

The Suicide of the West

Rachel Carson Revisited: From “Silent Spring” to Zika.

By Alston Chase

Fifty-four years ago—Sept. 27, 1962—a book was published that would change the world. Entitled “Silent Spring” and written by a 55-year-old employee of the U.S. Fish & Wildlife Service (FWS) named Rachel Carson, it would become an instant best seller and an icon of modern environmentalism, its popularity further enhanced by the quiet and modest charm of Ms. Carson herself. Yet, while viewed as inaugurating the modern ecology revolution, neither it nor its author were what they seemed. Rather than an ecologist as many supposed, Carson described herself as one whose “actual profession is writing.” And although her book was widely popular with environmental activists, book critics and general readers, it was roundly faulted by many leading biologists as flawed science.

With the passage of time, the flaws of “Silent Spring” have become even more glaring. Rather than providing a better understanding of nature, it spread ignorance and fear, and indirectly caused the deaths of millions of people. It also set the template for a destructive new genre: the environmentalist scare book. By spreading fear of death, it convinced the West to commit suicide.

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“A grim specter has crept upon us almost unnoticed.... What has already silenced the voices of spring in countless towns across America? This book is an attempt to explain.” So promised Carson in the opening chapter of “Silent Spring.”

The book shocked and galvanized the nation, spreading widespread fear that our environment was at risk. Almost instantly it convinced the public that agribusiness, through indiscriminate use of synthetic chemicals, threatened all life on earth!

Indeed, few books ever had such an immediate, widespread and powerful impact. The drumbeat of its emotional warning of the dangers of pesticides began even before its publication on Sept. 27, 1962. In June, the *New Yorker* had serialized portions of it. Throughout the summer, newspapers ran stories on it. After publication it quickly

climbed the best-seller lists. The Book-of-the-Month Club made it the October selection. It was deluged with rave reviews. CBS Reports devoted two programs to it. Inspired by her book, the Senate launched hearings on pesticides. When Carson died of cancer less than two years later, a nation mourned. Her funeral would be held in the National Cathedral and prominent figures would be her pallbearers. Within 10 years, DDT would be banned.

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The story of “Silent Spring” began in 1957, when Carson learned that some of her wealthy and well-connected Long Island birder neighbors had filed suit against the U.S.

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Department of Agriculture (USDA) to prevent planned spraying of DDT around their homes to fight Dutch elm disease and control mosquitoes. Plaintiffs included Carson’s friends: ornithologist Robert Cushman Murphy; Marjorie Spock, daughter of the general solicitor of the New York, New Haven & Hartford Railroad and sister of famous pediatrician and author Benjamin Spock; Jane Nichols, daughter of financier J.P. Morgan; and Archibald Roosevelt, son of former president Theodore Roosevelt.

Carson immediately began following the progress of the suit, having been a determined foe of DDT even before she knew much about it. Although DDT was first invented in 1874, it wasn’t until 1939 that its

pest-killing properties were discovered, and not until World War II that it was first used in that capacity. Its discoverer, Swiss chemist Paul Hermann Muller, would be awarded the Nobel Prize in physiology or medicine in 1948, “for his discovery of the high efficiency of DDT as a contact poison against several arthropods.”

Immediately after hearing of the Long Island litigation, Carson jumped at the



opportunity to join the fight. Yet at the time she knew virtually nothing about pesticides. She wasn’t a researcher or scientist. She hadn’t earned a doctorate or ever published in a peer-reviewed journal. She had worked her entire career as an editor of nature and environmental books and articles for the FWS. Her most popular works had been about the sea. As she described herself in 1948, she was “a marine biologist whose actual profession is writing rather than biology” and whose “consuming interest hap-

pens to be the ocean and its life.”

Rather than scientist or ecologist, Carson was, above all, in temperament and disposition, an environmental activist. She fit squarely within the New England religious tradition devoted to an intense love of nature. This love had drawn her to others who shared her passion—National Audubon Society colleagues, editors and writers of the East Coast literary establishment, affluent conservationists in and around New York, Washington, D.C., and Southport, Maine (where she summered), and scientists throughout the country with whom she became acquainted in the course of her editing and writing career.

Once committed to write on pesticides, therefore, Carson had a problem: She knew that given her lack of credentials in this field she needed help. And as she planned from the outset to write a brief against their use, she relied heavily on material supplied by the plaintiffs in the Long Island suit. She asked and received background material from Spock, who in return asked her to testify at the trial. Once the trial was in progress, she obtained the trial transcript.

