

HOW THE WILDERNESS WAS WON



THE BALD EAGLE



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HOW THE WILDERNESS WAS WON

BY STEWART L. UDALL

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Skirmishing about environmentalism may well continue forever, but the major war is over. It lasted far longer than most people realize.

One of this century's profound cultural transformations began in the 1960s, when ecological thought took hold and fostered a new seriousness toward earth stewardship. But what happened then was really a transition. Present-day environmentalism represents an elaboration of core ideas developed far earlier by American conservationists, especially the seminal concepts and plans of the two Presidents Roosevelt and their allies. They prepared the way so that Americans later confronted by increasing threats to earth's ecosystems could erect a sophisticated superstructure on ramparts already standing.

Movements that foster ideas that shape the fabric of American thought usually evolve in reaction to abuses that constrict the lives of citizens or threaten the nation's future. The conservation movement came into existence in the first years of this century in response to the unprecedented plunder of public resources in the last three decades of the nineteenth century.

In the forefront of that pageant of destruction and waste was a rapacious lumber industry. Having begun in Maine and swept westward to California's towering groves of redwood trees, the newly mechanized industry clear-cut the bulk of the country's longleaf pine forests and left blackened wastelands in its wake.

Elsewhere, as the killing power of rifles increased, whole species were slaughtered on a scale the world had never seen. That decimation came to a climax on the Great Plains, where in the space of little more than a decade the vast herds of buffalo—the wildlife wonder of this continent—were nearly exterminated by “market hunters.” In other regions hunters who worked for commercial enterprises conducted relentless raids on edible birds, on fur seals, and on shore and migratory birds whose feathers were in demand. These endless hunts and those conducted for sport exterminated several species of bird and drove kingfishers, terns, eagles, pelicans, egrets, and herons to the brink of extinction.

The slaughters evoked angry protests from some Americans. In 1877 Secretary of the Interior Carl Schurz tried to start a campaign to halt the unfettered felling of the nation's timberlands. A German emigrant familiar with the forestry practices of his homeland, Schurz issued a report in which he denounced lumbermen who



Yosemite National Park's Half Dome.

were “not merely stealing trees, but whole forests.” But his plans to initiate scientific management of the nation's resources were thwarted by Congress, and two decades would pass before growing public protest gave reformers an opportunity to push for laws and policies that would change the course of our history.

The man who became the leader of the nascent conservation movement was President Theodore Roosevelt. As a young rancher in what is now North Dakota, Roosevelt had learned what happened when nature's iron laws were ignored. He was a natural-born reformer, and when an assassination catapulted him into the White House in 1901, he was ready to lead a crusade for land policies that would alter the values and attitudes of the American people.

Theodore Roosevelt's audacity made many of his conservation achievements possible.

The President began by declaring in his first State of the Union address that resource issues were “the most vital internal problems of the United States.” A politician who wore his convictions on his sleeve, he spoke out against “the tyranny of mere wealth” and galvanized a cadre of young foresters by exclaiming, “I hate a man who skins the land.”

Roosevelt chose for his chief adviser on resource issues the dynamic thirty-six-year-old chief of the Division of Forestry in the Department of Agriculture, Gifford Pinchot. Pinchot had little power as the head of a tiny new bureau, but his vigorous

