

Happy Birthday *Silent Spring*: Towards Reconceptualising Science and the Environment

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Introduction

Peter Blaze Corcoran wrote of Rachel Carson that her 'three periods of writing, in a sense, recapitulate the brief history of modern EE. The nature-study era, the explicit concern for affect and questions of value, and the problem-solving, action-taking dimension represent the three vital stages of EE' (1997, p. 234). The book for which she is best known, *Silent Spring*, is an exposé of the perils of aerial spraying of pesticides in the post-war years and was published on September 27th, 1962, after being serialised in three editions of the *New Yorker* in the same year.

In May 2002, I was invited to chair a discussion at the first Cheltenham Festival of Science entitled *Happy Birthday Silent Spring*. In preparing for the discussion, which involved the environmental advocate, Jonathon Porritt and the poet and novelist, John Burnside, I began to re-examine ways in which science and the environment are intertwined. In this paper, I will make a few points that might catalyse debate and provoke responses that could enable me to move these ideas on.

Rachel Carson and *Silent Spring*

If she were alive today, Rachel Carson would have celebrated her 95th birthday on May 27, 2002. However, she died in April 1964, less than two years after the publication of *Silent Spring*, after a catalogue of illnesses including a misdiagnosed breast cancer. Her interests in writing and in nature seem to have been permanent features of her life. She attributed both interests to her mother. At university she changed her major from literature to zoology and in 1936, with an MA in Zoology from Johns Hopkins University, she began a fifteen-year career as a scientist and editor for the US Fish and Wildlife Service. She rose to become Editor-in-Chief but still managed to publish articles and books independently (Lear 1998).

Her prime interest was the sea and her trilogy of books, *Under the Sea-Wind*, *The Sea Around Us* and *The Edge of the Sea*, met with varying degrees of critical acclaim and commercial success. *The Sea Around Us* spent 86 weeks on the *New York Times* best-seller list and made her enough money to be able

A B S T R A C T

Rachel Carson's book, *Silent Spring*, an exposé of the perils of aerial spraying of pesticides in the post-war years, was first published forty years ago, in 1962. Views about the book and its impact vary considerably. This paper takes a critical look at some of the claims made by her supporters, in her name, about the role and value of science. Carson is highly critical of some aspects of science and of some scientists, however, I argue that Carson did not argue against the value of science as a way of knowing. Her message that it is the misuse of science, sustained by individual greed and market forces, that is the problem, has been lost, deliberately or accidentally.

to concentrate on writing full-time (Logan 1992). She was not immediately attracted to writing a book on pesticides although she had mooted the idea of writing an article for a magazine as early as 1945. However, as she found out more about the size and scale of the problem, she devoted more time to researching the topic and produced the book that we know as *Silent Spring*.

The impact of *Silent Spring* is hard to measure. President John F. Kennedy ordered his Presidential Science Advisory Committee to consider the issue of pesticides in 1963 and Carson gave evidence at its deliberations. Carson was vilified and attacked relentlessly by many in the pesticide industry and in the media (Lear 1998). Despite being a qualified ecologist, she had to endure a tirade of sexist abuse and a 'discourse of derision', to recycle a phrase used by my ex-colleague Stephen Ball. The book has hardly ever been out of print and Linda Lear, Carson's biographer, puts the book in the same category—'books that changed the world'—as *Das Capital*, *The Wealth of Nations*, *The Origin of the Species* and *Uncle Tom's Cabin*.

Critics of *Silent Spring*

Criticism of *Silent Spring* is relatively rare in the environmental movement. When I invited friends and colleagues to give me their opinion about the book, two female environmental educators wrote:

I read *Silent Spring* for the first time as a fourteen-year-old teenager. At the time I was horrified, but vividly inspired by this text. It provided a doorway to the environmental movement and inherently inspired me to enter the debate. As a young teenager at the time, I immersed myself in literature such as Suzuki, Ehrlich, Weston, Evernden ... Ten years have passed, and I am still intrigued by *Silent Spring*, such that I now endeavour to lead a career in the environmental movement and live my life accordingly (Australian EE doctoral student).

My personal relationship with Rachel Carson is through a *Peanuts* (Lucy, of course!) cartoon that [my

husband] gave me for my ... office door. In it she says, referring to Rachel Carson that 'we girls need our heroes'. I'm not sure which *Peanuts* book it came from, but I do like to think of Carson as one of my heroes. Of course I have only ever dipped into the book, but its significance goes without saying... and she is a hero because she was willing to stand up against the male science establishment and speak out. We need more courageous people like that! (Australian EE academic).

By way of contrast, a dissenting voice expressed the view that *Silent Spring* is very much a book of its time, situated in what R.J. Ellis (1990, p. 104) calls a "discourse of apocalyptic ecologism" generated in North America during the 1960s' (male Australian EE academic). This critic commented that:

What I most dislike about *Silent Spring* is Carson's attempt to recruit readers to her cause by nominating herself and her implied readers as an implicit 'us' up against an implicit 'them' which duplicitously shifts identities—government agencies, town halls, farmers... *Silent Spring* is politically incoherent but feeds off conservative populism, damning government for both wasteful inefficiency and failing to enact restrictive legislation....

Linda Lear, writing for a US website designed as a resource for teachers, notes that:

Some historians argue that Carson took the middle ground in *Silent Spring* and did not go far enough in challenging the power of big business and the scientific establishment. Yaakov Garb presents the best argument that Carson's moderation had costs which underlie the pesticide triumph of today. He is joined by critics who point to her defense of the outmoded concept of a balance of nature as contributing to the political softness of her attack. These critics chide Carson for not naming names of chemical companies who were irresponsible polluters and therefore failing to give a full critique of the process by which science invents and then assesses its own results.

Lear goes on to point out that:

When scholars and journalists debate the shortcomings and successes of the Green Revolution, Carson's name is always mentioned. She is either hero or villain depending upon the current fortunes of environmental politics. Those who believe that she set in motion an idealistic movement that values species over jobs and human livelihood deplore the millions of dollars spent by state and federal agencies to clean up pollution and attack polluters. Gregg Easterbrook is among those who find Carson an early scaremonger who did more harm than good. Other recent chroniclers criticize Carson for failing to include a more biocentric approach to her critique of pesticides. The

same commentators lament her failure to include the rights of other nonhuman species, and for neglecting the issues of social justice and equity in the decisions of who sprays and who gets sprayed. But historians such as Robert Gottlieb in *Forcing the Spring* (1993) applaud Carson for placing the very nature of the urban and industrial order on environmentalists' agenda and fearlessly confronting the issue of the destruction of nature as a debate over the quality of life (Lear 2002)

However, in this paper, rather than argue about Carson's literary style or political strategy, I am more concerned with the views of science implicit and explicit in *Silent Spring* and, to some extent, the views of science held by the environmentalists who hold the book dear. My impression is that the book's supporters do not take a critical view of the place of science in *Silent Spring* but, rather, they are selective about what the book does say.

Science in *Silent Spring*

Silent Spring is not an anti-science book in the way that some others clearly are. However, Carson is highly critical of some aspects of science and of some scientists. For example, *Silent Spring's* final paragraph contains a strong condemnation of applied entomology:

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. The concepts and practices of applied entomology for the most part date from that Stone Age of science. It is our alarming misfortune that so primitive a science has armed itself with the most modern and terrible weapons, and that in turning them against the insects it has also turned them against the earth (1999, p. 257).

Carson quotes the biologist Carl Swanson, when she writes:

Any science may be likened to a river. It has its obscure and unpretentious beginning; its quiet stretches as well as its rapids; its periods of drought as well as of fullness. It gathers momentum with the work of many investigations and as it is fed by other streams of thought; it is deepened and broadened by the concepts and generalizations that are gradually evolved (1999, p. 241).

Silent Spring's final chapter, 'The Other Road', argues strongly that the alternative to chemical control of pests must be biological control. Carson writes of 'forging weapons from the insect's own life processes' (1999, p. 247). She quotes a range of scientists in support of her case against chemical control. Towards the end of the final chapter, after describing a range of lethal strategies from X-raying male insects in order to sterilise them to using ultrasonic sound waves to kill mosquito larvae, she writes:

Through all these new, imaginative, and creative approaches to the problem of sharing our earth with other creatures there runs a constant theme. The awareness that we are dealing with life—with living populations and all their pressures and counter-pressures, their surges and recessions. Only by taking account of such life forces and by cautiously seeking to guide them into channels favourable to ourselves can we hope to achieve a reasonable accommodation between the insect hordes and ourselves (1999, p. 256).

My reading of *Silent Spring* points me to a view of Carson as a scientist who is highly critical of chemical methods used to control insect pests and of the influence of industry on scientific research and policy. However, unlike many other readings of the book, it seems to me that one interpretation of Carson's point of view is that she believes that it is an inalienable right of 'man' to wipe out any species that might be considered a pest. She would be quite happy to see science used to provide biological solutions that would see billions of insects slaughtered for the commercial and health benefits of humans. The use of the phrase, 'the problem of sharing our earth with other creatures', suggests to me that Carson might not want to share 'our' earth with quite as many species as many radical ecologists might tolerate. Science, and only science, can provide the 'new, imaginative, and creative approaches' that allows us to produce mass annihilation techniques that are 'favourable to ourselves' and cope with the 'insect hordes'. It seems to me that Carson is saying that ecology, which purports to bring a more synthetic approach to scientific knowledge, could provide a more 'natural' approach to the problems than chemistry alone could offer. Although Carson regales against the use of the phrase 'control of nature' she seems willing to use nature to control itself on our behalf.

'Although Carson regales against the use of the phrase 'control of nature' she seems willing to use nature to control itself on our behalf'

The most we can hope for, she seems to be arguing, is for us to co-exist with the 'hordes'. In coming to terms with her perception of the problems and the possible solutions, science plays a dual role for Carson—as both friend and enemy—and it is to that duality that I turn next.

Science, the environment and society

Some commentators on the place of science in our cultures have recognised the dual edged nature of the role of science. In *Understanding the Present: Science and the Soul of Modern Man*, Brian Appleyard wrote that:

Concern for the environment is our age's mechanism for resolving the contradictions inherent in the two

opposing aspects of science. Environmentalism is based on scientific insight, and yet it is violently opposed to the effects of most of the more obvious and spectacular achievements of science and technology. It is a way of turning science against itself, of rejecting the progressive ideals of economic growth by using scientific means to expose them as potentially suicidal. It is the single most successful popular solution to the terrible contrast between penicillin and atom bombs, air conditioning and concentration camps (Appleyard 1992).

The environmental activist Jonathon Porritt, who was Director of Friends of the Earth (FoE) from 1984-90, argues that the decrease in confidence in scientists is in part due to public disillusionment with politicians, some of which has 'rubbed off on scientists representing any official government position' (Porritt 2000, p. 19). He continues:

But that alone is not sufficient to explain how scientists have been knocked off their pedestal over the last twenty years or so. Nor is the fact that, being only human, they keep on making mistakes. Great big mistakes, not just basic scientific errors, as Robert Youngson's book, *Scientific Blunders* (1998) lays out for all to enjoy. Scientists are the one group of professionals in society who are always able to make a virtue of error. The scientific method consists in people putting forward new ideas (as hypotheses) and results (as evidence or proof) in the sure knowledge that their peers will do everything in their power to rubbish them if there are any methodological or logical errors (2000, p. 19).

Porritt, who drove FoE to employ more scientific evidence in their campaigns, invokes Carson's memory in lamenting the fact that 'a huge percentage of scientists are now paid by private or public sector employers who have little interest in open scientific debate' (2000, pp. 19-20). He continues: 'One can only surmise that Rachel Carson would be distraught at what is happening today, when not just cowardice but "science for sale" has become a familiar phenomenon' (2000, p. 20).

Porritt comments that he has 'met literally hundreds of scientists who have become adept at suppressing their own values and passions out of an implicit or explicit fear of their work being corrupted by such suspect tendencies' (2000, p. 127). His solution is to develop a 'deeper understanding of the utter impossibility of either physical or psychic disconnection from the rest of life in earth ... a licence to engage as citizen scientists, as alert to the social and ethical importance of the work they're doing as they are to its intellectual and technical significance' (2000, p. 127).

Porritt admits that *Silent Spring* had a 'shattering effect' (2000, p. 54) on him at an early age. One wonders what Porritt would have made of the following quotes from a speech made by a scientist in 1952:

The materials of science are the materials of life itself. Science is part of the reality of living; it is the what, the how, and the why of everything in our experience. It is impossible to understand man without understanding his environment and the forces that have molded him physically and mentally ... The aim of science is to discover and illuminate truth (quoted in Lear 1998, p. 219).

He might have criticised the positivist view explicit in the use of terms such as 'discover' and 'truth'. He might even regale at the certainty of the scientist's views of the power of science to explain 'the what, the how, and the why of everything in our experience'. The words are those of Rachel Carson as she accepted the National Book Award in New York.

Context is all

In trying to put *Silent Spring* into perspective, and to put Rachel Carson's views of science into a different light, I think that it is important to take cognisance of the context within which the book was written. Public interest in the US in the environment was then high—witness the success of Carson's earlier work, *The Sea Around Us*. But levels of ignorance about science and the environment also were remarkably high. The post-war years were, politically, times when progress was expected to be driven by careful government, making decisions with the best interests of the people at heart. Progress was assumed to mean bigger, better, faster, as was evident in the almost obsessive quest for air, land and sea speed records and the epitome of such competition, the space race. But technological progress was seen as requiring secrecy—from the prying eyes of the United States enemies and competitors. Carson's book, which exposed a range of agencies and industries to the public gaze, while not actually an act of espionage in itself, was portrayed as in some ways un-American.

John Burnside, writing in *The Guardian* newspaper in May 2002, notes that the chemical industry learned much from the furore surrounding *Silent Spring*. 'Corporations' he writes, 'have become highly skilled in managing public opinion' (2002, p. 2). Burnside charts the change in strategy that has taken place in the last 40 years:

In 1962, the field where battles were fought, in public at least, was scientific debate; the trick then was to have control over the nature, terms and extent of the debate. An unexpected bonus, in recent years, has come from public awareness of that control; now when the scientific organisation speaks, the voice we hear is too often that of the sustaining industry as the MMR [Measles, Mumps and Rubella vaccine] scandal so clearly demonstrates. We do not know who to trust, and in such cases, we tend to hope that our leaders and elected representatives are still as well meaning as they seemed when we elected them.

Indeed, *Silent Spring* is more about trust than about the environment or about scientific knowledge. Carson does not

deny or devalue her scientific training. Indeed, without it, she would have been unable to write the book. Our trust in her comes, partly, from our knowledge that she is 'writer, scientist, and ecologist' (Lear 2002). The 42 pages of principal sources in *Silent Spring* are dominated by reports from scientific journals and correspondence with scientists. Without the evidence that science provides, her case would not be remotely credible.

Silent Spring, writes Burnside, is 'a call to a new way of thinking, a challenge to us all, to create, and live by, a radical philosophy of life' (2002). However, Burnside notes that Jonathan Bate has pointed out that 'the two other radical movements that emerged in the 1960s, feminism and anti-racism, have been tolerated: gender and post-colonial studies are offered in most universities, for example' whereas 'Radical ecology; a philosophy that challenges all the accepted social and economic models, lags far behind' (2002, p. 1) Burnside cautions us when he writes 'Yet mystical and sentimental is exactly what ecology is not: these honours belong to the old religions of market values and objectivity' (2002, p. 2). Carson argued that it is the misuse of science—sustained by individual greed and market forces—that we should all be concerned about. Her important message has been lost, either deliberately or accidentally during the last 40 years. ☹

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