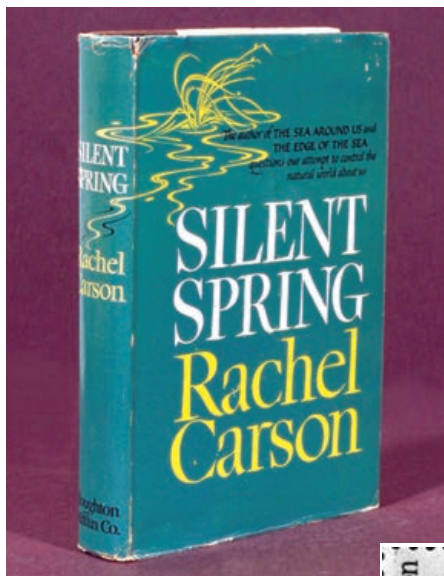
Having decided at the outset that her book would be a polemic against pesticides, yet lacking knowledge of the science, Carson sought out scholars who could help make her case. And as it happened, several of those most willing to do so were leftist ecologists with ideological axes to grind: socialist and communist scientists who saw pesticides as a platform for criticizing capitalism.

Among them was a brilliant American geneticist named Hermann J. Muller. A fervent communist, he had gone to the Soviet Union in 1933, where he supervised a large genetics laboratory for the purpose of taking “conscious control of human biological evolution” to create a new race of socialist supermen, promising Soviet Premier Josef Stalin that “it will be possible within only a few generations to bestow the title of so-called ‘genius’ upon practically every individual in the population—in fact, to raise all the masses to the level at which now stand our most gifted individuals.”

Unfortunately for Muller, however, he fell out of favor with Stalin. Fearing for his life, he departed Russia and ultimately returned to America, where he joined the faculty of the University of Texas. While there, and still a communist, he was awarded the Nobel Prize for his discovery that radiation from atomic fallout caused genetic mutations, and he

would use this fame as a pulpit from which to preach against American nuclear weapons.

Muller’s discovery of the mutagenic effects of radiation would form the heart of Carson’s critique. Speaking at a meeting of the National Council of Women after the book’s publication, Carson, apparently unaware of Muller’s attempt to use genetics to “change the course of history” for Stalin, announced her profound debt to him for



PHOTOS VIA INTERNET

Rachel Carson’s book was so popular in the 1960s, she got a stamp. Sadly, her determination to ban DDT caused the death of millions of people and set the template for a destructive new genre: the environmentalist scare book. The problem was that DDT was a good thing.



showing that “exposing organisms to radiation could produce those sudden changes in hereditary characteristics that biologists call mutations” and thus “change the course of heredity.”

With that, Carson had her argument. Pesticides, she concluded, were “mutagens” that could trigger genetic mutations that might lead to cancer. When let loose on the landscape, the effect would be far more powerful than hitherto thought, thanks to two biological processes called biological accumulation and biological magnification. The first refers to the supposition that once ingested, these mutagens gradually accumulated in the body; and the second to the idea that they become increasingly concentrated as they pass up the food chain from prey to predator, so that carnivores at the top, like birds of prey, can be ingesting dangerous doses even while consuming little directly themselves.



By the time “Silent Spring” was published, therefore, it was a polemic with no pretense of scientific objectivity, but solely intended to pillory capitalism and the chemical industry. It painted a stark picture where foresters, farmers and public officials, abetted by a conspiracy orchestrated by a chemical industry motivated by profit and indifferent to consequences, saturated the world with poison, killing wildlife, spreading cancer, and putting everyone at risk. Aerial spraying was causing a “rain of death” across the country. Thanks to biological accumulation, “the average person is storing potentially harmful amounts” of pesticides within their bodies. “Modern insecticides (like DDT) are still more deadly” than arsenic. Herbicides are as deadly as radiation. “Indiscriminate” spraying was “killing birds, mammals, fishes, and indeed practically every form of wildlife.”

Yet while this frightening hyperbole and accompanying media hype had its intended effect on the general public, many of those who knew the science were less gullible. The *New York Times* science writer complained that Carson “tries to scare the living daylight out of us.” The reviewer for *Scientific American* lamented that “what I interpret as bias and oversimplification may be just what it takes to write a best seller.” I.L. Baldwin, former chair of a National Academy of Sciences committee on the effects of DDT on wildlife and

professor of agricultural bacteriology at the University of Wisconsin, writing in the journal *Science*, suggested that “Silent Spring,” rather than being scientific, was “a prosecuting attorney’s impassioned plea for action.” Rather than a “chemical death rain” spreading across the country, as Carson claimed, he added, “actually less than five percent of all the area of the United States is annually treated with insecticides.”