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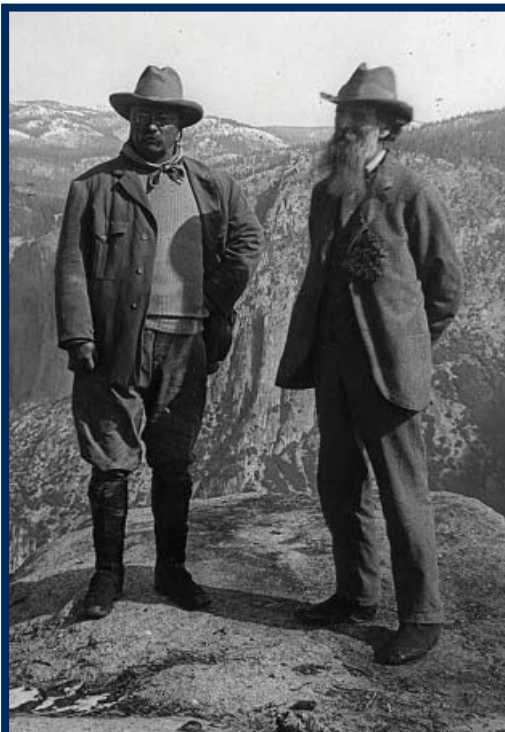
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ideas about land stewardship won him a preferred place at the new President's council table. Roosevelt's crusade needed a motto, a slogan, and Pinchot and his friends soon coined a word that expressed the bundle of ideas the President was considering. Pinchot and his fellow forester Overton Price had been discussing the fact that government-owned forests in British India were called Conservancies, and this resonant word was enlarged into the nouns conservation and conservationist.

Roosevelt and Pinchot had to confront an unsympathetic Congress, and they knew from the outset that to do so they must sell conservation to the American people as well. Roosevelt welcomed this challenge, for he was a superlative teacher and saw himself as the trustee of the nation's resources.

The policies and programs that Roosevelt and Pinchot implemented over the seven years of Roosevelt's Presidency focused on specific issues. They converted idle forest "reserves" into a functioning system of national forests to be managed by a corps of trained foresters. The President won over hostile Western congressmen by supporting a new federal program to build dams and homestead-style irrigation projects in arid parts of the West. He also issued orders that stopped extravagant giveaways of public resources and simultaneously challenged a balky Congress to enact laws that hydropower sites and mineral resources be developed only under federal licenses and leases.

His audacity was what made many of Theodore Roosevelt's landmark conservation achievements possible. In his second term he rewrote the rulebook on presidential power by placing his signature on sweeping Executive Orders and proclamations, rejecting his timid predecessors' "narrowly legalistic view" that the President could function only where a statute told him to, and he plumbed the Constitution to find powers for himself. His glory was that he dared to use his pen to change the face of his country's landscape.



Theodore Roosevelt and John Muir

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Before he left office, he had replaced a century-old policy of land disposal with a new policy of setting land aside for conservation. As a result of decisions he made, the lands designated as national forests increased from 42 million acres to 148 million, and 138 new forest areas were created in twenty-one Western states. With additional strokes of his pen, he carved out four huge wildlife refuges and set up fifty-one smaller sanctuaries for birds, to protect what he called "the beautiful and wonderful wild creatures whose existence was threatened by greed and wantonness." With another flourish he established eighteen national monuments, including four—Grand Canyon, Olympic, Lassen Volcanic, and Petrified Forest—so majestic that Congress subsequently converted them into national parks.

Executive action was effective as far as it went, but it was essentially a policy to preserve some of the West's unsullied lands. If resources damaged during the raider years of the nineteenth century were to be renewed and rehabilitated, there would have to be a truly national approach, with a working partnership between the executive and legislative branches of government. Theodore Roosevelt was a splendid preacher-at-large, but few members of Congress were stirred by his rhetoric. Indeed, in the decade after he left office only two significant conservation statutes were passed: the Weeks Act of 1911, which permitted the purchase of forested lands at the headwaters of navigable streams, to make possible national forests in the East, and the 1916 measure that created the National Park Service.

However, where conservation was concerned, Roosevelt's influence did not wane after he left Washington; instead it came to a culmination during his third-party Bull Moose presidential campaign in 1912, when he forced his two opponents to compete with him as advocates of reform. Some of the men who were destined to lead the nation in the crisis years of the Great

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Depression—most notably Harold Ickes, George Norris, Sam Rayburn, and Franklin Delano Roosevelt—first lit their political torches at the bonfire he created in the 1912 presidential election.

His words and deeds left a spacious legacy. The conservation creed he espoused altered the outlook and the values of many Americans, encouraging citizens to form grassroots organizations and influence local and regional political decisions. And the ideals he championed not only changed his country's land-stewardship practices but encouraged other nations to institute comparable programs.

