

Rachel Carson, a Voice for Organics - the First Hundred Years

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Rachel Carson was dying of cancer when she wrote *Silent Spring*. Within two years of publication, she was dead.

Who was Rachel Carson? And what is *Silent Spring*? Asking 40 tertiary students (at two Australian tertiary institutions: 10 + 10 male and 10 + 10 female students) in March 2007, revealed a general consensus of: “no idea”. Only one female student responded, and without hesitation: “Rachel Carson, she wrote *Silent Spring*”. That leaves 97.5% of this cohort of students with “no idea” of this woman, described by *TIME Magazine* as one of “the 100 most influential people of the 20th century” (Matthiessen, 1999), or of her book, described by a panel as “the most influential book of the past 50 years” (Weiss, 2003).

Publishing in 1962, Rachel Carson awoke a generation past, to the false promises of the “war on weeds”, the “war against the insects” and “better living through chemistry”. She wrote to a friend: “there would be no peace for me if I kept silent” (Lear, 2002, p. xiv). She asked the world to consider: “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?” (Carson, 1962, p. 7-8).

Carson wrote with passion and conviction, and she harnessed the scientific evidence to back up her manifesto, decrying the poisoning of the planet (*Silent Spring* includes 55 pages of references). She was born on 27 May 1907, a century ago. She spent her childhood and youth in Springdale, Pennsylvania where she witnessed the transformation of her “pristine village” to “a grimy wasteland, its air fouled by chemical emissions, its river polluted by industrial waste” (Lear, 2002, p. xi, xiii). She left to study, and she completed an MA in Zoology at John Hopkins University.

DDT (Dichloro-Diphenyl-Trichloroethane) was first synthesised by Othmar Zeidler in 1873. Paul Muller discovered its insecticidal properties in 1939. It was cheap, very chemically stable, and it went on the market in Switzerland in 1941. Muller was

awarded a Nobel Prize in 1948 (MacGillivray, 2002). By the 1950s it was in worldwide use, including in Australia (Harrison, 2002).

Carson claimed that DDT and other pesticides and insecticides should more properly be referred to as *biocides*. They are anti-life, and to imagine, for example, that “herbicides” restrict their toxicity to plants is mere “legend” and “unfortunately it is not true” (Carson, 1962, p. 34). She lamented “an appalling deluge of chemical pollution is daily poured into the nation’s waterways” (p. 40). She cited Professor R. Eliassen on “the impossibility of predicting the composite effect of these chemicals” (p. 40). She wrote: “it is simply impossible to predict the effects of lifetime exposure to chemicals and physical agents that are not part of the biological experience of man” (p. 188). She described a “whole chain of poisoning” (p. 48), as DDT moves from water to plankton, to insect, to fish, to birds, to people. Carson reported that the DDT added to Clear Lake in California could no longer be detected in the water but that it had “gone into the fabric of life the lake supports” (p. 48); the DDT added at 1 part per 50 parts per million (ppm) of water, bio-accumulated to 5 parts per million in lake plankton, to 40 - 300 ppm in fish, and in California gulls, to in excess of 2000 ppm.

Her message was that an “unseen and invisible” (p. 41) rain of death is poisoning the planet, and that “we stand now where two roads diverge” (p. 277). She declared: “we are being asked to take senseless and frightening risks ... we should no longer accept the counsel of those who tell us that we must fill our world with poisonous chemicals; we should look about and see what other course is open to us” (p. 278).

The chemical industry spent liberally to debunk the Carson view (MacGillivray, 2002). Yet Carson’s book tapped a deep vein of public distrust of, and unease with, the chemotechnocrats and their brave-new-world of aerial spraying of *de novo* miracle poisons over millions of acres. Were their silver-bullet solutions better characterised as toxic time-bombs?

There have been three responses to Carson’s wakeup call: the denialists (“no”), the particulatists (“yes but”) and the comprehensivists (“yes ok”).

The denialist position is essentially: DDT is fine, and Carson is exaggerating. According to Maley (1994) DDT “has since been shown to be one of the most beneficial chemicals ever invented, and which can be used ... without harm to humans and animals”. In their 432 page tome, *Marketing of Agricultural Products*, Kohls & Downey (1972) devote only ten lines to “Concern for Human Health”, and therein they touch on cholesterol and “attacks on smoking”, and mention pesticides not at all. On the other hand, Bockris (1977, p. vii) could declare that “The despoliation of the environment by man’s activities has long been clear to chemists. However, it has been the subject of public debate for a short time - since the late 1960s”. Toribara *et al.* stated that “Environmental pollution is a very popular topic now... The search for pollutants has just begun... Most substances are not known to be toxic because no one has studied them” (1978, p. vii).

The chemical industry response has, by and large, devolved to an acceptance of the new reality and has accommodated the Carson view by adopting the particularization approach. Problems are attributed to particular products, and an adaptive business model is adopted. This generates a never-ending cycle of: (a) develop a new pesticide, (b) register it, (c) resist calls for its de-registration, and (d) finally, in time, accept its de-registration; start over. In this way, the problems identified with pesticides in general, are consistently particularized: yes, there was a problem with that particular chemical, but that particular chemical is now phased out, and now there is a new, better, superior chemical solution.

