particularly revealing section Carson explains that, “The book of the sediments has been opened only within the lifetime of the present generation of scientists, with the most exciting progress in collecting and deciphering samples made since 1945” (Carson 76). She then goes on to describe the techniques and methods that have made that progress possible. The first method involves “coring” the sediments layering the bottom of the sea. Much like the coring of a tree, this technique inserts a sharp, penetrating instrument deep into these sediment layers. Upon removal of the coring instrument, a section of the ocean bed will be removed as well. Carson explains that scientists now have the ability to take cores 70 feet long and that these cores can represent millions of years of geologic history (Carson 77). If the mother sea metaphor were still active here, and this chapter is included under the section “Mother Sea”, Carson would be advocating the piercing of mother sea and the removal of a chunk of her innards, for the sake of human science. But Carson is somehow able to distance the mother sea metaphor from the need to read the “epic poem” of the sediments.

Carson also advocates the use of sound echoing, or depth sounding, to solve the mysteries of the deep sea. This method of constructing a topographical map of the ocean floor bears a remarkably striking resemblance to the ultra-sound method used to construct an image of a baby within a mammal’s womb. Such a map can be obtained in one of two

ways; sounds can be released into the water from an instrument aboard a ship (Carson 40) or depth charges can be dropped into the water to explode at a certain depth (Carson 77). Either method allows the scientists above sea level to calculate the distance to the sea bottom at any particular point. This allows scientists to find mountains, valley, and flat areas along the ocean floor. Neither method has been examined for its effects on mother sea or the life within her. Indeed, Carson embraces and celebrates this method numerous times in the text⁷ but never questions its impacts on mother sea.

This sense of positivism, that science will decipher all eventually, is directly linked to a mechanistic understanding of the world. Each individual part of the world can be taken apart and examined, and, in time, it can all be understood. Again and again Carson admits that there are limits to scientific knowledge *at present*, but she will continually convince the reader that those limits will be overcome in the future. In other words, Carson continually reinforces the idea that in time all will be “deciphered” (Carson 76). Statements such as “But at present no one is wise enough to be sure”(Carson 7), and “But at present there are no means for collecting the temperatures over a large enough area, at frequent enough intervals” (Carson 169), and “At present we do not know” (Carson 130) frequently exhibit this sense of scientific positivism. One assumes from the inclusion of “at present” in these statements, that Carson assumes someday someone will be wise enough to be sure and that someday there will be means for collecting enough data. Likewise, Carson presents the lack of knowledge about tides

⁷ This is particularly apparent in Chapters 4, 5, 6, 8, 12, 13

along with the commentary, "At present, no one can answer" (Carson 161). Again, the message is clear; science doesn't have that knowledge right now, but it will abstract that knowledge if given enough time.

In the concluding section of the book, Carson begins to make statements that clearly reflect the danger of this mechanistic sense of positivism. She concludes the chapter "Wealth from the Salt Seas" by writing:

In time, as we learn the chemical secrets of the corals and sponges and diatoms, we shall depend less on the stored wealth of prehistoric seas and shall go more and more directly to the ocean and the rocks now forming under its shallow water (Carson 197).

In time, Carson believes, sufficient knowledge of the sea can be abstracted. Further, once we have this knowledge, we can apply it to any ends. Thus, it is clear how Carson's positivist pursuit of knowledge can eventually justify extraction and manipulation of mother sea.

There are other characteristics of mother sea that justify scientific exploration as well. Mother sea is also portrayed as unpredictable, wild and disordered. These aspects of are developed in the second section of *The Sea Around Us*, "Restless Sea"⁸. Carson acknowledges early on in her work that, "The face of the sea is always changing" (29), the sea is a dynamic body, with unsteady boundaries and mysterious rhythms. The very notion of "The Restless Sea," as Carson names this particular section, suggests a dynamic, mobile, and unsatisfied being. This dynamic sea constantly defies prediction in

⁸ It is important to note that this is the only section where the sea is overtly referred to as 'she' in the text. This reference to the sea as 'she' occurs in the chapter "Wind, Sun and the Spinning of the Earth"

Carson's work and, therefore, is characterized as wild and unpredictable. The chapter discussing waves, "Wind and Water," clearly portrays this characterization.

In this particular chapter Carson is working towards constructing a "life history" of a wave. To do this, she first introduces the general physical characteristics of a wave⁹ as height, length, and period. She then explains, "None of these dimensions is static; all change..." (Carson 114). Thus, the dynamic nature of waves is established. Shortly thereafter, she touches upon the disordered, wild perception of the sea by describing a single wave "with its fellow waves forming a confused, irregular pattern known as a 'sea'" (Carson 115). There is no stable, predictable pattern of waves composing the sea; they are eternally changing and forming irregular, unpredictable patterns. Carson establishes a sense of the sea as disorderly here and, as Merchant aptly describes, "this image of nature as disorder calls forth an important modern idea of control over nature" (2).

These irregular, unpredictable patterns alone do not create terror. However, Carson begins to couple these images of disordered, dynamic waves with images of power and danger that do impute a sense of terror in the reader. She gives examples of waves with incredible strength bombarding lighthouses, throwing rocks weighing over 135 pounds 150 feet above sea level, and tearing down seawalls. One of the most remarkable examples presented here describes the destruction of an 800-ton breakwater by storm waves off the coast of Scotland. Not only did the waves dislodge the

⁹ The physical characteristics discussed here are those clearly defined by the field oceanography.

breakwater, but they also dislodged the concrete bearings buried deep in the ocean floor. Carson reports, "The waves had torn loose, lifted, and bodily moved a mass weighing no less than 1350 tons"(121). These awesomely powerful waves are not presented as particularly rare either. Following the statement, "A list of perverse and freakish doings of the sea can easily be compiled," (121) Carson documents numerous, varied accounts of destruction such as this. Notice the use of the words "perverse" and "freakish" which certainly imply an uncontrollable, wild essence.

It is the passages that deal with the danger these waves present to humans that completely strike terror into the reader. As Carson says, "The sea waves that have fixed themselves most firmly in the human imagination are the so-called 'tidal waves'. These are waves that actually have nothing to do with tidal patterns that wreak immense destruction and plunge many humans into a watery death. These waves fall into two categories: seismic (tsunamis) and storm waves. The former is associated with earthquakes, and the latter with severe storms such as hurricanes. Tsunamis are waves that sweep unto coastal land suddenly, sometimes sucking entire villages out to sea. An eyewitness accounts that, "...houses were carried out to sea...even large rocks and blocks of concrete were carried out...People and their belongings were swept to sea..." (Carson 125-6). These are ferociously destructive descriptions of waves that induce large amounts of fear for/of the sea. Storm waves, in some cases, are even worse. Not only do they sweep in to take human lives and possessions out to sea, but they are also accompanied by a great rise in water called the "storm tide" (Carson 127). As Carson says, "This rise in water is often so sudden that it leaves no possibility of escape. Such storm waves claim

about three-fourths of the lives lost by tropical hurricanes” (Carson 127). Both these types of ‘tidal waves’ are very powerful, very dangerous and very scary characteristics of mother sea.

The other two chapters within this section deal with the ocean’s currents and tidal rhythms¹⁰. Although these phenomena are clearly more constant and, to some extent, more predictable, they are still not well understood. For example, it is not clear whether tides respond to cosmic forces or forces from the core of the earth (Carson 151-3). Because of uncertainties like these, both the currents and tidal patterns are deeply mysterious as well. Furthermore, combined with wave patterns, both tidal patterns and currents can have enormous and unpredictable effects. Carson uses “dead water” and whirlpools to illustrate this. These natural phenomena occur when at least two of the three aspects of the “restless sea” synergistically interact (Carson 129-30; Carson 155-56). She also adds that, “Although the tides have become tamer...mariners are nevertheless greatly concerned not only with the stages of the tide and the set of tidal currents, but with the many violent movements and disturbances of the sea that are indirectly related to the tides” (Carson 156). So, although it appears on first glance that the tides are more predictable, more ordered and less destructive than waves, that is clearly not always the case.

All three of the sea’s characteristics described in this particular section of the book portray an unpredictable, wild and dangerous side of mother sea. Because all of

¹⁰ Tidal patterns also have strongly organic, ecological insinuations in this chapter. Although not developed in this paper, these patterns are a complex interaction of metaphors that deserve attention.

these characteristics, coupled together, create an ominous sense of terror in the reader, the perception of a need to figure out mother sea grows. This sense of terror convinces one that the sea needs to be explored so that it can be understood, predicted and ordered.

This sense of terror also leads to a perceived great need for control over this immense unpredictable, and powerful force. Carson clearly sees humans, and particularly scientists, as the only hopes for such comprehensive control. Speaking of the waves, she notes that, "Out of such seemingly hopeless confusion the patient study of many men over many years has brought a surprising amount of order" (Carson 114). It is scientific study that will generate the knowledge needed to establish prediction and control over the sea.

Carson utilizes examples from all areas of the world to illustrate this particular point. She describes how the Moroccan Procterorate¹¹, composed of scientists, was established as "a service for the prediction of the state of the sea" (129). This agency has successfully warned of the approach of dangerous swells that prevent destruction of ships and loss of life in the port of Casablanca. Carson also speaks of the establishment of a similar system to prevent seismic waves from engulfing the Hawaiian Islands. After a particularly horrible seismic wave wreaked violent havoc on the Hawaiian Islands in April 1946, "it set people to thinking that perhaps we now know enough about such waves and how they behave that a warning system could be devised which would rob them of the terror of the unexpected" (Carson 126). Such a system has now been

¹¹ Note the use of the concept of protection in the very name of this agency

established and successful warnings have been issued¹². Carson feels that this is a tremendously positive use of prediction as “for the first time in history, there is an organized effort to prevent these ominous waves from racing undetected over the empty spaces of the Pacific, to roar suddenly on some inhabited shore” (127). Such phrases as this are embedded with many metaphoric assumptions about the sea and the role of humans as well. Clearly, Carson is advocating the prediction, and invasive exploration of the sea as an alternative to loss of human life. This makes it impossible for Carson to overtly uphold the mother sea metaphor in these chapters. Otherwise, it would be difficult to accept the priority of human life over the creator of all life.

The Culmination

As has been discussed, within the first two sections, “Mother Sea” and “The Restless Sea,” Carson unconsciously develops an organic metaphor of sea as mother in a way that ultimately ends up justifying scientific exploration, probing and penetration. In the third section, the organic metaphor of mother sea begins to openly reflect a mechanistic conceptual system. In this section, entitled “Man and the Sea About Him,” Carson discusses and encourages control of sea processes and extraction of the sea’s resources.

The very first chapter of this final section is entitled “The Global Thermostat”. This reference to an instrument of temperature measurement refers to the ocean, which is

¹² In 1961, eight warnings had been issued. Three of those instances involved waves of seismic proportions. On May 23, 1960 the Islands were protected from great loss of life by the warning following the great Chilean

known to directly influence climate as well as weather patterns. Carson has deliberately chosen the thermostat metaphor as either a replacement for or a conflicting addition to the metaphor of mother sea. The sea is now recognized as both a being and a machine. This new thermostat concept is a much more direct representation of Carson's mechanistic worldview. Carson says, "For the globe as a whole, the ocean is the great regulator, the great stabilizer of temperature" (170). Thus, the ocean has a clear mechanistic function in the great cosmic machine; the ocean regulates temperature. It is no surprise, then, when one of the first topics discussed in this chapter is the "schemes for deliberately changing – or attempting to change – the pattern of the ocean currents and so modifying current at will" (Carson 167). For if the ocean is no more than a part of a cosmic machine, then humans can certainly manipulate and control that part.

The next chapter is entitled "Wealth from the Salt Seas" and begins with the words, "The ocean is the earth's greatest storehouse of minerals" (Carson 185). This idea of the ocean as a mineral storehouse could be understood in correlation with the idea of sea as womb, however, Carson makes no mention of the sea as mother in this entire section. Instead, the sea first becomes the ocean and then becomes a resource for human use. Carson lists the wealth of minerals in the sea and advocates their extraction. One example of this occurs on page 188 where Carson discusses gold:

Of all the elements present in the sea, probably none has stirred men's dreams more than gold. It is there – in all the waters covering the greater part of the earth's surface – enough in total quantity to make every person in the world a millionaire.

quakes.

Carson certainly places tremendous value on these resources. She does not acknowledge, (probably because she doesn't fully realize) that extracting these resources would harm mother sea. Carson's metaphor explanation of the sea has been reshaped. Now, reflected in the very title of this chapter, mechanical understanding of material resources takes precedence over the force of life. Extraction, control and manipulation of these resources, for human consumption and wealth, are now the objectives rather than fascination and wonder.

In this chapter, Carson also writes, "Of all the legacies of the ancient seas the most valuable is petroleum (193)". This is an astonishing statement from an author who previously described the birth of all life to be the greatest contribution of mother sea. Certainly petroleum implies great material wealth, but to place this material wealth over the wealth and diversity of life housed within the sea is a tremendous step for Carson. Petroleum is a cause of great environmental destruction and is, in many ways, a threat to life. Carson's placement of valuing of petroleum stands in stark contradiction to her recognition of the value of life within mother sea. Yet, this attitude towards petroleum also makes complete sense in light of the subtle mechanistic metaphor that Carson reinscribes in this book, and that now has come openly to the surface of our understanding.

This development of the mother sea metaphor finally leads to a concluding paragraph in which the sea is a lifeless source of material wealth. Carson attempts to revive her earlier, powerfully organic conceptions of the sea, but her words do not describe a living, beautiful mother sea. She writes,

In the broader meaning, that other concept of the ancients remains. For the sea lies all about us. The commerce of all lands must cross it...In the mysterious past it encompasses all the dim origins of life and receives in the end, after, it may be, many transmutations, the dead husks of that same life. For all at last return to the sea – to Oceanus, the ocean river, like the ever-flowing stream of time, the beginning and the end (212)

This conclusion seems beautiful at first glance; it appears that Carson has brought us full-circle to the organic once more. The sea is described as all-encircling once more, but notice that Carson carefully points out that, because it is all encircling, the sea is critical for commerce. In this final passage, commerce is the primary characteristic of the sea now. And note that the sea is neither personified as a mother or as any sort of living being any more. Now the sea is 'Oceanus, the ocean river'. In other words, the sea is water and water is non-life. Although it still holds some beautiful implications (such as being the beginning and the end) this passage outlines an entirely different metaphor for the sea from what Carson originally introduces. This sea houses commerce and life; it is at once mechanistic and organic.

