

Lecture #20: The Fallout of Silent Spring

Suggested Readings:

John Fowler, *Fallout*, 1960; *Hiroshima & Nagasaki*, 1981; H. Ball, *Justice Downwind*, 1986.
Rachel Carson, *The Sea Around Us*, 1951; *Silent Spring*, 1962; *The Sense of Wonder*, 1965.
Linda Lear, *Rachel Carson*, 1997; William Souder, *On a Farther Shore: The Life and Legacy of Rachel Carson*, 2012; Priscilla Murphy, *What a Book Can Do: The Publication ... of Silent Spring*, 2005.
Thomas Dunlap, *DDT*, 1981; J. Whorton, *Before Silent Spring*, 1974; F. Graham, *Since Silent Spring*, 1970.
Thomas Dunlap, *DDT, Silent Spring, and the Rise of Environmentalism*, 2008.

Outline

I. Bombs, Radiation, and Death

atomic weapons shared conventional dangers--blast and burn--but greater intensity & scale
more important still, biological disruption from radioactive assault on cells: radiation sickness, loss of hair,
eventually cataracts, leukemia. (story of Sadako's cranes)

damage to chromosomes: breaking, doubling, abnormal growth lead toward mutation & cancer
cancer = central metaphor of abnormal growth in atomic age: disease reflects social ills

II. Fear of Fallout

disease from radiation not limited to victims of direct atomic attacks: persistence of isotopes (Strontium 90
mimics and replaces calcium, radioactive iodine in thyroid, Cesium 137 whole body accumulation;
plutonium in skeleton and lungs). long 1/2 lives

all being injected into environment in increasing quantities by nuclear testing: fallout
US tests in Pacific Ocean atolls of Marshall Islands, and Nevada Test Site starting 1951
Nevada: exposure to neighboring areas >> massive sheep/cattle kills, elevated leukemia
farther away: Sr 90 accumulates in soil, concentrated by cows in milk, child bones
increasing public anxiety about potential health effects despite AEC and govt assurances
1958, voluntary test ban; 1961 testing recommences; 1963, Limited Nuclear Test Ban Treaty

III. Rachel Carson: The Nature Writer Politicized

1962, Rachel Carson's *Silent Spring*, with image of nature devastated by white powder of a different sort of
fallout, chemical pesticides: cancer and bomb come together
born Springdale, PA, 1907, mother raised to love nature, music, books, writing, wished to write since
childhood, but shifted to biology in PA College for Women, then on to BA and AM Johns Hopkins, then
job with Bureau of Fisheries as 1 of 1st 2 women scientists
marginal status as female scientist limited research, but encouraged popular translation
1937, published first popular nature writing, "Undersea" in *Atlantic Monthly*, led to book *Under the Sea-Wind*
in 1941; shifted toward full-time govt conservation editing
1951: *The Sea Around Us* becomes world-wide best-seller, freed Carson financially
1956 article "Help Your Child to Wonder" (became *Sense of Wonder*): nature study values for nephew
Roger, children should be raised within the moral universe of nature
nature study would now be politicized, applied to chemical form of fallout/cancer

IV. The War on Pests

Carson first drawn to problem of pesticides by letter from friend Olga Owens Huckins, who complained that
spraying for mosquitoes was killing large numbers of birds
economic entomology emerged in early 20th c as science of chemicals to control ag pests
indigenous & introduced spp as chief targets: cf. boll weevil's arrival in 1892, gypsy moth in 1869; also
mosquito vectors of malaria, yellow fever
early pesticides, such as lead arsenate, had high acute & chronic toxicity for humans
miracle discovery of new aromatic hydrocarbon came during WWII: DDT applied to typhus epidemic in
occupied Naples to de-louse GIs, then to malaria control in tropics
broad-gauge attack on insects, low acute toxicity for humans despite accumulation in milk and fatty tissues;
approved for public use by FDA in 1945, rapid growth

V. Storm over Silent Spring

several strands of Carson's attack: tendency of DDT and other chemicals to concentrate in food chains,
putting highest levels of food pyramid at risk: predators, large vertebrates
because DDT and others accumulate in fat and decayed very slowly, long-term consequences
for birds, tendency to thin egg shells, so that fewer and fewer brought to maturity
certain species: brown pelican, peregrine falcon, bald eagle, etc., fell dramatically
second strand: pesticides not even effective in object. insects R-selected species, reproducing so quickly
that gene pool quickly accommodated new toxic environment
resistant breeds of agricultural pests meant self-defeating cycle of new pesticides
third strand: acute and chronic toxicity of chemical pesticides for humans
nervous disorders among pesticide workers, but esp cancer, central metaphor of unnatural
furor over publication of book, widespread attacks on Carson's authority by chemical companies
increasing public concern (EDF, 1967), led finally to EPA ban on DDT in 1972