Conservation fell out of favor during World War I and the 1920s. Existing national lands were better managed, but habitat for wildlife continued to shrink, wartime demands for wheat encouraged improvident plowing that would in time transform parts of the Great Plains into dust bowls, and little was done to restore the forestland gutted during the late nineteenth century.

The second wave of the conservation movement was launched when Franklin D. Roosevelt began his New Deal in the demoralizing depths of the Great Depression, when one of every four Americans was unemployed. Roosevelt's experiences as governor of New York had suggested to him that providing conservation jobs for large numbers of young men would be an effective way to combat unemployment. In his acceptance speech at the 1932 Democratic National Convention, he put conservation in the forefront, announcing "a wide plan of converting many millions of acres of marginal and unused land into timberland through reforestation."

The second wave of the conservation movement began when FDR launched his New Deal in 1933.

The Civilian Conservation Corps (C.C.C.), created in the first weeks of his Presidency with nearly unanimous support from Congress, was probably the most effective of all New Deal programs. The jobs it generated provided dollars for destitute families and gave men valuable skills, and the work itself improved the economic outlook in nearby communities. More land-renewal work went on during Franklin Roosevelt's first term than at any other time in the nation's history. Corpsmen built small dams, tackled soil erosion problems, planted more than two billion trees, and built everything from washrooms to grand rustic lodges in national parks. To make the program truly national and provide more jobs, the President extended the East's new system of national forests, allocating more than thirty-seven million dollars (appropriated by Congress for "public works") to purchase eleven million acres of wounded, cut-over land. Before the war closed the camps, more than two and a half million young men served in the C.C.C.

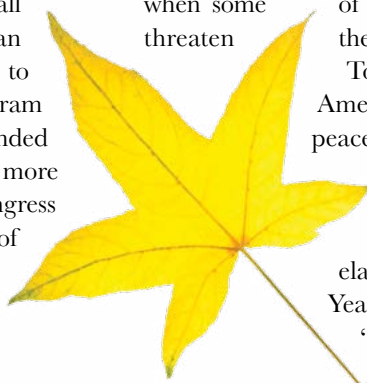
Historians overlook the fact that in certain regions the New Deal was at its core a program of resource conservation. Congress, acting in tandem with the President, enthusiastically financed initiatives that ranged from a new Soil Conservation Service to the acquisition of millions of acres of swamps, lakes, and submarginal farmlands, enlarging the nation's sanctuaries for migratory birds and wildlife.

The building of dams and hydroelectric plants was also a hallmark of the era. Construction of the world's then-highest dam on the Colorado River (a huge federal project that moved ahead on schedule through the darkest years of the Depression) reflected the belief that floods should be controlled and the energy potential of the nation's rivers "harnessed," as the then-ubiquitous expression went. Dam building was ultimately carried to extremes, but the electricity dams generated fed a program that produced enormous benefits for tens of millions of Americans, the Rural Electrification Administration, which began in 1935.

At the time, nine-tenths of the thirty million people who lived in rural America did not have electric power. The REA law underwrote the formation of local electric cooperatives and provided low-interest loans to extend transmission lines into the countryside. In a few years the program had raised the standard of living throughout the country and was furnishing the cheap energy for starting businesses and enabling small towns to grow.

Of necessity, the FDR administration fashioned its Crash programs piecemeal, responding to specific needs, but in so doing, it made conservation a mainstream concept and encouraged scientists allied with the movement to broaden their gaze and think holistically (the word had appeared just a decade earlier) about the earth's resources. Those quiet conservation-minded scientists, among them the University of Wisconsin professor Aldo Leopold and a young woman named Rachel Carson, who worked in the Fish and Wildlife Service from 1936 through 1949, became important after the war, when atomic physicists and engineers rose as apostles of unlimited resources. The voices of the conservationists, and the challenging questions they asked, would gradually acquire authority when some of the miracles of Big Science turned out to threaten the ecosystems that sustained life on earth.

