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"When Nature Holds the Mastery": The Development of Biocentric Thought in Industrial America

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A Senior Thesis Submitted in Partial Fulfillment of the Requirements for Honors in History.
Faculty Advisor: Kathy Peiss

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"When Nature Holds the Mastery": The Development of Biocentric Thought in Industrial America

Abstract

This thesis explores the concept of "biocentrism" within the context of American environmental thought at the turn of the twentieth century. Biocentrism is the view that all life and elements of the universe are equally valuable and that humanity is not the center of existence. It encourages people to view themselves as part of the greater ecosystem rather than as conquerors of nature. The development of this alternative world view in America begins in mid-nineteenth to early twentieth century, during a period of rapid industrialization and urbanization as some Americans began to notice the destruction they wrought on the environment and their growing disconnect with nature. Several individuals during this time introduced the revolutionary idea of biocentrism including: John Muir, Liberty Hyde Bailey, Nathaniel Southgate Shaler and Edward Payson Evans. This thesis traces the development of their biocentrism philosophies, attributing it to several factors: more mainstream reactions to the changes including the Conservation movement and Preservation movements, new spiritual and religious approaches towards nature, and Darwin's theory of evolution which spurred the development of the field of ecology and the concept of evolving ethics. It draws upon the personal papers, unpublished and published works of thinkers that participated in this dialogue to show how the concept emerged and fits into the greater context of American environmentalism.

Keywords

biocentrism, ecocentrism, environmental history, American perceptions of nature, John Muir, Liberty Hyde Bailey, Nathaniel Southgate Shaler, Edward Payson Evans, Anna Comstock, Jeanne C. Carr, Charles Darwin, Aldo Leopold, Rachel Carson, Hetch-Hetchy, Conservation, Preservation, George Perkins Marsh, Theodore Roosevelt, Frederick Jackson Turner, Gifford Pinchot, Deep Ecology

Disciplines

History

Comments

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A senior thesis submitted in partial fulfillment
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by

Aviva R. Horrow

Philadelphia, PA
April 20, 2007

Faculty Advisor: Kathy Peiss
Honors Director: Phoebe Kropp

For my family—

My grandparents

My parents

My siblings

“...The earth and sky stretch on and on
With web of law and mystery
Yet bear some healing benison
To consecrate my sins to me—
We find a goodly harmony
When nature holds the mastery...

...New visions will outlift the race
As we identify ourselves in space
And achieve the meaning of the whole
In some new splendor of the soul;...

...I stand within the cosmic sea
And dreadless wait my destiny—
I stand with bird and beast and tree
And all the things unbound and free,
For thy and I and all together
Pass on in space and time and weather.”

--Excerpts from “Outlook,” by Liberty Hyde Bailey, 1911

“ Anthropocentric intoxication make[s] human consciousness drunk with itself and forgetful of the bits and pieces that make Homo sapiens possible, like flowering plants, grains, soil, and microorganisms—that is, the ongoing activity of Creation.

But a few thoughtful men and women have caught some sense of the deeper meaning of this immense journey and have realized that our lives are inconceivable except on the supposition of cosmological process.”

--Max Oelschlaeger, *The Idea of Wilderness*, 1991

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Chronology

- 1799:** Alexander von Humboldt explores the New World
- 1820s:** John James Audubon comments on destruction and rapidly changing landscape
- 1831:** Edward Payson Evans is born
- 1836:** Ralph Waldo Emerson publishes *Nature*
- 1838:** John Muir is born
- 1841:** Nathaniel Southgate Shaler is born
- 1854:** Henry David Thoreau publishes *Walden*
- 1858:** Liberty Hyde Bailey is born
- 1859:** Charles Darwin *Origin of Species*
- 1860:** 141 Cities in American have 8,000 inhabitants or more
- 1863- 1903:** Correspondence between Jeanne C. Carr and John Muir
- 1864:** George Perkins Marsh publishes *Man and Nature*
Shaler assumes professorship in Geology at Harvard
- 1867:** John Muir leaves his factory job to embark on his wilderness explorations
- 1868:** New York Metropolitan Board of Health reports on unsanitary conditions of the city
- 1871:** Charles Darwin publishes *The Descent of Man and Selection in Relation to Sex*
- 1875:** John Muir publishes “Wild Wool,” in *The Overland Monthly*
- 1880:** John Muir enters the political arena to campaign for preservation
- 1887:** Aldo Leopold is born
- 1888:** Bailey assumes professorship of horticulture at Cornell
- 1890:** Robert Underwood Johnson, associate editor of *Century* magazine, publishes Muir’s writings and lobbies for the creation of Yosemite National Park
- 1892:** John Muir founds the Sierra Club
- 1893:** Frederick Jackson Turner publishes “The Significance of the Frontier in American History”
- 1893:** Madison Botanical Garden uses the term “ecology” to define the discipline
- 1894:** Edward Payson Evans’s “Ethical Relations between Man and Beast” is published in *The Popular Science Monthly*, *The Atlantic Monthly*, and *The Unitarian Review*
- 1897:** Liberty Hyde Bailey publishes *The Survival of the Unlike*
Nathaniel Shaler publishes *Nature and Man in America*
- 1898:** Edward Payson Evans publishes *Evolutional Ethics and Animal Psychology*

- 1901:** Bernhard E. Fernow publishes “Economics of Forestry”
- 1903:** Bailey publishes *The Nature-Study Idea*
- 1904:** Bailey is appointed Dean of the Cornell School of Agriculture
- 1905:** Bailey publishes *The Outlook to Nature*
Gifford Pinchot promotes “wise-use” conservation
- 1906:** Shaler publishes *Man and the Earth*
Thoreau’s personal journals are published
Nathaniel Shaler dies at the age of 65
- 1907- 1913:** The battle for Hetch-Hetchy between Preservationists and Conservationists
- 1907:** Rachel Carson is born
- 1910:** Gifford Pinchot publishes *The Fight for Conservation*
Half the population is urban, with 778 cities with 8,000 inhabitants or more
- 1911:** Bailey publishes *The Country-Life Movement in the United States*
Anna Botsford Comstock publishes *The Handbook of Nature Study*
Frederick Winslow Taylor publishes *The Principles of Scientific Management*
John Muir publishes *My First Summer in the Sierra*
- 1913:** G. S Dickerman publishes “The Drift to the Cities” in *Atlantic Monthly*
- 1914:** John Muir dies at the age of 76
- 1915:** Bailey publishes *The Holy Earth*
- 1916:** John Muir’s *A Thousand Mile Walk to the Gulf* is published
Passage of the National Park Service Act
- 1917:** Edward Payson Evans dies at age 86.
- 1938:** Linnie Marsh Wolfe publishes personal journals of John Muir
- 1948:** Aldo Leopold dies at the age of 61
- 1949:** Aldo Leopold’s *A Sand County Almanac* is published posthumously
- 1954:** Bailey dies at the age of 96
- 1962:** Rachel Carson publishes *Silent Spring*
- 1964:** Rachel Carson dies at the age of 56
- 1967:** Lynn Jr. White publishes “The Historical Roots of Our Ecologic Crisis”
- 1970:** The First Earth Day celebration takes place on April 22nd
- 1973:** The Endangered Species Act is passed
- 1979:** Dave Foreman, founds Earth First!
- 1985:** Bill Devall and George Sessions publish *Deep Ecology: Living as if Nature Mattered*
- 1987:** Dave Foreman publishes *Ecodefense: A Field Guide to Monkeywrenching*

Introduction

On the evening of May 20th in 1979, a soft spoken river guide named Mark Dubois snuck along the hidden crags of the Stanislaus Canyon in California. With a lock and chain he bound himself to the face of a cliff and threw away the key. He waited.

Three days earlier Dubois had sent a letter to Colonel Donald O'Shei of the Army Corps of Engineers reiterating his strong opposition to the completion of the construction of the New Melones Dam which would flood the Stanislaus River and submerge the entire ecosystem of the Stanislaus Canyon. The letter also described his newest form of protest. With all legal routes exhausted, Dubois was resorting to the only tool he had left: his own life. Bound helplessly to an undisclosed region of the cliff, Dubois would drown if the Army Corps of Engineers completed the Dam as scheduled. After several days of searching for Dubois to no avail, the Corps conceded. Dubois' act of civil disobedience had garnered enough public support and media attention to make national news, enabling him to successfully preserve that portion of the river. Later, safely retrieved from his cliff, Dubois explained, "I had to act when I realized that nine million years of evolution in the canyon were far more valuable than my short life on this planet."¹

How can one make sense of Dubois' self-sacrificing act? What would motivate a person to risk their life to preserve a river rather than to physically alter it for human uses? When asked about Dubois, Colonel O'Shei replied, "Mostly, I know he's doing what he thinks is right. He just has different values."² In this statement, O'Shei unknowingly pinpointed Dubois' departure from the traditional anthropocentric American approach to the environment. Dubois assigned a river equal, if not greater, importance than his life. In this

¹ Tim Palmer, *Stanislaus: The Struggle for a River* (Berkeley, CA: University of California Press, 1982) 184.

² *Ibid.*, 178.

way, he demonstrated a biocentric mode of thought: the belief that all life and elements of the universe are equally valuable and that humanity is not the center of existence.

The philosophy of biocentrism today is associated with Deep Ecology, a radical form of environmentalism that gained visibility in the 1970s with the emergence of the modern environmental movement in the United States. However, the roots of biocentrism run deeper in American history. They began as a reaction to a series of changes in the late nineteenth and early twentieth century that altered the relationship between Americans and their environment. This thesis investigates the origins of biocentric thought and how changes in America during this period prompted several individuals to conceptualize a new paradigm for the relationship between humans and the environment.

In *The Environmental Ethics and Policy Book*, Donald VanDeVeer and Christine Pierce define biocentrism as “the claim that all living things are of equal moral worth or equal intrinsic value.”³ Arne Naess, a Norwegian founder of the Deep Ecology movement, refers to it as “ecosophy,” or a “rejection of the man-in-environment image in favor of *the relational, total-field image*.”⁴ Max Oelschlaeger in *The Idea of Wilderness* elaborates that biocentrism calls into question “the idea that humankind is somehow superior to and therefore entitled to impose its values on nature.”⁵ An examination of the origins of biocentrism suggest a two-pronged, overarching definition of the philosophy. First, it contrasts with an anthropocentric mindset. Rather than focusing solely on human needs and gains, biocentrism offers a more holistic, all-encompassing world view that stresses the

³ Donald VanDeVeer and Christine Pierce, eds., *The Environmental Ethics and Policy Book* (USA: Wadsworth, Inc., 1994) 211.

⁴ Arne Naess, “The Shallow and the Deep, Long-Range Ecology Movement: A Summary,” *Inquiry* 16 (1972): 95-100, *Ecology*, in Carolyn Merchant, ed., (Atlantic Highlands, N. J.: Humanities Press, 1994) 120.

⁵ Max Oelschlaeger, *The Idea of Wilderness: From Prehistory to the Age of Ecology* (Binghamton, NY: Yale University and Vail-Ballous Press, 1991) 292.

interconnected relationship of all elements of the environment. Second, this alternative world view provokes ethical questions. In placing value on all elements of nature, biocentrism has moral implications for human interactions with animals, plants and the physical environment. At a basic level, biocentric morality encourages people to avoid needless destruction of the landscape and killing of animals. Moreover, by rejecting a human-dominant hierarchy, biocentrism enters ambiguous and controversial territory. Carried to an extreme, does biocentrism require that humans manipulate nature only for their essential needs? How are these needs determined? In an attempt to answer these questions, modern biocentrists have defined ethical conduct as operating within the natural processes of the environment while upholding the integrity and balance of the ecosystem. Early biocentrists of the late nineteenth and early twentieth century paved the way for this mode of thought by challenging mainstream anthropocentrism and imagining a novel, nature-centered world view.

In transcending natural human tendencies towards anthropocentrism, biocentrism has existed on the periphery of Western thought as a radical idea, overshadowed by more mainstream forms of environmentalism. Historian Roderick Nash has remarked that in the nineteenth century, “the few Americans who did talk about nature in ethical terms...were not even dignified by ridicule; most often, they were ignored completely.”⁶ Indeed, histories that take note of biocentrism tend cite Aldo Leopold as its founder in the 1940’s. Leopold helped to shape and clarify biocentric thought and its ethical applications. This work however, merely extended that of earlier thinkers. American environmental historians tend to gloss over these early thinkers, focusing instead on more mainstream environmental strains. Beginning with the Conservation Movement, dedicated to promoting the utilitarian

⁶ Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1973) 34.

management of natural resources at the outset of the twentieth century, they contrast it to the Preservation Movement, which focused on sequestering certain parts of nature in their pristine state for their aesthetic value. The few radical, alternative conceptions of the environment during this period tend to be ignored altogether, or focus entirely on the anomalous wilderness figure John Muir. Historians Roderick Nash and Donald Worster deviate from their colleagues with several books that delve more specifically into the transformations of American environmental thought over time. This thesis hones in on the theme of biocentrism that these historians mention in their works, with the intention of expanding on the historical roots of this often forgotten or ignored strain of American environmental thought by tracing the development of the philosophy in its early thinkers.

As a work that traces the emergence of an idea, this thesis forms an intellectual history. Ideas evolve gradually and depend on many factors. This thesis explores academic scholarship, political debates, popular beliefs, educational theory, the dissemination of new scientific ideas and religious thought that contributed to ideas on the relationship between humans and nature in order to map the world of environmental thought during the late nineteenth and early twentieth centuries. Though others have contributed to the notion of biocentrism, wilderness explorer John Muir, Cornell Professor of Horticulture Liberty Hyde Bailey, Harvard Professor of Geology Nathaniel Southgate Shaler and linguist and religious scholar Edward Payson Evans elucidated the principles of biocentrism most directly; thus, their writings—published books, journals, articles and archival materials—constitute the core of this thesis. As two individuals who most fully articulated early ideas of biocentrism and guided their lives by that philosophy, John Muir and Liberty Hyde Bailey's contributions are most extensively addressed. The personal papers of John Muir, published after his death, as

well as the Liberty Hyde Bailey Papers at Cornell University's Rare Book and Manuscript Library augment this investigation. Individually these people have found their way into works of environmental history—Muir a veritable giant persona, and Bailey as the Dean of the Agriculture School at Cornell—but biocentrism as a concept that linked individual thinkers has received sparse treatment in the secondary literature.

Because this thesis addresses the formation of biocentrism thematically, the main characters appear throughout at different junctures. Chronologically, the first biocentric theorist extensively addressed in this study is John Muir, born in 1838 in Scotland. He first encountered the American wilderness in 1849 when his family moved to a farm in Wisconsin. Muir moved away from his father's strict Calvinist tradition, to embrace Ralph Waldo Emerson and Thoreau's transcendentalist writings, Darwin's *Origin of Species* and his close friend and mentor Jeanne C. Carr. Carr herself was born in 1830 and was married to Natural History and Chemistry Professor Ezra S. Carr. She mentored and corresponded with Muir during the course of his wilderness journeys. Alone in the throes of nature he arrived at his own spiritual nature theology and in his personal journals reflected on biocentric ideas. He eventually left behind his solitary nature excursions in 1880 to form the Preservation movement in the hopes of establishing National Parks and protecting certain parts of nature from human use and development. Resistant to academia and urban life, Muir has been remembered since his death in 1914 in a variety of ways—a self proclaimed “poetico-trampo-geologist-bot. and ornith-natural, etc,”⁷ an eccentric recluse, wilderness enthusiast, glaciologist, preacher of nature gospel, preservationist, founder of the Sierra Club, and nature crusader.

⁷ Muir to Robert Underwood Johnson, Sept. 13, 1889, as quoted in Roderick Nash, *Wilderness and the American Mind*, 122.

Unlike Muir, the other contributors to early biocentric thought were academics. Liberty Hyde Bailey, born in 1858, served Professor of Horticulture at Cornell University beginning in 1888 and the Dean of the Cornell School of Agriculture from 1904 to 1913. Bailey's interests lay in experimental and applied horticulture and agriculture, botany and plant evolution. He also was concerned by the mounting commercialization of agriculture at the turn of the twentieth century and growing disconnect between Americans and nature. Bailey served on boards of several agricultural and botanical societies and on the Country Life Commission. He also wrote nature poetry, espoused the virtues of tending a garden and reflected on the religious duty bestowed upon people to treat nature responsibly. From 1917 until 1949 he traveled to locals, such as China, to expand his collection of plants for an Herbarium that he eventually donated to Cornell. He died at age of ninety-six in 1954.

Other academic disciplines lent themselves to an evaluation of the human relationship to nature. Nathaniel Southgate Shaler explored this area in his capacity as a Professor of Geology at Harvard University. Shaler was born in 1841 in Newport, Kentucky. He received his undergraduate degree from Harvard in 1862 and shortly after enlisted in the Union army as a captain of the fifth Kentucky battery during the Civil War. Upon his return two years later, he was appointed as a professor of Geology at Harvard, and later in 1875 was also appointed as the director of the Kentucky Geological Survey. He was interested in the geologic history of the earth, resource use, the interactions of humans with their environment, and the theory of evolution. He entertained Social Darwinist notions and condoned the manipulation of the earth. However, over the course of his life he also moved towards a more philosophical approach to the role of nature in human lives, acknowledging the merits of preservation and the cultivation of a new nature outlook before his death in 1906.

Unlike Bailey and Shaler, Professor Edward Payson Evans specialized in non-scientific disciplines. Born in 1831, Evans was a faculty member of the linguistics department at the University of Michigan from 1862 to 1867. He then moved to Germany where he lived until World War I. He had a wide array of interests, including German literature, the philosophy of Schopenhauer, Eastern philosophy and animal psychology. In 1894 he published “Ethical Relations between Man and Beast” in several journals and then expanded this work into a book he published in 1898 titled *Evolutional Ethics and Animal Psychology*. Evans arrived at biocentrism from a different route from the naturalists and scientists; he took Darwin’s notion of evolving ethics and extended the moral community to encompass all of nature. Through philosophical logic he determined that ethics must apply to plants and animals in addition to humans. He died in 1917.

American thoughts about nature logically transformed as American nature itself changed. In aggregate, Muir and Bailey’s lives spanned more than a century, the volatile and rapidly changing period of the late nineteenth and early twentieth century and their attitudes towards nature represent some of the most radical reactions to these changes. These changes began as the country underwent rapid change during the industrialization of the country in the late 1800s and early 1900s. In addition to visible changes in the environment, such as air and water pollution, deforestation and decreased grazing ranges for livestock, American conceptions of the environment were also influenced by new spiritual connections associated with nature, and new scientific understandings of the mechanisms operating in nature. This thesis investigates these three areas of change as catalysts for the emergence of biocentric thought.

Anthropocentrism formed the basis of the first American colonists' relationship with nature as they confronted vast tracts of seemingly endless wilderness vying for their own survival in harsh conditions. To conquer and mold nature to their whims became not only necessary for their survival; but constituted acts of patriotism.⁸ The first chapter of this thesis explores how this attitude began to change as the manipulation of the natural environment increased exponentially with industrialization and urbanization. The rapidly changing scenery provided Americans with a renewed awareness of the human capacity for destruction and the fragility of nature while as their fading direct connections to the natural environment. The juxtaposition of the old and new ways of life made this period crucial in the evolution of thought concerning the relationship between humans and nature. Chapter 1 explores the variety of reactions to these changes, including the Conservation Movement and Preservation Movement, ambivalence towards city life and Liberty Hyde Bailey's proposed methods for maintaining a connection between people and nature through an educational method called Nature-Study, and the support of agricultural lifestyles through the Country Life Movement.

The second chapter discusses a growing desire in Americans experiencing industrialization and urbanization for intangible, spiritual qualities they associated with natural environments and how alternative approaches to spirituality and religion fostered new conceptions of the environment. This includes a discussion of traditional Judeo-Christian theology that encouraged anthropocentrism,⁹ the Transcendentalist approach to nature through the ideology of Ralph Waldo Emerson and Henry David Thoreau, and John Muir's spiritual journey from his strict Calvinist upbringing to a more egalitarian approach to the

⁸ For a more in depth discussion on the pioneer mentality towards nature, see Chapter 2: A Wilderness Condition in Roderick Nash's *Wilderness and the American Mind*.

⁹ See Lynn White, Jr., "The Historical Roots of Our Ecologic Crisis," p.49 in *The Environmental Ethics and Policy Book*, ed. By Donald VanDeVeer and Christine Pierce.

elements of nature, emphasizing their harmony and intrinsic value. It also contrasts Muir's religious approach with that of Liberty Hyde Bailey, who utilized Christian thought more traditionally by casting humans as divinely ordained stewards of the earth, with the duty to tend responsibly towards God's creation.

The third chapter explores how Charles Darwin's theory of evolution impacted the way people perceived their relationship with nature. While some individuals in anthropocentric fashion took "survival of the fittest" as license to characterize humans as the most superior species, John Muir and Darwin had the opposite reaction, viewing evolution as humbling as humans became merely one part in a web of evolving life millions of years old.¹⁰ Evolution also placed humans back into the natural processes of nature and stressed the "web of complex relations" that exists in nature.¹¹ This led to the formation of the discipline of ecology, or the scientific study of the interdependent relationships that exist in nature. This new understanding of nature affected John Muir, Liberty Hyde Bailey, and Nathaniel Shaler, who utilized the idea of the interconnected web scientifically and ethically to move closer to biocentrism. Biocentrism also emerged through Edward Payson Evans' use of Darwin's paradigm of evolution applied to ethics, to arrive at his own biocentric notion that ethics would continue evolving to eventually encompass animals and even plants. This stage for the future field of environmental ethics that would be incorporated into Aldo Leopold's environmental ethic and eventually develop into modern Deep Ecology.

The idea of biocentrism crystallized for those individuals who experienced close contact both with nature and the man-made changes that altered it drastically during their

¹⁰ Roderick Nash, *The Rights of Nature: A History of Environmental Ethics* (Madison, WI: The University of Wisconsin Press, 1989) 42.

¹¹ Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed., (USA: Cambridge University Press, 1994) 157- 9.

lifetimes. They felt most profoundly the shift that occurred in the relationship between humans and nature and thus were situated at a moment in time to acknowledge and critique this relationship. Biocentrism as an idea could only emerge in the context of these new changes in surroundings, spirituality, and scientific understanding. These elements coalesced in the minds of a few individuals to produce this unique idea that diverged from selfish, human centered philosophy.

The biocentric ideas of these thinkers did not gain widespread support during their lifetimes. Many of their observations went largely unnoticed by the greater public. Their ideas, nonetheless, survived and have influenced environmentalists since. Only in this light can one make sense of Mark Dubois' self-sacrificing effort to preserve a river. By tracing the emergence of biocentrism, this study intends to call attention to the ways humans impact, understand, and think about their surroundings. In light of the many changes engendered by the Information Age at the beginning of this century, a look back in American history to the previous technological revolution can generate valuable insights into current struggles to formulate an ethical environmental policy. Humans have only become more distanced from nature since the early biocentric thinkers' time. In the pages that follow recounting their thoughts and struggles at the turn of the twentieth century, I challenge readers to look at the way they think about and interact with nature as part of the intellectual community at the turn of the twenty-first century.

Chapter 1: Responses to the Changing American Environment

“But man is everywhere a disturbing agent.
Wherever he plants his foot, the harmonies of nature are turned to discords.”¹
—George Perkins Marsh

Individual environmental thought is predicated upon preexistent cultural, religious and scientific conceptions of nature as well as a one’s personal experiences with the elements. The diversity of the American landscape, its transformations since the first influx of settlers, and changes in the scientific understanding of the environment, have created multiple, disparate approaches by Americans to their environment over time. The German explorer Alexander von Humboldt, upon arrival in America at the beginning of the nineteenth century, contrasted its landscape with that of Europe: “In the New World, man and his productions almost disappear amidst the stupendous display of wild and gigantic nature.”² Humboldt’s extensive explorations amongst the uninhabited lands, geological formations, volcanoes and seas of the Americas gave him an appreciation for the sheer power of nature and man’s humble place within its vastness. A scientist, he measured and observed nature; from this work he concluded that the elements of nature coalesce into an interconnected, holistic harmony.

Humboldt’s holistic philosophy grew from his observations of interacting natural elements. For instance, he noted a continuously decreasing water level of Lake Tacarigua in Venezuela, and identified the source of its plunging levels as the result of soil erosion caused by the nearby villagers’ unrestrained deforestation practices. He cautioned that “by felling the trees which cover the tops and sides of mountains, men in every climate prepare at once

¹ George Perkins Marsh, *Man and Earth; or Physical Geography as Modified by Human Action* (New York: Charles Scribner, 1864) 34.

² Aaron Sachs, *The Humboldt Current* (New York: Penguin Group, 2006) 43.

two calamities for future generations; want of fuel and scarcity of water.”³ Far ahead of his time, Humboldt emphasized the need to consider the interconnected elements of the natural environment and how human practices affect these balances.

Humboldt, as a proto-ecologist with a biocentric philosophy of nature, was a unique phenomenon in the early nineteenth century. Perhaps, as a visitor to America, he brought an alternative perspective to a country preoccupied with the expansion of the Western territories and resettlement of Native Americans.⁴ Nineteenth century America was rapidly progressing towards a different set of ideals with the advent of the Industrial Revolution and the rise of mechanization, specialization and scientific management. These developments would incur drastic environmental changes, forcing Americans to contend with their changing surroundings, and leading them to entertain a host of new perceptions and approaches towards nature. For a small number of Americans, the rapid changes that industrialization and urbanization brought to the environment would lead them back to the Humboldt’s ideology with their own, more modern outlooks.

This chapter explores how changes in the environment led Americans to rethink the basis of that relationship and take the necessary steps towards an expanded Humboldtian, or biocentric, philosophy. Their initial responses comprise the corpus of early environmental thought. The chapter begins with the visible destruction of the natural environment and a new appreciation for the fragility and finite quality of nature. It traces the more immediate responses to pollution, the formation of the Conservation Movement as a reaction to the inefficient and wasteful management of natural resources, and the emotional and nostalgic

³ Ibid., 77-78.

⁴ Ibid., 5-6. Humboldt also demonstrated forethought in other areas, including slavery. This complicated his friendship with President Thomas Jefferson who himself was a slave owner. Just as Humboldt revered nature, he abhorred slavery calling it “the greatest evil that afflicts human nature.”

reactions and anxieties Americans experienced as they clustered in cities and saw their direct connections to the natural environment fade. These feelings fueled the Preservation Movement, which sought to preserve tracts of land in their pristine state due to their aesthetic and rejuvenating qualities. Finally, it will explore the Country Life Movement and Nature Study educational philosophy as additional responses to the changing environment, focusing on Liberty Hyde Bailey and his promotion of these movements as a solution to bridge the growing gap between people and nature.

These initial responses remained fundamentally anthropocentric. Americans were concerned with conserving natural resources so that there would be enough for humans to use in the future. Their desire to preserve land in its pristine state was motivated by their desire to ensure that humans could enjoy the beauty and spiritual qualities of nature. Finally, urban anxieties and the need to connect youth with nature was based on Americans' concern for the wellbeing of their offspring. Despite these anthropocentric motivations, these responses demonstrated that Americans were growing more aware of their environment and their relationship to it. The rapid changes incurred by industrialization gave many Americans in the late nineteenth and early twentieth century the unique opportunity to compare their lives before and after industrialization and urbanization. According to historian Samuel P. Hays, an American in 1914 could look back only forty to fifty years prior to realize "that his country had changed rapidly and fundamentally. He had personally experienced the transition from a society relatively untouched by industrialism to one almost transformed by it."⁵ Conservation, preservation, agrarian and urban concerns, and youth education each contributed to a more complex, nuanced approach to nature. From these responses emerged

⁵ Samuel P Hays, *The Response to Industrialism: 1885-1914* (Chicago: The University of Chicago Press, 1957) 1.

a host of new environmental values, including the need to conserve resources for future generations, the non-monetary uses of preserved nature, and the importance of understanding natural processes as a way to remain connected to nature. These ideas set the stage for a few individuals who would broach radical, non-anthropocentric conceptions of nature at the turn of the twentieth century.

Transformations: The Industrial Revolution and Urbanization

In his initial travels to the Ohio Valley in 1820, John James Audubon wrote:

When I reflect that all this grand portion of our Union, instead of being in a state of nature, is now more or less covered with villages, farms and towns, where the din of hammers and machinery is constantly heard; that the woods are fast disappearing under the axe by day, and the fire by night...when I remember that these extraordinary changes have all taken place in the short period of twenty years, I pause, wonder, and, although I know all to be fact, can scarcely believe its reality.⁶

Observations like these became only more commonplace as the nineteenth century progressed. The construction of cities and development of industry depended on the use of natural resources. Extracting raw materials from the natural environment and manipulating them into man-made products and structures came at a price. This dependence on and utilization of natural resources visibly changed the landscape as lumbermen depleted forests, engineers created dams and flooded rivers, factories spewed toxins into our air, water and earth and deforestation eroded soil. Audubon's account of the destruction of the American landscape demonstrated his awareness of the human capacity for destruction and the fragility of nature.

⁶ John James Audubon, *Delineations of American Scenery and Character*. (New York: G. A. Baker and Co., 1926) 4.

The expansion of the railroad system, rise of mass production and other technological innovations encouraged the growth of the iron, steel, lumber and milling industries.⁷ The country's economy, energy and ethos were driven by the increasing standardization and specialization of production.⁸ This specialization, fueled by the desire for profit, took hold in all realms of the economy, including the agriculture and timber industries. Subsistence farming transformed into commercial farming, in which "the farmer became a specialist, concentrating on those crops that climate, soil and ability enabled him to produce most profitably."⁹ The lumber industry mirrored the profit-motivated practices of the commercial farmers. In a flurry of competition, lumbermen moved rapidly throughout forests clear cutting the most valuable trees, leaving behind second-grade timber in their wake. Uninterested in replanting the depleted stores they also failed to take measures to prevent further destruction of the forests. The *laissez-faire* approach to economic growth encouraged the indiscriminate use of resources throughout the mid-nineteenth century.

Americans not only changed their environments through their exploitation of natural resources; they also crafted new, man-made environments in which to reside. Cities became the new commercial locus of society. Thousands of Americans and immigrants flowed into swelling metropolises. In 1860, 141 cities in America had at least 8,000 inhabitants. By 1910, half of the population was urban; 778 cities had 8,000 inhabitants or more.¹⁰ Drawing people with its intellectual, social and monetary offerings, the city came to symbolize modernity and progress. Americans viewed their cities with pride. However, despite the new opportunities, luxuries and progress the city offered, some Americans approached the

⁷ Hays, *The Response to Industrialism*, 8-10.

⁸ *Ibid.*, 71.

⁹ *Ibid.*, 13.

¹⁰ Roderick Nash, ed., *The Call of the Wild (1900-1916)* (New York, NY: G. Braziller, 1970) 26.

demographic shift with ambivalence. Rural residents accustomed to farms and wide expanses of open space now lived in cramped quarters surrounded by manmade structures and faced a variety of new, urban problems including concentrated urban poverty and a host of environmental concerns.

Initial Responses to Pollution and Destruction

By the 1860s, sanitary problems had become a paramount issue in major cities. The close quarters, industrial pollution, animal waste and deficiency of waste disposal systems in cities took a toll on the health of its inhabitants. In the New York Metropolitan Board of Health's 1868 annual report, sanitary superintendent Edward Dalton compared American cities to the dirty, epidemic-ridden cities of the Middle Ages. Focusing specifically on New York City and Brooklyn, Dalton wrote, "diseases of every kind...directly or indirectly [related to] the lack of pure air, personal cleanliness, and nutritious food, prevailed constantly and to an alarming extent among the inhabitants of these districts."¹¹ He blamed faulty building construction, neglect, and overcrowding for poor city sanitation. By the 1890s the increasing population density extended environmental problems from isolated neighborhoods to entire cities.¹²

These dire problems required immediate solutions. Progressive reformers responded to the degrading urban environment by promoting anti-smoke, anti-noise and anti-litter ordinances. They publicized pollution problems, organized clean ups and touted the importance of civic involvement in shaping the fate of the city. Despite their ultimate goal of pollution prevention, the urban reformers never sought to cut pollution off at its source:

¹¹ Edward Dalton, "The Metropolitan Board of Health of New York," *North American Review*, April 1868, *American Environmentalism*, ed. Donald Worster (New York: John Wiley & Sons, Inc., 1973) 134.

¹² Martin V. Melosi, "Environmental Reform in the Industrial Cities." *Environmental History: Critical Issues in Comparative Perspective*, ed. Kendall E Bailes (Lanham, MD: University Press of America, Inc., 1985) 496.

developing industry was associated with progress and economic growth. To curtail industrial progress would inhibit America from achieving greatness. Smoke-belching factories even served as a powerful symbol of economic activity. The reformers therefore couched their case for pollution reduction in terms of a greater goal of economic efficiency, much like the Conservationists would argue.¹³ Though these tactics were often successful and reforms improved the quality of city life, their efforts affected only immediate, small scale issues like the issuance of anti-smoke, anti-noise and anti-litter ordinances. They never questioned whether urban development, with its consequent pollution, unequivocally translated to progress and improvement. Their efforts were motivated by the need to produce immediate solutions to improve the quality of life of urban dwellers.

The urban reformers, in their desire to accomplish immediate goals, never stepped back to assess the implications of the extensive destruction of nature and major demographic shifts in the population. Such observations were left to those who spent more time directly in nature—naturalists, explorers, and scientists. Those who witnessed destruction at a greater scale could evaluate these issues concerning the nation as a whole. Though in 1840, John James Audubon had watched the woods disappear before his eyes at the hands of axe-wielding men and wrote that “the greedy mills told the sad tale that in a century the noble forests around should exist no more,”¹⁴ he was reluctant to criticize such practices or suggest alternatives. By 1864 however, echoes of Humboldt’s philosophy resurfaced in the publication of George Perkins Marsh’s *Man and Nature; or, Physical Geography as Modified by Human Action*.¹⁵ Marsh, a diplomat and lawyer from Vermont, traveled

¹³ Ibid., 503-4.

¹⁴ Audubon, *Delineations of American Scenery and Character*, 9-10.

¹⁵ Marsh cites Humboldt’s *Ansichten der Natur* in the Bibliography of his book, and mentions him in an article he wrote for *The Christian Examiner* in 1860, lauding Humboldt for connection he made between scientific

throughout the world. His book expanded on Audubon's observations and presented a fuller picture of the variety of ways Americans fundamentally altered the environment. *Man and Nature*, the first comprehensive book written in English to detail the destructive capacities of human civilization on nature, also presented concrete ways of ameliorating these practices.¹⁶

Marsh recognized that nature continually undergoes transformations under the pressures of civilization. He cited practices that had already produced visible changes in the landscape: including deforestation, draining lakes and marshes, rural husbandry and industrial arts. His examination of the environmental consequences of human actions gave him an appreciation for the power people wielded over nature. They have changed the “hygrometric, thermometric, electric, and chemical condition of the atmosphere,” he noted, in addition to exterminating scores of animal and plant species.¹⁷ Marsh's treatise called attention to “the more permanent, and more comprehensive mutations” that people had wrought on these natural resources for “immediate ends”—actions that led to unforeseen consequences.¹⁸ Marsh warned his readers that the Roman Empire fell partially due to people's blatant disregard of the laws of nature in addition to poor governments and war.¹⁹

Marsh observed that the laws of nature gradually restored itself to an equilibrium after disruptions. Animals worked seamlessly into nature's balance-restoring processes. Marsh however, considered humans to exist outside of this sphere, because rather than operating within these natural processes, they consciously altered them and therefore destroyed nature on a greater scale. Unlike other animals who took from nature only that

progress and fine arts as a means for promoting sympathy with nature. (See Worster, *American Environmentalism*, p.20)

¹⁶ Roderick Nash, *The Rights of Nature: A History of Environmental Ethics* (Madison, WI: The University of Wisconsin Press, 1989) 38.

¹⁷ Marsh, *Man and Earth*, 13-4.

¹⁸ *Ibid.*, 15.

¹⁹ *Ibid.*, 5.

which they needed for their survival, the human was less discriminating. He “unsparingly persecutes, even to extirpation, thousands of organic forms which he cannot consume.”²⁰

Marsh cited the hunting practice of shooting large animals and birds, using parts of the carcasses for specific products, and then discarding the remains regardless of their other potential uses.²¹

This detailed account of human destruction and waste led Marsh to the conclusion that people must revamp their methods of resource management and employ conservation practices. He encouraged people to pay attention to the delicate balance of natural processes in such a heightened industrial state of destruction, and to preclude the risk of permanent damage by restoring natural equilibria when possible.

On its most basic level, Marsh’s book was entirely anthropocentric. He advocated a more calculated and careful approach to resource management in order to avoid needless waste and destruction for the purpose of ensuring that more resources would be available for people in the future. Marsh’s suggestions were well-received by the public (it became a best seller the decade following publication)²² largely because he did not eschew economic and industrial progress, but rather, in the spirit of pragmatism at the time, promoted a concrete program of conservation to rectify visible problems. Though Marsh condoned destruction of the environment and never questioned the ethics of extreme natural transformations, he called the public’s attention to the consequences of human actions and promoted new methods of resource management, encouraging people to think about the consequences of their practices.

²⁰ Ibid., 35.

²¹ Ibid., 36-7.

²² Merchant, *Reinventing Eden*, 137.

Conservation

Mid-twentieth century historian Lewis Mumford considered Marsh's book to be the "fountainhead of the conservation movement."²³ Though the destruction of natural resources increased after the publication of Marsh's book, scientific and political trends at the end of the nineteenth century created conditions ripe for the application of Marsh's ideas. With the advent of the Progressive Era at the end of the nineteenth century, people began to respond to his ideas of regulation and conservation. Progressive reformers, including President Theodore Roosevelt, advocated for governmental regulations to combat corruption and limit powerful monopolies that had grown through unchecked capitalism.

By the late nineteenth century, it was clear to experts, scientists and politicians alike that solely profit-motivated approaches to resource use would result in rapid resource depletion, needless waste and permanent destruction. Their solution embraced the guiding principles of the Industrial Revolution: efficiency and expertly planned management. Though the rise of scientific management as a methodology awaited Frederick Winslow Taylor's *The Principles of Scientific Management* in 1911, there was already a growing tendency to rely on planned efficient methods of progress through new technology and engineered projects.²⁴ Taylor would define scientific management as the gathering of empirical data from the workplace in order to determine ways to reorganize and manage industries so as to increase yield and efficiency. Taylor hoped that these principles could be applied "with equal force to all social activities," including the home and governmental

²³ Donald Worster, ed., *American Environmentalism: The Formative Period, 1860-1915* (New York: John Wiley & Sons, Inc., 1973) 13.

²⁴ Merchant, *Reinventing Eden: The Fate of Nature in Western Culture*, 138.

departments.²⁵ The ideals of scientific management, efficiency, and specialized expertise were a logical solution to managing natural resources more responsibly.

The move to support these policies can be characterized by the shift that took place in forest and timber management between 1880 and 1900. In the 1880 United States census Charles Sprague Sargent of Harvard University's Arnold Arboretum issued an analysis of the swiftly disappearing American forests based on his dendrological and arboricultural research. This further aroused public awareness of the country's finite reserve of natural resources.²⁶ The depletion of American forests was a particularly visible form of destruction, due to the lengthy process required for trees to reach mature growth coupled with the almost instantaneous methods for chopping them down. Tales of widespread forest destruction from Europe served as yet another warning for Americans.

In 1886 the government created the Division of Forestry within the Department of Agriculture and appointed German-born and trained Bernhard Fernow as its head. Fernow ascribed to Marsh's utilitarian call to conserve resources for future generations. He also believed that government regulations were required to control the unbridled *laissez faire* capitalism that facilitated the devastation of the forests. He and other utilitarian conservationists instead advocated for a *faire marcher* ("make it work") policy. Fernow felt that for the average individual profiteer, "the relation of the forest to other conditions, direct or indirect, immediate or future, hardly ever enters into his calculations."²⁷ To ensure that these considerations were addressed Fernow looked to the government as a means to prevent

²⁵ Frederick Winslow Taylor, *The Principles of Scientific Management* (New York: Dover Publications, Inc., 1998; orig. 1911) iv.

²⁶ Andrew Denny Rodgers, *Liberty Hyde Bailey* (Princeton: Princeton University Press, 1949) 38.

²⁷ Bernhard E Fernow, "Economics of Forestry," orig. 1901, *American Environmentalism*, ed. Donald Worster (New York: John Wiley & Sons, Inc., 1973) 83.

individuals from using the timber, or, “accumulated growth of centuries,” for their own personal benefit without a regard for the future of the forests, or future generations.

Another German-trained forester by the name of Gifford Pinchot assumed Fernow’s position in 1898. Pinchot implemented conservation policies more aggressively, setting out to educate members of the forest industry about sustained-yield timber management techniques.²⁸ With Pinchot’s appointment and President Theodore Roosevelt’s inauguration in 1901, the Conservation Movement gained national prominence. The Conservationists’ ideology was based on the principles of utility, or “wise-use” according to the philosophies of Thomas Malthus and John Stuart Mill. They argued therefore that measures must be taken to quell human destruction by instituting policies that require the regulation and efficient management of resources so as to prolong their existence. Gifford Pinchot and geologist W J McGee are often credited with articulating the philosophical basis of the Conservation Movement: “the use of natural resources for the greatest good of the greatest number for the longest time.”²⁹ Or, as Pinchot wrote in *The Fight for Conservation*, “natural resources must be developed and preserved for the benefit of the many, and not merely for the profit of a few.”³⁰

Conservation, especially under the leadership of Pinchot, desired to prolong the exploitation of natural resources for human needs. Pinchot saw forests and other natural resources purely in terms of their utilitarian value to society; he therefore promoted a more deliberate and designed exploitation of nature for the anthropocentric whims of man. This philosophy aligned with the country’s commitment to scientific management and

²⁸ Samuel P Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement 1890-1920*, (Cambridge, MA: Harvard University Press, 1959) 29.

²⁹ As quoted in Merchant, *Reinventing Eden*, p.139

³⁰ Gifford Pinchot, *The Fight for Conservation* (New York: 1910), 46-7, *The Evolution of the Conservation Movement, 1850-1920*. The Library of Congress. Dec. 2005 <[22](http://memory.loc.gov/cgi-bin/query/r?ammem/consrvbib:@field(NUMBER+@band(amrvg+vg11))></p></div><div data-bbox=)

engineering, and received a positive reception from Progressives.³¹ Engineers tended to identify with Pinchot's philosophy as well. In a 1908 conservation meeting, the president of the American Society of Civil Engineers recounted that one of his colleagues, when asked how the development of waterpower in Niagara Falls would alter its aesthetic he replied, "what has that got to do with it? I consider it almost an international crime that so much energy has been allowed to go to waste."³²

Pinchot and the Conservationists internalized the destructive powers of humans and the finite quality of nature, and responded with a rational plan for conscious resource usage. Nature was no longer a ubiquitous, ever-accessible commodity—it was delicate and irreplaceable. As part of the optimism that pervaded America at the turn of the twentieth century, Conservationists were confident that humans could utilize technology and tools of management to improve their methods for resource use.³³ Though their philosophy was anthropocentric, and within their Conservation framework nature remained a commodity, they did encourage the individual to look past their personal selfish whims and consider the broader human community. Furthermore, Conservation brought moral conduct into the discourse on human interactions with nature, implicating humans as ethically responsible for conserving natural resources, and emphasizing that generations of yet unborn humans also maintain a right to use natural resources.

³¹ Historian Max Oelschlaeger echoes these sentiments, arguing that "the so-called *progressive conservation movement* was philosophically grounded in Modernism. Wild nature was conceived as little more than a stockpile of raw materials of no intrinsic value; only through the productive enterprise—the humanizing of the wilderness—did nature gain value." See Max Oelschlaeger, *The Idea of the Wilderness: From Prehistory to the Age of Ecology* (Binghamton, NY: Yale University and Vail-Ballou Press, 1991), 209.

³² Hays, *Gospel of Efficiency*, 126.

³³ Samuel P. Hays, "The Mythology of Conservation," *Perspectives on Conservation*, Henry Jarrett, ed. (Baltimore, Maryland: Resources for the Future, Inc., 1958) 41.

Urban and Frontier Anxieties

In 1893 Frederick Jackson Turner delivered his famous address, “The Significance of the Frontier in American History.” Turner defined the frontier to be a distinctly American phenomena that heretofore had molded the character of the nation, inspiring liberty, democracy and rugged individualism that shaped the core of American character. He argued that “little by little [the American settler] transforms the wilderness,” to form “a new product that is American.”³⁴ Based on his statistical analysis of the 1890 census, Turner concluded there was no longer an American frontier.³⁵ While current scholarship contests Turner’s historical conclusions regarding the disappearance of the frontier,³⁶ Americans including President Theodore Roosevelt internalized the potent symbolism of Turner’s nostalgic message. They believed that there was no longer a vast, untamed West in which to expand. To retain the pioneering quality associated with the frontier, which Roosevelt called the “strenuous life,” he urged Americans to avoid the indolence and overcivilization of sedentary life. He suggested Americans regain their virility through continual contact with the wilderness.³⁷ Roosevelt was more than an active Conservationist, passing key pieces of Conservation legislation, creating wildlife reserves, and introducing new management practices. He also feared for the moral fiber of his countrymen.

³⁴ Frederick Jackson Turner, “The Significance of the Frontier in American History,” orig. 1893, *The American Intellectual Tradition*, eds. David A. Hollinger and Charles Capper (New York: Oxford University Press, 2006) 56.

³⁵ Sachs, *The Humboldt Current*, 262.

³⁶ According to Sachs in *The Humboldt Current*, 263: “Much of the infamous ‘Turner Thesis’ now sounds moderately ridiculous. Americans never encountered open land, after all—first they had to dispossess the Indians. If the frontier did perhaps encourage a certain ruggedness, then it perhaps also fostered violence, the overexploitation of natural resources, a general sense of irresponsibility and an antidemocratic anarchism.” In addition, the government owned significant amounts of uninhabited land in the West. Hollinger and Capper, *The American Intellectual Tradition*, 54, wrote that at this point Turner is seen “less as a research scholar than as a kind of epic poet: he had used the genre of the historical essay to articulate a particular vision of the world-historical significance of the United States.”

³⁷ Nash, *Wilderness and the American Mind*, 150.

Despite the general consensus among Americans that industrialization and urbanization were positive forces engendering progress and modernity, additional anxieties began to accrue. By the mid-nineteenth century the pace of life in America had accelerated as progress manifested itself through commercialism, mass production and specialization. While cities boasted opportunities for jobs, wealth, and entertainment, some felt that they were also responsible for a decline in American values. Social reformers of the time such as Jane Addams viewed the focus on production, efficiency and capital in the urban centers as “[deadening] the sympathies” of city-dwellers and breeding selfishness.³⁸ Addams called for the cultivation of human relationships in the midst of an unsympathetic, mechanical society through the introduction of settlement houses in order to unite and invigorate city inhabitants.

Reforms such as these addressed internal ailments of the city, while other people expressed concerns that the city sequestered people from experiencing the beauty of nature. One school of thought argued that the aesthetics of nature helped to foster a sense of peace and happiness in people, and that their mental states could be negatively affected if they were consistently surrounded by man-made edifices.

President Emeritus of Harvard University and president of the First Conservation Congress Charles W. Eliot ascribed to this school of thought. He felt that it was in the best interest of the American people’s mental health to return beauty to urban civilization. Eliot proposed to do so by reintroducing natural elements into people’s lives. He advised people in cities to take vacations in parks and the countryside, bring more light and air to city buildings, erect more playgrounds and decorate open spaces, and install a garden by every

³⁸ Jane Addams, “The Subjective Necessity of Social Settlements,” orig. 1892, *The American Intellectual Tradition*, eds. David A. Hollinger and Charles Capper (New York: Oxford University Press, 2006) 121.

family dwelling.³⁹ For Eliot, the pollution control of the urban reformers did not suffice because in their concerns over water supplies, sewers and streetlights, people forgot to take beauty into account. He argued for the importance of returning beauty to American cityscapes, for Americans, more than anyone else in the world, “have come to rely on electricity as a substitute for sunlight, and mechanical ventilation as an equivalent for fresh air.”⁴⁰ Finally, Eliot advocated cultivation of public interest in animals and vegetation. He specifically focused on birds, noting their utilitarian and psychological benefits as a food source, protectors of farm crops, and “for the stirring of human sympathy and delight in their colors, songs, and alert, sprightly ways.”⁴¹

Eliot considered subjective, non-tangible characteristics of nature to be important to human wellbeing. Many critics of the city concurred. In a 1913 issue of *Atlantic Monthly*, G. S. Dickerman blamed the city for a decline in rural populations and thus a decrease in food production. Like Addams he blamed the city for the deficient character of its inhabitants, for encouraging laziness and exposing children to “indescribable allurements to vice” such as gambling dens and drinking saloons.⁴² Dickerman’s main concern however was that the atmosphere of economic determinism and specialization would cause children to “grow up to be like the parts of a machine fitting snugly into their little places and moving there with hardly a thought of what their life means.”⁴³ Dickerman feared that children who grew up in the city and never experienced exposure to country life would lose their humanity and become cogs in the machines now driving society. To avoid lapses in self-sufficiency

³⁹ Charles W Eliot, “The Need of Conserving the Beauty and Freedom of Nature in Modern Life,” *National Geographic Magazine*, 26 no. 1, (1914): 69.

⁴⁰ *Ibid.*, 71.

⁴¹ *Ibid.*

⁴² G. S Dickerman, “The Drift to the Cities,” *Atlantic Monthly*, 112 (Sept., 1913), *The Call of the Wild (1900-1916)*, ed. Roderick Nash (New York, NY: G. Braziller, 1970) 28.

⁴³ *Ibid.*, 30.

and renew a sense of purpose in these children, Dickerman looked to the solitude of the wilderness and promoted interactions with nature. For Dickerman, the urban barrier that separated people from nature negatively affected the independence and vitality of city-dwellers, particularly children who had never lived in the country.

Preservation

As interest in Conservation mounted and expanded, people became interested in the non-economic benefits of curbing natural resource exploitation. They valued the integrity of the natural landscape for its aesthetic, refreshing qualities and therefore advocated for the preservation of parks, wilderness and rural areas.⁴⁴ Because they sought to distance themselves from the materialistic motivations that had seized society, their aims clashed with Pinchot's strict utilitarian treatment of nature. Distinguishing themselves from the Conservationists, these Preservationists, including wilderness explorer and naturalist John Muir, and landscape architect Frederick Law Olmsted, advocated for the creation of governmentally owned national parks to be preserved in their pristine state. In 1865 Olmsted lobbied for the creation of Yosemite national park, arguing to the California Legislature that "natural scenes of an impressive character" needed to be protected from the selfish whims of private owners. He and the Preservationists argued that the beauty of places like Yosemite would benefit Americans in a host of ways—positively influencing their health, exercising and reinvigorating the mind and providing respite from pressures of civilization.⁴⁵

The Preservationists met opposition from Conservationists and *laissez faire* proponents alike. Americans, focused on efficiency, management and profit based success, often criticized the Preservationists, criticizing them as sentimental, backwards-looking, and

⁴⁴ Hays, *The Gospel of Efficiency*, 142.

⁴⁵ Nash, *Wilderness and the American Mind*, 106.

nostalgic. For instance, Senator John J. Ingalls of Kansas, in 1883, characterized Yellowstone National Park as a waste. Ingalls considered the park to be a waste and recommended that the land would be best put to use if the government sold it to private owners. In response, George G. Vest of Missouri argued that the park served a crucial role in counterbalancing the materialism of the country, and in light of the expanding population, the park would serve as “as great breathing-place for the national lungs.”⁴⁶ The Preservationist contention that nature held non-economic, or even anti-economic qualities legitimized a new approach to the environment—natural elements were no longer seen purely as commodities. The main goals of the Preservationists focused on bettering the quality of American life through nature preservation. Despite their largely anthropocentric motivation, their willingness to look past materialism and reflect more on the philosophic, intangible value of nature represented a new trend in environmental thought.

Liberty Hyde Bailey: Background and Remedies

In addition to responding to Preservationist requests for the establishment of Yellowstone and Yosemite National Parks, politicians and officials attempted to address the rural and agricultural issues created by urban growth. A central figure who tackled these issues was Liberty Hyde Bailey Jr., Professor of Horticulture and the Dean of the Agriculture School at Cornell University. Bailey grappled with his own doubts regarding mechanization, materialism and urbanization in the context of expanded ethical and non-economic conceptions of nature introduced by Conservationists and Preservationists. It is in his proposed solutions to bridge the growing gap between Americans and nature that Bailey began to make a transition from anthropocentrism to biocentrism. He sought to break down urban barriers that distanced Americans from nature through the Country Life Movement and

⁴⁶ Roderick Nash, *Wilderness and the American Mind*, 113-4.

nature study educational philosophy. The Country Life Movement addressed this need on the macro level, turning to agriculture and improvements in the countryside to give nature a more prominent role in society. On a more micro level, the nature-study movement intended to foster in children a sympathy and deeper connection to the natural world by encouraging direct interactions with the environment. In these ways, Bailey hoped to keep nature present in Americans' lives. They constitute Bailey's solutions to mounting urban anxieties, and were instrumental in the development of his own environmental thoughts through which his biocentric philosophy eventually emerged.