TIME magazine noted, “Miss Carson has taken up her pen in alarm and anger, putting literary skill second to the task of frightening and arousing her readers.” And science writer Edwin Diamond, reviewing “Silent Spring” in the *Saturday Evening Post*, used words such as “attention-getting,” “exaggeration,” “hyperbolic” and “paranoid” to describe the book. Diamond reminded his readers that according to President Kennedy’s Science Advisory Panel, “deaths from the misuse of pesticides have numbered about 150

throughout the United States”—fewer than died from overdoses of aspirin each year!

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Over time, the legion of expert critics continued to grow. In a landmark 1992 essay, “The Lies of Rachel Carson,” the distinguished entomologist J. Gordon Edwards, after finding several apparently intentional deceptions in the book, called her a “fraud.”

“Ms. Carson used dubious statistics and anecdotes...to warn of a cancer epidemic that never came to pass,” science writer John Tierney wrote in the *New York Times* in 1997. “She wildly imagined a mass ‘biocide.’ She warned that one of the most common American birds, the robin, was ‘on the verge of extinction,’ an especially odd claim given the large numbers of robins recorded in Audubon bird counts just before her book was published.

“Metabolism and breakdown of DDT in humans and other vertebrates, and their excretion in urine...prevent the alleged ‘biological magnification’ up food chains from actually occurring.” Likewise, “there has been no medical indication that trace amounts of DDT in the diet are harmful.” And her remark that the “average person is storing potentially harmful amounts” of DDT was “absolutely false”!

In 1994, the late University of California, Berkeley professor Aaron Wildavsky reported that successive studies had found DDT harmless to humans, even in massive doses. Nor, he noted, had researchers found DDT harmful to songbirds, although they did find evidence “DDT can be toxic and cause reproductive problems” in other bird species, especially raptors.

But the most devastating critique came from Bruce Ames, professor of biochemistry and molecular biology at the University of California and famous inventor of the Ames Test, a system for detecting the relative mutagenicity, or cancer-causing potential, of organic compounds. In a landmark 1987 article in *Science* magazine, Ames reported that, after exhaustive studies, he found that the natural foods we eat carry far greater carcinogenic risk than man-made pesticides. All plants, he explained, make their own pesticide as protection against natural enemies, and we consume 10,000 times as many of these natural carcinogens than synthetic ones. Moreover, the pesticides in some foods are far more powerful than man-

made pesticides. The chances of getting cancer from peanut butter (which carries a natural cancer-causing substance called aflatoxin), Ames noted, are far greater than consuming foods tainted with dioxin, a much feared synthetic chemical.

And this supposition, that synthetic chemicals are more dangerous than natural ones, Ames wrote in 1993, was Carson’s greatest mistake. Her claim that “for the first time in the history of the world, every human being is now subject to contact with dangerous chemicals, from the moment of conception until death,” was, he says, “nonsense...99.9 percent of the chemicals humans ingest are natural...99.99 percent of the pesti-

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cides humans eat are natural pesticides produced by plants to kill off predators.”

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In sum, “*Silent Spring*” had exaggerated virtually every one of its direst claims, and was downright wrong about those that counted most. DDT’s threat to birds was vastly exaggerated. There is no evidence DDT caused cancer in humans. Indeed, according to the U.S. National Academy of Sciences, before the chemical was banned, by killing mosquitoes DDT had saved 500 million lives—more than any other chemical compound in history. Carson’s supposition that synthetic chemicals are more risky than natural ones was wildly mistaken, something she should have known because she was aware of the existence of natural pesticides, although belittling their effects.

But however right “*Silent Spring*’s” critics may have been, few paid attention to them. Many readers undoubtedly were swayed by the passion and sincerity of its author. But the great majority was simply moved by the explosive power of the book’s main message—a message that resonated to the deepest level of the western heart: that man was destroying the Earth! It conjured echoes of ancient mythologies and religions; of a time when the world had been perfect until human arrogance and avarice destroyed it; of the golden age of Greek mythology; of Prometheus, punished for stealing the secrets of the Gods; and of the Garden of Eden,

where Adam and Eve lost their innocence.

In the end, the impact of this mythological and religious fervor forced the advocates of DDT to capitulate. In 1972, it would be banned in America, and soon after its use in other countries severely restricted. The dramatic, silently rising death toll from malaria and other tropical diseases would become mute testament to the killing power of religion and myth to suppress the voice of science.