Today it is hard to imagine how eagerly Americans in the 1950s accepted the "atoms for peace" thesis of inexhaustible dirt-cheap atomic energy. A vision of an atom-powered era of supertechnology, sketched initially by the physicist John Von Neumann, was elaborated in a 1957 book, *The Next Hundred Years*, by some of his acolytes in these words: "If we are able in the decades ahead to avoid



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thermonuclear war ... we shall approach the time when the world will be completely industrialized. And as we continue along this path we shall process ores of continually lower grade, until we finally sustain ourselves with materials obtained from the rocks of the earth's crust, the gases of the air, and the waters of the seas. By that time the mining industry as such ... will have been replaced by vast, integrated multipurpose chemical plants supplied by rock, air and seawater, from which will flow a multiplicity of products, ranging from fresh water to electric power, to liquid fuels and metals."

The American people embraced these visions partly because the awe and secrecy that enveloped nuclear research meant that at first few citizens had either the knowledge or the temerity to question them. And the optimism thus generated ultimately helped persuade our leaders that the United States could simultaneously go to the moon, feed the world's hungry, carry out a program to modernize the economies of Latin America, and win a war in Southeast Asia. As the space program got under way, NASA's rocket master, Wernher von Braun, put a capstone on these promises when he declared that the exploration of space was "the salvation of the human race."

But at the same time, ground-level evidence was mounting that the overall environment was deteriorating. In 1956 an atmospheric scientist measured the ingredients of the gathering pall over Los Angeles and chose the word smog to describe his baleful discovery. Meanwhile, daily flushings from industries and cities were turning the nation's rivers into sewers. At one point in the mid-sixties, the mayor of Cleveland summed up a growing viewpoint when he predicted that the United States would soon become "the first nation to put a man on the moon while standing knee-deep in garbage."

The first serious broad look at the impact of new technologies on the planet's life-support system began in the United States in 1958. It was conducted by the marine biologist Rachel Carson. The ostensible subject of her four-year study was the effect on wildlife of the potent new poisons being produced by the chemical industry; in the end her research led her to compose a treatise that thrust the concept of ecology into the mainstream of human thought.

In 1958 some of Carson's friends in Massachusetts and on Long Island, angry at local mosquito-control agencies drenching their neighborhoods with DDT, persuaded her to write a protest article

about the environmental consequences. Her piece was rejected by Reader's Digest, but Carson had become convinced this was an urgent issue and she decided to enlarge her piece into a short book, even though she doubted it could ever be a bestseller like her previous one, *The Sea Around Us*. Her initial survey informed her that the pesticide problem was hardly a local one, and she realized that her findings and conclusions would put her on a collision course with powerful industries and much of the scientific community. DDT, like penicillin, was widely considered a boon to humankind; public health officers credited it with wiping out malaria in many areas, and agricultural experts were attributing dramatic increases in world food output to its effects. The Swiss biochemist Paul Müller had won a Nobel Prize in 1948 for developing it.

During most of the four years Carson took to complete *Silent Spring*, she was fighting a losing battle against cancer. Her search for facts became a crusade as she scrutinized the work of specialists ("a small number of human beings, isolated and priestlike in their laboratories") who seemed so intent on controlling nature they had no time to analyze the side effects of the products they were creating. As she became aware that the book would be in essence an argument, she decided to address it to two distinct audiences at once. It must be an ecology primer that millions of ordinary readers could understand, but it also had to command the respect of the scientific community

and force the chemical industry's scientists into a public dispute concerning the total environment.

She achieved her first goal by presenting detailed accounts of spraying fiascoes in places that ranged from a Nova Scotia forest to the rice fields of California. This section of *Silent Spring* connected the new "age of poisons" and "nature's web on interwoven lives" to the everyday existence of her readers. Her second task was more difficult and time-consuming. Knowing she would face fierce counterattacks, she concluded with a fifty-five-page appendix of "principal sources" that listed more than six hundred of the thousands of documents she had gathered and digested. The appendix was her way of saying to her critics: "Here is your substantiation. Tear it apart if you can."

Carson didn't live to know her book would be one of the most influential of the century.