Conclusion

After concluding a close reading of the mother sea metaphor constructed in *The Sea Around Us* it is difficult to reconcile the beginning of the work with the conclusion. Carson ends up inspiring control, domination and manipulation of the sea for human purposes as well as a deep sense of fascination, awe and respect with the character, mother sea. At times it seems that she actually uses the organic conception of mother sea as a means for

legitimizing her more mechanistic claims.

I do not believe, however, that Carson ever intended to do such a thing; she certainly did not sit down to write *The Sea Around Us* with this particular aim in mind. Carson was situated in a particular historical, and cultural place when she wrote *The Sea Around Us*. It appears from the work that she simply could not escape the metaphorical assumptions of the conceptual system promulgated by her culture, her time period or her scientific career. Carson's flaw is not her place within a particular metaphorical conceptual system, but her lack of awareness regarding that place. Because she was not aware of the conceptual system within which her actions and thoughts were based, Carson ends up introducing a beautiful organic metaphor that eventually ends up reinscribing a mechanistic worldview. It is precisely because this occurred despite Carson's best intentions, that we, in the environmental movement, should be convinced to look more closely at the metaphorical assumptions underlying our arguments as well.

CHAPTER III

HUMAN NATURE? CARSON'S CONSTRUCTION OF THE RELATIONSHIP BETWEEN HUMANS AND NATURE IN *SILENT SPRING*

Introduction

After the publication of *Silent Spring*, Carson explained that, "The subject of man's relationship to his environment is one that has been uppermost in my own thoughts for many years"(Lear, *Lost Woods* 228). In *Silent Spring* Carson constructs this relationship between humans and all other life in a very particular way. This chapter is focused on discerning what Carson thinks the relationship of humans to nature *should* be? It is clear from a close reading of *Silent Spring* that Carson has a clear notion of what the human relation to the natural world *should not* be; however, her idea of what it *should* be is both unclear and problematic.

What Should Humans *Not* Be Doing?

In *Silent Spring*, Carson spends considerable time describing what the relationship between humans and nature *should not* be. She employs two particular rhetorical strategies to accomplish this persuasion. First, in the first 16 chapters of the work, Carson constructs an idealized conception of a nature that can do no wrong. This nature is an awe-inspiring

web of life in a state of fragile, but harmonious, balance that has inspiring beauty, great meaning and positive creative powers. It is an entity that keeps itself in check with delicate control mechanisms. In short, this nature is completely good; this nature knows best.

In contrast, Carson constructs an image of humans at war with this idealized nature:

Silent Spring issues its challenges to environmental practices from within deeply conventional conceptions of nature. It is energized by a familiar, simple and powerful narrative: nature disturbed, wholeness undone (Garb 231).

It is humans that are disturbing this perfect, beautiful, nature and undoing its wholeness. In the first sixteen chapters of *Silent Spring*, humans violate each of the idealized traits of nature. The reader is bombarded with the rhetoric of an idealized nature disturbed, and destroyed by human actions. The imagery, language and metaphors of war, specifically a human war on nature, are absolutely central to Carson's success in persuading readers that this is not how humans should behave towards nature. My discussion of these two points will focus first on five idealized characteristics of nature: the glorification of the web of life, the wholeness of nature, the balance of nature, the control of nature, and even disease of nature. Following that I examine the powerful role the image of a human war on nature plays in *Silent Spring*.

Idealized Nature

The Integrity of the Web of Life

Carson explains that, "...in nature nothing exists alone" (51), but rather in "a web

of life" (170). There are deep-rooted interconnections between all life on earth. For example, "The earth's vegetation is part of a web of live in which there are intimate and essential relations between plants and the earth, between plants and other plants, between plants and animals" (64). This web of life extends to and includes all life in its complex interrelationships; the threads of the web weave into a complex, "closely knit fabric of all life" (67).

Humans are "ripping apart" the fabric of the web of life (67). These humans have ample power to accomplish such a destructive thing. This is clear very early on in the book:

Only within the moment of time represented by the present century has one species – man – acquired significant power to alter the nature of his world... this power has not only increased to one of disturbing magnitude but it has changed in character (Carson 5-6).

This power is significant, disturbing and what it is used for, we are to infer, is now of bad character. Further, humans are the only species to acquire or attain this great power to alter, and destroy all other species. After establishing that humans have such power, Carson explains what they do with it. Through the use of chemicals, humans are "penetrating" and "shattering" the natural world (73,64,67,203,209) and "breaking the threads that bind life to life"(73). Human chemicals entering into the web of life are compared to "a crowbar between the spokes of a wheel"(183) and humans hurl "a cave man's club" against the delicate fabric of life (261).

Humans are also violating what Carson names the "integrity" of nature (13, 75, 208, 216). The term integrity refers to "The quality or condition of being whole or undivided; completeness" (*American Heritage College Dictionary*, 706). Thus, when

Carson speaks of humans violating the integrity of nature (6, 75, 216, 277) she is actually accusing humans of jeopardizing the completeness and wholeness of nature.

This integrity is very clearly linked to a particular notion of time. Nature has integrity because it developed slowly, and over very long periods of time. Consider the following passage from the chapter, "The Obligation to Endure":

It took hundreds of millions of years to produce the life that now inhabits the earth – eons of time in which that developing and evolving and diversifying life reached a state of adjustment and balance with its surroundings (Carson 6).

Nature has undergone long processes of change and adaptation. Time, Carson admits, is "the essential ingredient; but in the modern world there is no time" (6). The modern world is a world where humans thrust change on nature quickly without giving it time to adapt or diversify. There is no time in this world to become, or perhaps even to remain, a being with integrity; there is barely time in this world to stay alive.

The pace of nature is deeply contrasted to the pace of these bad humans as well. Carson writes of "the precise and delicate timing that is nature's own" (73) and "the deliberate pace of nature" (7). In sharp contrast is the "the impetuous and heedless pace of man" (7) that violates the pace of nature. Nature and humans seem to have incommensurate notions of time. Nature moves at a pace that is slow, and full of thought while these humans race along through their relatively short existence without thinking anything through. With such different conceptions of time and pace it is not difficult to understand why humans are continually in conflict with nature in *Silent Spring*.

There is also a fascination with contamination as a particular violation of nature's

integrity in *Silent Spring*. Humans are continually contaminating their world with synthetic chemicals that poison the animate and inanimate inhabitants of that world (Carson 15). This contamination is a major concern of *Silent Spring*. Carson writes that, "The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea" (6). This contamination threatens the health and well being of the earth, all of its inhabitants and life as we know it. It is this "universal contamination of the environment" that changes "the very nature of the world - the very nature of its life" (Carson 6). Carson makes it clear to her readers that human contamination of the natural world threatens the very essence of the web of life that inextricably unites us all. The web of life, without these chemical contaminants, would be perfect once more (Carson 6).

The Balance of Nature

The president of Monsanto, at the time of *Silent Spring*'s publication, referred to Carson as, "a fanatic defender of the cult of the balance of nature" (Garb 232). While the term fanatic in this statement is neither respectful nor accurate, Carson certainly does promote the idea of a balance of nature in *Silent Spring* and in her speeches following *Silent Spring*.

Early in *Silent Spring*, Carson introduces the idea that nature has a checks-and-balances system that "holds species within bounds" (Carson 10). This system of checks-and-balances is what she will later refer to as the balance of nature (Carson 246). This balance, she explains, is not a static equilibrium state, as was traditionally believed (Worster 280); rather, it is a dynamic, fluid state (Lear, *Lost Woods* 231). It is a "highly

integrated system of relationship between living things that cannot safely be ignored any more than the law of gravity can be defied with impunity..."(Carson 246). This balance of nature, according to Carson, is an important and inherent "law" of natural systems.

This balance is a particular state reached over an enormous duration (Carson 6):

It took hundreds of millions of years...eons of time in which that developing and evolving and diversifying life reached a state of adjustment and balance with its surroundings. Given time- time not in years, but in millennia – life adjusts, and a balance has been reached (Carson 6).

Nature has achieved a fragile, harmonious condition of balance after a great deal of time, adjustment and creation.

Humans, as we find out in these first 16 chapters, have enormous potential for interfering with the intricate balance of nature. Rubin explains that, "When nature comes to be seen as a seamless web and a delicate balance, human activity is more easily painted as the violation or destruction of that balance" (46) and this is precisely what we witness in *Silent Spring*. After establishing this notion of nature in a state of balance in *Silent Spring*, Carson then presents human activities as violating or skewing this balance.

For instance, Carson points out that humans are undoing the system of checks-and-balances that nature has established (10). Carson also agrees with Dr. Ruppertshofen in Chapter 12. He explains:

...the partnership for life of the forest is entirely being unbalanced...We, therefore, have to put an end to these unnatural manipulations brought into the most important and almost last natural living space which has been left for us (Carson 196)

This is a perfect example of humans destroying the delicate balance of life that the

“natural” forest has attained through chemicals or “unnatural manipulations”. As further evidence of this point, Carson quotes “a group of specialists” from Syracuse University who say that “A few false moves on the part of man may result in destruction of soil productivity and the arthropods may well take over”(61). These human, false moves will unbalance a system that now keeps these arthropods in check, the balance of nature. This is yet another dynamic set of balanced interrelationships that humans will interfere with.

The Beauty of Nature's Creation

Carson also finds great beauty in the natural world (75, 70). Nature is inherently beautiful. She writes that “the natural landscape is eloquent of the interplay of forces that have created it” (64) and that “...beauty of the ordered world of nature still has a meaning that is deep and imperative” (127). Throughout this work (and, indeed, in each of her other works as well), Carson describes trees, wildflowers, rivers, insects, animals, and entire ecosystems that bespeak great beauty. Carson also persuades the reader that nature creates beauty as well. For example, “nature’s own landscaping” is responsible for the magnificent beauty of roadside foliage and flowers in (69-71). In a particular town in Southern New England, Carson describes how the beauty of the autumn roadsides was lost as a result of spraying abuse. When Carson writes that the “asters and goldenrod would have made a display worth traveling for”(70) she again attributes the power of beautiful creation to the asters and goldenrod. Indeed, throughout *Silent Spring* Carson attributes nothing but beauty or the creation of beauty to nature.

Humans, on the other hand, are consistently portrayed as destroying the beauty that

nature creates. We read that, "Nature has introduced great variety into the landscape, but man has displayed a passion for simplifying it" (Carson 10). The chemicals sprayed by humans along roadsides are "senseless destruction". They create "brown desolation"(70), "deformed, weeping trees"(70), "a broad, disfiguring brown swath"(71) and a "sterile and hideous world" (71). Humans are associated with "desecration"(70), "death"(70), and "despoiling"(69) of the beauty of the natural world.

Carson even begins *Silent Spring* with a model of destructive human creation. In "A Fable for Tomorrow" (an ingenious rhetorical device) Carson introduces a town devoid of life. Not surprisingly, humans have created this mythical town by destroying the beauty of nature. This is an "evil", "blighted", community of "mysterious maladies" and "strange stillness"(2). And, worse, Carson explains that "The people had done it themselves" (3). Humans created this extraordinary, lifeless withered mess and they did it using chemicals. As Albert Schweitzer is quoted in *Silent Spring*, "Man can hardly even recognize the devils of his own creation"(6). Carson could hardly agree with this idea more.

The devils of human creation that Carson takes particular issue with are the chemicals produced by humans. She writes:

...they (the chemicals to which life is asked to make its adjustments) are the synthetic creations of man's inventive mind, brewed in his laboratories, and having no counterparts in nature. (7)

These chemicals are not natural and, as we discussed previously, these chemicals are responsible for destroying the beauty of nature. Beauty is not attributed to these chemicals (created by humans) as it was attributed to nature. These chemicals are "brewed",

“synthetic creations” that are forcing life to adjust to them. They are not of life themselves, but achieve a descriptive degree of artificiality that makes them both dangerous and ugly in this work.

In a speech shortly after the publication of *Silent Spring*, Carson makes absolutely clear her beliefs on this subject. She first exalts natural beauty by proclaiming: “...natural beauty has a necessary place in the spiritual development of any individual or any society” (Lear, *Lost Woods* 160). She immediately follows this with an accusation of humans undoing this beauty:

I believe that whenever we destroy beauty or whenever we substitute something man-made and artificial for a natural feature of the earth, we have retarded some part of man’s spiritual growth (Lear, *Lost Woods* 160).

Carson equates substituting something synthesized by humans instead of something created by nature with destroying beauty. The natural world is beautiful, but humans are constantly destroying that beauty by substituting something of their own making. Carson clearly feels that the artificial creations of humans are certainly not as beautiful as those of nature. Further, human creation and alteration is regularly characterized as dangerous as opposed to the creative characterization of natural alteration. (Carson 15,17,60,231,17).

Control and Nature

Humans also seek to control nature. In seeking this control, they are violating the already perfect control of nature itself that Carson establishes. She refers to the “miracle of nature’s control at work” (247) and explains that the “really effective control of insects is

applied by nature, not by man (247)". Natural control, according to Carson, "needs to be utilized to the fullest extent"(138). Most insects, she explains, are held in check by natural forces, without the intervention of humans (249). She quotes entomologist G.C. Ulyett who agrees that "in natural environments we find ways and means of limiting populations of organisms in a more economical way than we can do it ourselves"(261). Natural control then is effective, economical, intelligent and even miraculous.