In his capacity as a botanist, horticulturist and educator, Liberty Hyde Bailey observed the changing relationship between humans and nature during his lifetime and devoted much of his career towards returning the presence of nature to people's lives. Born in 1858, Bailey grew up on an apple orchard in South Haven, Michigan. As a young boy he was fascinated with plants, birds, insects and rocks, a curiosity encouraged by his mother, Sarah Harrison Bailey. She kept her own garden until her untimely death in 1862. After her passing Bailey continued to tend to her plants.⁴⁷

In 1877 Bailey enrolled at Michigan Agricultural College, where he studied under William James Beal, Professor of Botany, a former student of the renowned Harvard scientist Asa Gray. Beal was also strongly influenced by another Harvard scientist, geologist Louis Agassiz. Agassiz's motto, "study nature, not books," revolutionized the way that people taught science in America.⁴⁸ Beal taught botany to Bailey according to Agassiz's philosophy. Holding classes in the greenhouse, he instructed his students through physical examples. Bailey enjoyed working in the gardens with Beal, who referred to Bailey as a

⁴⁷ Rodgers, *Liberty Hyde Bailey*, 8.

⁴⁸ *Ibid.*, 22.

“young genius.”⁴⁹ Bailey internalized Beal’s lessons, as evidenced by Bailey’s editorial in *The College Speculum*, in which he reflected on how direct applications of scientific understanding could positively impact agriculture: “science is no longer synonymous with abstruse theories and vague, impractical hypotheses.”⁵⁰ Close interactions with nature through cultivation and observation gave Bailey an appreciation for the direct effects of environment on civilization.

After graduating Michigan Agricultural College with a degree in botany, Bailey studied with the famous Harvard botanist Asa Gray.⁵¹ He then returned to Michigan to teach horticulture until 1888, when he accepted a professorship of practical and experimental horticulture at Cornell University. Bailey took with him to Cornell roots from plants in his mother’s original garden and a zeal for hands-on nature learning. His work in botany and horticulture logically extended into the realms of agriculture. In 1904 when New York established a State College of Agriculture at Cornell, Bailey became its first dean. He focused much of his time and energy on horticultural and agricultural extension work.

The Country Life Movement

Due to Congress’s initial reticence towards addressing environmental issues, President Theodore Roosevelt relied on a variety of commissions to report on public lands, waterways, federal scientific work, administrative efficiency, fuel sources, and national conservation problems.⁵² In 1908 he created the Country Life Commission to investigate and determine ways to improve rural and agrarian life. He appointed Liberty Hyde Bailey,

⁴⁹ Ibid., 49.

⁵⁰ Ibid., 50.

⁵¹ Asa Gray and Bailey’s relationship with him are discussed further in Chapter 3.

⁵² Hays, *The Gospel of Efficiency*, 134. Roosevelt was frustrated with Congress’s slow response. In his autobiography he reasoned that “the executive is the steward of the public welfare,” and therefore took it upon himself to guide the country towards conservation policies on his own.

President Henry Wallace of the National Conservation Congress, President Kenyon L. Butterfield of the Massachusetts Agricultural College and Gifford Pinchot of the United States Forest Service as its leaders.⁵³ Bailey recalled having a “strenuous conference” with Roosevelt, who urged him join the Country Life Commission and appointed him as its chair. It was from his experience on this committee that Bailey eventually formulated the broader “Country Life Movement.”

In its brief two year existence, the committee held fifty hearings across the country to listen to the concerns of farmers and residents of the countryside. They took their report to the President, but unfortunately, according to Bailey, when Roosevelt motioned that the Commission on Country Life be continued, Congress was uninterested. Bailey was not discouraged, however, because the response they had received in their travels was “not only encouraging, it was almost overwhelming.” In conjunction with Roosevelt and The Chamber of Commerce of Spokane, Bailey’s committee achieved funding to publish its report.⁵⁴ The commission found that rural residents felt threatened by their urban counterparts. The Country Life Movement intended to combat the declining farming populations by promoting agricultural education and improving rural life.⁵⁵ In doing so, Bailey and Country Life proponents tended to romanticize the role of the farmer, sometimes even embracing what historian Samuel P. Hays called “rural fundamentalism,” a belief that farm life was “morally superior” to city life.⁵⁶ Bailey’s stress on direct contact with nature stems from his rural fundamentalism sentiments. He took the suggestions the committee received and combined

⁵³ Liberty Hyde Bailey, “Some Reminiscences of the Development of the American Country Life Movement.” Article, 1943. Box 16, Folder 26. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library. 2-3.

⁵⁴ *Ibid.*, 5.

⁵⁵ Hays, *The Gospel of Efficiency*, 110-111.

⁵⁶ *Ibid.*, 82.

them with his own observations and ideas in his 1911 book *The Country-Life Movement in the United States*, which discussed his philosophy on agriculture and industry.

Like other critics of the city, Bailey was concerned about what the metropolis had come to represent for Americans. Throughout his career he was wary of the standardization and uniformity of mass production advanced by industry. He warned readers:

In all the arts and crafts the individual touch is necessary for the best human development; the desire for only standardized and regulated things is itself a weakness. We should not allow ourselves to be reduced to uniformity, and yet the machinery and the regulations of modern life operate directly to this end.⁵⁷

Though this statement could be interpreted as a condemnation of industry, Bailey explained that he did not object to standardized and mass production on principle, but rather was disturbed by the myopic focus on generating monetary profits that assumed that “the burden of teaching and public advice should be in market quotation, statistics, commodity movements, and immediate money-making.”⁵⁸ He understood that industry’s growing prominence had and would continue to alter the entire foundation of civilization, but hoped that what industry ultimately had to offer to humankind would not merely be “a sordid and commercial end.”⁵⁹ He observed that people in the “get-rich-quick age” were focused on material wealth. He argued that these attitudes and the “superfluities [of the city] are dissipating of one’s energies, and weakening of the moral fiber...”⁶⁰ The distractions of the city removed people from their sense of purpose without foundations in nature, creating anxieties and discontent in its inhabitants. He observed that this led people to ask

⁵⁷ Liberty Hyde Bailey, excerpt, *The Seven Stars*. Article, 1923. Box 2, Folder 8. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

⁵⁸ Liberty Hyde Bailey, “Fifty Years,” *American Fruit-Grower*, (July, 1930). Box 2, Folder 27. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

⁵⁹ Liberty Hyde Bailey, *The Country-Life Movement in the United States* (New York: The Macmillan Company, 1913, orig. 1911) 55.

⁶⁰ Liberty Hyde Bailey, *The Outlook to Nature* (New York: The Macmillan Company, 1911, orig. 1905) 111.

increasingly how they could live more satisfying lives.⁶¹ For Bailey, their salvation lay in the country, or specifically, on the farm—the bulwark of the Country Life Movement.

The urban focus on materialism had tangible consequences for the countryside. Bailey considered the city to be a parasite draining the country of its substance—materials, money and men. Because “[the city] does not reconstruct or even maintain its contributory country,” Bailey considered the current system unsustainable.⁶² Departing from the more complicit city reformers and Conservationists, Bailey ventured past immediate, managerial changes to propose a reconfiguration of the relationship between the city and country to better the conditions of each setting. For Bailey, ideally “the past century belonged to the city,” and “the present century should belong also to agriculture and the open country.”⁶³ To restore focus on the countryside, he proposed to “[correct] the abnormal urban domination in political power,”⁶⁴ by strengthening local politics and rural government, encouraging dialogue between city and country folk, and even exhorting public boards of organizations to ensure that at least one member be a country resident.

In addition to these suggestions, Bailey’s turned to education for rural improvement. He proposed the establishment of additional agricultural institutions for research and education, and that agriculture be added to the public school curricula.⁶⁵ By increasing the focus on educated, scientifically based agriculture, the countryside, and by association the city, would benefit. He defined sound agriculture as “self-sustaining and self-perpetuating, not only increasing its yields year after year from the same land, but leaving the land better

⁶¹ Bailey, *The Country-Life Movement in the United States*, 220.

⁶² Bailey, *The Country-Life Movement in the United State*, 20.

⁶³ *Ibid.*, 3.

⁶⁴ *Ibid.*, 30.

⁶⁵ *Ibid.*, 75-6

and richer each generation.”⁶⁶ Bailey remarked on the tendency of farmers to only use existing arable land responsibly only after other areas had already been rendered infertile, a fate Bailey sought to avoid by encouraging foresight and planning.

These ideas mirror sentiments of the Conservation movement which Bailey addressed at this point in his treatise on Country Life philosophy. He acknowledged that both Conservation and Country Life movements were “immediately economic, but in ultimate results they are social and moral.”⁶⁷ Both movements acknowledged the importance of upholding welfare of individuals through the channels of government and were “phases in a process of social evolution.”⁶⁸ Despite these similarities, Bailey criticized the Conservation Movement for being too narrow, and made the distinction that the Conservation Movement challenged property interests and was therefore couched in politics, while the Country Life Movement sought to address broad issues of policy, education and a “redirection of imagination.”⁶⁹ He also accused the Conservation movement of failing to sufficiently address the issue of soil management, a vital resource liable to be deprived of its nutritive properties through mismanagement.⁷⁰ Bailey stressed the importance of maintaining soil arability to the point that he gave the issue an ethical dimension. Like the conservationists, Bailey based these ethics on the needs of future generations, stating that “natural resources of the earth are the heritage and the property of every one and all of us.” However, he was more zealous in this belief, arguing, “A man has no moral right to skin the earth, unless he is forced to do it in sheer self-defense...” He foresaw a time when people would not be

⁶⁶ Ibid., 49-50.

⁶⁷ Ibid., 178.

⁶⁸ Ibid., 178.

⁶⁹ Ibid., 180.

⁷⁰ Ibid., 184.

permitted to cultivate the earth unless they would be able to leave it as least as fertile as they found it.⁷¹

Bailey surpassed the ethical aspects of Conservation with the Country Life Movement by bringing moral dimensions to the forefront. A section towards the end of *The Country Life Movement* titled “the philosophy of saving” looked past the immediate state of agricultural and urban affairs and considered the development of human morality in relation to resource conservation. The plethora of resources that historically surrounded Americans had prevented them from developing a “consciousness of saving...things that come free to our hands,” such as sunshine, precipitation, forests, mines, streams and soil.⁷² That some people had begun to recognize the importance of conserving represented a high moral development in Bailey’s opinion. He saw civilization as built “on the process of waste,” and based on human behavior, it seemed as if people were determined to find ways to deplete the earth most quickly of its resources. From these musings he determined waste was not only inexpedient, but immoral. However, he was also hopeful that once people developed a philosophy of saving, they would also develop a keener respect for others. In this manner Bailey considered responsible resource use to foster morality between humans.

In order to encourage environmentally conscious practices and to integrate the ethical objectives of Conservation into city and country discourses alike, Bailey turned to the farmer. As an agricultural educator, Bailey regarded farmers as the keystone of civilization. Mainly economic in its basis, agriculture was an integral part of the capitalist framework. Farmers therefore were the ideal medium through which to bridge industrial minded Americans and nature. In rural fundamentalist fashion, Bailey viewed the city’s relationship to nature as

⁷¹ Ibid., 188-190.

⁷² Ibid., 193.

complex and artificial, and the countryside's as simpler and more direct.⁷³ In his opinion, "the countryman is the man who has the personal touch with his environment."⁷⁴ Such connections were entirely out of reach in the artificially bounded city environments. Furthermore, Bailey noted that "the best agriculture was a perfect adaptation of man to his natural environment."⁷⁵ Farmers dealt firsthand with the raw materials of the earth, "near the cradle of supplies, near the sources of streams, next the margin of the forests, on the hills and in the valley and on the plains just where the resources lie."⁷⁶ They were therefore in a position to understand and adapt to nature and to subsist more directly and fully off of the natural environment than city residents. When asked what made a good farmer, Bailey replied with the following requirements: "the ability to make a full and comfortable living from the land, to rear a family carefully and well, to be of good service to the community, and to leave the farm more productive than it was when he took it."⁷⁷ He cited close connections with nature as the explanation for why country dwellers were free from great temptations of evil and were able to maintain spontaneity, self-reliance, and frugal living.

Bailey's assumption that farmers would universally gain a deep appreciation of nature through their profession illustrated a mixture of his own nostalgia for the rural subsistence farms of the past, anxieties and negative associations of the city, and his attempt to reconcile the immaterial values of the country with the pragmatic and scientifically grounded Conservation movement. His desire to draft the farmer as a transformative link between industrializing society and nature was romantic and optimistic, considering the increasing commercialization and mechanization of the farmer profession. It also grafted ideals of

⁷³ Bailey, *The Outlook to Nature*, 54.

⁷⁴ Bailey, *The Country-Life Movement in the United State*, 205.

⁷⁵ Liberty Hyde Bailey, *The Nature-Study Idea* (New York: The Macmillan Company, 1909, orig. 1903) 95-6.

⁷⁶ Bailey, *The Country Life Movement in the United States*, 200.

⁷⁷ *Ibid.*, 220.

efficiency and responsibility from the Conservation movement with the supposed intrinsic, non-material values that nature provided for people. Perhaps due to increasing commercialization of agriculture, Bailey recognized the need to address the latter aspect, which he chose to do through the avenues of youth education.

Youth and Education: The Nature Study Idea

To encourage and elucidate the nature-focused mindset he considered imperative to the survival of civilization, Bailey, like other critics of urbanization such as G. S. Dickerman and nature writer Ernest Thompson Seton, recognized the need to combat the ills inculcated by city life and to promote instead a nature-mindset beginning at a young age. Like the self-reliant farmer, Bailey considered the quintessential farm boy to demonstrate a greater level of independence than the city boy. He attributed this to the farm boy's more direct interactions with raw materials, slower and more steady growth than his counterpart, and his claim that farm boys enjoyed a more stable family life. The city boy in contrast was preoccupied with abstract pictures, models, descriptions and made-up exercises. Observing "the floating youth on the streets," Bailey determined that with a minimum amount of school, and no "serviceable employment," the city boy would be doomed to a life of idleness.⁷⁸ Viewing cities as immoral, detrimental environments, Bailey also diagnosed city boys as overindulgent in material pleasures versus the more frugal farm boys. One of the most striking differences Bailey proposed between country and city youth was that the farm boy "is probably freest from any thought of social stratification."⁷⁹ Because the child was not surrounded by constant reminders of class, money, and material wealth, Bailey was confident he would treat people more equally in his adulthood.

⁷⁸ Bailey, *The Outlook to Nature*, 108-9.

⁷⁹ *Ibid.*, 116.

One initial solution proposed to save the endangered souls of urban youth was the creation of the Boy Scouts in 1907. As early as 1902 a popular nature writer Ernest Thompson Seton introduced the idea in the *Ladies Home Journal* of a group for boys named the Woodcraft Indians.⁸⁰ In a handbook he created for the Boy Scouts, Seton explained that the purpose of the Boy Scouts was to instill in young American boys self-reliance, physical strength, resourcefulness and “old moral standards,” thus fighting the “degeneracy” permeating city youth. He cited urban growth and the specialization of industry as the cause of “perpetual narrowing of the mental horizon.”⁸¹ The solution to these ills was to teach young children to enjoy spending time outdoors through recreational sports and more cerebral exercises in nature study. By teaching young boys skills in woodcraft, camping, and other nature skills, Seton hoped to reinvigorate America and save it from evils such as the “white man’s disease,” his term for consumerism.⁸²

Rather than introducing children to nature through a recreational group like the Boy Scouts, Bailey’s program focused more on the “intellectual” dimension of the outdoors through an informal type of education called nature study.⁸³ Bailey addressed the fate of modern children in *The Nature-Study Idea*, a book written in 1903 that encompassed the major goals and philosophy of the nature study education movement. The subtitle of the book read, “An interpretation of the new school-movement to put the young into relation and sympathy with nature.” Just as the Country Life Movement intended to better American society through the rejuvenation of agriculture and promotion of country life, the nature

⁸⁰ Nash, *The Call of the Wild (1900-1916)*, 19.

⁸¹ Ernest Thompson Seton, “Boy Scouts of America: A Handbook of Woodcraft, Scouting and Life-Craft,” *The Call of the Wild (1900-1916)*, ed. Roderick Nash (New York, NY: G. Braziller, 1970) 20.

⁸² *Ibid.*, 21.

⁸³ It is unclear whether Seton’s mention of nature study refers to Bailey’s Nature Study Movement.

study movement intended to better individuals' (specifically children's) lives through direct interactions with nature.

Bailey did not credit himself with the invention of nature study. He recalled Louis Agassiz's epithet, "study nature, not books," but noted that Agassiz intended this approach for university students and adults, and intended the instruction to come from a specialist.⁸⁴ Bailey's nature study movement however was geared towards elementary schools, and he encouraged all teachers to take up nature study in their classrooms. Bailey dated the introduction of nature study in the United States from 1884 to 1890 and noted that it has also been called "object lessons," "plant work," or "elementary science."⁸⁵

The goal of nature study was to stimulate children's sympathies in relation to the natural world. Bailey noticed that few people had either intimate contact with nature or a basic understanding of natural elements. This dearth prevented people from truly accessing and enjoying nature.⁸⁶ Bailey hoped to form a link between people and nature during their formative years to prevent people from living their lives exclusively in unnatural urban areas.

Bailey concluded *The Nature Study Idea* with answers to inquiries from teachers, reminding them that they need not be experts to use nature study teaching methods. The teacher merely needed to encourage inquisitiveness and guide students to interact with nature. He noted children should have experience with growing plants, and suggested a slew of classroom activities for teachers including creating a school garden, giving children window boxes with plants, creating terrariums, aquariums, and museums with specimens of vegetables, flowers, grasses, and fruits collected by students. He recommended taking

⁸⁴ Agassiz and his educational methods are discussed more in depth in Chapter 3.

⁸⁵ Bailey, *The Nature-Study Idea*. 16-8.

⁸⁶ Bailey, *The Outlook to Nature* 8.

students on field trips to neighboring farms, factories, woods and fields.⁸⁷ He also suggested that children cultivate their sympathy towards nature through the channels of poetry and nature writing.⁸⁸ Bailey considered poetry to be a way to encourage sentiments towards nature and connect with it on a more spiritual level.

Bailey distinguished nature study from the rigid structure of scientific logic. Rather than studying botany, entomology and geology from books, children would learn about plants, insects and the physical environment firsthand. The intent was to develop “certain intellectual powers,” through the use of natural materials, not to transmit specific facts about them.⁸⁹ Without a confining, formal introduction to the subject, children would develop keener observation skills and curiosity. They would first connect with aspects of nature on a visceral, experiential level, and later, with the aid of books, augment this knowledge with more encyclopedic information. This process marked a distinct break from the traditional scientific method and modes of efficiency and management that were popular during the time. It exemplified Bailey’s frustrations with purely empirical and materialistic conceptions of nature. Bailey steered the nature study pupil away from methodology towards direct observation. He compared this knowledge of the external world to the manner in which artists and poets know the world. “It appeals to them in its moods. Yet it is as real to them as to the analyst.”⁹⁰

Due to this more fluid style of learning, the teaching of nature study had no specifically regulated methods. The most important aspect in implementing nature study was for the pupil to spend time outside. Bailey agonized over the growing trend for people to

⁸⁷ Bailey, *The Nature-Study Idea*, 231-4.

⁸⁸ Bailey himself wrote numerous books of nature poetry.

⁸⁹ Bailey, *The Nature-Study Idea* 30-31.

⁹⁰ *Ibid.*, 35.

spend increasingly more of their lives indoors. He blamed the encroaching barrier between people and nature in part on the single minded focus of improving the comforts of the home to the point that there would never be a need to leave.⁹¹

Nature study would enrich and broaden lives because, in Bailey's view, "happiness is nothing more nor less than pleasant and efficient thinking, coming from a consciousness of the mastery, or at least the understanding of the conditions in which we live."⁹² Those immersed in mathematical figures, commerce and city entertainment would not have a direct access to this happiness. He also wrote that "no man is content and happy who is out of sympathy with the environment in which he is born to live."⁹³ He advised that people start by taking the time to observe their backyard or garden. In keeping close to the elements, Bailey was convinced that people would remain youthful, develop a spiritual connection to nature, and thus be happier.⁹⁴

Others shared Bailey's mission to promote nature study, including a Professor of Nature-Study named Anna Botsford Comstock. Bailey appointed her to the position as Cornell's first female professor in 1899. Comstock understood the importance of learning science from direct experience from nature. Bailey and Comstock traveled throughout rural regions of the country to learn the concerns of teachers and parents and the needs of country schools.⁹⁵ In 1911 Comstock published a *Handbook of Nature Study* to serve as a guide for nature study teachers. In the spirit of nature-study, Comstock cautioned readers that her handbook was meant only as a reference, and hoped that it would aid in teaching children to

⁹¹ Bailey, *The Outlook to Nature*, 95.

⁹² Bailey, *The Nature-Study Idea* 50.

⁹³ Bailey, *The Outlook to Nature*, 34.

⁹⁴ *Ibid.*, 49.

⁹⁵ Liberty Hyde Bailey, "Some Reminiscences of the Development of the American Country Life Movement." Article, 1943. Box 16, Folder 26. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 6.

“learn early to read nature’s truths with their own eyes,” so that “it will matter little to them what is written in books.”⁹⁶ Her manual included encyclopedic-type information on animals, plants, and the earth and sky, with excerpts of Bailey’s *Nature-Study Idea* peppered throughout.

Comstock lauded nature study for sharpening the observational skills of children and promoting self-reliance through self-discovery. She also considered nature study to provide a child with practical knowledge, a familiarity with natural processes and weather patterns that could help them in the event of emergencies. Even more significantly, Comstock noted that nature study would affect the moral development of children. As an example, Comstock decried hunting as a pastime for finding respite in nature and hoped that with deep understandings of nature and animals, people “shall be enabled to enjoy nature through seeing how creatures live rather than watching them die.”⁹⁷ To further her point, she reminded teachers of their ability to instill in their pupils “a respect for the rights of all living beings to their own lives” and thus transform “carelessness to thoughtfulness and cruelty to kindness.”⁹⁸ She argued that the personal connections children made to animals and plants would encourage a biocentric outlook, expanding their applications of ethics to include the natural world around them.

Bailey echoed Comstock’s sentiments when he wondered if the successful application of nature study would result in an increase in vegetarians. He saw this as an eventual outcome of our “enlargening spiritual outlook.”⁹⁹ He based this idea on his observations that people were beginning to speak out against shooting trapped pigeons, and that President

⁹⁶ Anna Botsford Comstock, *Handbook of Nature Study* (Ithaca, NY: Comstock Publishing Company, Inc., 1945, orig. 1911) xi.

⁹⁷ *Ibid.*, 2.

⁹⁸ *Ibid.*, 12

⁹⁹ Bailey, *The Nature-Study Idea*, 149.

Roosevelt had listed one of the purposes of the forest reserves as maintaining populations of wild creatures. Both Comstock and Bailey recognized that the development of a sympathy with nature would logically lead to an expansion of ethics. Though Bailey and Comstock only explicitly mention extending ethics to include animals, this line of thinking would later lead to Bailey including of nature itself into his ethical framework. Bailey concluded his discussion of nature study with the hope that eventually it would not need to be promoted because it would disseminate into curricula and become an integral part of American education.¹⁰⁰

Bailey was hopeful that nature study would instill in children a connection with nature early in life that would remain after they reached adulthood and came into influential positions relating to city life, resource management and policy. He also hoped that it would encourage farmers to view their occupation as a means of connecting to and maintaining a link with nature. With these nature sensibilities and farmer liaisons he envisioned an industrial society that would harmonize with nature rather than obliterate it. Though Bailey identified with the human need to conserve in order to supply human needs in perpetuity and for aesthetic pleasure, he distinctly moved away from anthropocentric thinking with his emphasis on directly interacting with raw natural materials, whether through farming or self edification. In doing so, Bailey argued that natural elements offered something greater to humans than pure enjoyment or sustenance—they dictated the greater system that humans needed to understand and participate in, so as to endure in nature.

Bailey also drifted away from anthropocentrism by recognizing that as humans, we interpret nature in human terms, and that our interpretations often reflect ourselves. Rather than attempting to understand every facet of nature, and determine its purpose and uses for

¹⁰⁰ Ibid., 246.

humans, people should try, according to Bailey, to accept elements of the environment for their own sake. It was of utmost importance to Bailey that the nature study student become attuned to nature in a holistic sense, not that he or she understand specific organisms and natural processes. He hoped to move society towards an “intrinsic view of animals and plants,”¹⁰¹ in which elements of nature were no longer commodities or even creations present for the enjoyment of people—they existed of their own accord. Bailey thus combined a variety of popular responses to the drastic environmental changes during the industrial period and developed these initial responses into a more philosophical discourse on the nature of the environment and the role of the human within it. He would further elaborate on his departures from mainstream anthropocentrism as he incorporated his spiritual and religious views in his developing environmental philosophy.

¹⁰¹ Ibid., 129-30.

Chapter 2: The Divine in Nature

“The aspect of nature is devout...
the happiest man is he who learns from nature the lesson of worship.”¹
—Ralph Waldo Emerson

This chapter examines how religion and spirituality have dictated human interactions with nature in the past. It also demonstrates how new trends in religion and spiritual thought arising in the nineteenth and early twentieth centuries shaped John Muir and Liberty Hyde Bailey’s biocentric philosophies. Both Muir and Bailey offered an alternative to the entrenched anthropocentric approach to nature propounded by Christianity. Muir’s pantheistic religious philosophy, developed in part by his mentor Jeanne C. Carr, enabled him to see the divine in all aspects of nature and eventually to develop a spiritual, ecologically egalitarian world view. Bailey reinterpreted the traditional Christian view that presented people as conquerors of the earth, instead characterizing people as stewards of the environment, ordained by God as caretakers of nature during their brief tenure on the planet. Bailey’s and Muir’s philosophies differed; however, through their common spiritual relationship with nature, both arrived at biocentric philosophies, and cited their theological interpretations as justification.

Nature and American Religious Thought

Muir and Bailey’s unorthodox theologies must be understood in the broader context of American religious thought—both the traditional Christian approach to nature, and a variety of departures from it in mid-nineteenth and early twentieth centuries. The former model was based on a literal interpretation of the Old Testament story of creation in Genesis. This version dictated that God gave people dominion over the entire earth: “And God said to

¹ Ralph Waldo Emerson, *Nature*, orig. 1836, *Constructing Nature: Readings from the American Experience*, eds. Richard Jensen and Edward E. Lotto (Upper Saddle River, NJ: Simon & Schuster, 1996) 97.

them, ‘Be fruitful and multiply, fill the earth and subdue it; and rule the fish of the sea, the birds of the sky, and all the living things that creep on earth.’”² “Subdue,” from the Hebrew verb *kavash*, and “rule,” the Hebrew verb *radah*, throughout the Old Testament indicated violent takeover; they also appeared in discussions of slavery.³ A common interpretation of this verse is that God gave humans free reign to conquer nature. In a well-known 1967 treatise, “The Historical Roots of Our Ecological Crisis,” historian Lynn White Jr. attributed traditional Western approaches to the environment to this theological interpretation. He argued that Christian beliefs of man created in the image of God and therefore at the top of the hierarchy of living beings dominated Western societal norms for 1,700 years. Woman served as man’s company, with the rest of creation—the animal kingdom and earth—existing for his whims. White argued that Christianity, the most anthropocentric religion in the world, promoted exploitation over coexistence.⁴

This view of nature persisted and intensified with the arrival of the first American settlers. The undeveloped American landscape posed great physical challenges and barriers. The threat of disease, wild animals, noxious insects, natural disasters and the terrain that resisted cultivation made the environment foreboding, and according to Puritans, ungodly and savage.⁵ Similarly, later pioneers proudly considered themselves conquerors of the wild country. A mid-nineteenth century guidebook for settlers promoted the pioneer lifestyle, noting that participants could claim, “I vanquished this wilderness and made the chaos pregnant with order and civilization, alone I did it.”⁶ They viewed nature from a utilitarian

² Genesis 1:28

³ Roderick Nash, *The Rights of Nature: A History of Environmental Ethics* (Madison, WI: The University of Wisconsin Press, 1989) 90.