As she had anticipated, chemical and agricultural trade groups mustered their scientists and mounted an expensive public relations campaign to discredit her credentials and her conclusions. Some



The United States' national bird, the Bald Eagle.

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critics asserted that she was not a “professional scientist”; a nutrition expert at Harvard’s Medical School castigated her for “abandoning scientific truth for exaggeration” and characterized her conclusions as “baloney”; the director of research for a leading manufacturer of pesticides put her down as a “fanatical defender of natural balance.”

There were other, cruder attacks: Ezra Taft Benson, who had been Secretary of Agriculture in the Eisenhower administration, wondered “why a spinster with no children was so concerned about genetics” and surmised that Carson was “probably a Communist.” However, President Kennedy was impressed with her presentation and had his Science Advisory Committee evaluate her findings. The dispute dissipated when, in April 1963, the prestigious committee submitted a report that vindicated her thesis.

Silent Spring provided a cautionary frame of reference for the age; the book stands today as a founding document of the ecological revolution. Translated into twenty-seven languages, it won an international audience and, like Theodore Roosevelt’s conservation initiatives, stimulated fresh currents of thought in other countries. It also fomented collaborative action by citizens and scientists that coalesced into a social phenomenon called “the environmental movement.” In a single decade ecology was transformed from a science understood by an elite into a central concern of humankind.

Cancer claimed Rachel Carson’s life in the spring of 1964. She did not live long enough to be aware that Silent Spring would rank as one of the most influential books of the century, but a

laurel bestowed on her in 1963 by the American Academy of Arts and Letters must have given her some premonitory pride: It read: “A scientist in the grand literary style of Galileo and Buffon, she has used her scientific knowledge and moral feeling to deepen our consciousness of living nature and to alert us to the calamitous possibility that our short-sighted technological conquests might destroy the very sources of our being.”

I was in charge of the Department of the Interior when Silent Spring appeared, and I well remember the reverberations it sent through the organization. Our responsibilities for resources put us in the forefront of a movement that was fueled first by Carson’s vision and then by the work of brilliant biologists like Paul Ehrlich, Barry Commoner, and E. O. Wilson. As we tried to confront the many challenges posed by the new age of ecology, our work led to, among other things, the program to protect endangered species and the end of backing for the American supersonic transport, with its sixty-mile carpet of sonic booms.

Only later, with hindsight, were many of us who had been caught up in the excitement of those times able to see them not as the dawn of a new way of looking at the world but rather as the final fruition of a conservation movement that had begun with the century. Indeed, the wise and always eloquent Aldo Leopold had provided a unifying theme decades earlier, when he wrote: “We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.” ❁



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THEODORE ROOSEVELT AND CONSERVATION

<http://www.nps.gov/thro/historyculture/theodore-roosevelt-and-conservation.htm>

“We have fallen heirs to the most glorious heritage a people ever received, and each one must do his part if we wish to show that the nation is worthy of its good fortune.” Theodore Roosevelt

Theodore Roosevelt first came to the badlands in September 1883. The prospect of big game hunting had initially brought him to the West, but, by the time he arrived, the last large herds of bison were gone, having been decimated by hide hunters and disease. As time passed and he was able to spend more time in the area, he became increasingly alarmed by the damage that was being done to the land and its wildlife. He witnessed the virtual destruction of some big game species. Overgrazing severely impacted the grasslands which also affected the habitats of small mammals and songbirds. Conservation increasingly became one of Roosevelt’s main concerns. After he became President in 1901, Roosevelt used his authority to protect wildlife and public lands by creating the U.S. Forest Service and establishing 51 Federal Bird Reservations, 4 National Game Preserves, 150 National Forests, 5 National Parks, and enabling the 1906 American Antiquities Act which he used to proclaim 18 National Monuments. During his presidency, Theodore Roosevelt protected approximately 230,000,000 acres of public land.

Theodore Roosevelt was the nation’s 26th President and is considered by many to have been our country’s “Conservationist President.” Here in the North Dakota badlands, where many of his personal concerns first gave rise to his later environmental efforts, Roosevelt is remembered with a national park that bears his name and honors the memory of this great conservationist.