Human control, however, is not as positively presented. When humans attempt to control they write a "depressing record of destruction, directed not only against the earth they inhabit but against the life that shares it with them." (85). Chemical control is characterized as an "attack"(246), an "assault"(6) and a "tide of chemicals born of the Industrial Age that has arisen to engulf our environment..." (187). Further, Carson refers to spray planes and aerosol bombs as crude control methods of "a rather low scientific order" (Lear, *Lost Woods* 213). The control methods of humans, therefore, are characterized as violent, overwhelmingly powerful, coarse and just plain stupid.

Nature and Cancer

Nature even has done cancer right. This is why cancer, a seemingly negative entity by any standards, is characterized as acceptable when it is of nature, but unacceptable when introduced by humans. Carson explains that there are forces, such as radiation from sun, rocks or arsenic, in nature that cause malignancy; however, life has adjusted to these forces.

These natural cancer-causing agents are still a factor in

producing malignancy; however, they are few in number and they belong to that ancient array of forces to which life has been accustomed from the beginning (219).

This destructive disease is characterized as rare and natural here. These natural cancer-causing agents have been here since the beginning, they will continue to be here, and nature will adjust to them. Because they are natural, these carcinogens do not seem to be a grave threat to life.

The real causes for apprehension are carcinogens created by humans. As Carson explains, "...man, alone of all forms of life, can *create* cancer-producing substances [Carson's emphasis]"(219). Note that she says that only humans can create carcinogens; yet, on this very same page we are told that carcinogens existed in nature before the birth of humans. It seems that the destructive force of cancer is not *created* by nature. This makes sense since we have already established that nature only creates beauty, but humans create destruction. We find, not surprisingly, that "natural" cancer is not nearly as dangerous or violating as cancer induced by human chemical and physical agents (220). Note also the parallel to notions of beauty when Carson writes, "Instead of the natural environment there was rapidly substituted an artificial one..."(219-220) which consists of human synthesized carcinogens (230-231).

Carson clearly has an important and accurate point about the introduction of new carcinogens into the world; I don't wish to trivialize that point with my discussion. Indeed, it would be difficult to characterize the introduction of new carcinogens, either by humans or nature, in any sort of positive way. My point, instead, is to display how Carson attaches her argument regarding cancer to a particular glorification of nature and the

natural and a particular demonization of human, artificial artifacts.

The Human War on Nature

These examples of humans violating an idealized nature may not alone have been enough to persuade the public that human actions were in the wrong. The more powerful underlying metaphor that truly shapes the readers' perceptions of human actions in these first 16 chapters is that of war. Carson uses war-inflected language to fully persuade her readers that humans have launched a war against nature. The underlying metaphor of war was particularly compelling in the context of the Cold War¹³.

Two of the titles seriously considered for *Silent Spring* just before publication were *The War Against Nature* or *At War with Nature* (Freeman 380). In a speech toward the end of her life, Rachel Carson explained:

...what is important is the relation of man to all life. This has never been so tragically overlooked as in our present age, when through our technology we are waging war against the natural world (Lear, *Lost Woods* 42).

These titles and this quote reflect a concept key to the arguments of *Silent Spring*. This concept is conveyed through obvious statements of war as well as a more subtle use of war-inflected language.

Early on in *Silent Spring* Carson refers to "man's war against nature"(7). This blatant reference to war is repeated often in the text in various forms. She refers to

¹³ See Glotfelty, Cheryl. "Cold War, *Silent Spring*: The Trope of War in Modern Environmentalism". *And No Birds Sing: Rhetorical Analyses of Rachel Carson's *Silent Spring**. Ed. Craig Waddell. Carbondale and Edwardsville: Southern Illinois University Press, 2000 for more on this topic.

“man’s war on beetles”(93), “our war against insects”(34), and the human “chemical war” on all life (8, 94). Even the farmers are “waging needless war on the blackbirds”(127).

Aside from such overt references to a human war against nature, Carson’s language throughout *Silent Spring* is also doused in the language of war. Recall from previous discussion that Carson speaks of humans penetrating and shattering nature (73, 64, 67, 203, 209), breaking the threads of life (73), and humans throwing crowbars (183) and hurling clubs (261) into the fabric of life. There is a decidedly violent and war-like undertone to this characterization of human behavior. Carson also tells the tale of humans against nature with weapons (66, 69, 285), all-out assault (6, 74, 208), and attack (88, 245, 246). She utilizes military terms to speak of insect “enemies” (88, 123, 126, 251, 255) and “campaigns” against these “targets” (94). The insects even mount their own defenses (246-7) but, as Carson explains, nothing can get in the way of “the man with a spray gun” (84).

The results of this human war on nature are destruction (63, 88, 91, 131, 139, 140, 87, 93), massacre (84), annihilation (138), slaughter (84), near-extirmination (84, 85) and complete eradication (92, 126, 157) of entire species. These terms clearly call to mind the horrible effects of war between humans, particularly the near-extirmination of the European Jewish population during World War II. There is a toll of non-human and human life taken by this war that Carson describes for us (35). In fact, she explains that “all life is caught in its [this chemical war’s] crossfire” (8) with the end result of “disturbing records of high mortality” (110).

As a further example, consider the image of spray planes in *Silent Spring*. Carson describes these planes as propelling “an amazing rain of death” indiscriminately from the sky (155). This image is strikingly similar to that of a warplane dropping bombs or spraying bullets from the sky. At another point Carson describes how the farmers “sent in planes on their mission of death” (126). She is actually referring to farmers in the Midwest authorizing the aerial spraying of their fields, yet her specific language conjures up images of warplanes descending on this community to kill, kill, kill. These are two excellent examples of how Carson takes an event and suffuses it with the language of war in order to make the point that humans should not be acting in this way.

This underlying metaphor of war leads to an important question from Carson late in the book: “The question is whether any civilization can wage relentless war on life without destroying itself and without losing the right to be called civilized” (99). Carson has shown the reader that humans are waging war on nature; now she asks how this can be acceptable. She has convincingly painted this relationship as a bloody, destructive, and violent war so she is on strong moral ground when she speaks against it. In these first 16 chapters we read that humans are at war with nature and we strongly understand that this is not a healthy, acceptable relationship. The language and images of war are perhaps the most powerful tools in shaping the reader’s desire for a model of a different relationship with nature.

We take many conclusions regarding humans and nature from the first 16 chapters of *Silent Spring*. First, nature is perfect. It has developed over an incredibly long span of time into a balanced and beautiful web of life that relies on delicate systems of control.

Second, humans should not violate the web of life, should not upset the balance of nature, and should not contaminate nature with human-made, artificial chemicals. Humans also should not destroy natural beauty by substituting something human-made and artificial for a natural feature of the earth; they should not seek to achieve human control nor should they introduce artificial carcinogens into the world. Further, it is clear from the use of the language of war in these chapters that Carson thinks that humans are at war with nature. In short, the ultimate lesson of these chapters is that nature is perfect and humans need to stop this senseless war against it.

What *Should* Humans Be Doing?

Let's look more closely at what Carson believes that the relationship between humans and nature *should be*. There are two options that Carson lays out as possibilities for solving the problem of "man against the earth", her original title for *Silent Spring* (Fox 296; Freeman 380). Both of these options stem directly from the idealized version of nature as well as the idea that humans are at war with nature. First, instead of being in constant conflict with nature humans should just totally leave nature alone. By leaving nature alone, humans can then preserve the perfection of nature. Following Carson's image of war, this is the option where people lay down their weapons (the chemicals) and abandon the war territory (get out of nature). This solution, as we will discuss, is too simple and, therefore, cannot actually work.

The other option Carson discusses is biological control. This option involves humans understanding nature and natural processes. This understanding then allows

humans either to mimic nature or to more “safely” control nature. Again following Carson’s analogy of war, this solution consists of coming up with a battle plan that is safer, smarter and more efficient. As we shall discuss, this second option greatly complicates the notion of what the relationship between humans and nature ought to be.

Preservation

In many parts of *Silent Spring* (and often in her own life) Carson advocates preservation. The idea of preserving and preservation is repeatedly expressed in the text. For instance, by only selectively spraying plants with herbicides, “The integrity of the environment is thereby preserved” (75). Carson also discusses genes as the heritage of humans, and laments that we are doing so little to preserve the integrity of our genetic heritage (216). She also concurs in this text with a group of concerned citizens who convened in Maine to focus on “the preservation of natural landscape and of the intricate web of life whose interwoven strands lead from microbes to man”(69). In fact, preservation of the natural world is one of Carson’s main goals in *Silent Spring*. The last chapter of the book, the chapter that tells us how we should live with nature, begins by saying: “The other fork of the road – the one ‘less traveled by’ – offers our last, our only chance to reach a destination that assures the preservation of our earth”(277). It is this road of preservation that Carson urges us humans to travel.

According to the American Heritage College Dictionary, to preserve is:

- 1) To maintain in safety from injury, peril or harm; protect
- 2) To keep in perfect of unaltered condition; maintain unchanged
- 3) To keep or maintain intact. (*American Heritage College*

Dictionary, 1082)

Each of these definitions of the term clarifies how Carson arrives at her call for preservation in this text. If nature is perfect and humans are at war with it, nature must be protected from humans. To keep nature away from humans is to keep it in its perfect, unaltered, intact and unchanged condition. This will keep nature protected and safe; this will end the war.

Preservation is almost the only imaginable way for maintaining the idealized perfection that Carson characterizes as nature. If there is a war between humans and nature, this seems the simplest way to end it. So it is that we come to one of Carson's final directives regarding the forests in *Silent Spring*:

Here, with a minimum of help and *a maximum of noninterference from man* [my emphasis], Nature can have her way, setting up all that wonderful and intricate system of checks and balances that protects the forests (293).

Carson's conclusion here is that human noninterference will protect and preserve nature, specifically these forests. She advises humans to get out of nature's territory, lay down their arms (their spray guns) and let nature do its own thing again.

There are certain limitations to this recommendation for preservation. First of all, Carson assumes that humans and nature can be kept separate, but this assumption is false. Humans are constantly using, altering and relating to nature. As one example, human synthesized chemicals have pervaded the entire atmosphere and all of nature, just as nature can be found in all human synthesized products. It is impossible to imagine a world where humans and nature are kept separate. Even in situations where large tracts of land are set

aside for protection these tracts are usually managed by some group of humans. Further, these tracts of land are not preserved in a static state forever; this land continually changes and dynamically relates to natural and human activities.

If there really is a war between humans and nature, this solution is not going to create a lasting peace. This solution will simply (seem to) separate the warring parties without resolving the deep-rooted issues that catalyzed the inception of the battle. Further, humans cannot simply lay down their chemical weapons. They use these "weapons" for a variety of social, economic, and political reasons; they are not likely to simply abandon them at Carson's (or any other negotiators) request. Humans are constantly altering nature, they do this with "weapons". Therefore, to assume that these weapons could simply be abandoned is erroneous.

Although we must recognize that humans are a distinct part of nature, it is dangerous to posit nature as a realm outside of humanity or humanity as a realm that can be separated from nature. The idea of preservation easily leads to this dangerous separation. If humans are not recognized as living in and with nature constantly, then there is little need for a sense of responsibility or reciprocity with nature. Preservation reifies the mentality that nature is something out there that can be visited on weekends, but it is not involved in our daily, artificial lives. This idealized notion of nature displayed in preservation also underscores the wilderness ethic (Cronon 69-90).

Although Carson presents this as an alternative and positive relationship with nature, it is not really a relationship at all. The preservation she describes entails severing contact between humans and nature in an effort to protect nature. Thus, humans and nature

are no longer relating to one another, but are specifically learning to *not* relate to one another. As Cronon writes, "We need an environmental ethic that will tell us as much about *using* nature as about *not* using it"(85). Preservation does not tell us this; however, Carson does portray another alternative that begins to explain how to use nature.

Biological Control

It is difficult to reconcile the final chapter of *Silent Spring* with the message of the rest of the book. In this final chapter, "The Other Road", Carson presents the only path that she feels will change the dreadful relationship of humans against nature; she offers the reader an alternative relationship with nature through the idea of biological control. As I said previously, this is simply a new battle plan. It is very difficult, however, to determine exactly what this alternative relationship actually is. In this final chapter Carson tells us that humans need to follow a particular path in order to "preserve the earth" (277), but she is not clear about what this path entails. As Rubin notes,

"While advocating humility toward nature, it [*Silent Spring*] maintains the necessity for human intervention, without fully articulating what constitutes legitimate and illegitimate intervention" (52).

In short, Carson never presents an adequate comprehensive model for humans to live, create and alter while relating positively with nature.

In this final chapter, Carson argues that there are alternative solutions to the insect "problem". She contends that these solutions are more acceptable because they are "*biological solutions*, based on understanding of the living organisms they seek to control,

and of the whole fabric of life to which these organisms belong" (278). By understanding nature and natural processes, scientists and citizens can use that knowledge to "guide natural processes as cautiously as possible in the desired direction" (275). This gentle guidance equates to scientists devising weapons from the insect's own processes and to turning the strength of a species against itself in order to use the drive of an insect's life forces to destroy it (279).

Note that there is a somewhat puzzling division between the natural controls of nature and the biological solutions of humans. Biological solutions utilize an understanding of natural controls, but they can never actually be natural controls because they are of humans. Biological controls can also acceptably and capably violate natural controls towards a desired end. Further, the biological solutions Carson mentions here rely heavily on synthesized chemicals, electronics, x-rays, gamma radiation and even ultrasonic sound. All of these components are either synthesized or manipulated by humans. They all utilize the very artificiality that Carson has deemed evil in earlier chapters. Are we really convinced when Carson makes an attempt to distinguish between manufactured "chemical sterilizers" and synthesized "chemical poisons"(283) when we have already been persuaded by the earlier chapters that chemicals not created by nature are dangerous? Carson seems to completely reverse her attitude towards human-synthesized products in this final chapter when she incorporates them into recommended biological controls.

Yet, to completely befuddle us, Carson also maintains a distinction between the natural and the artificial in particular spots (291, 293, 296). For example, Carson criticizes farmlands for being "highly artificial, unlike anything nature ever

conceived”(293) and glorifies forests as “a different world, much closer to natural environments” (293). She continues to associate the natural with good perfection and the artificial with unnatural destruction. We are still being persuaded, by references such as this, that artificial human concoctions are in conflict with the good of nature. At the same time, we are being told that “artificial” inventions can be used as biological controls, for the good of nature. Carson doesn’t appear to have a consistent notion of what the relationship between nature and humans should be. This is only problematic when readers assume that she does have such a notion.