⁴ Lynn White Jr., “The Historical Roots of Our Ecologic Crisis,” orig. 1967, *The Environmental Ethics and Policy Book*, eds. Donald VanDeVeer and Christine Pierce (USA: Wadsworth, Inc., 1994) 49.

⁵ Roderick Nash, *Wilderness and the American Mind* (New Haven, CT: Yale University Press, 1973) 34.

⁶ *Ibid.*, 42.

standpoint and considered it their patriotic duty to subjugate and convert the wilderness to do their bidding.

During the mid-nineteenth century however, various departures from strict Calvinist orthodoxy and literal interpretations of the Christian Bible challenged these traditional religious views regarding nature. These included the Liberal Protestant Movement, Transcendentalism, Theosophy, and a new-found interest in Asian theologies. Though these various strands of new religious thought comprised diverse and complex theological principles, they shared a common theme of moving away from traditional Christian formalism towards spirituality and ethics. The American liberal movement, most prominent between the 1870s and 1930s, emphasized humanism, anti-formalism and ethics, promoting a more accessible God, one residing in both humans and nature.⁷ Asian theology, primarily Hinduism and Buddhism, which also gained popularity in nineteenth-century America, largely inspired these anti-formalist trends. Asian religion inspired Joseph Priestley's Unitarian movement, which in turn strongly influenced Transcendentalism.⁸ Transcendentalism influenced the formation of the Theosophy movement and its sibling Spiritualism, which aimed to transcend the material world in order to reach the spiritual world.⁹ In the early nineteenth century, prominent Transcendentalist figures Ralph Waldo Emerson and Henry David Thoreau, were drawn to Asian thought, specifically Hinduism and Indian concepts of mysticism.¹⁰ Both Emerson and Thoreau capitalized on the Asian notion of the divine permeating humans and nature.

⁷ William R Hutchison, *American Protestant Thought: The Liberal Era* (New York: Harper Torchbooks, 1968) 1-2. For a more in depth discussion of the American liberal movement, see Hutchison's Introduction.

⁸ Carl T. Jackson, *The Oriental Religions and American Thought* (Westport, CT: Greenwood Press, 1981) 32.

⁹ Christopher Bamford, ed. *Spiritualism, Madam Blavatsky, & Theosophy: Lectures by Rudolf Steiner* (Great Barrington, MA: Anthroposophic Press, 2001) 30. See Chapter 1 on Theosophy and Spiritualism.

¹⁰ Jackson, *The Oriental Religions and American Thought*, 53, 66.

Emerson and Thoreau's contributions deserve comment owing to their impact on American environmental thought through the late nineteenth and twentieth centuries and their influence on John Muir's own personal theological journey. Transcendentalism preached that spiritual redemption, beauty, truth and God resided in nature. Infused with religiosity, a once cruel and brutal wilderness became more than an expendable commodity—it became a spiritual escape that could transform the soul. Emerson believed that by submerging themselves in “essences unchanged by man,” people would more readily connect with God and obtain truth.¹¹ In *Nature*, he wrote of the spiritually transformative properties of nature. “Standing on the bare ground, my head bathed by the blithe air, and uplifted into infinite space, all mean egotism vanishes. I become a transparent eyeball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part or particle of God.” It was experiences like these that led him to conclude, “in the wilderness, I find something more dear and connate than in streets or villages.”¹²

Though Emerson valued the direct relationship he shared with nature, he never questioned human domination over nature. Nature, as a conduit for spiritual elevation, still existed for human use, albeit spiritual rather than monetary. Emerson lauded scientific and technological progress that would control nature, and never stepped away from anthropocentrism, exclaiming, “Know then, that the world exists for you. For you is the phenomenon perfect.”¹³ Furthermore, his notion that nature consisted of essences unalterable

¹¹ Emerson, *Nature*, 84.

¹² *Ibid.*, 86.

¹³ Peter Coates, *Nature: Western Attitudes Since Ancient Times* (Los Angeles, CA: University of California Press, 1998) 136.

by man reflected his ignorance of the finite quality of nature and the drastic modifications that could be caused by human hands.¹⁴

Emerson profoundly affected the life of Henry David Thoreau, who heeded Emerson's advice and secluded himself in the wilderness of Walden Pond to tap into the divine essences that emanated from the solitude of untouched wilderness. Thoreau's early attitude towards the progress of technology in society was more skeptical than Emerson's. He characterized the "'commercial spirit' wrought by industrialization as a virus infecting his age."¹⁵ For Thoreau, the existence of wilderness for personal contemplation was essential. Thoreau was also influenced by Alexander Von Humboldt's *Aspects of Nature*, and Gilbert White's *The Natural History of Selborne*, works by eighteenth century proto-ecologists who promoted a holistic picture of nature.¹⁶ He continually found himself humbled in the face of nature. "Shall I not have intelligence with the earth? Am I not partly leaves and vegetable mould myself?" he asked.¹⁷ Thoreau broke down the Genesis hierarchy reconfiguring people as a part of nature, animated by the "Oversoul," or the divine force that held together the elements of nature.¹⁸ His departure from anthropocentrism and inclusion of humans within nature led Thoreau to flirt with the application of ethics to the relationship between humans and nature. Though Thoreau never discussed the rights of nature outright, Historian Roderick Nash argued that he anticipated the application of rights to the non-human elements in nature, citing his admonition that, "If some are prosecuted for abusing children, others

¹⁴ Ibid., 137.

¹⁵ Nash, *Wilderness and the American Mind*, 87.

¹⁶ Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed., (USA: Cambridge University Press, 1994) 65-6.

¹⁷ Henry David Thoreau, "Solitude," *Walden*, orig. 1854, *Constructing Nature: Readings from the American Experience*, eds. Richard Jensen and Edward E. Lotto (Upper Saddle River, NJ: Simon & Schuster, 1996) 117.

¹⁸ Nash, *The Rights of Nature*, 36-7.

deserve to be prosecuted for maltreating the face of nature committed to their care.”¹⁹

Despite this foray into uncharted ethical grounds, Thoreau’s ideas did not enter into popular thought and few Americans read his ideas until his journal entries were published in 1906.²⁰

Both Emerson and Thoreau provided the impetus to break down the traditional Judeo-Christian, pioneer mentality that nature should unquestionably yield to human will; they introduced non-tangible uses for nature and cultivated an appreciation for America’s unique wilderness. But they stopped short of making the leap from the spiritual appreciation of wilderness to a biocentric world view. This breakthrough was left to the native Scot, John Muir.

John Muir: Background and Philosophy

John Muir’s religious journey took him from the rigidity of his father’s stringent Calvinism to the depths of the uninhabited wilderness. The third of eight children, John Muir was born in Scotland to Daniel and Ann Muir in 1838. The Muir children were raised in a strict Christian home, subsisted on a plain, meager diet, and were required by their father to recite hymns and Bible verses from memory. John endured his father’s method of discipline, which he administered in “the old Scotch fashion of whipping for every act of disobedience or of simple, playful forgetfulness.”²¹ Eventually, Daniel Muir diverged from the Calvinistic doctrine of election that preordained some individuals to heaven and doomed the rest to hell.

¹⁹Ibid., 37

²⁰ Ibid., 38. Later in Thoreau’s life he encountered the raw and dangerous Maine wilderness and reevaluated his previous philosophy. Though he maintained the importance of natural landscape, he also valued the intellectualism and refinement of culture. His solution was to arrive at a happy medium where the wild and the cultivated existed in equilibrium, such as in rural settings. In his words, America required “some of the sand of the Old World to be carted on to her rich but as yet unassimilated meadows.” (Henry David Thoreau, from *Walden* in Nash’s *Wilderness and the American Mind*, 93.)

²¹ William Frederic Badè. *The Life and Letters of John Muir*, vol. 1 (New York: Houghton Mifflin Company, 1924) 47.

He argued passionately for the liberty and equality of all men,²² and his zealotry led him to uproot the Muir family to the Wisconsin wilderness of America in 1849.

On the Wisconsin farm, young John Muir lived an active and taxing life, hunting, chopping wood, carrying water, harvesting crops, and participating in religious activities over the course of sometimes sixteen or seventeen hour days.²³ Despite the backbreaking work, Muir's immersion in the Wisconsin wilderness delighted him. In later reminiscences he contrasted his nature encounters with his father's teaching methods, describing "nature streaming into us, wooingly teaching her wonderful glowing lessons, so unlike the dismal grammar ashes and cinders so long thrashed into us; every wild lesson a love lesson, not whipped but charmed into us. Oh, that glorious Wisconsin wilderness!"²⁴

As a young pioneer, Muir encountered the traditional settler mentality that extolled the subjugation of nature which was reinforced by his father's strict Biblical interpretation of man as dominant over nature. Muir however, questioned many of his father's beliefs and practices. In particular he criticized his father's rigorous work mentality that made his family into "slaves through the vice of over-industry," comparing their methods of grain extraction to grave digging.²⁵ As a young boy he developed an empathy for animals, viewing them as individual creatures with personalities. He recalled mourning with his playmates over the beautiful gray geese who were hunted and listening to "some smug, practical old sinner" justify it in anthropocentric, Judeo-Christian terms. The man argued that the geese were

²² Linnie Marsh Wolfe, *Son of the Wilderness: The Life of John Muir* (New York: Alfred A Knopf, Inc., 1945) 21.

²³ John Muir, *The Story of My Boyhood and Youth*, orig. 1913, *The Wilderness Journeys* (Edinburgh: Canongate Books Ltd, 1996) 93.

²⁴ Badè, *The Life and Letters of John Muir*, vol. 1, 38.

²⁵ *Ibid.*, 49.

made to be killed, “sent for us as the quails were sent to God’s chosen people...and I must confess that meat was never put up in neater, handsomer-painted packages.”²⁶

In one telling story, Muir recalled a conversation between his father and a neighbor concerning Native Americans and land rights. The neighbor remarked that it was a shame that the settlers had displaced the Native Americans from the land upon which they had subsisted. Daniel Muir responded that it was the will of God to remove them from the land which they had not been using to its full potential and to instead give it to the Scotch, Irish and English farmers who could utilize it more effectively. The neighbor retorted that the first immigrants to arrive to America had been inefficient farmers, and their deficiencies would not have justified Native American displacement. John Muir remembered conceding to the logic of his neighbor rather than siding with his father’s religious justification.²⁷

Muir only continued to distance himself from his parents’ religious ideology as he matured and developed his love for nature. Muir’s mother, Ann, shared his appreciation of nature. She enjoyed collecting wildflowers in the Wisconsin woodlands and delighted in later reading her son’s detailed descriptions of the California scenery.²⁸ Muir’s father however, viewed John’s wilderness adventures as superfluous, detracting from the worship of God and spreading of gospel. Muir’s later forays into glaciology further perturbed his father when they clashed with the Biblical account of the creation of the world.²⁹ Despite

²⁶ Muir, *Story of My Boyhood and Youth*, 75.

²⁷ *Ibid.*, 100-1

²⁸ Badè, *The Life and Letters of John Muir*, vol. 1, 17.

²⁹ Muir studied the impact of glacier formations on the topographical features of mountain ranges in the Sierra and Yosemite Valley beginning in the mid 1870’s. He published a variety of articles detailing his glacial studies and embarked on a number of trips to the Arctic and Alaska to study and experience the Northern glaciers from 1879 to 1880. Though he was not formally trained in glaciology, he was considered by fellow scientists to be a leading expert. See Robert Engberg and Bruce Merrell, ed., *John Muir: Letters from Alaska*, (Madison, WI: The University of Wisconsin Press, 1993) and Chapter 9: The Cruise of the Corwin in Aaron Sachs, *The Humboldt Current*, p. 305-332.

geological facts, his father stubbornly maintained, “Let God be true and every man a liar.”³⁰

He pleaded with his son to cease his nature pursuits, warning him:

You cannot warm the heart of the saint of God with your cold icy-topped mountains. O, my dear son, come away from them to the spirit of God and His holy word, and He will show our lovely Jesus unto you...It will kindle a flame of sacred fire in your heart that will never go out, and then you will go and willingly expend it upon other icy hearts...³¹

In complete contrast with his son, Daniel Muir considered the icy mountains concurrent with icy, ungodly hearts, wholly unreligious. For him, the spirit of God lay in traditional texts and missionizing and not in the natural landscape. In his old age and fanaticism, Daniel Muir decided to give up his farm to become a missionary. Muir wrote to his brother David, worried that their father’s preoccupation constituted a “moral disease,” urging his brother to persuade their father not to uproot the family and move them to the “artificial fields and dingy towns of England,” where their two youngest sisters would “wilt and shrivel to mere husks.”³² Unlike his father, Muir considered nature, and not religious doctrine, to sustain the body and the soul.

Despite Muir’s differences with his father, evidence of his Christian training and religious background are interspersed throughout his nature writings and journals. The fervent passion his father had for fulfilling the will of God through Christian dogma resonated in Muir, though he channeled it into a passion for communing with the divine through nature. This sentiments increased after Muir left home at the age of twenty-two for the University of Wisconsin at Madison. As a young boy he had created a prototype alarm

³⁰ Badè, *The Life and Letters of John Muir*, vol. 1, 18.

³¹ Daniel Muir to John Muir, Portage City, March 19, 1874 in Badè, *The Life and Letters of John Muir*, vol. 1, 21.

³² John Muir to David Muir, Yosemite Valley, March 1, 1873 in Badè, *The Life and Letters of John Muir*, vol. 1, 24.

clock he called an “early-rising machine,”³³ which led him to the State Agricultural Fair of 1860 where he won awards for this and other inventions, and received several job offers. Muir however, was more interested in the intellectual life he found at the University of Wisconsin, where he encountered theologians and scientists alike who deviated from his father’s theology.³⁴ He studied botany and geology with Professor Ezra Carr, and read the works of the eminent Harvard scientist Asa Gray. From classics professor James Butler and Carr’s wife, Jeanne C. Carr, he learned about William Wordsworth, Emerson, Thoreau, and Transcendentalist thought. Jeanne C. Carr became Muir’s friend, mentoring and corresponding with him during his subsequent nature travels.

Thirteen years his senior, Jeanne Carr was a devout woman with a deep connection and love of nature. Her strict Calvinist upbringing mirrored that of to Muir, but like her friend Ralph Waldo Emerson, she came to see nature as a conduit to the spiritual. A proponent of nature study methods, she invited students to study nature through her garden. In 1869 she and her husband moved to San Francisco when he accepted a professorship in agriculture, chemistry and horticulture at the University of California in Oakland. When he resigned from this post in 1875 to become the Superintendent of Public Instruction for the State of California, he appointed Jeanne as the Deputy Superintendent, making her the first woman to hold public office in California. Carr’s interested extended beyond nature to include politics and women’s rights.³⁵ Throughout Muir’s life she discouraged him from

³³ Badè, *The Life and Letters of John Muir*, vol. 1, 60. The “early rising machine,” was a physical alarm clock—a clock connected to a bed. At a preset hour of the morning the bed would rise the occupant to an upright position. Muir also created a variety of clocks, thermometers and a self-setting sawmill. Also see Badè, *The Life and Letters of John Muir*, vol. 1, 78-9.

³⁴ Nash, *Wilderness and the American Mind*, 123.

³⁵ Bonnie Johanna Gisel, ed, *Kindred and Related Spirits: The Letters of John Muir and Jeanne C. Carr* (Salt Lake City, UT: The University of Utah Press, 2001) 7.

becoming a complete hermit, serving as his link to civilization and urging him to remember the role of humans in the greater framework of nature.³⁶

Carr's personal theology and Muir's scientific studies bolstered his religious transformation. Darwin's *Origin of Species*, published in 1859, its alternative to the Biblical account of creation particularly affected Muir. In Liberal Protestant fashion, Muir shied away from literal Biblical interpretations to embrace more flexible ones. According to one of Muir's earlier biographers William Frederic Badè, Muir recognized that "the alleged antagonism between natural science and the Bible was due to the accumulated number of past generations of faulty Bible teaching." By disregarding this past and embracing "a more rational historical interpretation of the Bible," Muir reconciled science and religion.³⁷

In 1863, only two and a half years into his studies, Muir decided to leave "the Wisconsin University for the 'University of the Wilderness.'"³⁸ Though Muir had originally planned to attend the medical school at the University of Michigan, in 1864 he fled to Canada to avoid the draft for the Civil War. There he spent time collecting botanical samples, working on new inventions, and began a correspondence with Jeanne Carr began a correspondence that lasted thirty years. Carr recognized in Muir a kindred spirit attuned to nature and religion in a manner similar to hers. She cultivated Muir's interest in botany, provided moral support in his wilderness wanderings, published some of his works, and even found him a wife.³⁹ She supported and identified with Muir's spiritual journey and in contrast with his father, encouraged him to nurture his interest in nature.

³⁶ Carr was instrumental in preparing Muir's writings for publication. For his Yosemite journal she requested that in addition to descriptions of the landscape, mountains and ice that he write about humans. Ibid., 159. When Muir began to compile a "Yosemite Year Book" divided by the season she again suggested, "Try your pen on some of the humans, too. Get sketches at least. I think it would be a beautiful book." Ibid, 171.

³⁷ Badè, *The Life and Letters of John Muir*, vol. 1, 146.

³⁸ Muir, *The Story of My Boyhood and Youth*, 132.

³⁹ Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, xiii.

Carr made several suggestions to Muir early in his travels that profoundly affected his philosophy towards nature. The first suggestion was to look for *Calypso borealis*, a rare white orchid. Muir successfully located the orchid during his botanical excursions in Canada in June, 1864 in what proved to be a spiritually awakening event. While traveling along a stream bank Muir discovered the lone, pure buds of the white *Calypso borealis*. He wrote to Carr, “I never before saw a plant so full of life; so perfectly spiritual...I sat down beside them and wept for joy.”⁴⁰ Muir realized that heretofore, the flowers existed entirely separate from people, growing only for their own sake. He sat by the plants for the remainder of the afternoon, contemplating the relationship between natural elements and humans. He reflected, “Are not all plants beautiful?...Would not the world suffer by the banishment of a single weed?”⁴¹ Muir reflected to Carr on the convergence of his piety and love for nature in an account that was reproduced in the *Boston Recorder* by Muir’s old Wisconsin professor James Butler, the first of many of Muir’s writings to be published.⁴²

By 1866 Muir acknowledged to Carr that he had rethought the relationship between religion and nature. “It may be a bad symptom, but I will confess that I take more intense delight from reading the power and *goodness* of God from ‘the things which are made’ than from the Bible. The two books, however, harmonize beautifully, and contain enough of divine truth for the study of all eternity.”⁴³ Muir carried out this philosophy in his capacity as a Sunday school teacher. Rather than formally studying theological texts, he took his

⁴⁰ Stephen Fox, *John Muir and His Legacy* (Boston, MA: Little, Brown and Company, 1981) 43. Excerpt from *Boston Recorder*, Dec. 21, 1866.

⁴¹ *Ibid.*, 44.

⁴² Carr to Muir, Madison, March 15, 1867, in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 42. Though Butler published Muir’s writing without permission, in his later memoirs, Muir ignored this fact.

⁴³ Muir to Carr, “The Hollow” January 21, 1866 in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 35.

students outside to teach them botany as an alternative form of worship.⁴⁴ Carr validated Muir's declaration, professing that she liked him for his "individualized acceptance of religious truth" and that she felt "a deep sympathy in it."⁴⁵ She herself had experienced spiritual epiphanies in nature and in her personal manuscripts wrote of her first glance from Inspiration Point at the Yosemite Valley. Overcome with the powerful expanse of natural beauty, Carr had crouched under a boulder, closed her eyes and experienced a communion with the divine powers coursing through nature,⁴⁶ a similar experience which Muir would undergo when he reached Yosemite.

Muir supported his botanical excursions by making broom handles in a Canadian factory. Increasingly drawn to the life a vagabond nature wanderer, he longed to immerse himself in the solitude he had experienced during his *Calypso* epiphany. "How intensely I desire to be a Humboldt!"⁴⁷ he wrote to Carr in the September of 1865, recalling the nature explorer Alexander von Humboldt who had traveled throughout the Americas a century before and formulated his own philosophy on the unity of nature and destructive tendencies of man.⁴⁸ After a fire destroyed the broom factory in March 1866, Muir left Canada for Indianapolis where he worked unhappily at Osgood & Smith, a carriage-material factory. Carr recognized his potential as a nature explorer and philosopher and sent him a copy of *The Stonemason of Saint Point* by Alphonse de Lamartine which she suggested he read amidst his industrial pursuits.⁴⁹

⁴⁴ Fox, *John Muir and His Legacy*, 45.

⁴⁵ Carr to Muir, Madison, October 12, 1866 in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 38.

⁴⁶ Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 5.

⁴⁷ Muir to Carr, Trout's Mill, near Meaford, September 13, 1865 in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 29.

⁴⁸ See mention of Humboldt in Chapter 1.

⁴⁹ Carr to Muir, Madison, December 16, 1866 in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 40.

Carr drew similarities between Muir's philosophical leanings and that of the stonemason in Lamartine's book. The stonemason found the divine in nature and extended his compassion for animals to sedentary trees, flowers and mosses. From there he illustrated the interconnectedness of all earthly elements, including people:

Have we not, as I sometimes say to myself, a true relationship with this earth whence we spring?...Is there not between her and us a true relationship of body, so that when we take up a handful of sand, or a clod of earth from the hillocks which have borne our weight, we can say to this grain of sand, 'Thou art my brother;' and to that clod of earth, 'Thou art my mother or my sister?' And does not the earth seem to love us also, and to say to us, 'Yes, I know you; you are of me; each of your limbs and your bones, it was I who gave them to you!'⁵⁰

The narrator of the story felt the passion in the stonemason's words, describing it as "some especial worship and hope in this universal and pious worship of the creation."⁵¹ Muir identified with the stonemason's philosophy and elaborated on the concept of interconnected elements of nature in his journal and correspondence with Carr.⁵²

Yet another suggestion Carr made to Muir was to visit Yosemite Valley and embrace the Humboldt lifestyle of exploration. In early April of 1867 while working at the factory, Muir's hand slipped and a file pierced the cornea of his right eye, rendering him temporarily blind. His first reaction was to cry out, "My right eye gone! Closed forever on all God's beauty!"⁵³ As his eye healed however, he gradually regained his sight. Carr wrote to comfort him, and suggested that a friend read to him a description of the Yosemite Valley, which she described as "God's landscape gardening," and the "house of our Father."⁵⁴ A month after his accident, Muir resolved to leave industry and to turn to his true calling in the wilderness. Muir embarked on the first of many journeys: a thousand mile hike from Indiana

⁵⁰ Alphonse de Lamartine, *The Stonemason of Saint Point* (New York: Harper & Brothers, Publishers, 1851) 49.

⁵¹ *Ibid.*, 50.

⁵² Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 4.

⁵³ Wolfe, *Son of the Wilderness: The Life of John Muir*, 104.

⁵⁴ Carr to Muir, Madison, April 15, 1867 in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 49.

to the Gulf of Mexico. From there he traveled to San Francisco, visited the San Joaquin valley, and eventually visited the Sierra and Yosemite Valley. He also visited Alaska on seven different occasions.

Throughout his travels, Muir wrote letters and kept detailed journals of his deepening connection with nature, personal philosophy and faith, and rich descriptions of the sites he encountered. His early travels and writings reflect an intense, transcendental and religious connection to nature. His personal writings described nature using religious terms and iconography, conveying his reverence for the landscape, plants, and animals. These spiritual links led him to reject anthropocentric views of nature and embrace the interconnectedness of all elements of nature, fostering the formation of a biocentric ethic.

When he first embarked on his wilderness journeys, Muir focused on the study of plant life comprising the American landscape. A skeptical blacksmith challenged his plant studies as frivolous. His response drew upon Biblical references, comparing his work to that of King Solomon amongst the great cedars of Lebanon. He quoted Jesus' instructions to his to "consider the lilies how they grow," and to "compare their beauty with Solomon in all his glory." The blacksmith remarked that he had never conceived of plants in that fashion.⁵⁵ Thus in the course of his first wilderness journey, Muir commenced his career of disseminating alternative, spiritual perspectives on nature. Though Muir drew upon the wealth of textual knowledge imparted upon him by his father, he himself would not have required such scripturally based justification. For him, the elements of nature themselves were a "divine manuscript," rendering him humble and awed before the power of God.⁵⁶

⁵⁵ John Muir, *A Thousand Mile Walk to the Gulf*, orig. 1916, *The Wilderness Journeys* (Edinburgh: Canongate Books Ltd, 1996) 12-13.

⁵⁶ John Muir, *My First Summer in the Sierra*, orig. 1911, *The Wilderness Journeys* (Edinburgh: Canongate Books Ltd, 1996) 76.

Jeanne Carr put forth a similar philosophy in her own Yosemite travels, commenting that “All that I have seen only deepens the conviction that it is only from our Great Mother that we really learn the lessons of our Father’s love for us.”⁵⁷

Muir’s perception of nature as a divine source persisted throughout his writings, as evidenced by his consistent use of religious jargon and metaphors. The soaring mountains of the Yosemite to Muir were a “temple of God,”⁵⁸ and the tourists were pilgrims visiting a holy shrine. He was confident that once “they are fairly within the mighty walls of the temple and hear the psalms of the falls, they will forget themselves and become devout.”⁵⁹ When clouds rolled over the “Sierra Cathedral,” peaks of the Tuolumne, Merced, North Fork and San Joaquin, they became “overshadowed like Sinai.”⁶⁰ Just as observing nature represented scriptural study to Muir, the sounds of nature were “thrilling like harp strings, while incense is ever flowing from the balsam bells and leaves.” Following this mode of thought, and echoing Transcendental thought, Muir found it logical that the least touched elements of nature were the holiest. “The hills and groves” that served as “God’s first temples” were in his eyes the most holy places for worship. It was ironic that “the more they are cut down and hewn into cathedrals and churches, the farther off and dimmer seems the Lord himself.”⁶¹ For Muir, destruction of natural resources and man-made creations muted the spiritual experiences in untouched nature.

As a pilgrim himself in the holy natural surroundings, Muir became a missionary for nature, preaching its gospel. He tried to convince a shepherd he encountered to walk to the

⁵⁷ Carr to Muir, Yosemite, July 30, 1869, Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 89.

⁵⁸ Muir, *My First Summer in the Sierra*, 76.

⁵⁹ *Ibid.*, 59.

⁶⁰ *Ibid.*, 140.