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Ever since science first began its breathtaking race of discovery in the 16th century, a period known as the Renaissance, its phenomenal progress was driven and sustained not

only by continual empirical testing and experimentation, but also by what Rene Descartes, one of the great philosopher/scientists of this era, would call “the method of doubt.” And while others called it by different names, such skepticism is still the

secret of science’s success. According to this rule, every hypothesis or theory must be considered tentative—proposed with the understanding that some future evidence or experiment might prove it false.

Only by trying and failing to find flaws in a hypothesis could scientists have confidence it might be true. Even if it passes test after test, it would be deemed merely confirmed, not proven. For science must always consider the possibility that some later test might find it false.

It was this adherence to the principles of empiricism and skepticism that allowed scientists to draw a bright line between science and religion. In 1945, the English philosopher Karl Popper would call it the “falsifiability principle”—the rule that “it must be possible for an empirical scientific system to be refuted by experience”—otherwise it wasn’t science but religion or philosophy.

As Popper explained, facts confirm a theory only “if we have tried, and failed, to discover refutations. For if we are uncritical...we shall look away from, and not see, whatever might be dangerous to our pet theories.” Thus, he wrote, it is “the possibility of overthrowing [an hypothesis], or its falsifiability, that constitutes the possibility of testing it, and therefore the scientific character of a theory...this view of scientific method is corroborated by the history of science, which shows that scientific theories are often overthrown by experiments, and

that the overthrow of theories is indeed the vehicle of scientific progress.”

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Unfortunately, however, this was not Rachel Carson’s method. What characterized hers was its religious *certainty*. Rather than remaining in the mainstream of modern scientific tradition, modestly couching scientific claims as tentative and always open to question, Carson declared her opinions as certain, and doubters to be either evil or ignorant. She therefore missed a golden opportunity to teach readers what mainstream science really was, a discipline that sociologist Robert K. Merton defined as “organized skepticism,” and a former Princeton professor of mine, Earnest Nagel, described as “the persistent critique of arguments.”

Rather than writing a scientific book, Carson, however well-meaning, had created the template for a decidedly unscientific genre: the environmental scare book. As a literary form it would feature exaggerations, half-truths, attacks on the motivations of doubters, and dire predictions based on little or no evidence or shaky citations. For the aim of such scare books was not to engage in scientific debate. It would be, rather, to prevail in the court of public opinion *before the results of genuine science might disprove it*, by presenting simple arguments easily hyped by media to scare the public silly, and by this to provoke governments to take premature action.

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In this way, Carson had cast the mold. Following “Silent Spring” would come an avalanche of books by other authors, all claiming infallibility and intending to spread fear. Some, like “Silent Spring,” preached chemophobia and hyped the dangers of every synthetic chemical from Alar to saccharin. Others warned of environmental collapse (whatever that means). And while many of these predictions raised scientific issues worthy of investigation, none presented their theses as debatable. Like “Silent Spring,” their most obvious feature was their religious certainty.

Thus, Paul R. Ehrlich’s 1968 best seller, “The Population Bomb,” would predict worldwide famine and food riots in America by 1980. In 1970, the Club of Rome’s “Limits to Growth” would warn that exponential population growth and human activity threatened to trigger worldwide ecological catastrophe. And often from 1974 onward, Lester R. Brown’s Worldwatch Institute

would reiterate its theme that global famine lay just around the corner.

As with Carson’s predictions, almost none came true, but few environmentalists seemed to notice or care. Rather, they just doubled down on their pessimism. Apocalyptic warnings multiplied: World agricultural production continued to rise, not fall. Alar and saccharin posed only infinitesimal risks. The ozone layer didn’t disappear. Despite an exhaustive study the International Union for the Conservation of Nature found no evidence of an “extinction crisis.” American forests were more extensive than when the



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Pilgrims landed, acid rain vastly overblown. Yet, by the time scientific studies exposing these false predictions were completed, the environmentalists had already claimed victory and moved on to the next political campaign. And when a phony disaster they had predicted failed to happen, the media simply gave them credit for *preventing it*.

In this way, politics always remained a step ahead of science, and even the failure of their dire predictions had little negative impact on the doomsayers’ reputations. Instead, true believers would say, as they had about Carson, that truth didn’t matter. It was more important, they argued, to frighten people into doing “the right thing.” Government, they urged, should heed all their apocalyptic warnings “to be on the safe side.”

Eventually they would formalize this specious reasoning as the “precautionary principle” without considering whether the policies they inspired, which had been designed to avert fictitious “threats,” might do more harm than good.

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Meanwhile, prompted by these scares, public

monies poured into environmental research as federal and state agencies, research organizations, and advocacy groups found spreading fear to be a cash cow to grow their budgets. Colleges introduced courses in ecology and private foundations inaugurated grants’ programs designed to promote the science.

Meanwhile, the demographic composition of the environmental movement was changing. Whereas earlier in the century organizations such as Save the Redwoods League and the National Wildlife Federation had been led by businessmen and -women who looked to private enterprise for conservation support, by the 1960s they had been eclipsed by organizations such as the Wilderness Society and Sierra Club, which appealed to professionals of the Baby Boom generation—attorneys, schoolteachers and other public employees.

These younger activists looked to government for land acquisition and protection so they could focus on lobbying, litigation and the orchestration of media campaigns designed to raise public consciousness about new issues.

In this way, an incestuous template for environmental advocacy emerged: Government and university ecologists, often members of environmental groups themselves, planted the seeds of the next scare, allowing the activist organizations to map a campaign and feed story lines to journalists who, not coincidentally, were members of the movement themselves.

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So it would be with DDT. With one fell swoop, Carson had converted the country to radical environmentalism. Combining ancient mythology with religious pantheism, she ignited a movement that could not be stopped. Environmentalism became the new national religion and ecology the handmaiden of its theology. The seeds of fear of ecocatastrophe had been planted. A pseudoscientific infrastructure was in place and new alliances born, linking government, environmentalists and the media. The era of state science had arrived. Public monies poured into environmental research, feeding the growth of universities and government agencies and transforming them. A new

infrastructure emerged linking these institutions with the media and activists, forging new templates for political action directed by environmentalists, funded by government, supported by universities, and hyped by the media.

Political battlefields would shift from wilderness, pesticides and endangered species to global climate; state power would reach for the stratosphere; computer modelers would reject empirical data in favor of virtual reality; new dogmas would denounce western civilization and redefine the meaning of liberty. And the missionaries of the new theocratic vision would continue to hone tactics for acquiring power through spreading fear, one step at a time, until they were ready to launch their final assault, over global warming.



In 1959, about the time Carson was completing the manuscript of "Silent Spring," I was a student at Oxford University. While there, I had the great good fortune to attend lectures by a famous historian named Isaiah Berlin. The subject was liberty. Of the many wise things he said, one sentence especially stands out in memory. "The logical culmination of the process of destroying everything through which I can possibly be wounded," he warned, "is suicide."

Although he said this before "Silent Spring" had been published, his words could stand as Rachel Carson's epitaph, and why she continues to haunt. Simply put, the book reflects an obsessive fear of death, and *that* is driving the West to the brink of suicide.

Of course, we don't know what is going to happen. Perhaps the end will come sooner than we think in the form of a mosquito-borne virus like Zika, an organism DDT perhaps could have stopped but current pesticides apparently cannot. Already Zika's virulence is prompting calls to bring back DDT. But as Jeffrey Scott, professor of entomology at Cornell University, said in a recent interview, while DDT has "unquestionably saved millions and millions" of lives around the world, "I don't think anybody would survive the political fallout of trying to bring this back. It's got religious zeal to it in some

camp...we'll all be long dead before DDT is ever used again."

Returning to the pre-Rachel Carson era almost certainly won't happen, as environmentalist zealotry still trumps sound science. Rather, we've reached the beginning of the end, the inevitable conclusion of "Silent

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Spring's" rejection of the scientific method of doubt. Recently, several environmental groups, frustrated that their scare tactics hadn't changed the minds of sufficient numbers of "global-warming deniers," and having failed to learn that skepticism is the keystone of sound science, formed an alliance with 17 state attorneys general to bring criminal charges against dissidents. [See

page 14] And while it appears to be fizzling out, we've probably not seen the last of such totalitarianism. Extremist ideas are like weeds: once introduced, they grow and grow and never die.

Just so, when government starts putting skeptics in jail, it won't stop until hell freezes over. ■

A former college professor specializing in the history and methodology of science, Alston Chase holds degrees from Harvard, Oxford and Princeton and has written widely on environmental issues. During the course of his distinguished career, he has lectured at Harvard, Yale and several other universities and served as a consultant to the National Science Foundation, National Endowment for the Humanities, and various private philanthropies. His 1986 book, "Playing God in Yellowstone," was featured on the cover of Newsweek and has become a modern environmental classic.

His 1995 book, "In a Dark Wood: The Fight over Forests and the Myths of Nature," was described by the New York Times Book Review as "a gripping story...an uncommonly astute analysis of a movement [and] a surpassingly careful effort to understand and give context to a great political drama that has no heroes and many casualties." A 1999 Random House readers' survey rated it one of the 100 most important nonfiction books published in the English language in the 20th century.

Alston and Diana, his wife of 52 years, live in Paradise Valley, Mont. They have two grown sons.