

have to confess to laughing aloud when I recently found myself unwrapping a book entitled *Methods for Risk Assessment of Transgenic Plants* with the feverish excitement normally reserved for eight-year-old children at Christmas. What is more unnerving is that I know I am unlikely to be the only one. Indeed, in the space of a decade, risk assessment of GM crops has risen from complete obscurity practised by a few eccentrics, into a celebrated research field in its own right, with all of the top journals (including *Heredity*) featuring manuscripts on the area. Much more than that, I find that this is a subject on which everyone seems to have an opinion, almost irrespective of his or her area of knowledge. Thus, like politics, sex and religion, the risk assessment of GM crops is, for most people, a field with an extremely low fact to opinion ratio. For those of us who are prepared to have their views 'confused by the facts', however, I humbly suggest that volumes such as this can be at least worth a scan.

So much for the motivation, what about the content? Well, inevitably I suppose, this book is a compilation of contributions made by various authors at a conference on the subject hosted in Bern, Switzerland in 1999. Usually this is sufficient for me to replace a book onto a shelf and to move on. It is certainly the easy method of producing a book but editors rarely succeed in integrating all contributions together and any attempt to harmonize styles and standards seems to be almost destined to failure. The result, as often as not, resembles a volume from a specialist journal but without the benefits of peer review, features only one or two star contributions and a lot of papers that, quite frankly, do not measure up astronomically. This book is somewhat different. Firstly, the editors have not made the mistake of trying to pretend that this is not a "compilation album". On the contrary, they seem to make a virtue of the fact. The whole volume is in the form of a written documentary of the conference, complete with opening remarks and question and answer sessions. In consequence, the reader is left with the genuine feeling of having attended the meeting. However, having said that, I have been to many meetings where the best feature was the quality of the catering rather than the science on offer; no amount of skilful editing can paper over flimsy contributions. Once again, thankfully, this is not the case here. There are contributions from most of the major players in the field and all have taken care to present interesting papers of good quality.

The papers themselves are arranged into eight sessions covering ecological effects, modelling, short and long-term effects, monitoring methods, population genetics, harmonization, methodological lacunas and the final concluding section on future strategies. Overall, the standard of the papers was good and the writing style sufficiently well edited not to jar when progressing from one chapter to another. I particularly enjoyed the contributions from Alan Raybould *et al.*, Glynis Giddings and Terrie Klinger and Norman Ellstrand. There were some weaker papers, but not many. I also rather surprised myself by reading and enjoying the question and answer sessions, although I must confess partly for the wrong reasons. It is my experience that discussion sessions can vary in composition from rat-a-tat questions and answers, sensible and less sensible statements of fact (or opinion) through to yawn-inducing monologues by

the eminent and aspirants thereof. It is difficult to say whether the absence of the last category here was attributable to careful selection of participants, exquisite editing or extremely skilful chairmanship. In any event, the result is rather interesting, informative and surprisingly devoid of irrelevant comments.

All in all then, a jolly good read and well worth the money. Well, yes, but with a couple of provisos. Firstly, it should be remembered that this is not likely to be a long-term intellectual investment. GM risk assessment, like genetic modification, is a field that is progressing at a breath-taking speed and so the views and data presented here are likely to be published elsewhere in refereed journals or else superseded within a relatively short time frame. Secondly, excellent though the editing and index are, a composition publication such as this is never particularly well suited as a general reference book or as a teaching aid. Rather, it should be used as a record of the views and data of many of the leading names in the field at a crucial time in the history of agricultural research.

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The Meaning of the Gene. Celeste Michelle Condit. University of Wisconsin Press, Madison, WI. 1999. Pp. 325. Price \$19.95, paperback. ISBN 0 299 16364 4.

At the cross-roads of two centuries we are being presented with the first draft of the human genome. This is an era of genetic choice and the challenge will become more pressing for all of us as technology and scientific understanding progress, even though we do not yet know how many genes we have or exactly where each gene begins and ends. In *The Meaning of the Gene*, Celeste Condit clearly shows the development beyond a focus on heredity to a more wide-ranging and complex understanding that involves individuals, families, races, patients, social structures and the environment.

The works of scholars in genetics, sciences and history are not the source of the author's examination of how the meanings of gene evolved in the United States in the 20th Century. The analyses focus on the public voice expressed during 1900 to 1995; in newspapers, magazines, the *Congressional Record*, television news and documentaries. For technical and methodological reasons, the magazine source predominates, but it does not eliminate the other sources. Using quantitative methodologies and critical interpretation, the author segments the 20th Century into four major categories, or rhetorical formations, that represent the change processes in the way genetics are understood. The methods are carefully detailed in Appendices 1–3, with a clear recognition of the statistical and other limitations of the tools used.

The classical era of Eugenics was 1900–1935, in which the dominant metaphor was that of cattle-breeding. The

mid-1930s to the mid-1950s was the era of Family Genetics, in which the dominant model was the gene controlling our human characteristics. The age of Experimental Genetics, 1957–1976, is heralded by Watson and Crick's discovery of DNA in 1953. This era shows a more subtle and flexible understanding of the interaction between heredity and environment. The last quarter of the 20th Century was the era of Medical Genetics, in which the vision has extended from individual genes to the genome. There is less concern in this era about heredity and more vigorous debate about personal health options, gene–environment interactions, social and ethical issues, along with patenting rights and surrendering control to commercial enterprises. The themes of perfectionism, determinism and discrimination are examined in each time period and are well integrated with many other themes in the challenging final chapter, 'Conclusions and Speculations'.

Although limited to a US perspective, including references to the Cold War presentation of Russian resistance to genetic research as another sign of Western superiority, this book

is a valuable contribution to a wider understanding of our humanity. My training as a scientist and physician does not include familiarity with the methods involved in this scholarship, so it is to the author's credit that she presents it in an understandable and enriching approach.

We are left with the clear challenge that we need to understand the costs and benefits of genetic choice, that only by an awareness and understanding of the range of meanings can we 'promote those conceptions of the gene that best represent the complexity and the positive potentials of the human condition, both biological and social'.

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