Seeking Sustainability in an Age of Complexity

Seeking Sustainability in an Age of Complexity explains why sustainability is hard and why 'collapse' can occur. In the last 20 years the theory of complexity has been developed – complex systems science (CSS) speaks to natural systems and particularly to ecological, social and economic systems and their interaction. Due to the growing concern over the huge changes occurring in the global environment, such as climate change, deforestation, habitat fragmentation and loss of biodiversity, Graham Harris sets out what has been learned in an attempt to understand the implications of these changes, and suggests ways to move forward. This book discusses a number of emerging tools for the management of 'unruly' complexity, that facilitate stronger regional dialogues about knowledge and values, that will be of interest to ecologists, sociologists, economists, natural resource managers and scientists in state and local governments, as well as to those involved in water and landscape management.

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To Chris, my wife and best mate, for her forbearance, support and love

Epigraph

I can think of no better way to put it.

> This book does not run a straight course from beginning to end. It hunts; and in the hunting, it sometimes worries the same raccoon in different trees, or different raccoons in the same tree, or even what turns out to be no raccoon in any tree. It finds itself balking more than once at the same barrier and taking off on other trails. It drinks often from the same streams, and stumbles over some cruel country. And it counts not the kill but what is learned of the territory explored.
>
> From the Foreword to *Ways of Worldmaking* by Nelson Goodman. Published by Hackett Publishing, Indianapolis and Cambridge, 1978

In his review of John Horgan's book *The End of Science*[1] in 1996 John Casti argued strongly that we have by no means run out of 'big questions' that remain to be answered. He concluded his review thus:

> All that is needed is a 'big question' requiring new concepts and new methods. For example, many systems constituting the warp and weft of everyday life – say a stock market or a traffic network – involve a collection of agents (traders or drivers) interacting on the basis of limited, local information. Moreover, these agents are intelligent and adaptive: their behaviour and interactions are determined by rules, just like those governing the behaviour of planets or molecules. But unlike these lifeless objects, adaptive agents are ready to change their rules in accordance with new information that comes their way, continually adjusting to their environment to prolong their own survival. So far, there is nothing remotely close to a formalism, or set of scientific rules, for even stating, let alone understanding, questions surrounding the weird and wondrous ways of such processes.[2]

NOTES

1. John Horgan. *The End of Science: Facing the Limits of Knowledge in the Twilight of the Scientific Age.* (New York: Helix (Addison-Wesley), 1996).
2. J. L. Casti. Lighter than air. *Nature*, **382** (1996), 769.

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Finally Alan Crowden, my editor, kept on nagging me and believing in me for nigh on ten years. Thank you, Alan; I just hope that the result was worth the wait!