Since Carson has set up this idealized portrait of nature as perfect, whole and good, it is impossible to imagine humans altering it in any positive way. Also, because she has created an image of humans at war with nature, it is difficult to believe that anything short of complete peace is morally correct. This is perhaps why her arguments for biological control, a new plan for battle, confound us.

Biological control, just like chemical control, seems to violate the “integrity” of nature that Carson established earlier in the work. Would Carson’s nature ever actually “turn the strength of a species against itself”(279) through sterilization? Acts such as sterilizing a male insect through radiation or chemicals are certainly not expected from the perfect, beautiful and benevolent nature we have come to know in *Silent Spring*. Further, using male sterilization to eradicate a particular species of insect would most certainly have some effect on the wholeness, the balance, the life of the ecosystem to which that species belonged. We have already been convinced that nature does not participate in such destructive, unbalancing acts; only humans do this. And Carson has successfully argued to

the reader that humans are wrong for doing this; therefore, how can we now accept that biological control is more correct or more natural than chemical control?

Carson urges humans to use microbes to control nature (188). It is hard to accept that the perfect nature Carson has constructed for us would use bacterial infections and disease to kill off an entire species. It's also hard to accept that this type of behavior wouldn't be considered yet another battle in the horrible war between humans and nature. Further, microbes, bacterial infections and disease all pose great risk to the balance of the system as do all of the "natural enemies" that Carson supports as a control. All of these things have enormous potential to disrupt the natural balance when introduced to a new community; these things can alter, splinter, and violate nature just as powerfully as chemicals. As many since the publication of *Silent Spring* have readily acknowledged:

We can expect pests to adapt to effective biological controls just as they have to chemicals. Furthermore, it is not certain in the long run that biological and biotechnological approaches to pest control will be safer than current chemicals to mankind and our environment (Marco et al., *Silent Spring Revisited* 198)

For sixteen chapters Carson has celebrated the natural balance and integrity of nature. Suddenly she is willing to risk this balance in an effort to eradicate particular insects under the name of biological control. She has fully convinced us that being at war with nature is wrong, but now she urges us to use natural processes as weapons to disrupt the perfection of nature (279).

We can hardly be convinced by these arguments that biological controls are safer, or entirely distinct from chemical controls. Nor does it seem that this is the peaceful

conclusion to war that we desire after the first 16 chapters. It stands to reason, therefore, that Carson finds them to be more reasonable and acceptable because of their close association with the natural. Carson's approval of biological controls ostensibly rests on their noninterference with the balance of nature, however, we have shown that this is not necessarily true. Instead, "The actual operative criteria, lie largely elsewhere, in judgements about the benefits and costs – to humans- of these methods" (Garb 238). After close scrutiny, the alternative of biological controls turns out not to be a very positive option after all.

How Should Humans Alter Nature?

Because Carson has idealized nature and convinced us that humans are at war with nature, it is difficult to really accept that humans can alter or interact with nature in a positive way. Therefore, when Carson begins to speak of humans altering and interacting with nature she is on shaky ground. As a result, in this final chapter, which is focused on humans altering nature, it is suddenly very unclear what a positive model of humans altering nature would look like. Carson begins to bring the artificial into the acceptable domain of biological controls, but then maintains the deleterious association of artificial with degraded or evil. She presents biological alternatives as solutions that are aware of the properties and qualities of nature, yet she advocates these solutions that could be just as harmful to those properties as chemicals are. She has convinced us that we are at war with nature, but then tells us that the only possibility for interacting with nature is to devise a new battle plan.

After a close examination of this final chapter, we are baffled as to what type of relationship, besides simple preservation, humans should or should not have with nature. In short, we have no idea how to end this war with nature. Carson ends the book with the passage:

It is our alarming misfortune that so primitive a science has armed itself with the most modern and terrible weapons, and that in turning them against the insects it has also turned them against the earth (297).

After realizing that biological solutions might also have the potential for the destruction that chemical solutions have, and that the science of biological solutions utilizes many of the modern and terrible weapons that the chemical solutions do, it is not quite as clear what Carson is criticizing here. Carson has set up such a dichotomy between artificial and natural and between humans and nature that it is impossible to imagine humans altering nature in any positive manner. Thus, although this is certainly not Carson's intent, when we read this final passage we realize that it may be referring to any human, or any scientist who is attempting to alter nature.

Conclusion

The fact that there seems to be no positive working model for humans altering nature in *Silent Spring* is certainly significant. There are other significant ramifications of Carson's construction of both idealized nature and destructive humans as well.

The idealized notion of nature that Carson presents is problematic. As a result of this idealization, nature simply exists as a static area, not an agent at all. For example, nature creates chemicals (many of them toxic) and excretes those chemicals into the

environment, yet nature is never described as contaminating humans in this book. It is accepted that "Nature, not just humans, generates its share of carcinogens and other poisons" (Marco et al., *Silent Spring Revisited*, 198) and that both nature and humans use chemicals to their own advantage (Marco et al., *Silent Spring Revisited*, 198). Yet only humans are recognized for doing this in *Silent Spring*. This not only strips nature of agency¹⁴, it also unfairly portrays humans as uniquely horrible. The point of this book, is to convince humans that they have options regarding their relationship to nature, but neither nature nor humans seem to have any options as the result of this idealization of nature. Nature is upheld to a standard of perfection that simply doesn't reflect reality, while humans are relegated to a level of negativity that they perhaps don't deserve.

It is difficult to really comprehend what Carson means by the term natural and what she means by unnatural or artificial in *Silent Spring*. Her definitions of the two traits are fluid and mold to the particular argument she is making. For example, when arguing against the insecticides and pesticides used by farmers she describes the chemicals as artificial and, therefore, bad. When arguing for biological controls, however, chemical sterilizers used by scientists are more natural and, therefore, perfectly acceptable. Both types of chemicals are manufactured by humans in order to control nature, yet Carson takes a different stand regarding them depending on her particular point. It is nearly impossible, therefore, to give an overall, all-encompassing definition of what artificial or natural means in this text, and even more difficult to discern what the two terms meant to Carson herself.

¹⁴ In Chapter 3, we will examine why it is problematic to strip nature of agency.

As Garb writes,

“This easy mutability of the ‘natural’ into the ‘unnatural’ highlights the extent to which it is human desires – rather than ‘nature’ itself – that define which creatures belong in the balance of nature and what form that balance should take” (238).

The mutability of natural and artificial in *Silent Spring* point out their dependence on Carson’s desires. In particular arguments, Carson’s definition of these two states mutates to achieve her point, though I doubt that Carson was aware of this herself. Because the concepts of artificial and natural mutate so often, the reader is not clear what actually constitutes natural or artificial for Carson. She gives the reader no model to understand what artificial and natural mean though the terms are key to her argument. Worse, she inevitably leaves the reader wondering how to tell the difference between the two.

There is, however, one facet of Carson’s argument regarding natural and artificial that she stoically maintains throughout *Silent Spring*. Though she may change what she perceives of as natural and artificial, Carson unequivocally holds that natural = acceptable and artificial/unnatural = unacceptable. What sort of model is this for a people who live in a world that is constructed of both natural and artificial things (as Carson defines them) and who consistently use, alter and interact with both natural and artificial things?

The way that Carson deeply polarizes natural and human in *Silent Spring*, leads us to wonder if humans are really part of nature after all. In this text, it is clear that humans are natural. Carson often argues that humans are a part of the “balance of nature”. She writes that, “Man, too, is part of this balance,” (246) and later, “Man, however much he may like to pretend the contrary, is part of nature”(188). Further, in a speech to the Kaiser

Foundation Hospitals and Permanente Medical Group following the publishing of *Silent Spring*, Carson states:

Contrary to the beliefs that seem often to guide our actions, man does not live apart from the world; he lives in the midst of a complex, dynamic interplay of physical, chemical and biological forces, and between himself there are continuing, never-ending interactions" (Lear, *Lost Woods* 228).

While all of these statements portray Carson's belief that humans are a part of nature, she presents nature and humans at such odds in *Silent Spring* that it is difficult to really accept these statements at face value. For instance, Carson argues that humans live for much shorter time than does nature. Their pace, and their very conception of time are in deep conflict with the long-minded, infinitely slow awareness of nature. These conflicts are not only distinct, but conflicting. Can humans still be considered to be a part of nature, though they are presented in conflict with nature? Along these same lines, we might acknowledge the concept of biological controls as Carson's attempt to reconcile humans as part of nature. It is difficult to conclude whether or not she truly felt that humans are a part of nature, but it is important to notice there are some inconsistencies, or at least complications, between her outright statements (see above) and her insinuated assumptions in *Silent Spring*.

Carson's use of the trope of war in *Silent Spring* is also problematic. By calling upon the images and language of war, Carson is also reifying them. As Glotfelty explains,

Given the militant cast of pesticide advertisements, coupled with her own sympathies for the natural world, Carson might have chosen to adopt the strategy of arguing that insects and humans were not enemies that war was the wrong metaphor to describe their relationship (160).

If Carson had deconstructed the war metaphor, instead of reinscribing it, she may have revolutionized the discourse surrounding pesticides. Not only does the war metaphor reinscribe the conceptual values of a mechanistic, military state, it also limits the possibilities for solutions to wartime resolutions (as we have previously discussed).

It is worth reiterating here that Carson does not offer a model for humans altering nature in a positive way. Since humans are, in fact, continually and constantly altering nature, this is a grave difficulty. Carson leaves us with no viable options for good human behavior regarding nature. It is doubtful that any reader of this book does not want, by the end, to be a better human than the humans presented in the book, but the same reader is left wondering: what is a good human and where do we go from here?

Perhaps, one of the most significant problems is that Carson's construction of nature, humans and the relationship between the two is not often recognized as a construction. It is often perceived as truth rather than a particular argument constructed around a particular image of nature and of humans. As Cronon writes in the Symbolic Nature Album of *Uncommon Ground*,

The impulse to use elements of the natural world to serve as cultural symbols is as old as human language itself. But the uses to which nature can be put are always specific to particular cultures at particular moments in their histories. What we see in nature and what we say about it reveal as much about who we think we are as about what we think nature is (219)

Carson, like any good writer, constructs the notions of nature, humans, natural and artificial in ways that strengthen her arguments in *Silent Spring*. Carson strategically appeals to her

readers on the basis of right and wrong, acceptable and unacceptable and structures her notions of human, and nature to fit within that argument. Under close inspection, as we have done here, it is clear that the distinctions between nature/human, and natural/artificial are carefully, although not always consistently, constructed according to Carson's desires. It is also clear that there are problematic assumptions concerning the relationship between humans and the natural world embedded in both these distinctions.

We have engaged in this scrutiny in order to examine some of the problematic and limiting assumptions about the human/nature relationship that are reinscribed in *Silent Spring*. In particular we have examined the metaphors of idealized nature and humans at war with nature. Both of these (strategic) metaphors are built on problematic and limited assumptions. As a result, Carson, despite her best intentions, ends up reinscribing these assumptions, along with her more revolutionary calls for change.

At this particular time, we may need a different notion of the human relationship to/with nature to guide humans in their constant, intimate relationship with nature. The environmental movement must lead the way in establishing ways for humans to conceive of themselves as in and of nature. In order to do this well, the movement must begin to consider the deeper implications of the metaphors, such as idealized nature and humans at war with nature, that characterize their arguments.

CHAPTER IV

THE ANTHROPOCENTRIC MORAL ARGUMENT IN *SILENT SPRING*

Introduction

Silent Spring is often recognized for working to change the human moral relationship to the rest of nature (Brooks, Foreword xii). The problem of moral responsibility regarding the environment was of great importance to Carson. She readily recognized the need for a new human ethic regarding nature. In a 1963 speech to the Kaiser Foundation of San Francisco, following the publication of *Silent Spring*, she explained:

Underlying all of these problems of introducing contamination into our world is the question of moral responsibility – responsibility, not only to our own generation, but to those of the future (Lear, *Lost Woods* 242)

I argue in this chapter that although Carson may have believed strongly in redefining the moral relationship of humans and nature, she did not give nature moral agency in *Silent Spring*.

The ethic that Rachel Carson advances in *Silent Spring* is shaped by her complex views of nature. Donald Worster praises Carson in his 1977 book:

...but even in the midst of her crusade against dumping the devastating new poisons in the biosphere, she retained some of the *arcadian vision and temperament* ... Eventually the scientific conscience that she symbolized became the central creed of the ecology movement: a vision of the unity of life, as taught by science, and a moral idea of living cooperatively with all members of the natural community (Worster 23).

It is certainly true, as Worster contends, that Carson develops an arcadian¹⁵ view of the natural world in *Silent Spring*, however, she also reinforces a utilitarian and imperial view of nature. Further, while Worster asserts that Rachel Carson retained an ecocentric moral relationship towards nature in her writing, a close examination of *Silent Spring* reveals only an anthropocentric moral argument at work. Rather than introducing an ecocentric moral argument reliant upon the arcadian view of nature, Carson uses all three views of nature (imperial, utilitarian and arcadian) to support an anthropocentric moral argument. In short, Carson had the tools to build a new moral argument in *Silent*, but she used these tools to reify a standard anthropocentric moral argument instead.

The Views of Nature in *Silent Spring*

It is clear that Rachel Carson was influenced by and promoted the arcadian view of nature. The arcadian view, as explained by Worster, sees nature as an animate, interrelated system composing a unitary whole. All life within this system relies upon other life to survive and all life deserves deep reverence. (Worster 7)

¹⁵ I recognize that ecological thought is always multiple, and that labeling this view "Arcadian" obscures the other views combined and reflected in this multiple-layered view (particularly Darwinian contributions). However, for the sake of clarifying analysis I will continue to use this term.