The third response to Carson's call for seeking a new path is the comprehensivist, holistic, or avoidance, approach. This is exemplified in the organic movement. Exhibiting great prescience, *bio-dynamic agriculture* dating from Steiner (1924) and *organic farming* dating from Northbourne (1940) already eschewed synthetic pesticides. The Bio-Dynamic Agricultural Association of Australia was founded in 1953, and the Demeter certification mark has been used in Australia from that date (BDRI, 2005), predating *Silent Spring*. The International Federation of Organic Agriculture Movements (IFOAM) was founded within a decade of *Silent Spring*, in France in 1972, with the mission to foster organic farming internationally. The two major Australian organic certifiers, Biological Farmers of Australia (BFA) and The National Association for Sustainable Agriculture Australia (NASAA) were both founded more than a further decade later, in 1986.

MacGillivray (2004) asserts that "Carson was an early supporter of organic farming" (p. 103). Carson certainly declared that: "single-crop farming does not take advantage of the principles by which nature works; it is an agriculture as an engineer might conceive it to be. Nature has introduced great variety into the landscape, but man has displayed a passion for simplifying it. Thus he undoes the checks and balances by which nature holds the species within bounds" (p. 10). Smalley (2000) relates that "a world without pesticides is hard to imagine" (p. 169), yet he suggests "I feel that were we faced with the loss of pesticides, all of our efforts would be bent on further non-chemical control measures to a much greater extent" (p. 171).

The US Environmental Protection Agency (EPA) was founded in December 1970. It cancelled all Federal registrations of DDT products on June 14, 1972, and from December 31, 1972 usage of DDT was banned in the US (EPA, 1972). The EPA has largely taken the chemical industry particularization reductionist approach - of examining pesticides on a case-by-case basis - and thus the list of available pesticides operates as a revolving door, as old chemicals exit, new ones enter the arsenal of registered toxins.

Trailing the US EPA response, in August 1972, the "Australian Agricultural Council recommended that all existing registrations for DDT should be reviewed as a matter of urgency, with the view to withdrawing all uses for which acceptable substitutes exist" (Harrison, 1997).

In *A Manual of Australian Agriculture*, initially DDT and “similar chlorinated insecticides”, attracted uncritical enthusiasm: “these chemicals offer the best economic control of pests” (Molnar, 1966, p. 313). A few years later, in the new post-Carsonist edition, there is a new moderated and technical view of pesticides. There is a whole new chapter - “Properties of Pesticides” - in which DDT is described as “user hazard” = “moderate”, and “persistence hazard” = “high”, with the remarks: “hazardous to fish, beneficial insects and some birds, accumulative in body fats. Residues found in animal products” (Molnar, 1974 p. 356).

When Carson looked at the world, she saw a “web of interwoven lives” (p. 56). She argued against war as an appropriate paradigm: “the chemical war is never won, and all life is caught in its violent crossfire” (p. 8). Her warning is that: “For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death” (p. 15).

Carson argued, before a congressional committee, for “the right of the citizen to be secure in his own home against the intrusion of poisons applied by other persons” (Lear, 2002, p. xv). The Tasmanian Greens have put forward a Chemical Trespass Bill to Parliament to enshrine such a right into law; so far without success, due to the lack of support from the two major political parties.

The World Health Organisation has recently overturned a DDT ban, in place since the 1980s. “Indoor spraying is like providing a huge mosquito net over an entire household for around-the clock protection” declared US Senator Tom Coburn (WHO, 2006). Reinstating the spraying of the interior walls of dwellings in Africa runs counter to the call by Physicians for Social Responsibility to eliminate DDT (Saoke, 2007). Australian and US embassy expatriates in Africa will surely continue to just fly-wire-screen their windows and doors, as will affluent Africans. The WHO “solution”, targets a selective, dis-empowered group who have a limited capacity for informed consent, namely the poor. The brutally frank question is: if these were white middle-class folk in Sydney, Suffolk or San Francisco, would WHO still be persisting with the proposal to douse their kitchens and bedroom walls and ceilings with long-life DDT? As Carson (1962, p. 23) pointed out, DDT crosses the placenta and it also passes to infants via maternal milk - that has not changed. As DDT infiltrates the houses, and thence children and nursing mothers, of Africa’s poor, WHO opens itself to fresh charges of chemico-colonialism. For small-scale African farmers this new development also puts at risk their organic farming and certification status. The National Organic Agricultural Movement of Uganda opposes the reintroduction of DDT (Nyanzi, 2006).

“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 ... It is our alarming misfortune that so primitive a science has armed itself with the most modern and terrible weapons, and in turning them against the insects it has also turned them against the earth” (Carson, 1962, p. 297). DDT and other post WWII pesticides are now ubiquitous, sequestered in the fatty tissues of us all.

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