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9/16/10

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**Book Report on-Nature's Economy:**  
**A History of Ecological Ideas by Donald Worster**

The book "Nature's Economy: A History of Ecological Ideas" by Donald Worster relies on many sciences, from biology to agronomics to ecology, as well as philosophy, literature and history to take the reader on a tour of both man's place in nature and nature's place in the constructs of man. More specifically, it is a chronological survey covering the 1700's through the 1980's that attempts to examine the "science of ecology within the purview of historicism, to argue that ecological ideas are only valid relatively, that they are suited to and rooted in their times." (Worster, p. 425) The author's intent is to provide us with a "deeper awareness of the roots of our contemporary perception of nature." (Worster, Preface) Therefore, I will summarize and analyze this historical approach in a chronological fashion, mimicking the book's format which is of course very familiar to a history teacher.

In the 1700's and the new "Age of reason" two discordant traditions emerged, that to some degree we still struggle with today. The so called Arcadian view representing a peaceful pastoral coexistence and balance with nature contrasts in this time with the growth of science and industrialism and the belief that through reason and hard work man shall have dominion over nature. God, most believed, had perfected nature which was, and probably still is, a common belief. However in this time it was also believed that nature was for man's use, to give him happiness, and to provide plentitude. Conservation and ecosystem protection was not considered. This of-course dovetails with the rapid growth of transportation and industrialization of the time period, as well as the systematic extermination of both some Native American tribes and some plant and animal species.

These ideas change rapidly by the 1850's when two contemporaries, Henry David Thoreau and Charles Darwin, begin dedicating their lives to studying nature

and writing very influential works. Thoreau comes out of the romantic Arcadian style of writing and thinking about nature, but does so by using science, history and introducing political philosophy. Thoreau's Concord of the 1850's, though perhaps bucolic by a modern point of view, was injected with many influences nearby from Boston and Lowell. Thoreau recognized the influence of the railroad, tree cutting and farming on his precious Walden Pond and, along with very astute observation said to still be quite scientifically accurate, Thoreau set out to reconstruct the Walden before man altered it. One of Thoreau's major contributions was using history through an ecological lens to help him understand the damage that man had done to the area. Surprising to me was the revelation that it is in fact Thoreau who develops the idea of forest succession. He identifies a cycle of tree growth from pine to oak and back to pine, and recognizes that Concordians will only be able to live in harmony with nature if they can understand it, as well as their part in altering it. It should also be said that Concord by this time had less forest area than it does now-as is true of all of the state, and was totally void of deer, unlike now.

As the noted transcendentalist roamed his surroundings he also added two important political thoughts that came from his desire "to live deliberately." One was his essay on civil disobedience and refusal to pay taxes to support the Mexican-American war. The second new idea that he "walked the walk" on (doing laundry nearby while living in semi-"wilderness" notwithstanding) was that man must learn to accommodate himself to the natural order rather than to seek to overwhelm and transform it. Thoreau stated in his journal, "It is fouler and uglier to have too much than not to have enough." As Thoreau's economic simplicity challenged the ethos of the time period it also answered the original political/philosophical question-what is the good way of living? Thoreau, subversive in his anti-materialism, romantic in his admiration of the Indian in a time of Indian wars, and challenging the political and social class hierarchy of the time directly, left a holistic yet rebellious legacy that would resonate in the ideas of most ecologists for the next two centuries.

Charles Darwin's views on nature also changed our world, and Thoreau, I learned, grudgingly agreed with Darwin's ideas. Darwin of-course gave us the idea of natural selection, but also contributed a dog eat dog pessimistic conception of the

living world. Darwin's views seem to be somewhat disenchanting and eliminate the romantic view largely held by Thoreau, but they have the imprimatur of science in an era that would increasingly worship the scientific outlook. Conflict, violence and extinction are all essential elements in the worldview of Darwin, and thus nature takes on a different view with this knowledge. Darwin was greatly influenced by Malthus' essay on population that argued there will always be an imbalance between populations of animals and resources such as food. Further, his theory of evolution is based on competition, struggle and conquest. Worster does give Darwin praise for finding an enduring truth-but not the only truth, about nature. The author believes the Darwinian scientific revolution did not cause what is commonly called social Darwinism (Briefly meaning the use of the concept of survival of the fittest to explain human social constructs) Rather, the intellectual society of the time, already tilting toward imperialist struggles, was ripe to accept these ideas.