Roosevelt is also represented on Mt. Rushmore (SD). Two of his homes are part of the National Park Service: Theodore Roosevelt Birthplace National Historic Site (NY) and Sagamore Hill National Historic Site (NY), as is the site where he was sworn in as president (Theodore Roosevelt Inaugural National

Historic Site in Buffalo, NY) and a park in Washington D.C., Theodore Roosevelt Island.

“There can be nothing in the world more beautiful than the Yosemite, the groves of the giant sequoias and redwoods, the Canyon of the Colorado, the Canyon of the Yellowstone, the Three Tetons; and our people should see to it that they are preserved for their children and their children’s children forever, with their majestic beauty all marred.” —*Theodore Roosevelt*

“We have become great because of the lavish use of our resources. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils have still further impoverished and washed into the streams, polluting the rivers, denuding the fields and obstructing navigation.” —*Theodore Roosevelt*

“It is also vandalism wantonly to destroy or to permit the destruction of what is beautiful in nature, whether it be a cliff, a forest, or a species of mammal or bird. Here in the United States we turn our rivers and streams into sewers and dumping-grounds, we pollute the air, we destroy forests, and exterminate fishes, birds and mammals -- not to speak of vulgarizing charming landscapes with hideous advertisements. But at last it looks as if our people were awakening.” —*Theodore Roosevelt*

TR, after camping in Yosemite National Park: “It was like lying in a great solemn cathedral, far vaster and more beautiful than any built by the hand of man.”

“In the Grand Canyon, Arizona has a natural wonder which is in kind absolutely unparalleled

throughout the rest of the world. I want to ask you to keep this great wonder of nature as it now is. I hope you will not have a building of any kind, not a summer cottage, a hotel or anything else, to mar the wonderful grandeur, the sublimity, the great loneliness and beauty of the canyon. Leave it as it is. You cannot improve on it. The ages have been at work on it, and man can only mar it.” 🌿