Carson presents all of nature related in a vast, but unitary system in *Silent Spring*¹⁶. For instance, she describes the earth's vegetation as part of a "web of life in which there are intimate and essential relations between plants and the earth, between plants and other plants, between plants and animals" (Carson 64). She also presents the intricate connections of all life, and the reliance of all life upon other life. As an example, Carson explains that the life within the soil, composed of some insects and many bacteria, supports the plant life that grows up from the soil. These plants, in turn, support other forms of life (herbivores). These interconnections of life continue and grow increasingly more complex, until eventually all life, through death, returns to the soil to support the life residing there¹⁷. Thus, the cycle of intimate dependency is completed. (Carson 56-57)

Because Carson realizes that all life is interrelated in this way, it is especially appalling to her that we are introducing insecticides and pesticides into these natural systems. Using the arcadian view, Carson is able to eloquently explain how these chemicals will affect many different forms of life: salmon, migratory and non-migratory birds, insects, plants, and humans. She explains how the pesticides introduced into the water, soil and air will affect the entire living web of life:

For each of us, as for the robin in Michigan or the salmon in the Miramichi, this is a problem of ecology, of interrelationships, of interdependence... They reflect the web of life – or death – that scientists know as ecology" (Carson 188)

¹⁶ This is discussed at greater length in Chapter 2.

¹⁷ The soil itself is not considered to be living by Carson. The actual soil is an inanimate object to be acted upon. This relegation to inanimate status comes from biological principles that Carson is versed in.

Carson's anxiety over pesticides is borne of this deep reverence for the web of life and her knowledge that all life is intimately connected. It is clear, as Worster recognizes (Worster 23), that Rachel Carson and *Silent Spring* were heavily influenced by the arcadian view of life.

While Carson indisputably displays many of the traits of an arcadian thinker, she also upholds an Imperial (or anti-arcadian) view of nature. The Imperial view holds human domination of the earth as its end. This view tends to separate humans from nature in order to distinguish a hierarchy of human control over nature. Further, nature becomes an inanimate object of material wealth. In the tradition of the Imperial thinker Francis Bacon, reason becomes the guiding principal through which to understand nature. Carson develops each of these imperial characteristics in interesting ways. (Worster 29-54)

In the introduction to *Silent Spring* Carson clearly states,

All this is not to say there is no insect problem and no need of control. I am saying, rather, that control must be geared to realities, not to mythical situations, and that the methods employed must be such that they do not destroy us along with the insects (Carson 9)

Carson is not against control of nature. Her goal, in fact, is to find methods of control that are both effective *against nature* and safe *for humans*. Along these lines, Carson tells the reader that, "It is not my contention that chemical insecticides must never be used" (Carson 12), but that they should be used with the proper knowledge and awareness. For this reason, Carson readily advocates selective spraying in place of indiscriminate spraying. Selective spraying, she argues, gets directly at the problem or pest without endangering other life. Specific control of pests and problems is acceptable to Carson (74), though she

fails to ever clearly define what a pest is. As Carson explained to the Garden Club of America following *Silent Spring*'s publication: "We differ from the promoters of biocides chiefly in the means we advocate, rather than the end to be attained" (Lear, *Lost Woods* 213). The end Carson refers to here is the destruction of harmful insects, and plants. Carson still wants to kill the plant and insect pests and other "harmful" nuisances, but she doesn't want human health to be compromised in the process.

Worster explains that for imperial thinkers, "The study of ecology was a means to the vigorous conquest of the living world" (Worster 51). There is evidence of this in *Silent Spring*. The entire final chapter of *Silent Spring*, and sections of other chapters as well, are devoted to describing new ways of controlling the insect and vegetative pests that are "based on understanding of the living organisms they seek to control, and of the whole fabric of life to which these organisms belong" (Carson 277)¹⁸. Having shared all the hazards of chemical control methods with the reader, Carson presents a new alternative that is backed by the science of ecology. She describes methods of biological control ranging from forced male sterilization of insects to muddling insects into mating with inert objects and presents the opportunity "to use the drive of an insect's life forces to destroy it" (Carson 285) as exciting new "*biological* solutions". Carson promotes the use the study of ecology to fashion methods to control nature. "The Other Road" does not offer a new vision of the relationship between humans and nature; the vision in this chapter is still centered on humans controlling nature rather than humans accommodating

¹⁸ See Chapter 2 for further discussion of this point.

to nature as E.B. White suggests in the opening of *Silent Spring*. Whether Carson's solutions are biological or chemical, they seek human control over the natural world.

The imperial view of nature is evident in other aspects of *Silent Spring* as well. Carson clearly draws a distinct line between the humans and nature and assigns particular, unique qualities to each ¹⁹. She may be portraying humans as either distinct from nature or distinct within nature. The more important point, however, is that she portrays humans as more important than nature. Humans are primary while nature is only considered in relation to human needs, desires and experiences. In a particularly revealing moment, Carson refers to "sharing our earth with these other creatures"(296). It seems, from this quote, that humans have a special claim (ownership is clearly implied) to the earth; this is a claim that no other creatures have in this work. As the unique owners of the earth, humans are, of course, considered before all other residents of it.

Though Carson certainly discussed other forms of life in her work, her argument centers on humans and, ultimately, the effect of pesticides on humans. Because humans are so primary to this work their needs/desires are also of primary importance. As a result, each chapter in some way discusses the effects of pesticides/insecticides on humans. Indeed, the effects of these chemicals on nature are only described as they relate to and affect humans. For example, the death of birds is immediately related to loss of hunting and recreation (Carson 86) while the poisoning of the soil is quickly connected to

¹⁹ See Chapter 2 for further discussion of this point

poisoning of farmers (Carson 127). It would appear from Carson's work that all life exists in a web with humans at the center of that web.

Just as Bacon advocates the use of reason and science to conquer nature, Carson advocates the use of reason and science to control nature. In fact, Carson admits that the main flaw with pesticides/insecticides is that the scientific research on them was not complete; there is no reason guiding our use of pesticides. She says,

...we have allowed these chemicals to be used with little or no advance investigation of their effect on soil, water, wildlife, and man himself. Further generations are unlikely to condone our lack of prudent concern...(150)

Carson makes an excellent and valid point here. There was very little reason, particularly the ecological intelligence that she strongly supports, guiding the use of pesticides/insecticides at that time (and often now for that matter). However, we must not ignore the significance of Carson's appeal to reason as this infallible force of truth or the imperial connotations that this appeal has.

The entire premise of *Silent Spring* is heavily tied to reason. Carson wrote *Silent Spring* because she believed that if she shared this knowledge, this scientific explanation, with the public, the public would reasonably conclude that pesticides are dangerous. She cries out, "When will the public become sufficiently aware of the facts to demand action" (Carson 152)? I do not mean to imply that this was a faulty motivation for writing, but simply that it was Carson's motivation. Carson didn't write a poem or a non-fiction essay to convey her argument to the public because she believed (accurately) that a scientific document filled with evidence and rigorous scientific explanations would be the best way

to convince the public. She believed in reason. This appeal to reason, while neither right nor wrong, certainly demonstrates that particular aspects of the Imperial view of nature are at work in Carson's thinking and writing²⁰.

It is also important to examine why Carson advocates human control over nature and in what circumstances she supports it. Certainly, Carson doesn't condone the sort of control that can be construed as aiming for complete dominion over the earth, however, we have shown that she doesn't entirely abandon the desire for human control over nature either. Carson doesn't want humans to eventually control the life and death of every organism on earth; she would be among the first to recognize that this isn't even possible. She would, however, vigorously approve of Aldo Leopold's statement that "the managing hand should touch the natural order lightly – not tear it apart and then put it back together in a too obviously artificial tidiness, but subtly direct its forces..." (Worster 273). In fact, she says similar things about directing the balance of nature in *Silent Spring* (Carson 260, 275, 279-82). Carson, like Leopold in *Game Management*, believes that humans should not control nature, but "guide natural processes" when these processes are beneficial or productive to humans. In this way, Carson's imperial view of nature becomes deeply intertwined with a utilitarian view of nature.

The same utilitarian view of nature held by Linnaeus (Worster 31-39) manifests itself in myriad ways in *Silent Spring*. Like Linnaeus, Carson believes that nature is to be used and controlled by humans. Often, as a result of this view, Carson will identify

²⁰ Indeed, this appeal to reason also deserves further scrutiny in light of the comparable dualisms of human/nature and reason/emotion and mind/body.

components of the more-than-human world by their use value to humans. For example, plants should be protected from these chemicals because some plants “may be useful” (Carson 78), and the birds and animals should be saved because hunters, bird watchers and suburbanites derive pleasure from them (Carson 86, 93). Further, waterways should not be contaminated because “The fisheries of fresh and salt water are a resource of great importance, involving the interests and the welfare of a very large number of people”(Carson 152). Carson refers to both water and soil as “natural resources” (Carson 39, 51) for human use. Even the biological drives of insects should be “used” to control them (Carson 283, 285). These are just a few of the many examples in which Carson presents the more-than-human world as objects to be used by humans.

The Significance of These Views

The fact that Carson upholds all three of these opposing viewpoints is significant in a number of different ways. Clearly, she has inherited a very complex vision for and understanding of ecology as both a science and way of life. Her ambivalence may be an attempt to reconcile these vastly different points of view. Carson may very well have believed each view to be important and so presented each to the public. This would not have been a new attempt; Worster points out that, historically, there were naturalists who believed in all three points of view and wanted to give “each ideal its moment of truth” (Worster 31).

She may also have been using one or two points of view in order to make a successful argument of the third view. After all, Carson was writing for a particular

audience that mainly accepted the imperial relationship over nature. Worster admits that when the imperial view of nature became popular, "the Gilbert Whites of the age often went unheard" (Worster 30). Thus, Carson may simply have been incorporating the imperial and utilitarian views into her work in an effort to appeal to a wider audience. She did, after all, have an important message; this may have been a strategic attempt to be heard.

The Moral Argument

It is the moral argument that these views support and give rise to that is of primary importance in this chapter. As Proctor explains, particular moral or ethical beliefs can be traced back to particular views of nature (286). The imperial and utilitarian views of nature uphold an anthropocentric, or human centered, ethic while the arcadian view usually supports a more ecocentric ethic. Views that hold nature as an object of use to be controlled by humans, are more likely to uphold an ethic focused on humans. Likewise, an arcadian view of nature presents the opportunity for an ethic that recognizes each being in that intimate relatedness as a dignified living character worthy of respect and moral consideration. In light of all three viewpoints being present in her writing, it would seem logical that Carson would make both an anthropocentric and an ecocentric ethical argument. In fact, this is not what she does.

An anthropocentric ethical argument, as described by Proctor, holds that nature has worth only in its instrumental or resource value to humans (Proctor 281). The value of nature, in other words, is determined in accordance to its use by humans. In the spotted

owl controversy, this argument came from those who saw the trees merely as objects to be harvested and marketed. The only values of these trees were to bring money and job security to particular humans, and also to become instruments, such as houses, pencils or paper, for other humans. As a result of this moral argument, those aspects of nature that can conceivably be valued by a human are prioritized (Proctor 282) while those that are of little or no use to humans are ignored.

The argument that Carson makes in *Silent Spring* is obviously and solely anthropocentric. As many examples discussed above have shown, Carson has an unmistakably instrumental view of nature throughout this text. Her overall argument in this work attempts to convince readers that *it will be useful* to stop using these chemicals; that there will be *some useful advantage* for humans if these chemicals are not used. In order to convince readers, Carson presents solid evidence that not using these chemicals, and protecting nature in the process, will improve human health and safety. She shows the devastating impacts of these chemicals on humans and argues that human health will greatly benefit from their suppression. In fact, Carson is recognized and applauded for shifting the focus from the natural world to human health (Lear, "Rachel Carson's *Silent Spring*" 209).

A focus on human health is certainly important, but a focus purely on human health, often at the expense of the rest of nature, is limited. Since we are humans, it seems obvious that we should be concerned with the health and safety of our fellow humans, but there are other beings in the natural world who deserve consideration and care as well. For example, consider environmental justice cases focused on human health problems

related to environmental toxins. Better human health usually cannot be achieved unless the natural world is somehow cleaned-up, or detoxified. Therefore, you cannot focus solely on the humans in that situation, but also need to consider the other beings in that environment, the contaminants, and the health of the ecosystem as a whole. When a toxic area is safe for other natural beings, it will soon be safe for humans as well. If human health is our primary method of assessing the health of ecosystems and communities, then much degradation of the natural world can be overlooked.

Also, human health often conflicts with the health of other life forms or ecosystems. This is the case with malaria. To prevent the spread of the deadly disease malaria among humans, insecticides are sprayed to eradicate the mosquitoes that harbor this disease. The end result is safety for humans (for a little while), but death for the mosquitoes. Prioritizing humans and human health over any other form of life leads to situations such as this where other forms of life are sacrificed to protect human well-being. This decision-making and value system is not questioned with a focus only on human health.

Obviously, to live in the world requires a constant set of choices that rely on priorities that we have constructed. Carson has constructed human health and well being as one of her top priorities. I don't wish to challenge this per se, but to challenge the casual acceptance of this construction as truth. This is a simple and hierarchical construction that could be played with in interesting ways in order to find a priority that considers both human and non-human health perhaps without prioritizing one or the other or perhaps by prioritizing one over the other in different situations. This human health

argument, because it is solely anthropocentric, is not as effective as a broader, more inclusive moral argument might be.

Human health is not the only focus of Carson's anthropocentric argument. She also argues that these chemicals are decimating individual livelihoods and entire regional economic systems. She tells ranchers, farmers and fisher people that they will lose money through the use of these chemicals and promises great economic stability for them if they abandon these chemicals. This economic appeal is clearly anthropocentric; humans will make money, Carson explains, by not using these chemicals. Additionally, Carson openly argues that nature is useful for humans. As we have discussed previously, she claims that plants can be "useful" so we should protect them, that particular insects can be used as biological controls so we should keep them as well, and that genetic diversity will someday be extremely useful to human beings.

