



Uncertainty and Risk

Multidisciplinary Perspectives

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Edited by
Gabriele Bammer and Michael Smithson

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Uncertainty and Risk

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To the memory of Aileen Joy Plant

From Gabriele Bammer:
For Warren Bond and Norbert and Maria Bammer

From Michael Smithson:
This one's for Susan

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Preface

Jerome Ravetz

It is a pleasure and an honour for me to contribute a preface to this distinguished and important volume. Australia has long been to the fore in the study of uncertainty, starting with Michael Smithson's classic *Ignorance and Uncertainty: Emerging Paradigms*, and I am very pleased to have the opportunity to join in what is both a celebration and a growth point of this crucial work.

Although there has been some very good scholarship in this area (and this volume bears witness to that), the main impetus to the current study of uncertainty has arisen in policy issues. We can actually date the events that brought uncertainty to the fore, after a long period of languishing on the margins of philosophy and common sense. This was the 1950s introduction of civil nuclear power, a novel technology that seemed to some to pose great dangers and which (in spite of all the aspirations of its promoters) had the taint of association with Hiroshima and Nagasaki. A new field of science was created to cope with this reaction, producing the elaborated models of probabilistic risk assessment. But the confidence of the official American scientists in their demonstrations of the safety of nuclear power came to be interpreted as arrogance. Uncertainty (deeper than mere quantifiable risk) was one of the critics' points of contention. After more than a decade of debate, they were vindicated by the 1979 events at a nuclear power plant at Three Mile Island in Pennsylvania in the US. At that point, uncertainty came in with a vengeance. During that fateful week it was clear that the operators and the outside experts had no idea of what was going on behind the wild printouts of the monitoring equipment, or indeed of whether the reactor was heading for a 'China Syndrome' meltdown. Suddenly, this technology, with all its huge investments, scientific prestige and government support, became (for Americans at least) pure 'Mickey Mouse'. The quantitative science of risk assessment was never the same again. Radical uncertainty could no longer be excised from science policy (although many 'decision sciences' still remain in blissful ignorance of the category).

There has, recently, been a shift in the politics of uncertainty. The invocation of uncertainty is nearly always a defensive manoeuvre, intended to stop

something happening, and in the 1950s, the post-war period, what was happening was technological development, based on an optimistic, even hubristic, conception of human dominance over nature. Paul Ehrlich's motto, 'Nature always bats last', was fine rhetoric, but made little impact outside those already converted to environmentalism. But now, facing global climate change, we are generally aware of our ignorance of its detailed effects. The side on the defensive is that of the big fossil-fuel corporations, so for the last decade we have had uncertainty invoked against measures designed to mitigate anthropogenic climate change. This was adopted most strongly in the US, as part of a self-consciously designed corporate propaganda strategy by the fossil-fuel interests, analogous to that previously adopted by the large tobacco corporations against initiatives to reduce smoking.

So strongly has the tide shifted away from the previously dominant assumptions of certainty, that we have even had pearls of Socratic wisdom dropping from the lips of former US Secretary of Defense, Donald Rumsfeld, in his musings on the 'unknown unknowns' that derailed the military intervention in Iraq, which started in 2003 and which still continues. This turnaround has been unsettling for some radical social theorists, who had believed that the true path to wisdom lay in the demystification of knowledge and the celebration of uncertainty. But it can also be an enrichment, as uncertainty moves beyond its embattled stance and becomes part of mainstream culture. And, I am pleased to confirm, this present volume makes a signal contribution to that process of enrichment.

As a contributor to the current effort of validating uncertainty and ignorance, I would like to remind us that uncertainty has its own philosophical history, one that deserves to be rediscovered and recreated for the present age. In reviewing that history, one must always keep in mind that 'scepticism' is not so much a doctrine as a tactic in an ideological debate. Whatever the supposed certainties that someone was denying, they were chosen for their relevance to practical issues of pressing concern. Karl Popper's observation that fruitful philosophy has always derived from living issues is at least as true here as anywhere else.

As a very brief recapitulation: 'scepticism' appears in a few key locations in Classical thought. Socrates himself played sceptical games with his 'victims', allowing them to state obvious truths about life and morality, and then turning them (both the truths and the interlocutors) inside out. In this he was adopting the tricks of the 'sophists', but applying them to the noble task of teaching awareness of one's ignorance. But it was difficult in practice for him to distance himself from others who would upset conventional wisdom and morality for their own ends. He had his warning in the play *The Clouds* by Aristophanes, and then two decades later there was the fatal judgement of the people's court of Athens.

Although there were well-recorded debates between 'sceptics' and 'empirics' in Classical medicine, scepticism only really got going in the Renaissance.