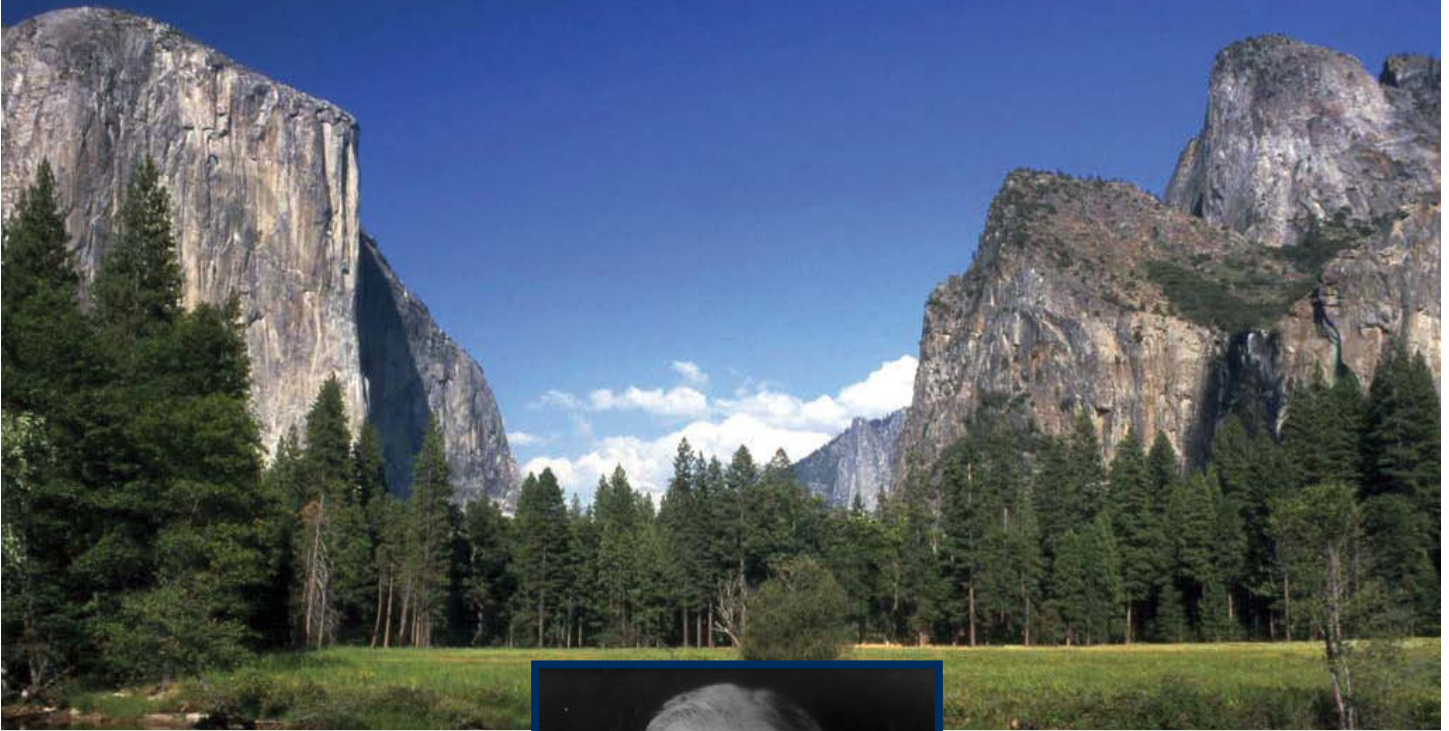


Theodore Roosevelt

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FDR ADDRESS TO THE CIVILIAN CONSERVATION CORPS

<http://www.pbs.org/wgbh/americanexperience/features/primary-resources/fdr-ccc/>



THE PRESIDENT HAILS THE WORKERS OF THE CIVILIAN CONSERVATION CORPS.

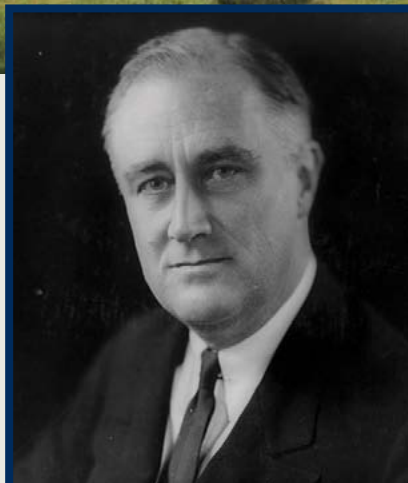
July 8, 1933

I welcome the opportunity to extend, through the medium of the columns of *Happy Days*, a greeting to the men who constitute the Civilian Conservation Corps.

Congratulations are due those responsible for the successful accomplishment of the gigantic task of creating the camps, arranging for the enlistments and launching the greatest peacetime movement this country has ever seen.

It is my belief that what is being accomplished will conserve our natural resources, create future national wealth and prove of moral and spiritual value not only to those of you who are taking part, but to the rest of the country as well.

You young men who are enrolled in this work are to be congratulated as well. It is my honest conviction that what you are doing in the way of constructive service will bring to you, personally and individually, returns the



Franklin Delano Roosevelt

value of which it is difficult to estimate. Physically fit, as demonstrated by the examinations you took before entering the camps, the clean life and hard work in which you are engaged cannot fail to help your physical condition and you should emerge from this experience strong and rugged and ready for a reentrance into the ranks of industry, better equipped than before. Opportunities for employment in work; for which individually

you are best suited are increasing daily and you should emerge from this experience splendidly equipped for the competitive fields of endeavor which always marl; the industrial life of America.

I want to congratulate you on the opportunity you have and to express to you my appreciation for the hearty cooperation which you have given this movement which is so vital a step in the Nation's fight against the depression and to wish you all a pleasant, wholesome and constructively helpful stay in the woods. ❁

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EXCERPT FROM *SILENT SPRING*

BY RACHEL CARSON

http://www.uky.edu/Classes/NRC/381/carson_spring.pdf

The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been molded by the environment. Considering the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species—man—acquired significant power to alter the nature of his world.