Carson also makes other arguments that are less obviously anthropocentric than those just described; these arguments, however, are still focused on humans and are by no means ecocentric arguments. First, she makes the "pleasure" argument. She reminds the reader that humans derive great pleasure from endeavors such as hunting, fishing, exploring and bird watching and asserts that humans have a "legitimate right"(72) to such pleasures.

Additionally, Carson shares an aesthetic argument with the reader. She describes how Judge Douglas once encountered an older woman who was being mocked because she wanted to save wildflowers. She quotes the judge's indignant response:

‘Yet, was not her right to search out a banded cup or a tiger lily as inalienable as the right of stockmen to search out grass or of a lumberman to claim a tree? The esthetic values of the wilderness are as much our inheritance as the veins of copper and gold in our hills and the forests in our mountains’ (72)

The judge and Carson clearly believe that nature has more value than simply instrumental use. This aesthetic value *almost* speaks to something of intrinsic value and importance within nature; however, this value, unfortunately, retains an anthropocentric overtone. It is the humans who derive this aesthetic or pleasure value, and it is for the humans that these pleasing aspects of nature should be conserved. It is also interesting that immediately following these words, Carson is quick to point out that these plants are not just pretty, but that they are also useful (72). She quickly reverts back to the instrumental view of nature, as if she doesn’t trust that this aesthetic argument is especially powerful.

Carson comes closest to moving beyond this anthropocentric argument on page 96 of the text. Carson has been describing the tragic and horrible deaths of the birds in graphic detail when she asks, “By acquiescing in an act that can cause such suffering to a living creature, who among us is not diminished as a human being” (100)? This question *almost* moves the reader beyond a purely anthropocentric ethic as it questions our moral relationship to these living beings. It also presents the suffering of these beings as horrible, unjust and immoral. Unfortunately, it does not prod the reader to lament this suffering because these living beings have an inherent right not to suffer, as humans are understood to have. Instead, Carson’s words are a warning that we will not be considered full, moral human beings if we treat creatures in this way. The focus is on the humans

being diminished rather than the birds suffering. This is the most powerful and provocative argument that Carson will make in terms of moving beyond an anthropocentric ethic; however, it is still centered on humans rather than on the inherent rights of the living beings to exist, or a more ecocentric ethic.

Carson is often recognized for another key moral moment in her text (Nash 78, 138; Garb 236). She writes:

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 ungraced by the curving wing of a bird in flight” (Carson 85)?

This is, as both Garb and Nash concede, a decidedly moderate questioning of established moral norms (Garb 236; Nash 79). When Carson speaks of the right to decide she refers only to humans; only humans have control over the decisions regarding other life. She is questioning the “authoritarian” who has uncritically made such a decision for all people when it is the right of all people to make this decision themselves. Yet, the beings described here have no rights. The insects and the birds that she so eloquently presents as valuable here, are, at the same time, stripped of agency. Is it only humans who have the right to decide the fate of these beings? The question would have been much more morally radical had it been framed in this way.

In fact, there is never an ecocentric ethic presented by Carson in *Silent Spring*. She never claims that any living beings, other than humans, have an inherent right to exist. Neither does she argue that these ecosystems, which she describes so beautifully and passionately, have any true intrinsic value outside of benefits to humans. Carson

intertwines the arcadian viewpoint into her work, yet she does not push forward the ecocentric ethic that one would logically derive from such a view. Given that, we must ask how is this possible and what are the ramifications?

It may be that the lack of ecocentric ethic in this work is a reflection of the popular sentiment at the time. Just as many of the spotted owl advocates relinquished their ecocentric stance in favor of a more anthropocentric argument (Proctor), Carson may have offered her human-centered reasons for abandoning these chemicals. Indeed, in order to gain attention and/or respect at that time, Carson may have been forced to turn to this more strategic argument. As Nash explains:

Her objective was to outlaw pesticides or at least greatly constrain their use...she wanted to be effective in the political arena, and she knew she would lose her audience if she stepped too far ahead of public opinion. As a result, there is no direction mention in *Silent Spring* of the rights of insects, birds, fish and other victims of the poisons. (79)

Reading Carson's personal papers (Freeman) and her speeches before and after the publishing of *Silent Spring*, it is clear that Carson herself believed upheld a complex, ecocentric ethic; however, Carson wanted her ideas to convince, to persuade others. As such, she could not hope to reach her audience with a radical moral argument to which they were already opposed. *Silent Spring*, according to Fleming:

Was written to persuade and arose. To this end Rachel Carson had to calculate her effects as never before, trim her sails to catch the prevailing wind...She could not defy the majority as if she despaired of reaching them, for she meant to get around them, however skeptical or hostile to begin with, and force them to capitulate. She certainly could not afford to lose them straight off by taking a religious tone about biotic rights" (29-30)

With this in mind, it certainly makes sense, in the short-term at least, to appeal to humans based on human arguments rather than more complex, upsetting ecocentric ones. In the long run, however, this strategy may not be very effective.

The Limitations of This Moral Argument

Proctor admits that "the spotted owl and ancient forests appear to be classic cases suggesting the limits of anthropocentrism..."(Proctor 282). Carson's anthropocentric arguments in *Silent Spring* suffer from similar limitations. Once an argument becomes anthropocentric, it can easily be opposed by another anthropocentric argument. Since this argument is framed in terms of human use, rather than moral worth, opponents can more easily disclaim the use value of a particular argument. This occurred in the case of Rachel Carson. When she argued that nature could be useful for humans in certain ways, others argued against her that nature could also conflict with human interests. While she held that humans would benefit economically from abandoning these chemicals, others argued that humans would lose money by doing just that. If Carson had moved her argument into another moral realm, the debate may have changed drastically as intrinsic values are perhaps not as debatable as human costs/benefits are.

A much more serious limitation of this anthropocentric argument is the reification of the imperial and utilitarian views of nature. The question at the root of this debate over pesticides/insecticides was not the benefits/losses to human beings, but rather the

rethinking of the human relationship to nature²¹. When Carson presents this purely anthropocentric argument, she reinscribes the imperial and utilitarian views of nature that define humans as dominant and nature as an instrument or object. She asks readers of *Silent Spring* to consider what is best for them; she never really pushes them to wonder what is best for other living beings. In this way, Carson presents the human as primary and nature as mere background. She also deeply emphasizes the notion of human control over nature. She has shifted from the concept of absolute conquest of nature, yet she still argues that humans should control nature when it is beneficial or productive to them. Further, she firmly holds that this is “our earth” (296); that humans retain control and ownership of this earth while nature, as beautiful and intimately connected as it may be, inhabits our earth for our pleasure and use.

Conclusion

Carson makes a clear statement in *Silent Spring* about who has moral rights and who doesn't. Unfortunately, this statement does not reflect the arcadian point of view that Carson is so often associated with nor does it call for a re-envisioning of the human moral relationship to the more-than-human world. Examined in conjunction with the spotted owl moral arguments, described by Proctor, it is clear that an anthropocentric argument has serious limitations. While stripping the more-than-human world of agency, such an argument also limits the focus of human concern and responsibility. Many of our

²¹ As discussed in Chapter 2

environmental problems currently, the spotted owl controversy among them, require a broader perspective, an expanding view of agency in the world and a new clarification of the rights of nature.

It is clear from our examination that Carson has constructed a highly anthropocentric moral argument in *Silent Spring*. With this in mind, we should be cautious and critical about offering *Silent Spring*, with this limited moral perspective, as an unquestioned work of environmental literature. It is still important to read *Silent Spring*, but readers should be aware that Carson's moral argument has some problematic assumptions about humans, nature and agency as its basis. Further, this analysis should call to our attention, as environmentalists, the possible problematic assumptions behind similar arguments we currently make. The assumptions at work in Carson's *Silent Spring*, at work in many of our own arguments, may no longer offer the moral guidance to our relationship with nature that can guide us in our environmental problems today.

CHAPTER V

FARMERS AS ENVIRONMENTAL VILLAINS IN *SILENT SPRING*

Introduction

Carson noted that, "One obvious way to try to weaken a cause is to discredit the person who champions it" (Lear, *Lost Woods* 203). This is exactly the strategy that Carson employs against the pesticide manufacturers and the pesticide sprayers in *Silent Spring*. In fact, as Glotfelty explains in her work, Carson criticized the pesticide manufacturers for waging an all-out war on the insects, while she herself waged an all-out war against the manufacturers and the pesticide sprayers (Glotfelty 159). Carson portrayed the manufacturers and sprayers of pesticides as a far more deserving enemy than the insects were.

I believe that this strategy was exceptionally effective and indeed necessary at the time of *Silent Spring*'s publication, but we must also recognize that it has some serious limitations. One limitation that we will focus on in this chapter is *Silent Spring*'s treatment of the farmers. Because Carson considered the manufacturers and the sprayers of pesticides to be the enemy, she portrays them all as ignorant, stubborn, evil fools. Most farmers spray pesticides on their crops so they unwittingly fell into this group being critiqued, some might argue demonized, in this book. Carson wrote *Silent Spring* in order

to alert citizens, farmers included, to the dangers of pesticides. Instead, farmers were enraged by the book; most even refused to read it. Considering the long history of the farmers and the pesticide industry as well as the social, political and economic conditions that encouraged farmers to use pesticides, the reaction of the farmers is understandable.

In short, Carson engages an “us against them” mentality when she paints her book as a war against the chemical industry and pesticide sprayers. This mentality allowed Carson, and her readers, to understand only what was evil, wrong and stupid about her enemies. Her argument silences the complexity of the social, political and economic situation of the farmers and the manufacturers. It was just not that simple. The farmers had real problems and concerns that led to the use of DDT as well as a deep history with the pesticide industry. Carson simplifies her argument into a case of good vs. bad, where farmers unwittingly become bad, and, thus, polarizes both the issue and the solutions while alienating the farmers. Real solutions and real environmental change will not come from alienating farmers as the enemy, but rather from engaging with the farmers.

We will first discuss the complex historical relationship between the farmers and the pesticide industry in the United States. Then we will examine how Carson’s *Silent Spring* ignores the historical reasons for this relationship while portraying both the industry and the farmers as evil, ignorant enemies.

The Farmers and the Economic Entomologists

Insects have been and always will be a threat to agriculture, but in the late 1800’s there were trends in American agriculture that escalated the problem of insects. At that time

farmers in the United States began to face increasing pressures towards mechanization. Also, because of the market in the United States, farmers found it necessary to use these mechanized tools to plant monoculture crops in order to turn a profit. These conditions facilitated the problem of insects:

Extensive, unbroken fields canopied by the foliage of a single plant afforded ideal feeding conditions for the insect pests of that plant...(Whorton 5).

At the same time, in cooperation with Manifest Destiny, Americans were moving west, cutting down forests and replacing them with agricultural fields. As a result, the insects that had previously fed in the forests were forced to turn to agricultural fields for food. This put farmers in a precarious position, where one insect attack could wipe out their entire crop and, thus, their financial security (Whorton 18).

The farmer's cries for help were answered by the fledgling science of economic entomology, where entomologists were particularly concerned with decreasing the effects of crop harming insects. In an interesting intersection of history, the farmers were suffering just as economic entomologists were looking for a way to legitimate their profession as a science; the opportunity to help the farmers was also the perfect opportunity for these entomologists to vindicate themselves and their science. As a result, the farmers and the economic entomologists joined together as allies against their insect enemies. It was this partnership that allowed economic entomology to develop from a three person Entomological Commission into the Division of Entomology and finally into the Bureau of Entomology in Department of Agriculture. The Morrill and Hatch Acts of 1862, strongly supported by farmers, also gave economic entomologist renewed legitimacy. These acts

allowed for the federal financing of state agricultural colleges as well as the establishment of research field stations affiliated with the land-grant colleges. These agricultural colleges and field stations became the primary training-grounds for future economic entomologists.

Ultimately, the farmers had a powerful role in shaping the development of economic entomology as a science; it was the farmers who influenced what would actually be taught in the land-grant colleges and what would be investigated at the new stations. The initial struggle between farmers and economic entomologists over the desired type of control is an excellent example of the enormous influence of the farmers on the work of the entomologists.

There are three main control methods: biological, physical and chemical. The early entomologists, led by Thaddeus Harris, advocated primarily for biological and physical methods of control. This is clear from the publication of the field's first two journals, *The Practical Entomologist* and *American Entomologist*, which promoted methods such as understanding the natural history of the insect as a control measure. These journals were notably not accepted by the farmers at all and quickly failed. One particular issue proclaimed that,

If the work of destroying insects is to be accomplished satisfactorily, we feel confident that it will have to be the result of no chemical preparations, but of simple means, directed by a knowledge of the history and habits of the predators (Whorton 17)

This was the original position of the entomologists, but it was a position that would soon be reversed due to pressure from the farmers.

Why did the farmers prefer chemical control? It is relatively easy to understand

why they did not desire biological methods. Biological methods are not always effective, and they require intimate knowledge of place. Faced with the possible loss of an entire year's income, these farmers were seeking quick and effective solutions. Also, many of these farmers had recently relocated in Midwestern America, were not intimately acquainted with the landscape and didn't know anyone who was. Further, farmers had traditionally preferred physical methods, such as picking caterpillars off the plant by hand, and chemical methods, such as the use of tobacco as an insecticide, to biological methods. There was little in this situation to convince them to try something new. Because the insect problems facing farmers were often so severe and of such great scale, they threatened an entire crop and almost an entire source of income for a year and could not feasibly be physically attacked. Chemical combatants were the cheapest, easiest and quickest choice for the farmers. (Whorton 20-21)

The case of Paris green is the perfect example of the clash between the initial preferences of farmers and entomologists and their subsequent alliance. In the summer of 1967 Paris green, an arsenic-based insecticide, was introduced. At the time, farmers were waging a losing battle against the insurmountable Colorado potato beetle that was devastating crops of potatoes across the west. Paris green was found to work on the beetle (though it is not clear where the idea came from to use it) and the farmers began to utilize Paris green with vigorous enthusiasm. The economic entomologists reacted to the use of Paris green by prescribing caution. The group maintained that there was no way to tell how the plant itself would react to the arsenic, or if the potato would still be fit for human consumption. In their newest journal, *American Agriculturist*, economic entomologists

warned against use of this untested substance. Despite the warning of danger to crops and to humans, the American farmers continued to turn to Paris green. As a result, less than three years after publishing those warnings, "the *American Agriculturist* was enthusiastically endorsing Paris green as the best defense against the Colorado beetle" (Whorton 21). The economic entomologists began to reposition themselves on this issue in order to sell journals, to sell their ideas and to legitimate their field. As a result, they would end up selling chemicals.