Erasmus himself wrote *In Praise of Folly*, in which he satirized the conventional wisdom of the liberally educated classes. Lesser figures, such as Cornelius Agrippa von Nettesheim, made broadside attacks on all the official academic learning of their day. And, to be sure, these did present easy targets. The greatest of all the sceptics was Michel de Montaigne, who observed the idiocies and barbarities of the world around him and reflected in private. His essay 'On cannibals' is a devastating critique of conventional morality, turning all our ideas of propriety on their heads.

This narrative of mine is not just a history of ancient ideas. Bacon and Descartes, in particular, were self-consciously in dialogue with these sceptical currents. Out of their solutions to the challenge of scepticism came ideas that have formed the implicit framework of our own thinking. Descartes' early philosophical endeavour can be seen as an attempt to embrace the whole Renaissance sceptical critique, the better to conquer it and then banish ignorance forever. His 'methodological doubt' was just such a move, and scepticism (including the cannibals) has other important echoes in his thinking. He succeeded, at least to his own satisfaction, and the stripped-down conception of knowledge that he defined has served to blight philosophical thought from then to now.

When Descartes banished ignorance, he also discarded awareness of ignorance. Since Socrates, this had been recognized as the key to wisdom, but for the next three centuries 'ignorance of ignorance', the condition that had been most severely warned against by philosophers, was the normal state of the educated classes of Europe, particularly those in science. The second half of the 20th century will, in retrospect, be recognized as the era of a radical transformation of educated common sense, returning to a renewed awareness of uncertainty and ignorance. And Australia can take pride in the fact that Michael Smithson was the first effective philosophical voice in this new movement for awareness of ignorance.

The consequences of this inherited ignorance of ignorance, and effectively of ignorance of uncertainty as well, may prove to be devastating to ourselves and to the planet. This truncation of awareness defines the mindset of reductionist science. Its leading article of faith is that to every scientific problem there is one and only one solution. The real world outside the laboratory, where things are messy and unpredictable, is to be ignored. For example, since researchers can manipulate DNA and alter some properties of whole organisms, we are instructed to assume that genes are just beads on a string of base-pairs, to be modified quite precisely with molecular snippers and tweezers. As a result, we have now artificially disrupted and destabilized genomes on a global scale. No one can predict how Nature will bat last in this particular game of ignorance-of-ignorance science.

Although my reflections up to now have tended to negative, I should say that I welcome this volume especially because of its reminding us, so effectively, of the positive aspects of uncertainty. As the various essays show, embracing

uncertainty, and nurturing improvisation, are at the heart of creativity. Indeed the denial of uncertainty in any area of life leads to a cramped and ultimately brittle experience. How very important it is to remind a largely secular world that religious faith and personal doubt are *not* incompatible opposites. The secular mind would be much enriched if it could comprehend that the deepest faith and the most testing doubt reinforce each other most fruitfully. It might then become generally appreciated that religious belief is not necessarily an abdication of reason, but rather that it can possibly be among the most courageous and self-critical of commitments. For me personally, this may be among the most important of the lessons of this volume. In addition to showing that there can be rich and varied scholarship on the theme of uncertainty, it offers this wise insight about knowledge, belief and uncertainty.

Another special source of strength of this volume derives from its Australian provenance. It displays the refreshing indifference to status and conformity that is the glory of that nation. Few academic productions in Europe would dare to combine analytical approaches with street-wisdom the way that is done here in connection with health and public policy. Among academics elsewhere, the realities outside the ivory tower (with their special sorts of uncertainty) would be treated as evidence to be studied and tamed, rather than accepted into the argument itself. I congratulate the authors as much for this aspect of their achievement as for any other.

I believe that the exceptional strength of this volume derives in large part from the harmonious complementarity of the perspectives of the editors. With her theory of Integration and Implementation Sciences, Gabriele Bammer provides a solid practical foundation for planning and evaluation 'integration', which can so frequently become a pious expression that in context means everything and hence nothing. Asking the crucial questions – 'For what and for whom?', 'Of what?', 'In what context?', 'By whom?', 'How?' and 'What are the measures of success?' – provides a sort of pedigree for any such effort. For his part, Michael Smithson reviews the psychology of uncertainty, and by explicating the various approaches, he shows how culture-bound they all are. Indeed, he cites evidence that different cultures even conceive uncertainty in different ways. It is not fanciful to imagine that the management of uncertainty could become a key symptom in distinguishing among both personality types and cultures. The differences could be accepted and celebrated rather than being used to denigrate those whose lived-world is different from our own. The three chapters of integration (a significant achievement in themselves, given the heterogeneity of the material) show how fruitful, for scholars and for practitioners, such a collaboration of complementary perspectives can be.

In conclusion, let me repeat my appreciation of the work of the authors and editors of this fine volume. I hope that it will enjoy the successful reception that it so richly deserves.