⁶¹ *Ibid.*, 84.

cliff of a mountain in order to take in the expansive, glorious view. The shepherd however, was impervious to the stone sermons that Muir heard, and saw Yosemite as a mere hole in the ground with dangerous falling rocks. Muir tried to dissuade him of this notion to no avail and concluded that his soul was asleep, “or smothered and befogged beneath mean pleasures and cares.”⁶² To him, indifferent trout fishers were like churchgoers fishing in baptismal fonts while ignoring the most moving of sermons. In this scenario, the orator was God, preaching through the most sublime water and geologic structures.⁶³

During his time in Yosemite, Muir baptized himself in the waterfall, where “every bolt and spray feels the hand of God.”⁶⁴ This “natural baptism” unified his physical and spiritual being with nature, thus further distancing him from Christian hierarchical traditions. In a letter to his brother David, Muir expressed his disgust for Christian sects who rejected members baptized differently from them and scorned the dogmatism that bred such exclusivity.⁶⁵ Muir sought a more accepting pluralism, boasting to his brother that he had been baptized three times that morning in nature. First by the “balmy sunshine that penetrated to [his] very soul,” then by the “mysterious rays of beauty that emanate from plant corollas,” and finally by the Yosemite waterfalls. He concluded that nature was enough to qualify him for universal acceptance, having baptized him by all three methods—immersion, pouring and by sprinkling.⁶⁶

The sacredness Muir assigned to nature led him to embrace all components of the environment—people, animals, plants, and even microbes, as equal. In doing so, Muir took

⁶² Ibid.

⁶³ Ibid., 110.

⁶⁴ Muir to Carr, Yosemite, April 3, 1871, in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 136.

⁶⁵ John Muir to David Muir, Yosemite, April 10, 1870, in Badè, *The Life and Letters of John Muir*, vol. 1, 217.

⁶⁶ Ibid., 218.

Emerson and Thoreau's Transcendentalism to new heights.⁶⁷ Muir's "baptisms" in the Yosemite waterfalls illustrated a way in which humans could both physically and spiritually connect to the environment. Muir wrote that mountains of the Yosemite sent out "spirit-beams" in a process he described as "losing consciousness of your own separate existence: you blend with the landscape and become part and parcel of nature."⁶⁸ The harmony he personally felt with nature reflected a greater harmony between every unit of nature. To further illustrate this connection, Muir related the landscape to the features of a human face. Just as his humanity melded into nature, nature too reflected human qualities, uniting both entities into one.⁶⁹ By placing man back into the processes of nature, Muir related more fully to plants and animals.

Following this philosophy, Muir deconstructed the common sentiment that plants were "perishable, soulless creatures," and "that only man is immortal." During an encounter with a palmetto, he recounted that the tree told him "grander things than I ever got from human priest."⁷⁰ Rather than viewing them as inanimate, purely scientific specimens, he welcomed plants into the soul-filled community, remarking, "How little we know as yet of the life of plants—their hopes and fears, pains and enjoyments!"⁷¹ He thus dismantled the hierarchy of living organisms that dictated a lower status for plants along the continuum of life. A simple lichen was no less divine than a more complex flower in his eyes. "All of

⁶⁷ To Muir, Thoreau's spell at Walden Pond, constituted "a mere saunter" from Concord and was not particularly solitary or wild. He wrote about visiting Walden Pond to his wife Louie in 1893. See Badè, *The Life and Letters of John Muir*, vol. 1, 268.

⁶⁸ Muir, *A Thousand Mile Walk to the Gulf*, 100.

⁶⁹ Muir, *My First Summer in the Sierra*, 147.

⁷⁰ Muir, *A Thousand Mile Walk to the Gulf*, 44.

⁷¹ *Ibid.*, 10.

these varied forms, high and low, are simply portions of God radiated from Him as a sun, and made terrestrial by the clothes they wear,” he wrote.⁷²

Just as plants gained equality in Muir’s great unified nature, animals too were raised from their subordinate position. Muir first empathized with animals on the Wisconsin farm of his boyhood, observing individual personality traits among horses. Camping alone in the Yosemite, he studied chipmunks, Douglas squirrels, woodchucks, woodpeckers and mosquitoes. He marveled at the sleek structure of deer, and thanked the brown bear, “fussy” fly and energetic grasshopper for their companionship in the woods.⁷³ He saw each animal as equal members in the biotic community, and rejected the notion that certain animals were made explicitly by God for the needs of humans while other more deleterious creatures were considered the works of the devil. He contended that even dangerous animals like alligators, who evoked fear in people were “beautiful in the eyes of God” for they too were a part of God’s creation.⁷⁴

Muir concluded that the sacredness of nature dictated that every animal, plant and human was holy and existed in “divine harmony.”⁷⁵ He maintained that “every purely natural object is a conductor of divinity, and we have but to expose ourselves in a clean condition to any of these conductors, to be fed and nourished by them.”⁷⁶ This “clean condition” was distilled through pure nature immersion, entirely apart from artificial city environments. With his purified vision of natural egalitarianism, he viciously attacked the Judeo-Christian conception that God created the world for man. Muir noted that people considered animals

⁷² John Muir, March 15, 1873, in Linnie Marsh Wolfe, *John of the Mountains: The Unpublished Journals of John Muir* (Boston, MA: Houghton, Mifflin Company, 1938) 138.

⁷³ Muir, *My First Summer in the Sierra*, 81.

⁷⁴ Muir, *A Thousand Mile Walk to the Gulf*, 47.

⁷⁵ *Ibid.*, 34.

⁷⁶ John Muir, February 16, 1873, in Wolfe, *John of the Mountains: The Unpublished Journals of John Muir*, 118.

and plants in terms of utility: creations such as sheep or whales existed only to supply them with food, clothing and oil. This in turn led people to define animals who posed danger rather than aid to humankind as machinations of the Devil. To Muir, this philosophy was fallacious. He maintained that all plants and animals existed not for the whims of humans, but rather for themselves. He denounced the anthropocentrism touted by Biblical man-nature relationships and instead asked, “Why should man value himself as more than a small part of the one great unit of creation?” People were naturally a part of this unit—but so too was the “smallest transmicroscopic creature that dwells beyond our conceitful eyes and knowledge.”⁷⁷ He criticized man’s monopoly on the soul and redefined all creatures, no matter how detrimental or inconsequential to humans as “earth-born companions” and “fellow mortals.”⁷⁸

Logically stemming from this assertion was Muir’s condemnation of the needless killing of wild creatures and insects,⁷⁹ and recreational hunting. With a more fully formed philosophy towards nature, the adult Muir could counter the justification for killing gray geese that he heard in his childhood. In response to a hunter’s remark that God created game for man’s recreation, Muir replied that the same could be said for a bear who kills a hunter. “Men and other bipeds were made for bears, and thanks be to God for claws and teeth so long.” This argument was also reminiscent of the debate Muir overheard between his father and a neighbor concerning the preordained divine right of the settlers to displace the Indians. Muir had no patience for the sort of logic that pitted people against nature and justified it by divine authority. “I have precious little sympathy for the selfish propriety for civilized man,”

⁷⁷ Muir, *A Thousand Mile Walk to the Gulf*, 65-66.

⁷⁸ *Ibid.*, 66.

⁷⁹ Fox, *John Muir and His Legacy*, 45.

he remarked, “and if a war of races should occur between the wild beasts and Lord Man, I would be tempted to sympathize with the bears.”⁸⁰

To further counter this argument, Muir emphasized that God created every animal for its own sake. Dogmas that preached otherwise impeded people from realizing the unified relationships that existed between plants, animals and people and fueled their self-centeredness. He warned, “I have never yet happened upon a trace of evidence that seems to show that any one animal was ever made for another as much as it was made for itself.”⁸¹ From this point in Muir’s philosophical development, he expanded on his biocentric ideas to broach the concept of nature’s rights. “How narrow we selfish, conceited creatures are in our sympathies! How blind to the rights of all the rest of creation! With what dismal irreverence we speak of our fellow mortals!”⁸² Muir relied on the moral implications of his religious interpretation to argue that every element of nature not only existed for its own sake, but had the *right* to exist. In this context, it became immoral to overlook, invalidate, or needlessly destroy anything in nature. By breaking down the hierarchies of humans, animals and plants and replacing it with an egalitarian conception of nature, Muir obliterated anthropocentrism from his personal writings and set forth an entirely new way of approaching the environment. This revolutionary line of thinking would not be fully grasped until the modern environmental movement in America in the 1970s.⁸³

⁸⁰ Muir, *A Thousand Mile Walk to the Gulf*, 58.

⁸¹ John Muir, “Wild Wool,” *The Overland Monthly*, April 1875, *American Environmentalism*, ed. Donald Worster (New York: John Wiley & Sons, Inc., 1973) 189.

⁸² Muir, *A Thousand Mile Walk to the Gulf*, 47.

⁸³ This line of thinking has led some to cite Muir as the founding father of the Deep Ecology movement. See Sachs, *The Humboldt Current*, 316.

Politics, Preservation and the Hetch-Hetchy Valley

Muir's revolutionary recalibration of the nature hierarchy remained for the most part in his personal journals written in the solitude of the wilderness. The extent and fervor of his nature philosophy was not fully conveyed once he entered the public sphere in the latter half of his life. During his days of wandering through Yosemite, his correspondents urged him to maintain a connection with civilization. Jeanne Carr understood Muir's desire to shun the materialism, destruction and selfishness of civilization, but warned him not to lose himself in the solitude of the wilderness. She cautioned her friend that without human interactions, his pursuits could appear selfish.⁸⁴ She published many of his letters in magazines and journals to spread his ideas among the public. Carr also facilitated a meeting between Muir and Ralph Waldo Emerson in 1871. Muir was delighted to meet one of his main sources of inspiration and eagerly showed Emerson his plant collection and sketches. Emerson recognized that Muir's exceptional potential to contribute to society. He told Muir that he looked forward to the time "when your guardian angel would pronounce that your probation and sequestration in the solitudes and snows had reached their term, and you were to bring your ripe fruits so rare and precious into waiting society."⁸⁵ Muir wrote to Carr about Emerson's urgings as well as other scientists who urged him to teach at Harvard. To all of this Muir replied, "I have been too long wild, too befogged to burn well in their patent, high-heated, educational furnaces."⁸⁶

⁸⁴ Carr to Muir, San Mateo, March 28, 1869, in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 83. She wrote, "I hear your voice in the undertones of life, it does not matter about your home or family, whether they are biped or quadruped. But *you must be social*. John, you must *make friends among the materialists*, lest your highest pleasures taken selfishly become impure...I find my truest society among the most and the *least* cultured. To every soul God gives some precious special grace, to the nettle its color, the thistle its fine firmness of growth. While we read their secret, dear Shepherd, we may keep our own and not throw our pearls away."

⁸⁵ Emerson to Muir, Concord, February 5, 1872 in Badè, *The Life and Letters of John Muir*, vol. 1, 259.

⁸⁶ Muir to Carr, undated in Badè, *The Life and Letters of John Muir*, vol. 1, 261.

Despite Muir's desire to remain in nature and leave behind the "hotels and human impurity" in order to "touch naked God,"⁸⁷ he eventually confronted civilization in a desperate effort to preserve some of the sacred, untouched patches of the country threatened by encroaching development and industrialization. He began this mission in 1876 with a lecture promoting state government-facilitation of preservation efforts titled, "God's First Temples: How Shall We Preserve Our Forests?"⁸⁸ By 1880, Muir had ceased his nature writings, catapulting himself into the political arena, with the aim of preserving tracts of land such as his beloved Yosemite in the face of unregulated destruction and utilitarian exploitations of the Conservationists. In 1890, with the aid of fellow nature enthusiast Robert Underwood Johnson, editor of *Century* magazine, Muir wrote publicly against the destruction of wilderness. Citing scientific ideas from George Perkins Marsh, he upheld the importance of preserving the Sierra soil and forests as a watershed cover.⁸⁹ In 1892, Muir founded the Sierra Club. He softened his religiously fervent, biocentric jargon in his political efforts to preserve the country's exceptional mountain ranges through designated National Parks and protected lands.⁹⁰

Muir argued successfully before the House of Representatives for the designation of the Yosemite as a national park; he argued that the mountains had intrinsic value because of their beauty and should not be exploited economically. He illustrated maps that included trails for hiking in the Upper Tuolumne region, the Great Tuolumne Canyon and the Hetch-Hetchy valley. He successfully called for Federal protection of these lands; the bill was

⁸⁷ Muir to Carr, Yosemite Valley, April 28, 1872, in Gisel, *Kindred and Related Spirit: The Letters of John Muir and Jeanne C. Carr*, 189.

⁸⁸ Nash, *Wilderness and the American Mind*, 130.

⁸⁹ *Ibid.*, 131.

⁹⁰ Aaron Sachs, *The Humboldt Current*, p. 330-331.

passed in 1890.⁹¹ In the framework of national park lands, Muir viewed people as disconnected tourists in a foreign land, observing the natural landscape from the outside, rather than as members of a spiritually unified environment.⁹² To sell his preservationist platform he had to shy away from his more mystical, philosophical beliefs regarding nature and appeal to conventional anthropocentric arguments with which the majority of Americans could identify.

Muir's efforts to create National Parks and protect additional parts of the country from economic development became the main goal of the Preservation movement. Park and wilderness advocates were forced to contend with the then more numerous and popular Conservationists who argued for a utilitarian, "wise use" of natural resources to benefit humans materially. In order to engage politicians and citizens alike, Muir often framed his arguments for preservation in anthropocentric and utilitarian terms. He first argued for a park's aesthetic value and ability to uplift people spiritually. He then appealed to more base financial concerns, arguing that National Parks would generate revenue from tourism. The biocentric, egalitarian view of nature Muir wrote of in his personal journals was incompatible with mainstream capitalist society.

In 1908, when San Francisco city officials attempted to obtain permits to dam the Hetch-Hetchy Valley adjacent to the Yosemite Valley of Yosemite National Park, Conservationists and Preservationists clashed over the fate of the Hetch-Hetchy Valley. The Conservationists, siding with the city of San Francisco, favored creating the dam and submerging the Hetch-Hetchy Valley under water in order to supply San Francisco with an

⁹¹ Thurman Wilkins, *John Muir: Apostle of Nature*, 177

⁹² Sachs, *The Humboldt Current*, 330.

alternative water source to the private monopoly that controlled their water supply.⁹³ The Preservationists argued against the dam, arguing that the Valley, a unique and spectacular piece of nature, merited preservation.

The Sierra Club, John Muir, and Robert Underwood Johnson attempted to stop the Hetch-Hetchy damming by any means. Muir wrote President Theodore Roosevelt that San Francisco could easily avoid damming the valley by utilizing other, existing water supplies, closer to the city.⁹⁴ He also argued in vain to save the Valley because of its beauty and intrinsic value. He appealed to non-economic utilitarian uses of the valley in an attempt to play into the nascent urban anxieties of the public, arguing that Americans needed preserved lands for future generations and for mental escape. He called upon the tourist argument as well, with maps containing hiking and camping areas along the Sierra. He included limited commercialization in the form of roads and hotels into this model as a way to facilitate public visitations to the area.⁹⁵ Muir even compromised his Preservationist position, arguing that San Francisco officials should utilize Lake Eleanor, slightly north of Hetch-Hetchy for their water source instead, in order to save the Hetch-Hetchy.⁹⁶

Despite these attempts, Muir lost the battle for Hetch-Hetchy. In 1913 the Senate voted to dam the valley; Woodrow Wilson signed it over to San Francisco. Disheartened and dejected, John Muir nevertheless found some comfort that “the conscience of the whole country has been aroused from sleep.”⁹⁷ Though they had lost the battle, during its fight the American public had begun to internalize his arguments in favor of National Parks.

⁹³ Clements, “Politics and the Park: San Francisco’s Fight for Hetch Hetchy, 1908-1913,” 187.

⁹⁴ Muir to Roosevelt, Martinez, California, April 21, 1908, in Badè, *The Life and Letters of John Muir*, vol. 2, 418.

⁹⁵ Wilkins, *John Muir: Apostle of Nature*, 177.

⁹⁶ Fox, *John Muir and His Legacy*, 141.

⁹⁷ Nash, *Wilderness and the American Mind*, 180.

Muir's dilution of his earlier philosophy of biocentrism for the public sphere did not prevent the dissemination of his nature appreciation to filter into the public. Editor of *The Century* Robert Underwood Johnson evoked Muir's religious language, noting that the difference between the natural valley and the dammed reservoir constituted the difference between "worship and sacrilege."⁹⁸ Lyman Abbott, the editor of *Outlook* magazine wrote against assigning monetary values to the elements of nature,⁹⁹ and *Nation*, *Independent*, *Collier's*, and other leading publications published editorials in favor of the preservation of the valley. Members of women's groups, scientific societies, sporting clubs, people affiliated with universities and public citizens protested the dam and sent letters to key Senators.¹⁰⁰

Muir even reached some individuals who originally sided with the Conservationists, such as J. Horace McFarland, a friend of Liberty Hyde Bailey, and one of Gifford Pinchot's fellow leaders of the Conservation Movement. During the Hetch-Hetchy incident McFarland was disturbed by the Conservationists' complete disregard for preservation and aesthetics.¹⁰¹ He spoke in defense of Hetch-Hetchy, countering the Secretary of the Interior's claim that the preservation of the valley was sentimental and impractical, stating, "it is not sentimentalism, Mr. Secretary; it is living."¹⁰² McFarland disassociated himself from the Conservation Movement due to its failure to incorporate this viewpoint. Others shared his sentiments. One Senator from North Dakota even spoke out against the dam, arguing that "to commercialize every bit of land" would be to "destroy the handiwork of God's creation."¹⁰³

⁹⁸ Ibid., 177.

⁹⁹ Ibid., 160. *Outlook magazine* appealed to many readers who experienced anxieties concerning urbanization and industrialization. According to Nash, it was able to channel these amorphous worries into the project of wilderness preservation.

¹⁰⁰ Ibid., 176.

¹⁰¹ Samuel P Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement 1890-1920*, (Cambridge, MA: Harvard University Press, 1959) 194.

¹⁰² Nash, *Wilderness and the American Mind*, 166.

¹⁰³ Ibid., 179.

Muir, no longer the only one to see something greater in the valleys of Yosemite than natural resources, or to bring religion and morality to the discussion of resource management, fundamentally altered the relationship between humans and nature.

Stewardship and Bailey's *The Holy Earth*

Conservationist policy derived from the application of science towards the efficiency of resource management. The general trends toward mechanization, however, left many like J. Horace McFarland dissatisfied. But the theologically bent philosophy of resource management of Muir's Preservation Movement often proved too radical for the more pragmatically minded. People too traditional for Muir's pantheistic tendencies turned instead to Liberty Hyde Bailey's philosophical work *The Holy Earth*, first published in 1915. Bailey intended his book to serve as a "philosophy of life." In it, he expressed his religious philosophy towards the relationship between humans and the environment, his philosophy regarding American agriculture, and incorporated efficiency themes, achieving a midway point between the stratified Preservation and Conservation movements.¹⁰⁴

Bailey ascribed to an alternative, less radical interpretation of the creation story that defined humans as stewards of the earth. Without breaking down the traditional Christian hierarchy of living beings, Bailey considered the "dominion" granted to humans in Genesis 1:28 a trusteeship rather than a license for people to treat nature however they pleased.¹⁰⁵ This alternative reading provided humans with a divine duty to act as caretakers given the task during their brief time on earth to protect God's creation.

¹⁰⁴ In a December 27, 1916 Address of the President at the meeting of the American Nature-Study Society titled "*The Great Lover*," Bailey wrote: "Not long ago, freed on the bosom of the ocean, sailing across the tropics, I found the experiences of my many crowded years overwhelming me, solidifying themselves in my mind, and I wrote. What I wrote I called *The Holy Earth*. To judge from what I read and what they tell me, my readers seem to find in my writing only a vivid enthusiasm for the out-of-doors, and yet I attempted nothing less than a philosophy of life. Still do I feel that the responsibilities of that philosophy and still I shall write. It is difficult to open the eyes to the nature in which we live." From the Liberty Hyde Bailey Collection.

¹⁰⁵ Nash, *The Rights of Nature*, 96.

Bailey drew this philosophy from a tradition of pastoralism which emerged briefly in the seventeenth century in the works of John Ray and Alexander Pope. Ray and Pope argued that humans were accountable to God for the ways they treated creation because it ultimately belonged to God, not humans.¹⁰⁶ Bailey, familiar with the works of John Ray, fashioned a view of stewardship based on his own reinterpretations of scripture. Interestingly, though Bailey approached both religion and nature from a different angle than Muir, he too arrived at the idea of biocentrism and argued for the application of ethics to nature. Aware of Muir's extensive nature writings, in *The Holy Earth* Bailey paid homage to the naturalist who had passed away a year before publication of the book. Bailey referenced Muir's metaphor of "God's temples"¹⁰⁷ and depicted him as a role model for the cultivation of connections to nature free from societal pressures. He wrote that Muir "stood for a definite contribution to his generation" that could not have been possible had he been steeped in big business or institutions rather than assuming the role as "interpreter of mountains, forests and glaciers."¹⁰⁸

While Muir discovered the holiness of nature through lone nature excursions in unpopulated peaks, valleys and forests, Bailey connected spiritually with nature through gardening, spending time outdoors in upstate New York, and through his academic pursuits in horticulture, botany and agriculture. His passion lay in the cultivation, classification and discovery of new plants. In addition, he wrote tomes of nature poetry such as *Wind and Weather*,¹⁰⁹ and encouraged others to relate to nature through the literary arts. Though

¹⁰⁶ Ibid., 97.

¹⁰⁷ He wrote, "the forest may be an asylum. 'The groves were God's first temples.'" In Liberty Hyde Bailey, *The Holy Earth* (Ithaca, NY: The Comstock Publishing Co., 1919 orig. 1915.), 154.

¹⁰⁸ Ibid., 130-1.

¹⁰⁹ A pamphlet on books by L. H. Bailey published by Macmillan characterized *Wind and Weather* as "the spiritual and emotional expression of man's reaction to his natural environment; a book of nature poems and

Bailey was influenced by Muir's writings and recognized his impact, his religious vision dictated a slightly different relationship between people and nature. Like Muir, Bailey was well versed in scripture, though he employed it in a more direct and traditional manner. *The Holy Earth* began with a quote from the first line of Genesis: "In the beginning God created the heaven and the earth." From this statement Bailey argued that the earth was not a gift to man, due to the fact that man did not even exist at that point in the story.¹¹⁰ Though the earth may not belong to man, Bailey cited Biblical references linking man and nature in both condemnation and redemption:

The ground was cursed for Adam's sin. Paul wrote that the whole creation groaneth and travaileth in pain, and that it waiteth for the revealing. Isaiah proclaimed the redemption of the wilderness and the solitary place with the redemption of man, when they shall rejoice and blossom as the rose...¹¹¹

These references imply a relationship between humans and the earth with more equal grounding. They are more intimately connected to the point that their redemptions are linked. By referencing this close relationship detailed in scripture, Bailey moved away from a hierarchical relationship in which humans freely used nature for their every whim.

Bailey employed scripture to define the relationship between people and the earth. He began with the premise that "the earth is divine because man did not make it."¹¹² Following God's declaration that the earth was good, Bailey elaborated, "the earth is good in itself, and its products are good in themselves. The earth sustains all things. It satisfies." Bailey acknowledged that although this satisfaction may come about through adaptation in the process of evolution, this nonetheless devalued the goodness of creation.¹¹³ Much like

lyrics of the common life." Box 2, Folder 8. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

¹¹⁰ Bailey, *The Holy Earth*, 5.

¹¹¹ *Ibid.*, 15.

¹¹² *Ibid.*, 14.

¹¹³ *Ibid.*, 8. The ways in which Bailey embraces and incorporates evolution into his philosophy of nature is further addressed in Chapter 3.

Muir, Bailey's conclusion that the essence of nature is divine invalidated old beliefs in bad or evil elements of the wilderness, and he considered blasphemous any associations of the Devil with adverse elements of nature.

Bailey considered human beings to exist in a joyful fellowship with the earth. He also accepted the traditional premise from Genesis 1:28 that God granted people dominion over all of the creatures of the earth. However, he viewed this as a dictum of man's grave responsibility towards maintaining harmony among the elements of nature. Because the earth was hallowed, "so must we deal with it devotedly and with care that we do not despoil it, and mindful of our relations to all beings that live on it."¹¹⁴ People did not exist above the elements of earth as supreme rulers. Rather, they were elements of the creation itself directed by God to serve as caretakers. Both Muir and Bailey criticized humans who exploited nature and needlessly killed. However, Muir deemed these acts to be unjust within his egalitarian natural order, while Bailey considered these acts to be irresponsible exercises of human dominion. Simply put, "we may not waste that which is not ours."¹¹⁵ Dominion did not translate to personal ownership when all elements of the earth were effectively on loan from God.

Bailey took man's responsibility seriously and criticized the institutions and societal practices that shirked responsible care of the earth. In his opinion, avoiding this responsibility not only went against the divinely ordained human role as stewards of the earth, but also displayed a lack of consideration for future generations of the earth. Like many of the Conservationists concerned with safeguarding natural resources for the future, Bailey understood the earth had limits and that some of its resources were nonrenewable.

¹¹⁴ Ibid., 15.

¹¹⁵ Ibid.

Citing wasteful extraction methods of copper and petroleum as an example, he forewarned readers that “day by day we are mortgaging the future, depriving it of supplies that it may need, burdening the shoulders of generations yet unborn.”¹¹⁶ He also acknowledged that as the population increases, so would the demands of the new occupants surpass those of their predecessors, requiring society to utilize resources with new and more careful methods.¹¹⁷

For Bailey there was no excuse for this reckless and thoughtless behavior, particularly because people not only had the capacity to disturb the natural order more than any other creature, but also because they were the only ones with the capacity to make modifications consciously. Bailey thus derided the pervasive lack of public consciousness of nature and forewarned the public of the consequences of the systematic denuding of the earth. Aware that the rapidly changing American landscape would only continue to cloud the public consciousness, Bailey advocated for educational methods that would reconnect people with nature. The Country Life and Nature-Study Movements discussed in Chapter 1 alone were not sufficient to remind urbanized society of its impact and responsibility towards nature. He hoped that his readers would recognize that he was not merely concerned with “instructing the young in the names and habits of birds and flowers and other pleasant knowledge,” encouraging people “to have gardens or to own farms,” or only compose “rhapsodies on the beauties of nature,” though he viewed each of these elements as components of the solution. What was required was “the personal satisfaction in the earth to which we are born, and the quickened responsibility, the whole relation, broadly developed, of the man and of all men.”¹¹⁸ To unite people with nature fully, Bailey impressed upon his readers their moral duty to fulfill their religiously ordained responsibility to the earth as well as emphasizing the

¹¹⁶ Ibid., 119.

¹¹⁷ Ibid., 24.

¹¹⁸ Ibid., 29.

role of the independent farmer as an intermediary between direct contact with nature and the rest of society.