It should be noted as well that not all farmers defended the use of Paris green, nor were all farmers interested in chemical controls. At the turn of the century there were still farmers who preferred their traditional physical methods of control to those offered by the entomologists. Moreover, there were farmers who worried about the possibilities of poisoning themselves, their families, their crops and their livestock with this arsenic insecticide. The entomologists, however, were now backed by a large number of farmers. This gave them the legitimacy to assuage the fears of these traditional farmers and allowed them to develop new strategies towards the farmers resistant to chemicals (Whorton 25). The new argument, taken right from the farmers themselves, held that the cost of insecticides was low compared to the labor costs of physical control, and that the dangers of poisoning were much more remote than often implied. Given the economic environment of the times, farmers who protested chemical methods were often convinced to try chemical insecticides or suffered the economic consequences of not trying them (Whorton 26-30). For most farmers at that time, and indeed even now, using chemical insecticides was a reasonable and profitable decision.

The subsequent dispute over the use of Paris green and other arsenic insecticides became a debate with the farmers/entomologists on one side and the medical profession on the other. Medical doctors argued that the arsenic insecticides presented a grave health risk to the farmers, their families, those consuming the produce and to livestock. The farmers/entomologists argued that the perceived risk of the medical profession was not extreme enough to validate the total loss of benefits that these insecticides provided. This would prove to be this group's position on DDT as well.

The arsenic debate not only established an alliance between the farmers and the entomologists, but also set an illusory precedent for public reaction. At the time of the Paris Green dispute there was not significant public concern about the possible health risks. Highly toxic compounds of lead and arsenate were widely used in agriculture at this time despite the significant, known health hazards they presented. Farmers were willing to use these pesticides despite their knowledge of possible dangers to humans; there was little argued to convince farmers otherwise. As an illustration of this point, seventy-five million pounds of lead arsenate, a highly toxic pesticide, were applied within the US in 1944. Yet, the general public was not outraged. These toxic chemicals could sometimes be found as visible coatings on farm produce in retail markets, but there was insignificant public opposition to them (Lutts 18). As Whorton says, "The relative indifference to arsenic-based pesticides stands in stark contrast to the vocal outcry following the publication of *Silent Spring*" (178). Because of the limited concern about earlier, dangerous pesticides, the farmers, and the pesticide industry itself, were not prepared for the public outrage instigated by *Silent Spring*.

The farmers, the entomologists and the chemicals that united them came to play a pivotal role in the dialogue concerning DDT. Farmers, now without arsenic insecticides, were still seeking a potent chemical method to rid them of destructive insects and the economic entomologists (who the farmers kept employed) were vigorously involved with developing such a solution. When DDT came along it seemed the perfect solution for this particular group of actors. DDT was cheap, and could be produced in large quantities. It quickly and effectively killed insects, had very wide applications, and didn't need to be applied frequently because it was long-lasting. Allegedly, it also didn't present any threat to the health of warm-blooded animals. The farmers and economic entomologists, now united with one another, shared a perspective on the desirable properties of insecticides. In effect, the historical events leading up to the introduction of DDT created a "frame of reference into which they would easily fit the new chemical" (Whorton 17). This frame of reference was a set of unspoken, unconscious assumptions concerning the need for, the uses of, and the disadvantages and advantages of chemical insecticides established between the farmers and the entomologists.

Silent Spring and the Farmers

Rachel Carson's work *Silent Spring* was not well received by farmers. In fact, one of the more famous quotes regarding *Silent Spring* came from a report at a Bethlehem, Pennsylvania farm bureau which stated that, "no one in either county farm office who was talked to today has read it, but all disapproved of it heartily" (Graham 48). Why did the farmers react so strongly against *Silent Spring*? Were they justified in doing so?

Consideration for the farmers' problems and points of view is not as evident in *Silent Spring* as it was in the farmer's interaction with the entomologists (described above). In fact, Carson wrote *Silent Spring* for two reasons: to inform the public and to change federal and state legislation regarding DDT (Graham 37). Neither of these objectives considered or worked to change the position of local farmers regarding DDT use. A close reading of *Silent Spring* reveals that, although Rachel Carson usually recognizes the plight of the farmer, she is not considering the complex reasons for the farmers' actions. Nor does she consider the complex reasons for the farmers' affiliation with the pesticide industry.

Criticizing the Farmers

Carson is ruthlessly critical of agricultural methods in *Silent Spring*. She repeatedly refers to evil deeds of agricultural agencies, pesticide sprayers and farming communities. Much of the chapter entitled "needless havoc" (85-100) is devoted to criticizing spray programs intended to destroy the Japanese beetle, an invasive species that threatens agricultural crops. She describes the horrific destruction of birds and wildlife that result from the spraying programs in the Midwest. This is contrasted with the safe and successful biological control of the beetle in the east. Carson explains that eastern states have survived the invasion by bringing the insect under control by means of the milky spore disease while she wonders at the vehement attack of the Midwestern states in contrast to this understanding, patient approach in the east. To reconcile the two approaches in her

mind Carson categorizes Midwestern farmers as “those who want immediate results, at whatever cost” (98). The eastern solutions, on the other hand, were born of folks who were “willing to wait an extra season or two for full results”(Carson 99). Perhaps, the real difference here is between people/farmers who have the luxury of losing two seasons, and those who have no such luxury. Carson doesn’t adequately address or answer this dilemma.

In most of *Silent Spring*, Carson describes birds killed inadvertently by pesticide use; that is, they are killed by farmer’s stupidity. At one point, however, Carson explains that there are farmers who maliciously target birds for death. In these passages, she explains that farmers use poisons as deadly as parathion to control birds that are “distasteful”. The blackbirds that she soon refers to are not merely distasteful to farmers, but they attack these farmers’ corn crop, their livelihood. These farmers don’t have a random dislike of these birds; they have a legitimate fear of them. The farmers have a valid reason, whether or not Carson agrees with that reason, for poisoning of these blackbirds. There is another alternative that Carson characterizes as easy and slight. This alternative entails shifting to a variety of corn with “deep-set ears not accessible to the birds” (126). This alternative probably did not strike the farmers as particularly easy or slight since it entailed money and lots of labor. Carson simply dismisses the concerns and needs of the farmers here: “but the farmers had been persuaded of the merits of killing by poison, and so they sent in the planes on their mission of death” (126). This is very strong language, language of blame. Carson not only portrays the farmers as being duped into believing this by the pesticide industry, but she also portrays the farmers as evil, cold-blooded murderers.

She even goes a step further to state that the carnage surely must have “gratified” the farmers (126). These farmers, who may well have legitimate concerns and reasons behind their actions, suffer character assassination at the hands of Carson.

Inappropriate Solutions

Carson readily acknowledges that the farmers face the real threat of insects destroying their crops and that this is a direct threat to their source of income. For example, consider the following passage from *Silent Spring*:

All this is not to say there is no insect problem and no need of control. I am saying, rather, that control must be geared to realities, not to mythical situations...(Carson 9).

What are these realities that Carson mentions here? Carson does not clearly explain the realities facing the farmers at any point in *Silent Spring*. By using the term realities rather than simply reality, Carson seems to be acknowledging some level of complexity in the world; however, in her recommendations for these realities, namely the banning of DDT, Carson is ignoring the complex, particular and diverse nature of reality for each of these farmers. In *Silent Spring*, Carson addresses a unified national reality rather than the individual, varied and complex local realities that she seems to recognize here. This becomes increasingly apparent when we explore the solutions that Carson puts forth regarding farmers’ use of DDT; they are each simple and universal.

As discussed previously, farmers had, for one reason or another, rejected the potential of biological control; the farmer’s desires for chemical controls were deeply rooted. They had, after all, been using chemical insecticides for centuries, though the

chemicals they used were extracted from herbs and other plants rather than synthesized. Tobacco is an excellent example of a chemical insecticide that had been readily used by farmers for years though tobacco presents a danger to the plant, the consumer, and the farmer (Whorton 73). The farmers had a deep history of chemical use long before DDT became their ally.

Yet, in *Silent Spring*, Rachel Carson advocates biological, not chemical, controls for farmers (245-277). She recognizes that biotic controls were previously offered and tried in the early part of the nineteenth century (as we previously discussed), but she incorrectly suggests that biotic controls were ignored: "entomologists were dazzled by the wonders of the new synthetic pesticides...and turned away from biological methods" (Hynes 132). In reality, it was both the farmers and the economic entomologists who were dazzled and then chose against biotic controls. It's entirely possible that the entomologists would not have ignored biotic controls if the farmers had not pressured them to do so. In *Silent Spring*, Carson has to convince farmers, who have already decided against biotic controls, to try biotic controls again. This would be an easy task if the farmers had simply been duped by the entomologists; however, the farmers were not duped, and, therefore, have real and legitimate reasons of their own for choosing chemical controls. This fact, unrecognized by Carson, presents a challenge to the success of her argument with the farmers.

In effect, Rachel Carson was telling the farmers that she knew what was best for them, even though she had no experience with the specifics of their farms or crops. She was applying the idea of ecology, and DDT's disruption of systems, universally. Carson

certainly made many valid points about the dangers of DDT, but she did little to convince the farmers to try alternative, biotic controls because she did not attempt to understand their position. Her advocacy of biotic controls seems to ignore, or at least belittle, the needs and fears of farmers. Perhaps biotic controls are not a universal, effective and efficient method of control for all farmers given the varied nature of their social, political and economic conditions. Carson may not be presenting these farmers with a feasible, useful alternative to DDT after all.

Carson also argues that, "Under primitive agricultural conditions, the farmer had few insect problems. They arose with intensification of agriculture – the devotion of immense acreages to a single crop" (10). Aside from the debate concerning the accuracy of the statement about the origins of the insect problem (Mellanby 20), the solution Carson suggests here is flawed in its simplicity. Carson describes one of the key reasons for the farmer's use of pesticides here – the monoculture crop. However, to simply criticize monoculture and call for diversified crops across the country causes extremely complex, sometimes adverse, effects on farmers. This ignores the forces that convinced the farmers to farm monoculture crops in the first place and it ignores the specific needs of particular locations in the country.

Attacking an Ally

Carson repeatedly attacks the economic entomologist's arguments in this work. It is no wonder that farmers were angry with an author who says of their ally: "The concepts and practices of applied entomology for the most part date from that Stone Age

of science” (Carson 197). Carson also attempts to dismantle the appeal of the entomologists’ arguments. She explains that the economic entomologists argue for the use of DDT in order to increase food production and crop yields, while the main problem in the United States was overproduction (Carson 9). The situation, in 1962, was such that the government was paying farmers not to produce, and yet farmers still bought and used DDT to increase crop yield. Carson is correct in pointing out the paradox of the entomologists’ argument.

She stops short, however, of considering the complex reasons for the farmers’ support of such an argument. The farmers’ real reasons for using pesticides did not necessarily stem from their failure to recognize this cycle of overproduction; instead, farmers were caught in the system of overproduction, attempting to survive and support their families. Farmers had to use more DDT in an attempt to make money. The more DDT they used, the more crops they were guaranteed, and the more crops they produced, the more money they would make. Unfortunately, as more and more crops were produced they were increasingly less valuable for the farmers *due to* overproduction. The farmers were caught in a cycle of DDT and overproduction and capital that would be very difficult to break free from.

Rachel Carson identifies this cycle when she says, “The whole process of spraying seems caught up in an endless spiral. Since DDT was released for civilian use, a process of escalation has been going on in which ever more toxic materials must be found” (Carson 8). She does not seem to be aware of the place of farmers in this spiral, however, or to detect their relative lack of alternative. Consider the situation of small

farms that were competing with, and increasingly attempting to model, large corporate farms. If these smaller farms had already been convinced to invest in DDT, it might cost them a great deal of money to not use that DDT and invest in another alternative. Large farms would, of course, also face this problem, but would be much more likely to quickly and steadily recuperate from such a large expense.

Evil, Foolish Farmers

Carson's representation of the farmers in this work is oversimplified and condescending. She presents the farmers as being either duped by the economic entomologists and the chemical companies or in cohort with them; they are either stupid or evil at various times in the book. Carson also assumes that the farmers are ignorant of the science of ecology and the ecology of their region.

In "The Obligation to Endure" Carson explains that she has no problem with chemical insecticides in general. Rather, she contends:

that we have put poisonous and biologically potent chemicals indiscriminately into the hands of persons largely or wholly ignorant of their potentials for harm"(Carson 12).

Most of the hands referred to here belong to farmers, many of whom may, in fact, have been ignorant of the potential of DDT to do harm. Describing them as ignorant and assuming them to be ignorant cripples the possibility of reaching out to them and binding with them towards a common goal. Such an assumption implies that these farmers are stupid fools who don't know what they are doing when, in truth, these farmers may

understand the ecological connections of their land, and the implications of DDT better than Carson or her readers. It is arrogant and disrespectful to assume these farmers are ignorant without also trying to understand and explain the reasons why the farmers consider pesticides a reasonable solution. Calling them ignorant belittles the farmers and ignores their valid reasons for spraying pesticides.

Carson also portrays the farmers as evil henchmen of the pesticide industry. At one point, she refers to spraying in eastern Illinois as immoral and evil:

Incidents like this raise a question that is not only scientific, but moral. The question is whether any civilization can wage relentless war on life without...losing the right to be called civilized" (Carson 99).