"The emphasis Darwin gave to competitive scrambling for place simply could not have been so credible to people living in another place and time. It is absolutely impossible to conceive such a view of nature coming from say, a Hopi in the American Southwest. Nor could a Hindu, though living in a land that has known Malthusian conditions of scarcity have devised such a theory, not merely because he lacks the scientific training but because nothing in his religious, social or personal values could lead him to such an outlook on nature. Even in the limited realm of nineteenth-century western science, it is striking how much of Darwin's work and the social response to his ideas were the products of the Victorian frame of mind in Great Britain and the United States." (Worster, p. 169)

Darwin's ideas about evolution fostered a biocentric outlook for many late Victorians, realizing that they too were part of the animal world. Conservation and animal protection (the most notable of this era being decrying killing birds for ladies hats-reminiscent of the anti-fur, anti animal cruelty movement of the modern age) became more fashionable. John Muir, who began the Sierra club and would famously escape for an under the stars camping night with Teddy Roosevelt, summarized this

growing belief influenced by Darwin when he stated “Why should man value himself as more than a small part of the one great unit of creation?” (Worster, p. 185)

As president from 1901-1909, Teddy Roosevelt would permanently place conservation of nature into the political arena. TR of-course favored a utilitarian view of nature and championed finding a proper balance between use and abuse of nature’s bounty by appointing Gifford Pinchot his Chief Forester. However, sensibly “protecting the nation’s economy, not nature’s, was the central theme of his conservation philosophy.” (Worster, p. 266) The author points out that this active management of nature, cloaked in the classic Progressive ideals of productivity and efficiency, not only alters wilderness but permanently places man into the ecosystem. From 1906 to 1939 “game management” meant government programs to kill “varmint” (predators) protecting deer for hunters and sheep for farmers. Thousands of wolves, bobcats, coyotes and mountain lions were destroyed as this manmade ecological order was enforced. Of-course the deer population ballooned forcing more hunters to kill deer and keep up this perpetual manmade supervision of our “wilderness.”

As the American frontier rapidly declined the aura of the wonderful pioneering process that Frederick Jackson Turner described as essential to the American character both ended and turned ugly. “Rather than smoothing the way for a stable, permanent human order, the pioneers and homesteaders unwittingly prepared the soil for a social and ecological disaster: the Dust Bowl of the 1930’s.” (Worster, p. 219) The author emphasizes that FDR’s department of agriculture squarely placed the blame on the formerly heroic sodbuster, concluding the Dust

Bowl was a wholly man made disaster. "At the very root of the disaster lay not only an ignorance of natural science but more importantly a cluster of traditional American attitudes ... about conquering nature." (Worster, p. 231) This is an important lesson often glossed over as a natural disaster by too many history teachers. Indeed this hard learned lesson forces the New Deal government to institute the nation's most full-scale conservation program for agriculture ever enacted, even to this day. As the nation experienced economic depression it became more inclined to see the need for a coordinated ecological perspective that emphasized community and stewardship. Certainly I agree with the author that generally more holistic values supplanted the private competitive nature of the previous decades in the New Deal era.

As species of predators declined and the disaster of the Dust Bowl remained fresh, Americans were ready to accept the ideas of Rachel Carson and Barry Commoner in the 1960's and 1970's. WWII had brought the atomic bomb and then atomic testing, reminding all concerned citizens of the fragility of our world and man's ability to destroy it. As ecological ideas seeped into the American consciousness with concepts like the food chain, pesticides, producers and consumers, ecosystems, and trophic levels interdependence became a more accepted outlook.

The new age of ecology dared to combine morals with science in an overt way-certainly it is part of Worster's thesis that this has always been true. If physics could now destroy our earth through nuclear disaster, ecology and it's concepts would help redeem science by daring to work within the world of "ought' and,

science's traditional domain, "is." Rachel Carson's *Silent Spring* and Paul Ehrlich's population warnings would coincide with the government passing new environmental protection laws and agencies. The environment was and is increasingly seen to be in crisis and Earth day, the concept of the earth as a whole organism known as the Gaia thesis, as well as the simple but profound picture of the earth taken from the moon combined to produce a movement and ethos that we know today as the green movement.

In a most interesting ending, Worster relates how ecological science is now shedding its old Arcadian romantic ethos and much less likely to advocate that nature is a spiritual system of natural balance. Scientists are now exploring chaos theory and focusing on how difficult it is to predict nature's changes even with modern computer power. In fact, in a late tribute to Darwin, ecology is proving that perhaps there are really very few "laws of nature." The history of ecological ideas shows the reader that even our science has bias-much like our history. One must use historical skills to study our various views of nature, and it is past the time where the high school history teacher can ignore these important and changing ideas about nature. The author clearly demonstrates "we may have to live with change, may even be the products of change, but we do not always know-indeed we *cannot* always know-which changes are vital and which are deadly. (Worster, p. 433) History teachers cannot afford to repeat the past fallacy that we are separate from nature, it is vital that these ideas become part of our history curriculum.

