

Lecture #17: 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.
Paul Brooks, *The House of Life*, 1972; Linda Lear, *Rachel Carson*, 1997; Mark Lytle, *Gentle Subversive*, 2007; Priscilla Murphy, *What a Book Can Do: The Publication and Reception of Silent Spring*, 2005.
Thomas Dunlap, *DDT*, 1981; J. Whorton, *Before Silent Spring*, 1974; F. Graham, *Since Silent Spring*, 1970.

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 C's authority by chemical co.s

increasing public concern (EDF, 1967), led finally to EPA ban on DDT in 1972