By depicting humans as stewards of the earth, Bailey introduced a moral element to human interactions with the environment. Because the role of steward had been ordained by God, people must manage the land morally rather than economically. Bailey explained, “by morals I mean the results that arise from a right use of the earth rather than the formal attitudes towards standardized or conventional codes of conduct.”¹¹⁹ Though the phraseology of the “right use” of the earth is similar to the “wise-use” platform of the Conservationists, it constituted more than efficiency. It implied an understanding and healthy relationship between people and nature that Bailey determined must be achieved through farmers who developed this multifaceted relationship with the earth. Bailey predicted that those who managed land only according to economic principles would inevitably fail.

Bailey viewed farmers as the salvation of increasingly industrial society; they would restore “the element of moral obligation,” to civilization. He admonished that although the numbers of farmers would decrease with the advent of the industrial city, those who remained in farming would “secure our moral connection with the planet,” serving as the model stewards of the earth.¹²⁰ This was due to the farmer’s tactile, immediate relationship with nature and participation in the continuous process of creation. Preservation, not destruction, would keep the holy earth, and as cultivators, farmers were the natural caretakers.

¹¹⁹ Ibid., 49.

¹²⁰ Ibid., 24.

The close contact farmers experienced with nature provided them with a deeper understanding of the complex inner workings of the environment, according to Bailey. This fostered a spiritual connection with nature. He wrote, “the most complete permanent contact with the earth is by means of farming, when one makes a living from the land...It is possible to hoe potatoes and to hear the birds sing at the same time, although our teaching has not much developed this completeness in the minds of the people.”¹²¹ A model farmer would not only live in harmony with his natural conditions but also would be a religious man, exercising his dominion with regard to his obligation as an “agent of the divinity” that made earth.¹²² Living during a period of mass urban migration, Bailey gave priority towards stimulating the farmer’s “moral response, his appreciation to the worthiness of the things in which he lives,” and improving his knowledge of his environment.¹²³ To further this project, Bailey published in 1926 *Poets and Prophets*, an anthology of Biblical quotations relating to nature, the land, plants, animals, and husbandry. His explanation accompanied with the book aligned with the philosophy of *The Holy Earth*:

It has always been my endeavor to relate the farmer or the countryman to his natural surroundings as well as to his occupation. In both his material and his spiritual expressions, I have conceived of the countryman as a naturalist, and the one person in our shifting social order who will tie society to its essential backgrounds. It is in this prospect that I have made the selection of the passages printed in this book.¹²⁴

To impress upon these instrumental figures the gravity of their role in society as the main link to nature, Bailey provided Biblical quotations to impress upon farmers their religious duties towards fulfilling this role.

¹²¹ Ibid., 50-1.

¹²² Ibid., 33.

¹²³ Ibid., 36.

¹²⁴ “Poets and Prophets.” Pamphlet, 1926. Box 2, Folder 33. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

Bailey further endorsed farmers as ideal moral agents when recounting conversations he had with farmers across the country during his travels as a part of the Country Life Commission. He noted that many of the farmers he encountered responded well to the idea that the earth and its products were holy, and included an excerpt of a letter in *The Holy Earth* from a farmer who identified with Bailey's approach towards nature. Rather than viewing his profession from a purely economic standpoint, the farmer viewed his job as administrative, "being in a way a dispenser of the 'Mysteries of God.'" Bailey noted that farmers used God's tools—the soil, the rains, the frosts, the winds and the sun. He defined a farmer as "a fellow craftsman of the God of Nature, of the great First Cause of all things..."¹²⁵

Further proof of the positive reception of Bailey's philosophy is evident in the fact that the Christian Rural Fellowship, in an effort to make *The Holy Earth's* "timeless and vital message widely available," published 25 cent copies of the manuscript starting in 1943, accompanied by a study guide prepared by Eugene Smathers containing reading questions accompanied by prayers and suggested scriptural readings. Within this study guide, Smathers supported Bailey's promotion of the farmer noting that "the farmer's vocation lends itself, more easily than some, to a Christian understanding" that "enables a person to see his daily job as a means of cooperation with God and with other men."¹²⁶

Bailey was extremely wary of the increasing commercialization of the farming profession during the period in which he wrote *The Holy Earth*. The development of a spiritual and responsible relationship with the earth required direct and personal interactions

¹²⁵ Bailey, *The Holy Earth*, 37-8.

¹²⁶ Smathers, Eugene. "Study Guide For Use With L. H. Bailey's *The Holy Earth*." New York: The Christian Rural Fellowship, 1946. Box 2, Folder 8. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

with the physical elements of the environment. As a result, Bailey viewed the rise of mechanization and specialization in the agricultural field as detrimental to his philosophy. He bemoaned the farmer who had lost his self-sufficiency, growing only a few specific products to sell and relying on the purchase of other supplies from markets. These practices distanced the farmer from nature. Living “from the box and the bottle and the tin can,” people could become entirely ignorant of the processes involved in producing their food. They would have “no thought of the season, and of the men and women who labored, of the place, of the kind of soil, of the special contribution of the native earth, [that] come with the trademark or the brand. And so we all live mechanically, from shop to table, without contact, and irreverently.”¹²⁷ To combat the detachment from the earth, Bailey implored the public to reject the complete mechanization and commercialization of the farming industry.¹²⁸ Bailey worried that in the midst of modern society’s consolidation and standardization, it may lose the individual.

The Holy Earth displayed parallels to Muir’s works half a century earlier. Like Muir, Bailey had to confront the ways in which his philosophy would be practically applied to nature. Bailey, aware of Muir’s shift in the political arena and of the battles for the preservation of America’s natural parks, acknowledged that certain tracts of land were not fit for farming or mining and should therefore be set aside as nature preserves. These preserves would serve the as retreats meant to invigorate city-worn individuals. Despite this, Bailey did not see preservation as an ultimate solution towards remedying the relationship between humans and nature.¹²⁹

¹²⁷ Bailey, *The Holy Earth*, 94.

¹²⁸ *Ibid.*, 35.

¹²⁹ *Ibid.*, 50.

As a cultivator of nature himself, Bailey was comfortable with the notion of human mastery over nature and even considered it patriotic in the traditional American sense. Such “mastery” however, implied a thoughtful and planned transformation of the landscape that maintained or improved the beauty of the area and improved the conditions for farming while taking into consideration the specific needs of that piece of land. “The lines of utility and efficiency ought also to be the lines of beauty,” he remarked.¹³⁰ He urged that the essential character, or “backgrounds,” of the landscape remain intact and that their preservation was in fact a social duty.

Bailey’s approach towards the modification of nature by humans contains ambiguities that cannot be ignored. In some ways he was extremely forward thinking in *The Holy Earth*, prefiguring the modern notion of “sustainability,” a term that has only recently come into common usage.¹³¹ Bailey considered it unfortunate that some people were against any modification of landscape, considering this position unreasonable and impractical.¹³² Tracts of land fit to be preserved in their natural state were those that could not be sufficiently utilized by people. In a practical fashion he argued that the resources of the earth needed to be available for people and therefore would inevitably become modified. Though Bailey conceded these points, he reiterated that as religiously ordained stewards of the earth, people were not given free reign to do as they please. He lamented that people had exploited and despoiled the earth, and that one only needed to visit the “factories, banks of streams and

¹³⁰ Ibid., 116.

¹³¹ Sustainability refers to responsible interactions with the environment in an effort to maintain the conditions of the ecosystem and natural resources for the longest period of time possible. The term came into use with the advent of the popular environment movement in the 1970s, and has become a buzzword used in contemporary debates on the environment. The term is often attempted to evoke a sense of environmental friendliness while attempting to refrain from 1970s politically radical statements that some view as fundamentally anti-human and incompatible with industrial society. This is because the term implies the continued manipulation and utilization of natural resources by society, though in a sensitive and educated manner to minimize permanent impact on the environment.

¹³² Liberty Hyde Bailey, *The Holy Earth*, p. 117.

gorges [to] find examples of complete disregard of men for the materials that they handle.” He wrapped up this discussion in neat, biblical terms: “It is as much our obligations to hold the scenery reverently as to handle the products reverently. Man found earth looking well. Humanity began in a garden.”¹³³

Yet within Bailey’s pragmatism were undercurrents of nostalgia for untouched, mysterious nature. Towards the end of *The Holy Earth* Bailey hinted towards the more intangible values of unpopulated and unmodified places on the earth. Though his thoughts on these areas are less developed, he reminisced, “I am glad there are still some places of mystery, some reaches of hope, some things far beyond us, some spaces to conjure up dreams...it is well to know that these spaces exist, that there are places of escape. They add much to the ambition of the race; they make for strength, for courage, and for renewal.”¹³⁴ Even though Bailey supported the calculated modification of the environment, he clung to the amorphous notion of “backgrounds” that he insisted must remain. He hoped that some forests would never be harvested, some regions of the sea will never be visited, and some knowledge would never be revealed. These “backgrounds” were the original environments that we live in but do not make. They were the limitless sky, mountains beyond reach, winds, “the universal voice of nature,” and “the sacredness of the night.” Without such backgrounds, “men go off in vague heresies when they forget the conditions against which they live.”¹³⁵ These heresies Bailey referred to were the selfish and ignorant acts of man that exploited and misused the holy earth.

Bailey coined the term “biocentric” to encapsulate his treatise on the relationship between humans and the spiritual earth. His unique way of reading divinity into the elements

¹³³ Ibid., 118.

¹³⁴ Ibid., 152.

¹³⁵ Ibid., 150-1.

of the earth and redrafting the traditional role of the dominant man in nature as a trustee led him to find unity among people, the “backgrounds” and the “living creation.” As part of this greater living creation, people existed as part of the fabric of the environment rather than as outside factors. Arriving at a similar conclusion to Muir’s, Bailey argued that man’s place in the environment lay in the continuous process of nature. He concluded: the living creation “is not exclusively man-centered: it is *biocentric*.” Bailey liberated society from traditional ideologies proclaiming that the earth was made for the whims of man. Instead he introduced a “philosophy of oneness in nature and the unity of living things,” which excluded all self-centered, anthropocentric views of the world. All elements of the living creation shared genetic relations so that “our aristocracy is the aristocracy of nature.” With a concluding flourish, Bailey cited evolution as a major contributor towards pointing the way towards biocentrism, which will be further addressed in Chapter 3.¹³⁶

Bailey and Muir advocated different political and philosophical views. Yet, in their common enthusiasm for all things in nature, living and non-living, they separately concluded that a biocentric philosophy best incorporated nature’s divine essence and characterized humans’ relationship to the Earth. Furthermore, both thinkers applied morality and a discussion of rights to their concepts of biocentrism. Just as Muir considered plants and animals to retain their own rights to existence, Bailey argued that our interactions with the environment must be dictated by a moral obligation to safeguard it. Religion provided an impetus to unify all elements of nature under the commonality of divine creation, and also to address human interactions with nature in terms of morality. Both elements, religious and moral, played essential roles in the development of Bailey’s and Muir’s biocentric philosophies. The unifying principle in nature, promoted through spirituality, would obtain

¹³⁶ Ibid., 30-31.

additional factual support in the interconnected vision of nature borne of new developments in the scientific understanding of natural processes.

Chapter 3: Evolution, Ecology and Ethics

“Man in his arrogance thinks himself a great work, worthy the interposition of a deity. More humble, and I believe, true to consider him created from animals.”¹

—Charles Darwin

As illustrated in the last chapter, the Old Testament has spurred a variety of interpretations concerning the relationship between human and nature. Yet another monumental document in history, Charles Darwin’s *On the Origin of Species*, also generated a wide spectrum of reactions with its publication in 1859. Darwin’s theory of evolution influenced many modes of American thought including conceptions of the relationship between humans and nature. Evolution’s major contribution to the development of biocentric thought lay in its removal of humans from their supernatural origins and placement into the framework of natural laws. This interpretation of evolutionary theory broke down anthropocentric conventions, recasting humans as one of many species that reacted and adapted to their surrounding environment.

The theory’s emphasis on the interrelationships among organisms in the environment and nature of their development sent shockwaves through the scientific community. Scientists clambered to execute new studies and experiments to elucidate mechanisms in nature and evaluate the ways human activity affects the web of interrelationships in nature. These scientific pursuits constituted the antecedents of the scientific discipline of ecology, which redefined the way people regarded the environment and its complexities. A flurry of scientific activity permeated the scientific community, influencing the philosophy of intellectuals, including George Perkins Marsh, geologist Nathaniel Shaler and Liberty Hyde Bailey.

¹ As quoted in Roderick Nash, *The Rights of Nature: A History of Environmental Ethics* (Madison, WI: The University of Wisconsin Press, 1989) 42. Darwin concluded this after visiting the Galapagos Islands in 1835.

For many, the new way of defining humans as part of the environment merely enforced what historian Donald Worster termed “the mainstream Victorian ethic of domination over nature.”² With an increasing understanding of the mechanisms of nature, proponents of this interpretation were confident in the human ability to manipulate nature for their needs more effectively in the future. This view often accompanied the notion that the evolutionary progression of organisms over time confirmed the superiority of humans as the most recent and complexly evolved organism. Social Darwinists expanded this concept to claim the superiority of certain subgroups of humans over to others. Colonialists used Social Darwinism to justify the domination of Anglos and Europeans over non-White or non-Western cultures.

Others, including Darwin himself, focused on the fact that humans evolved from less complex beings, dependent on external environmental factors, to emphasize that humans were not in fact elevated demigods. For Liberty Hyde Bailey, John Muir and, to a lesser extent, geologist Nathaniel Shaler, this fact encouraged an egalitarian camaraderie with nature that fueled biocentric theory. Darwin also applied his findings to the realm of ethics, presenting the notion of evolving, expanding human ethics over the course of history in his second major publication *The Descent of Man*. Linguist Edward Payson Evans elaborated on this concept and achieved a mode of biocentric thought through the philosophical expansion of ethics that eventually encompassed animals and even plants. All of these reactions to evolution added new insights about how humans should interact with their environment. This chapter will explore how the theory of evolution influenced Darwin, Shaler, Muir,

² Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed., (USA: Cambridge University Press, 1994) 114.

Bailey, and Evans in redefining the way they perceived the relationship between humans and nature scientifically, philosophically and ethically.

Charles Darwin and the Theory of Evolution

As a child, Charles Darwin pored over Alexander von Humboldt's *Personal Narrative*, reveling in the accounts of his explorations in Latin America and internalizing Humboldt's holistic view of nature.³ In the context of Humboldt's work, it became clear that the "natural economy," or inner workings of nature, possessed more complexity than eighteenth-century Linnaean thought let on.⁴ Many influential thinkers in addition to Darwin absorbed Humboldt's ideas including Thomas Jefferson, Louis Agassiz, Ralph Waldo Emerson, Henry Thoreau, John Muir and Charles Lyell.

Darwin was also influenced by Lyell's *Principles of Geology*. Lyell moved away from Linnaeus's more static paradigm of the earth's geologic history and argued that God's creation was constantly being made and remade in a dynamic state. Lyell's argument corresponded with new fossil discoveries that implied that the earth had undergone long term geologic changes. Despite this assertion Lyell still maintained that species were fixed and immutable. He argued however, that nature was fundamentally a "struggle for existence," impressing upon Darwin the concept of conflicting interactions among organisms inherent in nature.⁵ Darwin linked this notion of conflict to population after reading Thomas Malthus' *Essay on Population*, realizing that "under these circumstances favorable variations would tend to be preserved and unfavorable ones to be destroyed. The result of this would be the

³ Ibid., 132

⁴ Ibid., 135. Linnaeus was the creator of scientific nomenclature, the taxonomic system of classification. He categorized plants, animals and humans and placed them in hierarchies. This encouraged a more fixed and static interpretation of species in nature.

⁵ Ibid., 143-4.

formation of a new species.”⁶ Coupled with his observations of the repetitions and variations of species on the Galapagos Islands, plus twenty years of supporting data gleaned from comparative anatomy, paleontology, embryology and animal breeding, Darwin presented a new mechanism driving life on the planet.

Darwin viewed nature as “a web of complex relations,” all parts of which contributed to the “one grand scheme.” Each element of the grand scheme fulfilled a specific “place,” or what modern ecologists would call a “niche,” such as the Galapagos iguana that consumes a specific type of seaweed. Organisms contend against others in their own species, or outsiders for their “places” in nature in order to survive. Thus according to Darwin’s theory, organisms were not only united through a complex web of relationships, but these relationships were in constant flux and could only be temporarily defined at any one point in time. Additionally, the ever-changing balance was extremely delicate—as soon as one species was able to tip the balance in its favor, or one aspect of the inorganic landscape changed, a different species would suffer while another would emerge victorious.⁷ One of Darwin’s key ideas was that of natural selection. Organisms that displayed characteristics more amenable towards surviving under a given set of conditions would survive, thereby selecting helpful traits. As certain traits became thus selected, the overall makeup of a population or species has adapted to its surroundings. To more fully understand adaptation, natural selection, and the complex relationships between organisms and their environment, scientists began to investigate nature within the framework of Darwin’s theory. These efforts eventually defined the scientific discipline of ecology.

⁶ From Darwin’s 1876 autobiography as quoted in Worster, *Nature’s Economy*, 149.

⁷ *Ibid.*, 157- 9

Ecology: The Science of Evolution

Efforts to examine nature through a Darwinian lens ventured into the fields of geography, climatic studies, observations of species distributions, biogeography, physiology, botany and experimental studies of adaptation.⁸ These scientific pursuits comprised the field of ecology in its infancy. German zoologist Ernst Haeckel who coined the term, in 1870, wrote:

By ecology we mean the body of knowledge concerning the economy of nature—the investigation of the total relations of the animal both to its inorganic and to its organic environment...in a word, ecology is the study of all those complex interrelations referred to by Darwin as the conditions of the struggle for existence.⁹

For Haeckel and other scientists during this period, ecology meant the scientific study of the physical implications of evolution and the effort to “unravel the mysteries of adaptation.”¹⁰ Nevertheless, ecology as a discipline remained largely undefined until the Botanical Society of America and other forums began to use the term formally after 1893. A panel of botanists termed the discipline of plant adaptation studies “ecology,” to distinguish it from more specific physiological studies in laboratories.¹¹

Ecology became much more than the study of the physiology of plants. One of the glaring omissions in Darwin’s theory of evolution was an explanation of the actual origin of species. Scientists of the period had no conception of DNA or genetics and as a result, their explanations are varied and nebulous to a modern reader. At the beginning of the nineteenth century, the French biologist Jean-Baptiste Lamarck proposed that organisms who adapted to their environmental conditions during their lifetimes could pass these adaptations on to their

⁸ Sharon E Kingsland, *The Evolution of American Ecology: 1890-2000* (Baltimore, MD: The Johns Hopkins University Press, 2005) 5.

⁹ As quoted in Robert P. McIntosh, *The Background of Ecology: Concept and Theory* (New York: Cambridge University Press, 1985) 7-8.

¹⁰ H. C. Cowles in a 1904 *Science* article entitled “The work of the year 1903 in ecology,” as quoted in McIntosh, *The Background of Ecology*, 10.

¹¹ Kingsland, *The Evolution of American Ecology, 1890-2000*, 69.

offspring. Ecologists of the 1890s employed this neo-Lamarckian thought, in conjunction with Darwinian evolution, to explain adaptation.¹² An alternative view, Francis Galton's theory of heredity restated by August Weismann, argued that a conglomeration of units called "gemmules," was located in newly fertilized ovum. These gemmules were impervious to change by the outside environment, and as a result, more fixed.¹³ Liberty Hyde Bailey ultimately rejected this theory because it failed to adequately address the changes the external environment posed on organisms. Under the Galton/Weismann model, the only source of variation among organisms lay in the mixing of genetic materials as a result of procreation.¹⁴ The Dutch botanist Hugo de Vries, in his 1901 *The Mutation Theory*, proposed another idea, also distanced from Neo-Lamarckism: "bursts of change," or as he called them, "mutations" provided the source of variation among organisms. As an early twentieth-century theorist however, De Vries lacked any insight into why or how these mutations occurred.¹⁵

Despite the mystery shrouding the mechanisms for variation and adaptation, the field of ecology continued to grow. Scientists developed ecology-based theories of the rapidly changing American landscape under industrialization. During a visit to the American West, British plant ecologist Arthur Tansley remarked that opportunists had diminished the spiritual connections and the understanding that Americans had of their environment. He called for the preservation of certain tracts of land for scientific studies and the cultivation of a connection with the environment. Botanist Frederic Clements, who conducted fieldwork in the Nebraskan grasslands, saw ecology as a means of educating Americans about their environment and ways to interact with it. Clements described the interactions of plants

¹² Ibid., 76.

¹³ David N. Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science* (Tuscaloosa, Alabama: The University of Alabama Press, 1987) 64-5.

¹⁴ Liberty Hyde Bailey, *The Survival of the Unlike* (New York: The Macmillan Company, 1897) 63.

¹⁵ Kingsland, *The Evolution of American Ecology, 1890-2000*, 73.

within the environment as a “complex organism” in itself.¹⁶ This paradigm led him in 1905 to develop the idea of ecological succession, in which the dynamics between plants eventually reach an equilibrium under the control of the climate.¹⁷ In the 1930s, Clements eventually extended his framework to include animals, defining them as part of the greater “biotic community.”¹⁸ Arthur Tansley, less comfortable with Clements’ rigid view of a biotic community as a complex organism, instead defined the interacting units of plants, animals and non-living elements as an “ecosystem” in 1935. This more inclusive term, unlike Clements’ model, included humans as major factors that stress the system.¹⁹ These significant developments provided a scientific model for a holistic view of nature composed of interdependent parts, a central tenet of biocentric thought.

Academic ecological studies also had direct influence on the more applied science of conservation.²⁰ As a major factor influencing ecological balance, humans could better tailor their actions to reduce their impact on the earth and therefore retain more natural resources. This realization coincided with increasingly visible signs of a depleted American landscape. George Perkins Marsh in his *Man and Nature* cited ecological evidence to support an impact of human practices on the environment and to propose ways to avoid needless environmental destruction and the fate of depleted areas of Europe.²¹

Of course, Darwin’s theories received mixed reactions in the scientific community, as showcased in the debates between two renowned Harvard professors, zoologist Louis Agassiz and botanist Asa Gray. When the theory exploded on the scientific scene in 1859,

¹⁶ Ibid., 143-4.

¹⁷ Robert P. McIntosh, *The Background of Ecology*, 83.

¹⁸ Nash, *The Rights of Nature*, 57.

¹⁹ Kingsland, *The Evolution of American Ecology, 1890-2000*, 184-5.

²⁰ Ibid., 4.

²¹ George Perkins Marsh, *Man and Earth; or Physical Geography as Modified by Human Action* (New York: Charles Scribner, 1864) 7-8.

Agassiz gave it little consideration.²² Agassiz endorsed German idealism and traditional religious views of creation. He framed species in the traditional theological mold as “permanent manifestations of divine ideas,” without genetic similarities. In contrast, his colleague Asa Gray, a religious medical practitioner turned botanist from England, had corresponded with Darwin before publication of *On the Origin of Species*. Gray sought to ensure a fair hearing for Darwin’s theory. His religious beliefs had no conflict because, he maintained, Darwin never broached the actual origin of life itself—he simply attempted to describe the nature of the diversification of life currently in existence.²³ Though many subsequent Harvard scientists would ultimately side with Asa Gray, the religious issues posed by Darwin’s theory continue to overshadow the scientific evidence even in contemporary debates.

Nathaniel Southgate Shaler

The debates between Professors Agassiz and Gray prompted their students to pick sides. One of Agassiz’s students, Nathaniel Southgate Shaler felt pressured to side with his mentor though he was receptive to Darwin’s ideas. Born in Newport, Kentucky in 1841, Shaler had a religious background of Methodism mixed with studies in post-Kantian idealism and the idealistic pragmatism of Josiah Royce. He enrolled at Harvard in 1859, the year of publication of *On the Origin of Species*.²⁴

At Harvard, Agassiz impressed upon Shaler the importance of direct interaction and observations with nature as a means of scientific study. In one instance Agassiz gave Shaler a small fish and instructed him to learn from it through observation, without books or other references. Only after two months of closely observing the fish was Agassiz pleased with

²² Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 21-22.

²³ *Ibid.*, 24-25.

²⁴ *Ibid.*, 26.

Shaler's conclusions.²⁵ Agassiz's students, including both Liberty Hyde Bailey and Shaler, emulated this educational method in their own capacities as teachers. To foster interest in the sciences, Shaler promoted both a human-centered and nature-centered form of science education. Recognizing that some might criticize him for being too anthropocentric, he argued that relating animal, plant and geological studies directly to human interests "is a necessary way of looking at the world" for "the mass of men."²⁶ However, he also emphasized the need to cultivate human sympathies for nature. Aware that monotheistic religion actually discouraged this process, he instead called upon teachers to develop in their students first an appreciation for the beauty of nature, and then a sense of connection to the physical world. With this educational philosophy, Shaler wrote, "we thus give [a student] a feeling of his kinship with nature—a sense of a kindly filial relation to the earth which will widen and deepen all the ways of thought."²⁷ Shaler demonstrated this philosophy by creating his own summer school in which he took undergraduates on outdoor excursions in order to study nature through direct observations.

Despite his loyalties to Agassiz however, Shaler found Darwin's theory compelling. During frequent excursions to Europe, he encountered intellectual giants including Darwin himself, Thomas Huxley, Charles Lyell, and Francis Galton.²⁸ Though still considered Agassiz's successor, Shaler had embraced evolutionary theory when he joined the teaching staff at Harvard, and also befriended Asa Gray. In 1875 he was also appointed as the director of the Kentucky Geological Survey, a role that required him to evaluate the practical aspects of land characteristics and resource conservation. Shaler's academic pursuits examined

²⁵ Ibid., 27.

²⁶ Nathaniel Southgate Shaler, "Humanism in the Study of Nature," *Science*. 6 (Jul 24, 1885): 64.

²⁷ Ibid., 66.

²⁸ Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 33.

geology, resource use, and the interactions of humans with their environment, with a focus on the United States of America. Impressed by George Perkins Marsh's *Man and Nature*, he recommended the book to "all who desire to understand the effects of man's actions on our earth's history."²⁹ Like Marsh, Shaler promoted a utilitarian and conservationist position towards the environment as well as emphasizing the responsibility Americans had towards maintaining their landscape.

Shaler's writing discloses a complex and sometimes contradictory position on nature. Being scientifically focused, he displayed a pragmatism and adherence to empirical conservationism. However, a philosophical reflection on the relationship between people and nature creeps into several of his works. Shaler wrote of a need to strengthen this relationship and highlighted the intangible, aesthetic and spiritual qualities of nature. However, he had little faith that the masses would identify with these more abstract qualities of nature. Thus he wrote more scientifically based works that focused on concrete data,³⁰ such as *Nature and Man in America*, published in 1891. This book examined the geographical characteristics of America and its influence on the people. It aimed to demonstrate how geological changes in the earth over time had enabled organic life to develop on the planet, and how the land would affect American character, anticipating the completion of Western frontier expansion and Frederick Jackson Turner's frontier hypothesis.³¹ In the opening of his book he recognized Agassiz, then deceased, but emphasized that "Mr. Darwin and Mr. Wallace have forced us to admit that the development of new species is, to a great extent, due to circumstances, to the action of the inorganic conditions upon them or the interaction of species with species in the struggle for

²⁹ Ibid., 195.

