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APES Topic 9 – Toxicology

Date _____
Mr. Romano

silent spring revisited
by Dorothy McLaughlin



On the walls of the US vice president's office, you might expect to see framed photos of political giants past and present. Amidst his collection, however, Al Gore cherishes a picture of a biologist from Western Pennsylvania - Rachel Carson, author of "Silent Spring." Why does an unassuming scientist lay claim to this space? "For me personally," says Gore in his introduction to the 1992 edition of her book, "Silent Spring had a profound impact ... Indeed, Rachel Carson was one of the reasons that I became so conscious of the environment and so involved with environmental issues ... Carson has had as much or more effect on me than any, and perhaps than all of them together."

Since the 1962 publication of "Silent Spring" - in which Carson described the effects of pesticides on plants, animals, and humans - she has been valorized and villainized liberally. Scientists, politicians, policy makers, garden clubs, and the media have alternately taken swats at her science, her gender, and her questioning of the "irresponsibility of an industrialized, technological society toward the natural world."

She was "a fanatic defender of the cult of the balance of nature," stated Dr. Robert White-Stevens, a former biochemist and assistant director of the Agricultural Research Division of American Cyanamid. As a spokesman for the chemical industry during the 1960s, White-Stevens told the public, "If man were to follow the teachings of Miss Carson, we would return to the Dark Ages, and the insects and diseases and vermin would once again inherit the earth."

Meanwhile, pesticide manufacturers made efforts to educate the public about the benefits and importance of pesticides. Beginning in November, 1962, the Manufacturing Chemists Association mailed monthly stories to the news media, demonstrating the positive aspects of agricultural chemicals.

Despite attempts by the chemical industry to dismiss Carson's science, her work is credited with beginning the American environmental movement, the creation of the Environmental Protection Agency, and the 1972 ban on DDT. The immediate response to Silent Spring was enormous. On publication day, September 27, 1962, the advance sales of Silent Spring totaled 40,000 copies and another 150,000 copies were sent to the Book of the Month Club. Carson's book educated many people about the dangers of indiscriminate pesticide use, and challenged them to become informed and to act. One grateful reader told Carson in a note, "I must thank you for your brilliant beginning in The New Yorker ... you make us readers understand our place in the world so much better ... I know that your great quiet eloquence will open many eyes and close many bottles."

Carson's eloquence did indeed close many bottles as her book was read by members of Congress and President Kennedy himself. At a press conference on August 29, 1962, a journalist asked the President if he had considered "asking the Department of Agriculture or the Public Health Service to take a closer look at ... the growing concern among scientists" about the possible long-term effects of DDT and other pesticides. Kennedy responded, "Yes, and I know they already are. I think particularly, of course, since Miss Carson's book."

The President quickly appointed his scientific advisor, Dr. Jerome B. Wiesner, to study the pesticide issue to produce a report containing recommendations for the use and regulation of pesticides in the United States. The President's Science Advisory Committee report, "The Use of Pesticides," issued on May 15, 1963, called for decreased use of toxic chemicals to chemical controls that were less persistent in the environment "until the publication of Silent Spring, people were generally unaware of the toxicity of pesticides."

Shortly after "The Use of Pesticides" was released, Rachel Carson appeared before the Senate Committee on Commerce where she suggested that a commission be established to deal with pesticide issues and to make decisions based on the broad public interest, rather than the profit interest of a few. The Commission that Carson envisioned lives on as the Environmental Protection Agency; it is "the extended shadow of Silent Spring," as an EPA journalist wrote on the fifteenth anniversary of the Agency. The purpose of this Agency is to protect, develop, and enhance the environment.

Many view "Silent Spring" as instrumental in the United States' decision to ban DDT. "The brown pelican might have disappeared from the Carolina coast -- indeed gone the way of the passenger pigeon, whose flocks once darkened the afternoon sky -- had it not been for a book (Silent Spring) that forever changed the way we look at pesticides," reported the Chapel Hill Herald on the twenty fifth anniversary of the book's publication.

While the ban on DDT has led to the recovery of many wildlife species, there remains controversy as to the benefits of the ban. Elizabeth Whelan, President of the industry-backed American Council on Science and Health, concedes Rachel Carson's work was significant to the ban. "The anti-DDT campaign had its origins in Rachel Carson's 1962 book "Silent Spring." That book is generally credited (or blamed) with launching the modern environmental movement. DDT became the prime target of the growing anti-chemical movement of the 1960s."

Whelan's group, however, has questioned Carson's work in a report entitled "A Review of the Twenty Greatest Unfounded Health Scares of Present Times." The report lists the ban on DDT as one of these unfounded scares, because - in the opinion of the American Council on Science and Health - the benefits of DDT's power to kill insects who may carry diseases that threaten humans outweigh the chemical's effects on wildlife and humans. In addition, ACSH questions whether DDT affects wildlife and humans adversely at all.

Despite the 1972 DDT ban, the effects of the chemical continue to be evident in wildlife populations, according to some biologists. John Elliot, a researcher with the Canadian Wildlife Service in British Columbia, works with robins in the Okanagan fruit-growing region of British Columbia. These orchards have been sprayed with pesticides for 40 years. Elliot, who studies the long-term effects of DDT contamination on the birds, has found that the DDT levels in their eggs are remarkably higher than levels reported 20-25 years ago, which suggests that although DDT is not in use, the residue continues to affect these birds. He believes that many of the questions Rachel Carson raised require more rigorous follow up. "What are the real effects of DDT on the robins? Does it cause acute poisoning of adult birds, or does it have longer-term reproductive effects on their offspring?"

Rachel Carson anticipated these questions about the threats posed to reproduction by chemicals in the environment. "We are subjecting whole populations to exposure to chemicals which animal experiments have proved to be extremely poisonous and in many cases cumulative in their effects. These exposures now begin at or before birth and - unless we change our methods - will continue through the lifetime of those now living."

<http://www.pbs.org/wgbh/pages/frontline/shows/nature/disrupt/sspring.html>

KEY POINTS / SUPPLEMENTAL INFORMATION REGARDING RACHEL CARSON AND SILENT SPRING:
