

Content without Context: The Problem with Science

A Review of: *A Natural Legacy. Ecology in Australia (Second Edition)*

Editors: H.F. Recher, D. Lunney and I. Dunn, Pergamon Press, Rushcutters Bay, N.S.W. (ISBN 0 08 029863 x (soft)) 443 pp. RRP \$24.50

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"No alternative system or organising the pursuit of scientific truth has been suggested..... And yet – it is quite unbelievable. This conception of the universe is surely framed in terms of high abstractions, and the paradox only arises because we have mistaken our abstractions for concrete realities". (Alfred N. Whitehead, *Science and the Modern World*, 1926).

While this review does give a brief cover of the contents of the book, readers might note that it is written with the express intention of canvassing a particular approach to teaching about and for our natural legacy – which the book does not have.

Virtually all schools of environmental studies are faced with the task of introducing students with little or no biology in their backgrounds to the concerns of the naturalist. That is, to both what the naturalist studies and why s/he is concerned. Prior to Recher, Lunney and Dunn's book there was no book that provided a comprehensive easily accessible overview of this subject written entirely in Australia. Therefore, since the appearance of *A Natural Legacy* in 1979, we have been using the book at Monash with not a little gratitude. It did not however, do justice to the *nature* of concern and the second edition is scarcely better. This absence of an adequate "contextual anchor" for its subject matter is the book's primary failing.

The book comprises 18 chapters of which 14 are devoted to Australian ecosystems and their contents and four are concerned with introduction and management.

With the exception of Irina Dunn, a "freelance writer, editor and filmmaker", all 15 authors are experienced biological scientists. To understand it we may divide the book into four sections. The first is introductory and comprises three chapters of which the second is a history of Australian biogeography and the third a comprehensive introduction to ecosystems, their nature and dynamics. Section two would be chapters 4, 5, 6 and 8 on plants and their substrate, soils. The 25 pages on soils are both

thorough and topical in that they cover issues of particular contemporary concern: fire, erosion and salinity in addition to basic soil science. The three chapters devoted exclusively to plants describe their nature, distribution and dynamics and one chapter is devoted to forests. Three chapters also raise issues of contemporary concern, ranging over problems in botanical methodology, management and exploitation.

Animals are dealt with in much the same way: distribution, abundance, communities, their dynamics and interactions. A chapter unique to animals covers their behaviour, it is deliberately written to show how an understanding of social behaviour is necessary to understand ecosystems in which animals participate. In parallel to the section on plants, this section includes a unique chapter on its – in anthropomorphic terms – dominant group: vertebrates. It is included for similar reasons to those underlying the chapter on forests namely, that their existence requires extensive pre-conditions to be met and therefore their study is particularly illuminating. Perhaps also their very commercial utility (or disutility in the case of kangaroos say) was a reason to focus attention on the constraints upon which their viability depends. This section may also be thought to include the chapter on human ecology and its history in Australia i.e. dominant mammal (as Macfarlane Burnet (1971) called us) rather than "Dominant species" as in *Natural Legacy*.

The fourth section in my categorization of content is one on management which includes chapter 7 on the arid zone, chapter 12 on invasions ("pests"), chapter 15 on parks and conservation, 16 on planning and 18 on environmental responsibility. I shall deal with the content of these in a little more detail below.

Before offering a critique it must be said that with the exception of sectionalisation – which as I indicated above, would itself have been revealing – the book is beautifully laid out and the generous figures are rich yet clear and attractive to the point of being minor art works. Further the contents alone make the book an eminently worthwhile text and we in the Graduate School of

Environmental Science at Monash University at least will continue to prescribe it. But now to my understanding of its failings.

Some years ago I suggested to the then Victorian H. S. C. Environmental Science Subject Committee that the core concept in environmental science could more effectively be taught by offering a generalised system's understanding rather than asking students to generalise from its well-known subset: ecosystem. The point being that *General System Theory* offers a convenient body of literature from which to introduce notions associated with systems such as multidisciplinary, synthesis, mutual causality, homeostasis, and so on. Ecology could then equally well be replaced as an example of a system's study by other studies in system behaviour such as economics (thereby exposing the limitations of that discipline!). The discipline of ecology itself would then be allowed to develop unfettered by the confusion brought to it by being inaccurately charged with the entire burden of environmental science. Conversely, the shackles placed on environmental science by association with only one subsystem, ecology, would be raised and other subsystems such as society, the individual and knowledge or epistemology/cosmology would more easily be recognized.