The farmers who spray pesticides like this are not only immoral, but they are also uncivilized. The pesticide industry and the farmers, who spray much of their pesticides, are evil villains in *Silent Spring*. Again and again, Carson refers to "the control men" in the pesticide industry²² as greedy, inhuman and uncaring. She writes, "On every hand there is evidence that those engaged in spraying operations exercise a ruthless power" (12) and that "nothing must get in the way of the man with the spray gun" (85). These sprayers, the farmers, will stop at nothing, will hurt anyone and everyone, in pursuit of a buck in, what Carson describes as "an era dominated by industry, in which the right to make a dollar at whatever cost is seldom challenged" (13). Yet, Carson makes no critique of the capitalist system that holds these farmers and shapes their actions; rather, it is their

²² This label presumably includes either the farmers and their industry allies or simply their industry allies. In either case, the comment would not be taken favorably by the farmers.

fault that they are pursuing the money to sustain themselves and their family.

Arguably, Carson is making her point about the pesticide industry itself, rather than individual sprayers like the farmers. However, remember that she does condemn individual sprayers with greedy, immoral and evil descriptions as well. Assuming that she is not directly criticizing the farmers, however, her attitude and her argument still jeopardize her relationship with the farmers. Though her point has clear validity, she is nastily attacking the farmers' ally, with whom they closely associate themselves. Using such strong, derisive language is sure to alienate the farmers whether Carson directly assails them or only their allies.

What Carson actually accomplished by writing *Silent Spring* was heightened public awareness and an eventual federal ban on DDT. The official federal phasing out of DDT in 1969 may have been the ultimate lack of recognition of the local authority of farmers. Across the United State, farmers were no longer allowed to use the pesticide. This ignored their particular reasons for using DDT, the financial constraints of the farmers and, some would argue, their rights. This was a universal, federal law, inspired by *Silent Spring*, for a problem that had particular social, political and economic dimensions that were not discussed in this seminal work. As Garb writes, "...Carson's reticence to discuss the political and economic forces that encourage heedless pesticide use disabled her capacity to talk about fundamental social interventions in the pesticide problem" (240). The federal ban on DDT failed to actually change any of the social conditions and problems that led to DDT use by farmers

Our discussion continually points to a lack of acknowledgement, on the part of Carson, for the complex processes influencing the farmers' use of DDT. Consider the words of Carson regarding the use of DDT:

All this has been risked – for what? Future historians may well be amazed by our distorted sense of proportion. How could intelligent beings seek to control a few unwanted species by a method that contaminated the entire environment and brought the threat of death and disease to their own kind (8)?

We now realize that there are actual answers to the questions that Carson poses here. In order to find these answers, it is necessary to consider the complex historical, social, political and economic position of the farmers. Upon examination, we find that the position of the farmers was not an ignorant, random and stubborn stance prompted by greed and encourage by the manipulation of large chemical companies. Instead, we find a history of farmer's seeking chemical controls as an effective and efficient method of controlling insects harmful to their crops, and livelihood. We also find that those farmers found an ally in the economic entomologists and the pesticide industry long before DDT was introduced. The farmer's played a very powerful role in shaping both that alliance and the direction of the industry. We see that farmers are not necessarily ignorant oafs irresponsibly armed with chemicals, but that they are humans caught in an economic cycle of production who have intelligently calculated the risks and benefits of using pesticides.

There were real reasons for the farmers' and economic entomologists' behaviors and beliefs regarding DDT. In answer to Carson's question of how (above), we can point to actual, intelligent and legitimate reasons that the farmers, in particular, behaved the way

they did. Carson seems to dismiss those reasons, however, and to dismiss the farmers, without due consideration. This dismissal strengthened the position of the economic entomologists against *Silent Spring* and weakened farmer's acceptance of her book, which essentially privileged the concerns regarding the environment over the concerns for the needs of particular farmers. Political ecologists have found that this is an oversight common to conservation programs (Conte; Peluso; Grossman). In the tradition of conservationists, *Silent Spring* took authority away from the farmers concerning what is best for their land and gave that authority to the federal government and ecologists without addressing the legitimate reasons for the farmers' use of DDT.

Conclusion

Comparing the entomologists' relationship with Carson's relationship with the farmers we see a large discrepancy. While the entomologists listened to, appreciated, and acknowledged the farmer's power, intelligence and reasoning, Carson writes the farmers off as ignorant allies of an evil industry. She did not consider the farmers, their deep alliance with the pesticide industry, or the various factors that influenced the farmers' use of pesticides. Instead, she called for a federal ban on DDT a ban sure to enrage and perhaps devastate the farmers. Worse, she portrays the farmers and the chemical industry as the enemy to be defeated and overcome at whatever cost. She simplifies the pesticide industry and pesticide users into one mass group of villains:

The agonistic expose, of which *Silent Spring* is a fine example...fosters controversy and divides perspectives, often attempting to arrange disparate interests into a clearly

demarcated pair of opposed parties – environmentalist and developmentalist, for example – thus mobilizing citizens for a quick decision one way or the other (Killingsworth and Palmer 76)

In an attempt to sway the readers against the pesticide industry and avid pesticide users, Carson oversimplifies the complexity of the farmers' situation. In doing this, she alienates the farmers as enemies of the environment.

Yet, the farmers, being the ones who live directly with and on the land and the ones who influenced economic entomology, should perhaps have been one of the first groups that Carson attempted to convince not to use DDT. Carson knew that the farmers health, the health of their families, friends and communities were on the line, yet she attacked them as the enemy. This may have been necessary in order to convey her larger point to the rest of her audience; however, it may have effectively sacrificed the farmers for her larger point.

Carson repeatedly searches for new and different ways to solve the pesticide problem and how she continually describes alternatives for the farmers. However, because she never considers why the farmers spray pesticides or the economic, historical and social constraints that pressure these farmers to use pesticides, the possibility for really changing the farmer's position on pesticides is lost.

Kohn explains that the values Carson espouses in *Silent Spring*, namely preservation of the environment and human safety, clash with the value of high productivity that is central to our society (159-174). I argue that Carson simply tells the reader that they need to value preserving the environment and human safety, but offers no

vision for reconciling these values with others of our society, such as the value for high agricultural productivity. Because the two values are not reconciled, the reader is forced to choose between the farmers and the health of the environment.

Perhaps it was not the legislators and administrators to whom Carson should have argued so vehemently. It may have been focusing on the farmers instead that would have brought about significant change. Certainly ignoring the farmers, ridiculing the farmers and alienating the farmers did nothing but strengthen the cohesion of the opposing side in the DDT debate and complicate the problems of bringing about agricultural pesticide reform.

If Carson had realized the power of the farmers regarding pesticide reform she may have attempted to persuade them rather than to attack them. If she had realized the real and complex political, social and historical reasons for the farmers' behavior, she might have called for changes, reforms that would truly have made it possible for farmers to stop using pesticides. If she had taken the political, social, and economic history into account, she might have employed strategies that empowered rather than alienated the farmers, and avoided punitive federal bans that achieved only short-term behavioral changes. There is also the possibility that, knowing these things, Carson would not have altered her argument; it was a strategic argument that might lose power if altered in such a way. Regardless of whether Carson would have changed her argument against the farmers, we, in the environmental movement, should be aware of Carson's problematic assumptions regarding the farmers. At present, it might be in our interest to pursue strategies of understanding, empowerment, and coalition that do not rely on these problematic assumptions.

CHAPTER VI

CONCLUSION

The Sea Around Us and *Silent Spring* provoked environmental thought by employing particular language to create conceptions of nature and understandings of the human role in relation to nature. There are limitations to these conceptions and understandings as strategies for change. We conclude this analysis of Carson's arguments with a new awareness of these limitations, and the added awareness that these strategies, with their various limitations, are often utilized by the environmental movement today.

In Chapter II, I discussed how Carson, despite her best intentions, ends up encouraging the control, domination and manipulation of the sea for human purposes and that she, perhaps unwittingly, uses the organic conception of mother sea as a means for legitimating this position. I slowly traced the metaphor of mother sea from its organic inception to its mechanistic conclusion in an attempt to portray how deeply the mechanistic worldview pervaded Carson's work. Carson could not escape the metaphorical assumptions of the conceptual system promulgated by the culture she was embedded in (particularly the culture of science). Her flaw was not her place within this particular metaphorical conceptual system, but the fact that she was never able to recognize the influence of that place upon her work. Because she was not aware of the conceptual system within which

her actions and thoughts were based, Carson ended up reinscribing a mechanistic worldview that contradicts her early organic motives. The environmental movement does not need to repeat this mistake.

This analysis is important to the environmental movement in a number of ways. First, this analysis shows how important it is to examine the ideas and the written words of environmental heroes and leaders in order to become aware of the limitations of the work. Every leader lives and functions within a particular conceptual system just as every work is written within a particular conceptual system. It is useful for environmentalists to understand the conceptual systems being subtly promoted by various leaders so as not to inadvertently reinscribe them.

Environmentalists also need to be aware that, despite their best intentions, their own arguments and their own metaphors are deeply influenced by the rooted conceptual systems that they live within. If aware of this, we can all do our best to recognize these conceptual systems and the various ways they play out in our lives, speak about them, and perhaps move beyond them.

This analysis also points to the need for some scrutiny of the science within the environmental movement. The role of science in the environmental movement has grown increasingly stronger; yet the limitations of science are not often recognized. As we have seen with Carson, most science works within a mechanistic, reductionist conceptual system that often contradicts more organic environmental visions. This is not a universal condemnation of science, but merely a request for closer examination of the role of science in particular environmental issues.

In Chapter III we found that Carson offers no model for humans altering nature in a positive way, that she idealizes nature in a problematic way and that she unequivocally holds that natural = acceptable and artificial/unnatural = unacceptable. Further, we saw that Carson binds her persuasive argument for change in threads of war as *Silent Spring* is imbued with language of war, violence, and destruction. This deeply polarized view of the natural and human in *Silent Spring* leads us to wonder if humans are really part of nature after all. Worse, we are left wondering what the relationship between humans and nature should look like in a world that is constructed of both natural and artificial things where we consistently use, alter and interact with both natural and artificial things. Perhaps the most serious limitation discussed in Chapter III is that Carson's construction of nature, humans and the relationship between the two is not often recognized as a construction. It is often perceived as truth rather than a particular argument constructed around a particular image of nature and humans.

These are many of the same limitations apparent in the wilderness ethic and the arguments of the preservation/conservationists. While these environmentalists advocate for the protection of nature, they place nature into a world of its own, outside of human influence. At this particular time, we may need a different notion of the human relationship to nature to guide humans in their constant, intimate relationship with nature. The environmental movement must lead the way in establishing ways for humans to conceive of themselves as in and of nature. Carson's strategy in *Silent Spring* does not provide such a vision.

Chapter IV admonishes us to move beyond the solely anthropocentric argument to a more ecocentric ethical relationship with nature. In *Silent Spring*, Carson strategically constructed a highly anthropocentric moral argument and in cases since then, environmentalists have attempted to argue solely on an anthropocentric basis. I argue, however, that true moral change, which will fuel behavioral change, will come from moving beyond merely recognizing humans as moral agents. In the Spotted Owl controversy, for example, Proctor argues that the anthropocentric argument was not sufficient for the change and preservation needed (269-297). In truth, the anthropocentric moral argument may not offer the moral guidance to our relationship with nature that can help solve some of our current environmental problems.

In Chapter V, we saw that Carson constructs particular groups of humans as her enemy. She sets up a deep conflict between the environmentalists and the industry. Included, in the enemy group are the farmers, who have developed an affiliation with the pesticide industry over time. Unfortunately, Carson does not reach out to this group in *Silent Spring*, but attacks them and their allies again and again. I argue that this restricted true agricultural reform.

Industry and agriculture as the enemy has now become an entrenched way of thinking in the environmental movement. Indeed, the lexicon of war continues to pervade environmental discourse (Glottfelty 159). In the heat of current environmental backlash, perhaps it is time to question whether the trope of war is an appropriate tool for solving environmental problems and making intelligent decisions.

It is also time to move beyond the limited view of agriculture as anti-

environmental. Farmers live and work directly with the land, they are constantly altering and utilizing nature. For these reasons, they should be important allies of the environmental movement. Carson's treatment of the farmers should be evaluated in a long history of environmentalists alienating farmers and others who use the land (Guha 88-91). I cannot argue that Carson should have used a different strategy with the farmers, but I can argue that we, in the environmental movement today, should seek allies rather than enemies and should realize complexity instead of assuming simplicity

Without changing farming practices and reforming farming beliefs, it will be difficult to minimize the use of poisonous chemicals and degrading land practices. In order to accomplish this, the environmental movement should reach out to the farmers in the spirit of compromise and well being, rather than simply attacking the farmers as Carson does.

Carson privileges the environment over the farmers and ignores the arguments and needs of the farmers. Just as environmentalists today write off the grassroots portion of the wise-use movement as the weak, ignorant puppets of corporations, Carson assumed that the farmers were the weak, ignorant puppets of economic entomologists and chemical companies (McCarthy). She failed to recognize the legitimate, rational reasons for the alliance between the two and so was unable to directly change that. It is my hope that Carson's failure to recognize the importance of the farmer's needs can inform situations such as the environmental movement's interaction with the local landowners in the wise-use movement.

Further, the insights of the American farmers' position on DDT might illuminate

the needs of farmers in other countries where DDT is still sold. The environmental movement could realize that these farmers have legitimate, deep needs to use DDT and, since they can't ban its use, offer these farmers viable and affordable solutions instead. Just to recognize the farmers' situation in particular social and historical systems of capital would be a big step towards building coalitions and tearing down old ones.

Although Carson is certainly a remarkable leader, the environmental movement has moved forward since her time, and needs to critically consider the limitations, as well as the usefulness, of her persuasive environmental arguments. We, in the environmental movement, need to begin to decide when we should attempt to weed out these conventional arguments, and when we should use them as persuasive resources. There are cases where Carson's arguments may still hold sway, but there are other cases where her various arguments will not bring about the deep environmental change that we desire. For example, it may no longer be in the environmental movement's best interest to proffer arguments that regard nature as a resource to be used for human purposes or to foster metaphors of war to create social change or to alienate farmers. Looking critically at Carson's arguments should stimulate us to look more closely at our own. Then we can begin to decide how to best argue for a better world.

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