³⁰ Shaler, "Humanism in the Study of Nature," *Science*. 6 (Jul 24, 1885): 64.

³¹ Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 40.

existence.”³² He briefly addressed the clash between evolution and traditional religious views. Encapsulating the consequences of Darwin’s theory of evolution, he wrote,

Our fathers rejoiced in the conviction that they came directly from the Creator’s hands. It is now evident to us that our being is due to what we term more natural causes, that man’s body has been slowly evolved from the earth, passing onward through inconceivable stages, each leading upwards from the level of the lowest organic life.³³

Shaler viewed the conflict between religion and evolution in a detached and unconcerned manner and focused instead on utilizing evolution and adaptation to interpret human-environment interactions.

Shaler covered a wide spectrum of material in *Nature and Man in America*, including a discussion on the origins of the continents, the effects of the seas, mountain growth, volcanoes and the nature of flora and fauna, and America’s geologic, climactic and organic characteristics. He maintained that the Aryan, White European race—rather than African Americans—best adapted to those conditions,³⁴ a result of severe winters along the Baltic sea. He also believed that the Anglo-Saxons race was most instrumental in building the foundations of American democracy.³⁵ Shaler was concerned with the cultural makeup of the country, and adopted Social Darwinist arguments in his application of evolution to the human subgroups, supporting the practice of eugenics and restrictions on immigration.³⁶ Though originally an adherent of Lamarck, Shaler eventually ascribed to the Galton/Weismann explanation for the origins of variety in organisms and De Vries’ mutation theory as supplements to evolutionary theory, considering them to be a form of “scientific” justification for his racial prejudices.³⁷

³² Nathaniel Southgate Shaler, *Nature and Man in America* (New York: C. Scribner’s Sons, 1897) 13.

³³ *Ibid.*, v.

³⁴ *Ibid.* Chapters 8 looks specifically how race is affected by the American environment.

³⁵ Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 135.

³⁶ *Ibid.*, 44-5.

³⁷ *Ibid.*, 65.

Many people during Shaler's lifetime considered Social Darwinism an appropriate application of evolutionary theory to the social sphere. Shaler later admitted in 1902 however, that in retrospect he had embraced Darwin's theory too readily and comprehensively.³⁸ Though he never retracted his overzealous application of evolution to hierarchal racial distinctions, he did come to the eventual conclusion that he, and the scientists of his generation may have accepted Darwin's theories without enough scrutiny. He argued that natural selection could not solely explain all natural processes,³⁹ which he considered to be a more complex realm "of unending and infinitely varied originations" in which "each of the creatures in its measure affect[ed] the whole" in a more organic and less law-based perception of nature framework.⁴⁰ Though here Shaler ventured into the nebulous region of spiritually unifying processes in nature, his acceptance of then pervasive beliefs in racial hierarchies hampered his ability to ever adopt a fully biocentric world view.

In 1905 Shaler published *Man and the Earth*, in which he examined how people affected nature by their actions, a goal inverse to that of *Nature and Man in America*. Most of the book discussed utilitarian conservation. His faith in technology and emphasis on science based management led him to adopt an optimistic and empirical approach to conservation.⁴¹ Though he recognized in *Man and Earth* that "the amount of fossil fuel is

³⁸ Nathaniel Southgate Shaler, "Faith in Nature," *International Quarterly* 6 (1902): 287-8.

³⁹ Ibid. Shaler wrote, "For a generation there was an almost bewildering endeavor to turn all biologic knowledge into terms of selection or the survival of the fittest. We had, indeed, something like an intellectual frenzy for the new doctrine, such as will be likely to puzzle the historians of science when they come to shape its account."

⁴⁰ Ibid., 303.

⁴¹ Shaler was friends with several main figures from the American philosophical school of pragmatism. Pragmatism, a movement originally introduced in 1877 by Charles Peirce, maintained that truth could be verified through concrete facts and occurrences, including scientific inquiry. Shaler was friends with Peirce as well as other pragmatist thinkers including Chauncey Wright, Josiah Royce and William James, who were at Harvard with him. This line of thinking encouraged Shaler to focus on practical efforts and results gleaned from direct observation in the environment and people's use of natural resources. See Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 195.

not only small but evanescent,”⁴² and that “we shall have to bring the average rate of this wasting process down to the conditions of nature,”⁴³ he was still optimistic that after current resources were exhausted, people will discover alternative substances to utilize.⁴⁴ His final conclusions on the matter resembled Liberty Hyde Bailey’s arguments about stewardship and the need for conservation to avoid leaving future generations a depleted and exploited earth.⁴⁵ He argued that people must forget the “primitive childish notion that the marvelous life of this world is fitly to be taken as a toy for man, to be carelessly rent away with his plough, or slain for his diversion” and that in a truly civilized state, people will consider their duty towards preserving “those creatures of all degree who share life with [them].”⁴⁶ Shaler looked to the government to regulate and encourage the responsible use of the earth’s resources in the interest of future generations.

Despite his pragmatic concerns for wise use of natural resources and for economic incentives relating to the environment, Shaler did value the aesthetic qualities of nature, much like his friend and colleague Charles Eliot, President of Harvard during Shaler’s tenure. His veneration of natural aesthetics however, was more anthropocentrically grounded than that of preservationists such as John Muir. Unlike Muir, Shaler was comfortable with people manipulating and commodifying nature. Shaler’s wife once wrote that he felt closest to nature along the shores of Martha’s Vineyard, and “sought by the active use of his intelligence to interpret nature truly and lovingly; but he never yielded to the mawkish

⁴² Nathaniel Southgate Shaler, *Man and the Earth* (New York: Fox, Duffield & Company, 1906) 35.

⁴³ *Ibid.*, 129.

⁴⁴ *Ibid.*, 67.

⁴⁵ In particular, Shaler was concerned with the state of American soil. He warned that the fertility of the soil was already taxed by the current population and said that “of all the sinful wastes of man’s inheritance in the earth—and all are in this regard sinners—the very worst are the people of America.” See Shaler, *Man and the Earth*, 128

⁴⁶ *Ibid.*, 208

sentimentality that exalts grass and stones and trees at the expense of human interest.”⁴⁷ He criticized those whom he called “primitivists” for their condemnation of human manipulation of the natural environment. Human touches, in Shaler’s mind, did not detract from nature’s beauty and he went so far as to claim that only when the earth is completely domesticated will it achieve its height in beauty.⁴⁸ Shaler argued that humans could actually improve nature’s aesthetics, “making its feature far more contributive to spiritual enlargement than they were in their primal wilderness state.”⁴⁹ Recognizing innate human anthropocentrism, Shaler supposed that people could look to their own traces in nature as a conduit through which to enhance their sympathies with the environment. In his opinion, on those rare individuals that felt a divine presence in the wilderness, “the more expanded souls,” were fully able to appreciate untouched stretches to nature, for without the supernatural bond, it would be “utterly strange to them.”⁵⁰ Though he made no mention of John Muir explicitly, in this reference he acknowledged Muir’s position as valid, while simultaneously remarking on the impracticality of applying Muir’s outlook to the masses.

Shaler, a practical man, had little faith in the dissemination of a biocentric philosophy to the greater public, even though at the end of his book he personally began to embrace the philosophy. Perhaps the impracticality of applying a biocentric world view to an industrialized, capitalist society discouraged Shaler from pursuing this area further. Like Bailey, he wished to instill in people a sense of sympathy with nature. Shaler’s appreciation and understanding of the complexities and endurance of nature for millions of years, and his

⁴⁷ Livingstone, *Nathaniel Southgate Shaler and the Culture of American Science*, 42.

⁴⁸ Shaler, *Man and the Earth*, 189.

⁴⁹ *Ibid.*, 172.

⁵⁰ *Ibid.*, 181.

ecological insights into nature⁵¹ gave him a deeper connection to nature, a connection he wanted to develop in others. He believed that closer contact with nature would enrich the sympathies of people towards the earth. He envisioned that this process would begin through commerce, but then become less economic.⁵² In addition to sympathy with nature, Shaler also noted the interconnected features of nature in the ecological jargon of his time. In recognizing the greater connections that lay between all organic life on earth, Shaler ventured to consider that other species, too, have their roles in nature, and therefore a right to exist. In his discussion on nature reservations, he struggled with his general utilitarian tendencies: “It may seem unreasonable to abandon an area of fifty thousand square miles, say as large as New York, to savagery, but if we consider the matter we will see that the primitive life of the world has its claim to existence quite as well as that of our civilizations.”⁵³ Shaler thus justified the establishment of nature reservations to preserve endangered species, despite the consequences of leaving natural resources untapped. In this manner Shaler moved away from his characteristic anthropocentrism to consider the rights of other organisms to exist separate from any relationship they may have with humans.

Shaler concluded *Man and the Earth* with the belief that while these ideas may be elusive in his time period, there may be hope in the future. He believed that future generations would develop an even greater sense of unity with nature, and would “come to see the world as a wider aspect of themselves.”⁵⁴ In the spirit of evolution, Shaler felt that the responsibility towards the earth that people would develop would lead them to a higher

⁵¹ “[Organic life is] a group of vast association in which the species, each representing certain capacities and powers, are united as in a commonwealth...the order of their relations having been determined by endless trials through the geological ages in which they have developed.” See Nathaniel Southgate Shaler, *Man and the Earth*, 191.

⁵² Shaler, *Nature and Man in America*, 150.

⁵³ Shaler, *Man and the Earth*, 188.

⁵⁴ *Ibid.*, 229.

level of understanding and existence within nature. Recognizing that youths in his day lacked little or any recognition of the unity of nature, especially since industrialization encouraged intense specialization, Shaler worried that education and ethics would prove insufficient to connect people with nature. He advocated a religious-type gospel as the most effective method of impressing upon people their responsibility to the earth:

Unless the world of men should become philosophers, we must look in the future as in the past for the leading spirits, the rare men, to be guides to the new dispensation, the masses following in the ancient dumb way—taking their light not directly from nature, but in the good old way, mediately through their prophets.⁵⁵

Shaler concluded that the masses would require an inspirational leader to preach a nature gospel as a way to reconfigure their nature outlook. An academic scientist, Shaler acknowledged the need to teach natural science for intellectual and economic purposes. However, he argued, “the great gain we are to have from the modern knowledge of the world is in the change of attitude it is to bring about...to the making of this new spirit no great body of learning needs to go; it will depend for its development far more on the way of approach than on the mass of the knowledge that is gained. Soon men come to feel themselves as really the children of the world...”⁵⁶ From these statements Shaler illustrated his understanding that American society was not yet ready for a completely new way framework for understanding nature. Muir and Bailey also had this realization, leaving their articulation of this new framework in their writings, while employing less radical philosophies in the public sphere, Muir as the figurehead of the Preservation Movement, and Bailey in his promotion of Country Life and Nature Study education. Though Shaler never fully articulated a biocentric approach to nature, his compromising strategy revealed the tensions

⁵⁵ Ibid., 230-1.

⁵⁶ Ibid., 232-3.

inherent in redefining the relationship between people and nature during this time period, and that the time was not yet ripe for American society to address this alternative framework.⁵⁷

Darwin and Ethics

As illustrated by Shaler, some claimed Darwin's theory of the "survival of the fittest" as scientific proof for a racial hierarchy. More generally, they also considered it an explanation of the superiority of the entire human race over the rest of the environment, further stratifying people from nature. One of Darwin's most staunch supporters, Thomas Huxley, concluded that since independent natural laws guided nature, human interactions with nature were part of the greater forces of evolution and were therefore amoral.⁵⁸ William James, a pragmatist and friend of Nathaniel Shaler concurred, and urged youth to rise up to conquer nature as an honorable display of patriotism.⁵⁹ These interpretations used Darwin's theory to further exalt people as uniquely capable among living things to consciously manipulate nature. Darwin's insight into the inner workings of nature boosted people's confidence that through continued scientific inquiry they would be able to conquer and alter nature for human benefits even more effectively in the future.

Darwin himself, however, took the opposite stance. He stressed that a hierarchy of species did not exist in evolution, noting to himself once in the margin of a notebook to "never use the words *higher* and *lower*" when referring to different types of species.⁶⁰ For Darwin, his revelations were humbling. He concluded, "Man in his arrogance thinks himself

⁵⁷ As Livingstone wrote in *Nathaniel Southgate Shaler and the Culture of American Science*, "On the one hand, Shaler's welcome of technological innovation and his enthusiasm for what he termed the humanized earth were scarcely palatable to the back-to-nature romantics, despite his enthusiasm for the transcendent spirituality manifest in the nature order." 213

⁵⁸ Huxley was notorious for his agnosticism and though he was a moral absolutist, he never cited a source for such morality in his God-less paradigm. For more on Huxley's philosophy, see Worster, *Nature's Economy*, 177-8.

⁵⁹ Nash, *The Rights of Nature*, 43.

⁶⁰ *Ibid.*, 42.

a great work, worthy the interposition of a deity. More humble and I believe, true to consider him created from animals.”⁶¹ In 1871 he published *The Descent of Man*, in which he argued that humans evolved from earlier primates and presented evidence that human characteristics such as intellect were not unique to the species.

Some individuals had similar reactions to Darwin. Humbled by his realizations, they moved away from traditional anthropocentric approaches to nature. The English novelist Thomas Hardy argued that establishing the common origin of all species “logically involved a readjustment of altruistic morals by enlarging...the application of what has been called ‘The Golden Rule’ from the area of mere mankind to that of the whole animal kingdom.”⁶² This reaction to human evolution was more likely to be embraced by those who were already attuned to the beauty and sophistication of nature. For naturalists including John Muir and Liberty Hyde Bailey, evolution theory then only served to augment their biocentric visions.

John Muir and Academic Science

John Muir considered Darwin’s notion that humans came from natural processes to support his egalitarian vision of the entire natural community. Muir had been familiar with the works of Charles Lyell before the publication of Darwin’s *On the Origin of Species* and during long sojourns amidst the winter storms of Yosemite, he read by the fire the works of Lyell, Humboldt, John Tyndall, and Charles Darwin.⁶³ He also befriended J. D. Hooker and Asa Gray, eminent botanists and early supporters of Darwin, and corresponded with Louis

⁶¹ As quoted in Roderick Nash, *The Rights of Nature*, p. 42

⁶² *Ibid.*, 43.

⁶³ William Frederic Badè. *The Life and Letters of John Muir*, vol. 1 (New York: Houghton Mifflin Company, 1924) 240.

Agassiz regarding Muir's studies of glaciation. Muir venerated Darwin; he considered him a "great, progressive, unlimited man," and admired equally Huxley, Tyndall and Asa Gray.⁶⁴

Darwin's theory of evolution did not interfere with Muir's personal interpretation of Christianity. Rather, it complemented Muir's unified view of nature, as reflected in the frequency with which his writings reference evolution. In response to the natural process of evolution and its byproduct, species extinctions, Muir even pondered that "after human beings have also played their part in Creation's plan, they too may disappear without any general burning or extraordinary commotion..."⁶⁵ As part of natural processes, Muir realized that humans, like other species, could become extinct through natural selection; humans did not hold a permanent place as overlords of nature.

Because Muir accepted evolution as a major force in nature, he considered it to be sacred, as he considered all other elements of nature. As a result of this belief, Muir championed natural processes over deliberate human tampering, such as breeding and hybridization projects. An 1875 article "Wild Wool" that appeared in *The Overland Monthly* examined this topic as it related to sheep breeding. While Nathaniel Shaler considered certain human alterations of nature to be better and more beautiful, Muir disagreed. He lamented, "the barbarous notion is almost universally entertained by civilized men, that there is in all the manufactures of nature something essentially coarse which can and must be eradicated by human culture."⁶⁶ To prove the fallacy of this belief, Muir observed that the wool of the wild mountain sheep on Mount Shasta was much finer than the tame wool of domestically bred sheep. Muir attributed this fact to the utility and simplicity of natural

⁶⁴ Muir to Carr, Yosemite Valley, July 14th 1872 in Badè, *The Life and Letters of John Muir*, vol. 1, 335-6.

⁶⁵ John Muir, *A Thousand Mile Walk to the Gulf*, orig. 1916, *The Wilderness Journeys* (Edinburgh: Canongate Books Ltd, 1996) 67.

⁶⁶ John Muir, "Wild Wool," *The Overland Monthly*, April 1875, *American Environmentalism*, ed. Donald Worster (New York: John Wiley & Sons, Inc., 1973) 186.

adaptations in the environment and stressed that animals have adapted so that they are best suited for their conditions. He explained that “the wool and hair are...modified in just that way and to just that degree that renders them most perfectly subservient to the well-being of the sheep.”⁶⁷ In his opinion, human experimentation and hybridization were more haphazard and ill-planned than the elegant and divine mechanism of evolutionary adaptations.

Muir also attacked the notion that elements of nature should be tailored to human needs. He warned that this mindset only served to place more obstacles in front of people endeavoring to understand nature. In his eyes, sheep do not exist to provide wool for people; sheep exist for their own sake. Muir carefully noted that the inherent value of sheep did not imply that they came about in a vacuum. Rather, in light of Darwin’s theory of evolution and ecology, “in the making of every animal the presence of every other animal has been recognized.” Thus he argued that each element of nature is unique in its own right and interacts and complements other elements of nature. This formed the basis of Muir’s personal stance on ecology, which he described in an early journal entry:

When we try to pick out anything by itself, we find that it is bound fast by a thousand invisible cords that cannot be broken to everything in the universe. I fancy I can hear a heart beating in every crystal, in every grain of sand and see a wise plan in the making and shaping and placing of every one of them. All seems to be dancing in time to divine music.⁶⁸

Muir’s writings included such ecological imagery and language twenty years before the science itself became a discipline. His personal studies and sojourns in nature gave him insights into nature that future scientists would realize decades later. After witnessing the

⁶⁷ Ibid., 187.

⁶⁸ When this journal was reworked into *My First Summer in the Sierra*, it took the form of the more familiar and often quoted phrase by Muir, “When we try to pick out anything by itself, we find it hitched to everything else in the universe.” This earlier quote was written on July 27, 1869, and illustrates more in depth Muir’s harmonious view of ecology and the inherent value of each part of the web of nature. See footnote 27, p. 226 in Nash’s *The Rights of Nature*.

apparent abundance and waste in nature, Muir reflected in another unprecedented statement that

No particle of [nature's] material is wasted or worn out. It is eternally flowing from use to use, beauty to yet higher beauty; and we soon cease to lament waste and earth, and rather rejoice and exult in the imperishable, unspendable wealth of the universe, and faithfully watch and wait the reappearance of everything that melts and fades and dies about us, feeling sure that its next appearance will be better and more beautiful than the last.⁶⁹

This vision of interconnected, cycling elements of nature, interacting and adapting according to sacred natural laws led Muir to conclude that these elements should all be considered equally as a unit, leaving no place for anthropocentrism in his philosophy of nature.

In addition to Darwin's direct influence on Muir, Louis Agassiz and Asa Gray of Harvard also affected Muir's philosophy. For all of Agassiz's educational philosophy of a hands-on approach to nature, neither he nor Gray spent enough time in the wilderness to please Muir. As a fellow glaciologist, Muir tried to convince Agassiz to come with him to "get him away into the outside mountains among the old glacier wombs alone," though Agassiz was unable to join him.⁷⁰ Despite this, Agassiz maintained that Muir was "the first man I have ever found who has any adequate conception of glacial action."⁷¹ In addition to glaciology, Muir and Asa Gray also shared botanical samples that Muir sent to Gray. The two met at Yosemite in the summer of 1877 along with the English botanist Sir Joseph Dalton Hooker, and Dr. F.V. Hayden, then head of the United States Geological and Geographical Survey. The group collected samples for a report on Rocky Mountain botany and engaged in philosophical and scientific discussions over a campfire in the wilderness.

⁶⁹ As quoted in Graham White's introduction to John Muir, *The Wilderness Journeys* (Edinburgh: Canongate Books Ltd, 1996) xii.

⁷⁰ Muir to his sister Sarah Muir Galloway, Yosemite Valley, July 16th, 1872 in Badè, *The Life and Letters of John Muir*, vol. 1, 337-8.

⁷¹ Muir to Robert Underwood Johnson, Martinez, May 3, 1895 in Badè, *The Life and Letters of John Muir*, vol. 2, 293.

“Of course, we talked of trees [and] argued the relationship of varying species,”⁷² Muir recounted.

Muir’s scientific pursuits were always carried out in the depths of the wilderness. On several occasions, he rejected offers to enter academia. Though a close friend of Gray, Muir, in his correspondence, sometimes betrayed a twinge of judgment that Gray was confined to an academic bubble amidst civilization rather than immersed in glories of nature.⁷³ Despite Gray’s repeated attempts to convince Muir to join the faculty at Harvard, Muir scoffed at the idea, writing to his friend Robert Underwood Johnson, “you must surely know that I never for a moment thought of leaving God’s big show for a mere profship, call who may.”⁷⁴ Despite the confinement of his colleagues in academia, Muir acknowledged their contributions and their influence on his life. When Harvard awarded him an honorary M. A. degree in 1892, his after-dinner remarks included the following:

I was fortunate in meeting some of the choicest of your Harvard men, and at once recognized them as the best of God’s nobles. Emerson, Agassiz, Gray—these men influenced me more than any others. Yes, the most of my years were spent on the wild side of the continent, invisible in the forests and mountains. These men were the first to find me and hail me as a brother.⁷⁵

While Muir himself never lived the life of an academic, he supplemented his nature philosophy with the works of some of the great scientists of his era . His excursions into the wilderness consisted of more than encounters with the divine; he also pursued the observational studies of elements in nature to understand better the scientific ways in which a divinely-imbued nature operated.

⁷² Badè, *The Life and Letters of John Muir*, vol. 2, 80-1.

⁷³ Muir would write to Gray telling him how he had collected samples for him and then would infuse throughout his letters exaltations of wondrous mountain sunsets. He then would reflect on how his letters and drawings could never fully recapture the beauty he had witnessed, as if to say to Gray, “see what you are missing?” See Muir to Gray, Yosemite Valley, December 18, 1872, in Badè, *The Life and Letters of John Muir*, vol. 1, 369-71 and Muir to Gray, Yosemite Valley, February 22, 1873, p. 379-81.

⁷⁴ Muir to Robert Underwood Johnson, Martinez, May 3, 1895, in Badè, *The Life and Letters of John Muir*, vol. 2, 292.

⁷⁵ Badè, *The Life and Letters of John Muir*, vol. 1, 253.

Liberty Hyde Bailey, Evolution and Ecology

Like Muir and Shaler, Liberty Hyde Bailey was profoundly influenced by Darwin, Agassiz and Gray. When Bailey first brought home *On the Origin of Species* from the library as a young boy, his father confiscated it from him. However, he returned it to his son several days later saying, “I do not know what this man is talking about, but I believe he is honest and wants to tell the truth. You may read the book.” And Bailey read it, in addition to Asa Gray’s *Field, Forest and Garden Botany* which he used to identify plants in his surroundings.⁷⁶ Eventually as a student at Michigan State Agricultural College, Bailey was taught by William James Beal, a professor of botany who studied under Asa Gray and was also influenced by Louis Agassiz. Little did Bailey realize then that in 1882, he would be selected by Asa Gray himself to study botany at the Gray Herbarium in Cambridge. When Bailey wrote *The Survival of the Unlike* in 1896, a book investigating evolution and natural selection in plants, he dedicated it to the memory of his mentor in the following epitaph, “In memory of Asa Gray—lamented and loved of all who love nature—is the author’s unceasing inspiration.”⁷⁷ He also reiterated Gray’s ecologically bent teachings that the distribution of plants and animals is based upon climactic and physical conditions,⁷⁸ and built much of his discussion on the lessons he learned from the great American botanist.

As an academic botanist and horticulturist, Liberty Hyde Bailey immersed himself in the debates sparked by evolutionary theory over heredity and natural selection. Like Muir and Shaler, Bailey saw no problem in accepting the theory of evolution while maintaining his religiosity. In a pamphlet entitled “An Evolutionist’s View of Nature and Religion,” Bailey

⁷⁶ Andrew Denny Rodgers, *Liberty Hyde Bailey* (Princeton: Princeton University Press, 1949) 11.

⁷⁷ Bailey, *The Survival of the Unlike*, 274.

⁷⁸ Ibid.

wrote that evolution should instill in people a reverence for a greater power and give them the impetus to join the continuing process of creation.⁷⁹

In *The Survival of the Unlike*, Bailey acknowledged that though elephants and bugs appeared very different, if one traced back their genealogies, their evolutionary similarities became apparent.⁸⁰ The mechanism by which heredity operated troubled Bailey; he found flaws in both Lamarck's and Galton/Weismann's theories. For proof of evolution, Bailey only had to cite Gray's declaration that modern garden roses were "too much mixed by crossing and changed by variation to be subjects of botanical study." Bailey rephrased his teacher's statement, noting that "he meant to say that the roses are too much modified to allow of species-making. The despair of systematic botanists is the proof of evolution!"⁸¹ He understood that evolution implied a constant process of change and adaptation, and viewed horticulture a suitable forum in which to investigate the constant changing dynamic of plants adapting to their environments. He referenced Ernst Haeckel, creator of the term ecology, in acknowledging that new investigations must probe the implications of evolution, whether expressed in terms of horticulture or of ecology.⁸²

In 1902, Bailey spoke to the Society for Plant Morphology and Physiology. His addressed, entitled "Some Recent Ideas on the Evolution of Plants," reexamined heredity and the source of variation, examining in particular De Vries' theory of mutations. Bailey noted that any theory of evolution must explain both heredity and continuity.⁸³ He conceded that taxonomy, once a prime activity of botanists, no longer reflected an accurate portrait of the

⁷⁹ Arnovici, Carol. "Liberty H. Bailey," *The Survey*, March 1951. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 125

⁸⁰ Bailey, *The Survival of the Unlike*, 19.

⁸¹ *Ibid.*, 135.

⁸² *Ibid.*, 165.