We need something better than a collection of essays on content, to demonstrate why nature is a legacy and, while the editors may well have provided a few chapters that do touch on responsibility and the organised exercise of purpose (management), there is no coherent attempt to raise readers' attention to the contexts humans bring to nature. And, the insights are available! Philosophers, anthropologists, historians and many other have long sought to make plain the invisible structures by which we live.

Even in the fourth, or management section there is still too much concentration on content. While the insights of Charles Birch (and John Cobb in *Liberation of Life*, Cambridge, 1981) are mentioned in various places and problems with an inherently sexist (amongst other biases) language are recognized, no effort is made to lay out the contextual insights underlying all of them. In spite of Hary Recher's repeated "throw away" lines such as "Our knowledge of ecology and our understanding of how natural ecosystems function gives us an alternative model for human society" (p. 51), I do wonder if the authors themselves really understand the educational power these ideas bear. These failings confirm my point about the difficulty in making the leaps from the study of ecosystems as such to the general contextual implications borne by them.

In conclusion then, were I given the task of rearranging the book it would begin (and end) with an introduction (and re-cap) of where science lies in the scheme of human understanding and how the *general system* idea (as von Bertalanffy in *General System Theory*, 1967 and his many followers have developed it) complements it. In between these chapters each content chapter would be written with a conscious awareness to the cosmology that gives rise to it and to how it may alter were it to be written in terms of an "ecological" world view.

For instance the chapter headings themselves could be used to provoke insightful context to the present content. "Land of Uncertainty", title to chapter 7, begs questions about uncertainty which could be used to introduce contextual ideas about nature and how we overlap with it. Such theories (as outlined for example in a 1985 book entitled *Looking Glass Universe* by J.P. Briggs and F.D. Peat) support the 60 year old work of Whitehead mentioned earlier and begin to give scientific legitimacy to the humanist who in increasing numbers decry the isolation of people from nature inherent in adopting the metaphor of Cartesian Science (c.f. Watts, 1951 *The Wisdom of Insecurity*; Sennet, 1971, *The Uses of Disorder*; Kline, 1980, *Mathematics—The Loss of Certainty*; Rozak, 1976, *Person/Planet*; Batesford, 1981, *Mind and Nature: A Necessary Unity* and in the 80's the "deep ecologists" like Shepard, 1982, *Nature and Madness*; Berman, 1984, *The Re-enchantment of the World* and Evernden, 1985, *Natural Alien*).

Chapters 9-12 all contain concepts that depend for our understanding of them on our cultural background. "Distribution" and "Size" of populations not to mention "Behaviour" and "Invasion" all lend themselves to an elaboration of their meaning in terms of our understanding of them when applied to ourselves; in other words they are anthropocentric and need to be recognized as such.

Chapters 13 and 15 on "Wildlife" and "Nature Conservation" beg profound questions (I would say misunderstandings) about presently accepted conventions on the nature of nature. In *The Fallacy of Wildlife Conservation* (1982), John Livingston lucidly expounds the fundamental error in seeing "Wilderness" as something "out there" separate from ourselves. In an earlier issue of this journal I have also written on more personal aspects of the same fundamental problem (see "Concerning Concern" in 1/2).

Finally, the second last chapter does nothing to uncover the contradiction in its title "The Dominant Species". Had Ron Strahan taken apart the world view that allows us to think in those terms (not just that we dominate but that we believe power hierarchies to exist in the plant and animal kingdoms as well) he would have gone a long way to providing the first half of my suggestion for a last chapter. Irina Dunn would have finished it beautifully had she attempted to "unpack" the meaning of responsibility in her concluding chapter "Ecology and Environmental Responsibility". She would have related environmental issues to our personal capacities to respond; or as "father" of *deep ecology* Arne Naess has put it, we must be able to identify (personally) with our environment if we are to find sustainable ways of life. (Naess in Tobias, M., (ed), 1985, *Deep Ecology*). Care of this order ultimately means a redefinition of the notion of self to include environment. Instead of this Dunn has done what so many environmentalists still do— externalised her argument to society, laws, economics and so on quite missing the deep point I believe Charles Birch is making (in her references to him). Somehow we must recognize that in addition to academically and even politically acceptable attempts to re-order society in favour of nature, we must re-order ourselves to be "at one" with nature and that it is apposite to begin there.