During the past quarter century this power has not only increased to one of disturbing magnitude but it has changed in character. The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world—the very nature of its life. Strontium 90, released through nuclear explosions into the air, comes to the earth in rain or drifts down as fallout, lodges in soil, enters into the grass or corn or wheat grown there, and in time takes up its abode in the bones of a human being, there to remain until his death.

Similarly, chemicals sprayed on croplands or forests or gardens lie long in the soil, entering into living organisms, passing from one to another in a chain of poisoning and death. Or they pass mysteriously by underground streams until they emerge and, through the alchemy of air and sunlight, combine into new forms that kill vegetation, sicken cattle, and work unknown harm on those who drink from once pure wells. As Albert Schweitzer has said, "Man can hardly even recognize the devils of his own creation." It took hundreds of millions of years to produce the life that now inhabits the earth—eons of time in which that developing and evolving and diversifying life reached a state of adjustment and balance with its surroundings. The environment, rigorously shaping and directing the life it



Rachel Carson

supported, contained elements that were hostile as well as supporting. Certain rocks gave out dangerous radiation, even within the light of the sun, from which all life draws its energy, there were short-wave radiations with power to injure. Given time—time not in years but in millennia—life adjusts, and a balance has been reached. For time is the essential ingredient; but in the modern world there is no time.

The rapidity of change and the speed with which new situations are created follow the impetuous and heedless pace of man rather than the deliberate pace of nature. Radiation is no longer merely the background radiation

of rocks, the bombardment of cosmic rays, the ultraviolet of the sun that have existed before there was any life on earth; radiation is now the unnatural creation of man's tampering with the atom. The chemicals to which life is asked to make its adjustment are no longer merely the calcium and silica and copper and all the rest of the minerals washed out of the rocks and carried in rivers to the sea; they are the synthetic creations of man's inventive mind, brewed in his laboratories, and having no counterparts in nature.

To adjust to these chemicals would require time on the scale that is nature's; it would require not merely the years of a man's life but the life of generations. And even this, were it by some miracle possible, would be futile, for the new chemicals come from our laboratories in an endless stream; almost five hundred annually find their way into actual use in the United States alone. The figure is staggering and its implications are not easily grasped—500 new chemicals to which the bodies of men and animals are required somehow to adapt each year, chemicals totally outside the limits of biologic experience.

Among them are many that are used in man's war against nature. Since the mid-1940's over 200 basic chemicals have been created for use in killing insects, weeds, rodents, and other organisms described in the modern vernacular as "pests"; and they are sold under several thousand different brand names.

These sprays, dusts, and aerosols are now applied almost universally to farms, gardens, forests, and

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EXCERPT FROM *SILENT SPRING*

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Rachel Carson's book *Silent Spring* catalogues the environmental impact of the indiscriminate use of DDT (dichlorodiphenyltrichloroethane) in the US, shown at left, and questions the logic of releasing large amounts of chemicals into the environment without fully understanding their effects on ecology or human health. The falls at Yosemite National Park, Nevada, above, shows the natural beauty that would be destroyed.

homes—nonselective chemicals that have the power to kill every insect, the “good” and the “bad,” to still the song of birds and the leaping of fish in the streams, to coat the leaves with a deadly film, and to linger on in the soil—all this though the intended target may be only a few weeds or insects. Can anyone believe it is possible to lay down such a barrage of poisons on the surface of the earth without making it unfit for all life? They should not be called “insecticides,” but “biocides.”

The whole process of spraying seems caught up in an endless spiral. Since DDT was released for civilian use, a process of escalation has been going on in which ever more toxic materials must be found. This has happened because

insects, in a triumphant vindication of Darwin's principle of the survival of the fittest, have evolved super races immune to the particular insecticide used, hence a deadlier one has always to be developed—and then a deadlier one than that...

The “control of nature” is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man. The concepts and practices of applied entomology for the most part date from that Stone Age of science. It is our alarming misfortune that so primitive a science has armed itself with the most modern and terrible weapons, and that in turning them against the insects it has also turned them against the earth. 🌿