⁸³ Liberty Hyde Bailey, "Some Recent Ideas on the Evolution of Plants," *Science*, Vol. XVII., No. 429 (March 1903): 441-454. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 3.

more dynamic concept of species. He instead turned towards Gregor Mendel's heredity experiments utilizing hybridization of pea plants. Bailey foresaw that, despite the inaccuracy of predicting outcomes of hybridization in Mendel's time, Mendel's work could direct the study of evolution to a better understanding of heredity.⁸⁴ When the field of genetics emerged eventually in 1946, Bailey recognized that the developments in the discovery of chromosomes and genes filled in these gaps, and would provide new ways to define species.⁸⁵

Though Bailey embraced Darwin's theory, he adamantly opposed Herbert Spencer's characterization of evolution as the "survival of the fittest," contending that the phrase only served as a barrier to true understanding of nature's processes. He warned that the phrase gave incorrect connotations to the theory of descent and encouraged people to interpret evolution in a misled, anthropocentric manner. He pointed out that this term sometimes, incorrectly, became a synonym for natural selection,⁸⁶ and changed the phrase from "survival of the fittest" to "survival of the unlike," hence the title of his book. He argued that "survival of the unlike" reflected nature's tendencies more aptly. Nature did not select those organisms that illustrated the most brute strength—indeed, some of the oldest organisms on the earth were the smallest. Rather, he maintained "nature protects the weak," and those who survive do because they are "capable, not because they are stout or belligerent. The process in nature is not destruction but adaptation."⁸⁷ Bailey made this distinction in reaction to the tendency of people to use "survival of the fittest" to justify warfare. Bailey reflected that

⁸⁴ Ibid., 10, 14. Unbeknownst to Bailey at that time, the key to unraveling the issue of heredity and adaptation lay in the undiscovered field of genetics

⁸⁵ Liberty Hyde Bailey, "Horticulture United As I See It." Proceedings, American Horticultural Council for 1946-48. Box 17. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 5.

⁸⁶ Bailey, *The Survival of the Unlike*, 30-1.

⁸⁷ "Armistice," *The Country Gentleman*, (Nov 1928). Box 2, Folder 18. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 25.

destruction and war were human institutions. and that nature was in actuality guided by a “holy equilibrium.” The phrase “survival of the fittest” arose in his view from the anthropocentric desire to validate human warfare as a natural part of the evolutionary struggle for existence.

Bailey’s discussion of the phrase “survival of the unlike” drew on themes of variety, heredity and adaptation. Adaptation also played a key role in Bailey’s educational philosophy and Country Life Movement. He recognized that as a part of the greater natural ecosystem, humans, like plants and animals, adapted to their environment. This had immense implications for those humans of Bailey’s lifetime who lived in completely artificial city environments. Human detachment from the natural environment would impede their adaptation to the planet. He explicitly evoked Darwin in his discussion of the rural child, warning that “without adaptation there is no success in nature...even if the child does not follow farming or become a country resident, nevertheless adjustment to the planet should be advantageous to anyone who lives on it.”⁸⁸ He ventured to argue that human detachment from nature prevented humans from adapting to their natural environment, a key natural process required for the survival of a species as dictated by evolution.

Bailey also tried to steer people away from the notion that all adaptations occurred for specific purposes in nature similar to the manner in which Muir told people that sheep exist for their own sake. He considered futile efforts to explain the function of every characteristic in nature because the processes of ascribing utility to naturally evolved processes reflected an anthropocentric philosophy of dubious value. Bailey acknowledged that Darwin’s theory encouraged people to seek such explanations for adaptations, because once “the dogma of

⁸⁸ Liberty Hyde Bailey, “The Qualifying of the Rural Child,” (Nov 1931). Box 2, Folder 27. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library, 4.

special creation was overthrown...the precision and design of the special-creation theory was transferred to the adaptation theory.”⁸⁹ Regardless, Bailey warned against the desire to view adaptations in nature in human terms. This is evidenced by a correspondence between Bailey and his friend J. Horace McFarland, the president of the American Civic Association,⁹⁰ in October of 1939. McFarland wrote to Bailey, asking him why roses have thorns. Bailey steered clear of any human based assumptions as to the function of the thorn in his response:

You ask why roses have thorns. It is because they have them. There is no other reason. The old idea that thorns are merely protection does not hold when we consider that many roses are thornless or nearly so. Thorns have developed along with other organs in the long processes of time. There is no ‘why’ in nature, in the human sense.⁹¹

Though McFarland most likely sought a scientific explanation and not a philosophical one, he good naturedly replied, “Your reply concerning the rose thorns is completely delightful to me. I get a pain at the folks who want everything explained, anyway.”⁹²

Bailey’s biocentric approach to scientific inquiry did not lead so seamlessly into a resource management policy. Familiar with Malthus’ work, Bailey recognized, like Shaler, that finite resources would be strained by a rapidly expanding human population. Bailey predicted that as a necessity, once all available tracts of the earth were cultivated, humans would have to adopt “self-sustaining methods of maintaining the producing power of land.” He also hoped that once this happened, people would eliminate waste and “every human being will develop a consciousness of care for the resources of the earth.” Shaler and Bailey

⁸⁹ Liberty Hyde Bailey, *The Nature-Study Idea* (New York: The Macmillan Company, 1909, orig. 1903) 137-8.

⁹⁰ J. Horace McFarland was also a printer, publisher and nature writer. He corresponded with Bailey concerning publishing, taxonomy and standardizing plant names, and specific questions about plants. He was also a preservationist who argued that aesthetics need to be inserted into Conservation philosophy, and argued that Hetch-Hetchy not be dammed. See Nash’s *Wilderness and the American Mind*, 165-6.

⁹¹ In modern science, the notion of explaining a biological structure or function by giving it a reason or purpose is called “teleology.” Today’s thinking aligns with Bailey’s and does not consider teleology scientifically valid.

⁹² Correspondence between Liberty Hyde Bailey and J. Horace McFarland, 16-21 Oct 1939. Box 16, Folder 4. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

alike recognized these practices would not occur in their generation, but expressed the hope that future humans would expand their sympathies for nature.⁹³

Like George Perkins Marsh and Nathaniel Shaler, Bailey was concerned with human resource management and its impact on the equilibrium of nature. In an ecological fashion he noted that when people cut down a forest, though it may seem to only affect that particular patch of land, it sets off a chain reaction:

The felling of the trees not only destroys the forest, but destroys the food upon which certain animals live, and these animals may have been the food of other animals which must now decrease and this will allow the prey of these latter animals to increase and so the changes run on and on until lost in complexity. Man is now the most disturbing element upon the face of the earth.⁹⁴

Bailey evaluated the relationships of organisms within ecosystems outside of human terms. As an example, he considered the anthropocentric view that bugs who eat away at potato crops are an enemy. Cast in the light of natural selection, these insects eat potatoes to survive—an act that in Bailey’s opinion, insects, potatoes and humans have a right to carry out. He mused, “Dame Nature is quite as much interested in the insect as in the man. ‘What a pretty bug! She exclaims; ‘send him over to Smith’s potato patch.’” Bailey then reflected that the insects who consume these pests are viewed by humans to be beneficial. He concluded, “thus everything in nature is a benefit to something and an injury to something: and every time the conditions of life are modified, the relationships readjust themselves.”⁹⁵ Thus Darwin’s theory of evolution, adaptation and ecological ideas helped to lead Bailey away from anthropocentrism to embrace a more biocentric outlook. Within this context,

⁹³ Liberty Hyde Bailey, “The Agricultural Situation,” *The Cornell Country Countryman*, 7 (Feb 1910): 158-161. Box 17. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

⁹⁴ Bailey, *The Survival of the Unlike*, 182.

⁹⁵ *Ibid.*, 182-3.

Bailey's response to an inquiring housewife as to the best way to rid her lawn of dandelions makes more sense. "The first thing to do," Bailey instructed, "is to learn to love them."⁹⁶

The Evolution of Ethics

Bailey's advice to the inquiring housewife may seem strange due to our tendencies to define our relationship with plants and even animals in an entirely different manner from our relationship with fellow human beings. Bailey's application of human emotions to a relationship with a plant placed plants on the same plane as people. In this manner, Bailey directly acknowledged that people and plants existed as parts of a common greater framework of nature, one of the major implications of Darwin's theory of evolution. Though Darwin never equated humans with plants, he knew of the variety of applications for which his theory could be utilized and even made some applications of his own.

In his second most famous work, *The Descent of Man* in 1897, in addition to tracing the evolution of humans from earlier primates, Darwin also considered the evolution of human morality. He cited evidence of social instincts in birds, dogs and other animals, and traced the evolution of human morality through history. He began with tribal social instincts, and then discussed their extension to eventually include entire nations. This pattern led him to recognize that slavery was "a great crime; yet it was not so regarded until quite recently." This served as additional evidence for the theory that, in time, morality would evolve to encompass all of humanity.⁹⁷ Darwin then took the extension of ethics even further, outside the realm of people, to include the animal kingdom. He acknowledged the unconventionality of this extension, and recognized that the further removed a life-form was from humans

⁹⁶ Correspondence between Clement Gray Bowers, Research Associate in Ornamental Horticulture, Cornell University and Mrs. Edith M. Fox, Curator and Cornell University Archivist, 17 August 1953. Box 16, Folder 16. Liberty Hyde Bailey Papers, Division of Rare and Manuscript Collections, Cornell University Library.

⁹⁷ Charles Darwin, *The Descent of Man and Selection in Relation to Sex* (New York: D. Appleton and Company, 1896) 117.

biologically, the longer it would likely take for humans to include it in their moral community. Regardless of this difficulty, he noted that “sympathy beyond the confines of man, that is, humanity to the lower animals, seems to be one of the latest moral acquisitions.”⁹⁸ Through his acknowledgement of the animal kingdom Darwin demonstrated the ways in which the application of ethics could expand outside of the human community, and thus justified a rejection of anthropocentrism within the framework of a natural evolutionary progression.

This move away from anthropocentrism formed part of a greater interest in animal rights during this period. A growing animals rights movement in England sought to actualize the 1789 statement of Jeremy Bentham, father of utilitarian philosophy, that “the day *may* come, when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny.”⁹⁹ When England passed the Cruelty to Animals Act in 1876, Darwin supported the ban on vivisection practices and supported the use of proper anesthetics in lab animal operations.¹⁰⁰ Though these efforts to extend rights to animals are not fully biocentric, they began to chip away at entrenched notions of anthropocentrism by opening up the circle to include certain animals into the ethical community.

Edward Payson Evans

Though at one point during his travels in the Galapagos Islands Darwin questioned the ethics of the colonists who beat their slaves to death and destroyed the native flora and fauna, he never ventured past animals in his extension of ethics.¹⁰¹ Utilizing Darwin’s

⁹⁸ Ibid., 123.

⁹⁹ Nash, *The Rights of Nature*, 23.

¹⁰⁰ Ibid., 44.

¹⁰¹ Ibid., 45.

paradigm, Edward Payson Evans pushed the extension of ethics to a further extreme, to include plants and inanimate elements of nature. Born in 1831, Evans served as a professor of linguistics at the University of Michigan from 1862 to 1867 until he moved to Germany, where he resided until World War I. He was also a scholar in Oriental philosophy and German literature and was interested in the relationship between animals and humans. In his work *The Criminal Prosecution and Capital Punishment of Animals*, he explored legal and theological aspects of medieval criminal and civil actions taken against animals. He followed this in 1894 with “Ethical Relations between Man and Beast,” an article that appeared in *The Popular Science Monthly*, *The Atlantic Monthly* and *The Unitarian Review* that investigated the ethics and psychology of animals. This article formed the basis of his 1898 book *Evolutional Ethics and Animal Psychology*, which combined his research on animal psychology with Darwin’s extension of ethics to arrive at a biocentric mode of thought.

Evans was neither an academic scientist nor a naturalist. Unlike Muir, Bailey and Shaler, Evans did not intentionally set out to analyze the relationship between people and their environment. His biocentrism emerged through his philosophical logic, rather than his experiences and religious connections to nature. Using as a model Darwin’s notion of ethics as a human behavior subject to the evolutionary process, Evans drew upon eastern theologies, experiments in animal psychology, and Greek and contemporary philosophy to present his ethical model in *Evolutional Ethics*. His investigation began similarly to that of Darwin, by tracing the roots of human ethical conduct. Starting with the tribe, Evans traced the expansion of ethical behavior to members of the same religion, then to nations, and then to all people. Over the course of this expansion of ethics however, Evans distinguished its

purely anthropocentric approach, “which treat[s] man as a being essentially different and inseparably set apart from all other sentient creatures, to which he is bound by no ties of mental affinity or moral obligation.”¹⁰²

Evans attributed this view point largely to Western religion. Rather than reinterpreting the anthropocentrism perpetuated by the Genesis story within its framework, as did Bailey, or more loosely, as did Muir, Evans rejected that framework entirely. He paraphrased Schopenhauer, who stated that “anthropocentric egoism is a fundamental and fatal defect in the psychological and ethical teachings of both Judaism and Christianity, and has been the source of untold misery to myriads of sentient and highly sensitive organisms.”¹⁰³ Evans noted that this “misery” was due to Western religion’s implication that nature had been created for humans, a view that Darwin’s theory of evolution had deconstructed by casting humans as one of a variety of evolving, interacting organisms in a greater web of life. Evans argued that “the gratification of man’s aesthetic sense and taste for the beautiful does not enter into Nature’s intentions.” That a flower’s fragrance and beauty “are alluring to a vagrant insect is a condition of far more importance in determining the fate of the plant than that they should be charming to man.”¹⁰⁴

Evans referred throughout *Evolutional Ethics* to the holistic interpretations of nature in Hinduism and Buddhism. He replaced Western religion’s anthropocentrism with Eastern theology and the idea of metempsychosis, the Greek philosophy of transmigration of souls, a concept also relating to belief in reincarnation in Eastern religions. Schopenhauer likewise referenced metempsychosis in his own philosophy. Evans combined metempsychosis with

¹⁰² Edward Payson Evans, *Evolutional Ethics and Animal Psychology* (New York: D. Appleton and Company, 1898) 83.

¹⁰³ *Ibid.*, 88.

¹⁰⁴ *Ibid.*, 87.

modern evolutionary theory, stating that the countless organisms that underwent the process of natural selection over millions of years were united spiritually with a “Supreme and Eternal Spirit from which [they] emanated, which is the only true reality.” According to his philosophy, the human spirit was composed of the divine sparks of eight million four hundred thousand creatures, each incarnation being a link in an unbroken chain of existence. Under this framework, Evans maintained that man could not exist isolated outside of nature; rather he was “but a part of the general order of things with no break in the continuity of his development out of the lowest organisms from the protoplasmic cell upwards.”¹⁰⁵ To bolster this philosophical theory, Evans equated this chain of existence to the notion of a genetic unity among organisms.¹⁰⁶

As further evidence for the commonalities between humans and the rest of nature, Evans provided an array of scientific experiments and observations as evidence that animals displayed consciousness and morality. He then surpassed Darwin’s extension of ethics to animals, stressing that “not only the higher species of animals, but also every sensitive embodiment of organic life” should be included in the moral framework.¹⁰⁷ This included plants, which he claimed had the “rudiments of consciousness” and “indications of something like volition” and demonstrate sensitivity to irritation.¹⁰⁸ These qualities along with Evans’ vision of a unified nature based on Eastern theology and metempsychosis served as additional validation that logically in the evolution of ethics, morality would be extended from the purely human realm to include animals and plants.¹⁰⁹

¹⁰⁵ Ibid., 163.

¹⁰⁶ Ibid., 165-6.

¹⁰⁷ Ibid., p. 4.

¹⁰⁸ Ibid., 170.

¹⁰⁹ For instance, Evans suggested, “perhaps, when we have fully outgrown our anthropocentric ideas and traditions, we may also discover in a hospital for old and worn-out animals something really commendable and not utterly and irredeemably comical.” Ibid., 141-2.

Though Evans briefly mentioned the wasteful nature and excessive extravagance of Americans, adding that the problem of “intense greed of gain” in the country tended to inflict suffering on animals,¹¹⁰ he made little mention of American natural resource policy or conceptions of nature. Evans’ biocentric view of the world was therefore anchored in the moral axiom that “man is as truly a part and product of Nature as any other animal, and [the] attempt to set him up on an isolated point outside of it is philosophically false and morally pernicious.”¹¹¹ Evans thus offered another route towards achieving a biocentric philosophy, distilled from a philosophical reading of Darwin’s theory of evolution.

Historian Roderick Nash claimed Evans as the first American to introduce the concept of environmental ethics.¹¹² This assertion however, is oversimplified or perhaps phrased incorrectly. Conservationists, Preservationists, Muir, Bailey, and Shaler and even George Perkins Marsh applied ethics to the realm of the environment, albeit to different degrees. On one end of the spectrum, Marsh asserted that people had the responsibility to conserve natural resources for future generations. On the other end, Muir condemned the destruction and in some cases even the human manipulation of nature as morally wrong. Evans offers a unique perspective to environmental ethics however, because he arrives at biocentrism through the logic of his ethical philosophy.

Current debates about Darwin and his theory of evolution have a tendency to characterize the issue in terms of science versus religion. However, when Darwin first introduced his theory, it produced a diverse set of interpretations with many more implications than merely a challenge to the literal account of Creation in Genesis. Evolution

¹¹⁰ Ibid., 103.

¹¹¹ Ibid., 99.

¹¹² Nash, *The Rights of Nature*, 51.

has formed a justification for anthropocentric and ethnocentric beliefs. But with equal facility, it supports movement away from these traditional mindsets and has encouraged a framework of biocentrism. Evolution provided biocentric philosophy with both concrete scientific evidence in the form of ecology, enabling authentication of biocentrism as a legitimate part of evolving ethics. Though biocentrism represented only a small part of American environmental thought in the late nineteenth and early twentieth centuries, the themes presented by Muir, Bailey, Shaler and Evans would play a larger role once later environmental leaders like Aldo Leopold would build upon their radical reactions to their changing landscape and further develop biocentrism into a more visible strain of environmental thought in America.

Conclusion

Incorporation of a new mindset or philosophy into society is an organic process. Cultural processes inspire and transform the ideas comprising a new outlook and then subject them to a constantly changing circulation of intellectual ideas and discoveries. Biocentrism arose not as the invention of a single person, nor from inspiration borne of a singular seminal event. Rather, it took root in the minds of scientists, academic scholars and nature explorers as a reaction to the physical changes in the environment, to new religious thought, and from new scientific theories of evolution and ecology. Early biocentric thinkers cast aside selfish, human-centered philosophies in exchange for an ecologically based, holistic view of nature during a period in which the majority of Americans focused on new technologies, industry, and America's increasingly dominant role internationally. By including humans in the interrelated processes of nature, biocentrism produced a new ethic that these thinkers were ready to accept, though the rest of the country was not.

Despite the scant attention paid to the biocentric ideas of John Muir, Jeanne Carr, Liberty Hyde Bailey, Nathaniel Shaler and Edward Payson Evans during and after their lifetimes, their initial articulations of biocentrism introduced the idea to American society. In the 1940s, after most of these early biocentric thinkers had died, the forester Aldo Leopold built on their ideas with new scientific knowledge and his own observations to elucidate a more comprehensive form of biocentrism. His 1949 book *A Sand County Almanac*, described biocentrism in terms of a "land ethic" to be enforced in the public mind by fostering "ecological consciousness." Leopold analyzed Conservation for what it really was: a mere alteration in land and resource management practices that maintained the view of nature as a commodity. He argued that viewing nature this way only encourages people to

continue abusing it, rather than to respect it. He recognized that the idea “that land is to be loved and respected is an extension of ethics.”¹ In Leopold’s view, only a biocentric philosophy could address fully the environmental problems plaguing the country.

To remind his audience of both the validity and feasibility of employing such a philosophy, Leopold cited the historical origins of biocentrism, emphasizing the evolutionary manner in which these ideas form and percolate into society over time. He wrote,

I have purposely presented the land ethic as a product of social evolution because nothing so important as an ethic is ever ‘written.’ Only the most superficial student of history supposes that Moses ‘wrote’ the Decalogue; it evolved in the minds of thinking community, and Moses wrote a tentative summary of it for a ‘seminar.’ I say tentative because evolution never stops.²

Although he did not specifically credit the works of any of the earlier biocentrists, Leopold did acknowledge generally the importance of his philosophical predecessors in the promulgation of biocentrism.

Leopold’s scholarship facilitated the definition and recognition of biocentrism. Yet his ideas still remained largely unpopular. Biocentric ideas entered the public sphere only after new forms of environmental destruction appeared in the mid-twentieth century. While World War I and World War II had revealed the new heights to which humans could destroy the planet and one another, new forms of environmental destruction such as chemical pesticides and nuclear waste wreaked havoc on the biotic community. When nature writer and ecologist Rachel Carson published her pivotal book *Silent Spring* in 1962, calling attention to the permanent damage chemical pesticides inflicted on the planet, biocentrism finally received widespread public acknowledgement. Her book was charged with the immediacy of permanent environmental damage and the need for people to reject their anthropocentric “control of nature,” a concept Carson associated with Neanderthals. “It is

¹ Aldo Leopold, *A Sand County Almanac* (USA: Oxford University Press, Inc., 1949) viii.

² *Ibid.*, 90.

our alarming misfortune,” she warned, “that so primitive a science has armed itself with the most modern and terrible weapons, and that in turning [us] against the insects it has also turned [us] against the earth.”³ Historians consider *Silent Spring* to be the catalyst that ushered in the modern environmental movement.

Civil Rights and other liberation movements of the 1970s also provided a context for the integration of biocentrism into the modern environmental movement. The popularization of consciousness building provided biocentrists with a forum for introducing Leopold’s “ecological conscience” – a forum that neither he nor his predecessors possessed. Though modern environmentalists faced a host of new, late twentieth-century issues, using Carson, Leopold, and the ideas of early biocentric thinkers, they had the tools to elucidate their philosophical platform. Within the modern environmental movement, the Deep Ecologists most fully embraced biocentric philosophy. Their indebtedness to the intellectual development of biocentrism at the turn of the twentieth century finds expression in a statement made by Dave Foreman, a leader of the radical environmental movement Earth First!, founded in 1979. Foreman wrote, “John Muir said that if it ever came to a war between the races, he would side with the bears. That day has arrived.”⁴

Despite gaining a political foothold in society, the Deep Ecologists, as modern biocentrists, still met opposition against mainstream society. The peripheral role of biocentrism in history and modern times perhaps arises from biocentrism’s call for the reconfiguration of our capitalistic society, which currently embraces a commodification of nature. Economic gain constitutes the driving force in today’s society, unfortunately often at

³ Rachel Carson, *Silent Spring*, orig. 1962, *The Environmental Ethics and Policy Book*, eds. Donald VanDeVeer and Christine Pierce (USA: Wadsworth, Inc., 1994) 568.

⁴ Dave Foreman. *Ecodefense: A Field Guide to Monkeywrenching*, orig. 1987, *The Environmental Ethics and Policy Book*, eds. Donald VanDeVeer and Christine Pierce (USA: Wadsworth, Inc., 1994) 603.

the expense of the natural environment. Dave Foreman struggled to implement biocentrism in current times. Born in 1946, Foreman began his career as an environmentalist at a mainstream conservationist group called The Wilderness Society. He became disenchanted with mainstream environmental politics after several setbacks to wilderness protection in 1979. He responded by objecting to the underlying anthropocentrism that pervaded late 1970s environmentalism, instead turning to Deep Ecology and the writings of early biocentrists like Thoreau, Muir, and Leopold to fashion “Earth First!”, an organization dedicated to meeting the establishment head on. Earth First! applied biocentric principles directly regardless of their incoherence with the current structure of American society.⁵ Following this tenet, Earth First! activists justified ecoterrorism and other illegal tactics, tainting biocentrism in a fanatical and subversive light rather than effectively bringing it into mainstream thought. This extreme political tactic has tagged biocentrism with fanatical associations rather than integrating it more into society leading to a contemporary simplification of biocentric philosophy that often overlooks the basic tenets upon which Deep Ecology is based—an all-inclusive, holistic view of nature, not an anti-human philosophy.

Despite Earth First!’s failure to normalize biocentric thought—adherents boldly stated their opposition to compromise⁶—there have been some successful attempts to graft elements of the philosophy into American society. The most successful implementation of biocentrism in American society has been through the passage of the Endangered Species Act in 1970, a milestone piece of environmental legislation. Created to safeguard species through the ecological principle of habitat conservation, the Endangered Species Act

⁵ Roderick Nash, *The Rights of Nature* (Madison, WI: The University of Wisconsin Press, 1989) 189-190.

⁶ In his inauguration of Earth First! Foreman wrote, “We will not make political compromises. Let the other outfits do that. Earth First will set forth the pure, hard-line, radical position of those who believe in the Earth first,” as quoted in Nash, *The Rights of Nature*, 190.

consciously eschewed economic considerations in order to save threatened species from the eternal fate of extinction.⁷ Despite repeated challenges from governmental organizations and private property owners, the Endangered Species Act has survived numerous amendments and remains relatively intact. Americans appear to have internalized the biocentric concept that each species has the right to exist, and that permanent extinction therefore implies a moral wrong. The notion of permanently losing an entire species has been compelling enough to surpass traditional capitalistic cost benefit analyses and enabled the legislation to withstand thirty-three years of lawsuits.

The most famous victory of the Endangered Species Act resulted in the halting the Tennessee Valley Authority's construction of the Tellico Dam in 1978 in order to prevent the extinction of a small species of fish known as the snail darter.⁸ That such an action could receive an injunction by a Federal Court served as a testament to the power of the biocentric notion of the right of a species to exist.⁹ It also exemplified the development and internalization of biocentric ideas into American society eighty years after a less successful attempt to oppose the construction of the Hetch-Hetchy dam. The modern Deep Ecology Movement and Endangered Species Act can be seen as somewhat successful philosophical and legal introductions of biocentrism into modern American society and perhaps point towards further manifestations of the philosophy in the future.

In tracing the roots of biocentrism, this thesis has explored the thinking of Americans during a revolutionary period in history – how they defined, interacted, and perceived their

⁷ For a detailed history of the Endangered Species Act see Shannon Peterson, *Acting For Endangered Species-The Statutory Ark*. (USA: University Press of Kansas, 2002).

⁸ *Tennessee Valley Authority v. Hill et al*, 437 U.S. 153 (1978)

⁹ Ultimately, the Supreme Court ruled that assuming the snail darter would become extinct upon the completion of the dam, under §7 of the ESA, TVA could not lawfully complete their project. In his explanation, Justice Burger notes that “the plain language of the Act, buttressed by its legislative history, shows clearly that Congress viewed the value of endangered species as ‘incalculable.’” See *Tennessee Valley Authority v. Hill, et al.*, 437 U.S. 153, 98 S.Ct. 2279, 57 L.Ed.2d 117 (1978)

relationship with nature. At the most basic level, biocentric thinkers radically stepped outside of societal conventions to a new, radical conception of the place of humans in their natural world. Transcending more superficial responses to particular resource management practices or immediate problems of pollution, biocentric thinkers emphasized the need to consider deeper principles guiding human interactions. They established ethical principles as the metric by which to judge the interaction between humans and nature.

Aldo Leopold wrote:

It is only the scholar who appreciates that all history consists of successive excursions from a single starting-point, to which man returns again and again to organize yet another search for a durable scale of values. It is only the scholar who understands why the raw wilderness gives definition and meaning to the human enterprise.¹⁰

This investigation into the development of biocentric thought reveals the need to step back and evaluate society's values and underlying philosophy towards nature. To understand fully Americans' relationship to the environment, Leopold acknowledged the need to distill these values through an investigation of the past developments in environmental thought. This thesis brings biocentric thought out of a scholarly abyss. It provides a greater audience with an understanding of the role of nature for Americans. With this foundation we can more fully evaluate the contemporary environmental values that underpin current environmental policy.

¹⁰ Leopold, *Sand County Almanac*, 200.

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