

attention than advances in molecular genetics, or information technology, significant and (dare I say) exciting developments in experimental design, data management and analysis have been made. These are widely accessible to users through the general availability of high level computing power and there is really no need for plant breeders and others involved in field trial work to rely just on traditional methods — although these are better than having no proper experimental design at all. Often, statistical methods are not questioned until, for example, the costs of Statutory Variety Testing are raised or the challenges of getting varieties on to financially rewarding Recommended Lists are met. However, rising costs in generating experimental trial information demand that data concerning phenotypic performance and its underlying genotypic and environmental components should be produced as efficiently as possible throughout the process of crop improvement.

This aim of this book is to provide the necessary statistical background for efficient plant evaluation. It is based on a course presented in 1991 at the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), Zaragoza, Spain, which brought together statisticians, computer specialists and plant breeders. The book is the third to emerge from CIHEAM's plant breeding courses as part of Chapman and Hall's useful *Plant Breeding Series*. Chapters are written by a wide range of well respected authors including the editors and contain detailed descriptions of field plot techniques and designs for plant breeding trials, statistical methods for spatial analysis and controlling inter-plot competition, methods for multi-environment testing and analysis of genotype by environment interaction, and partitioning of resources among different stages of selection.

My feeling is that the book can be read at two levels. I think it works best at a fairly superficial level by providing an introduction to current state-of-the-art designs and techniques. It provides useful background information on approaches such as FITCON, REML and AMMI. Readers can become acquainted with new methods of spatial analysis and discover what BLUEs and BLUPs are. Personally, I was interested in the discussion in Chapter 5 on FITCON and REML in relation to non-homogeneous year and location interactions which is very relevant to trials in a European context.

Apart from a brief mention, the special needs of forage grass trials in terms of multiple characters and repeated measurements are not considered, which is a pity. With regard to experimental design and analysis, outbreeding perennial crops fall between inbred annual plants at one extreme and animals at the other. As a result they are, unfortunately, often neglected in discussions on this subject — perhaps another book is needed.

In general I think the book works less well if read at a very detailed level. To a non-statistician some of the details may be rather daunting and confusing as the authors present a range of different ideas and solutions to similar problems. In this respect the book provides guide-

lines rather than answers which I suppose is part of the nature of statistics. However, if it prompts plant breeders to discuss their problems and needs further with specialist statisticians, then the book will have gone a long way to achieving its aims.

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**The Gene Bomb.** David E. Comings. Hope Press, Duarte, CA. 1996. Pp. 304. Price \$25.00, paperback. ISBN 1 878267 39 6.

The cover of Dr Comings' book depicts the mushroom cloud of a nuclear explosion and features a promise that the theory within has important implications for the future of the human species. Indeed, with its apocalyptic eschatology, at times this book feels more like a religious or political tract than a work of science. In part, this may be because it is aimed at a very wide audience and in style attempts to be catchy and concise; but it is a scientific theory that is being proffered, and as a scientific theory it must be judged.

The hypothesis is essentially that many problem behaviours are increasing in western societies at an alarming rate, and this increase is due to the selection of genes for these behaviours. He argues that the selective advantage for these genes lies in the earlier age of pregnancy of individuals demonstrating these problem behaviours while individuals who do not carry these genes go on to higher education and delay starting a family. Finally, he suggests we need to act now to reverse the selection of genes for these behaviours by both genetic testing and other means.

The list of problem 'behaviours' lumped together by Dr Comings is extensive and includes depression, anxiety, suicide, alcohol and drug abuse, attention deficit and hyperactivity disorder, conduct disorder, autism, Tourette syndrome, learning disorders, decreased IQ, crime, smoking, delinquent behaviours, precocious sexual intercourse, teenage pregnancies, lower commitment to religion, truancy, and poor academic performance.

Genetic factors are undoubtedly important in many of the conditions in the above list; but because these behaviours cluster together, it does not mean we can generalise the evidence to suggest genetic involvement in them all. I cannot claim extensive knowledge of all the conditions listed, but as a researcher in the genetics of affective illness I find his consideration of the literature on depression unconvincing. For example, quoting the lifetime prevalence rates of depression from two epidemiological studies performed ten years apart, as evidence of a major increase in the condition, is tenuous to say the least. Differing methodologies seems a more likely explanation of the apparent increase. Even if, as may be true, there has been an increase over the past few decades, a change in the environment rather than gene frequencies would seem more plausible over this relatively short period of

time. Throughout the book, however, the most parsimonious explanations of the data are ignored in favour of those which support his hypothesis.

If the author had not such a distinguished scientific career, having been both editor of the *American Journal of Human Genetics* and past president of the American society of Human Genetics, this book would be easier to dismiss. Although he claims no particular political allegiance or agenda, it would be naive to ignore the political purposes to which his arguments could be turned. His arguments are essentially the same as those of Galton and others who advocated eugenic theories a hundred years ago. The language may have changed from that of germ-plasm to molecular genetics, but the sentiments are the same and just as dangerous.

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**Cell Cycle (Advances in Molecular and Cell Biology, 13).** Michael Whitaker (guest ed.) JAI Press Ltd., London. 1996. Pp. 226. Price £69.50 (U.S. \$109.50), hardback. ISBN 1 55938 949 4.

There have been many attempts to review the cell cycle field over the past two or three years. This is a difficult task, because although there are now some well-established molecular paradigms, advances are continually being made. Thus not only is a book like this one immediately out of date, but it is of course impossible to give full coverage to the field. Michael Whitaker has succeeded, whether by intent or good fortune, to circumvent these problems by presenting a book that does not attempt to be comprehensive, but rather gives a collection of quite personal viewpoints of aspects of cell cycle regulation. The result is rather refreshing, and for me at least it was interesting to read.

There are two chapters on centrosomes, for example, that are each written from a clear, individual viewpoint. The first from Greenfield Sluder concentrates mainly upon studies of the centrosome cycle in sea-urchin eggs, and focuses very heavily on the work from Sluder's own laboratory. It is provocative, and yet points out many of the conflicts in the interpretation of centrosome behaviour seen from the perspective of different experimental systems. The chapter from Buendia and Karsenti has a different emphasis, not surprisingly upon the regulation of microtubule organising activity throughout the cell cycle. It gives a good concise account of this area.

Other chapters provide a pot-pourri of specialized topics. Yanagida gives a succinct account entitled 'Cell Cycle Control by Protein Phosphatase Genes', but deals almost exclusively with fission yeast genes. Hoffmann, Clarke and Draetta focus even more tightly on the cdc25 phosphatase, and Peter and Nigg examine one set of p34cdc2 kinase substrates, the nuclear lamins.

Michael Whitaker's own research interests are well reflected by the representation of the importance of calcium in the cell cycle. Tombes and Borisy give an overview of the roles of calcium in mitosis, and this is followed by a more specialized chapter on the role of calcium in the *Aspergillus* cell cycle. The importance of calcium regulation is also emphasized in Ford and Lindsay's chapter on the use of *Xenopus* cell free systems to study cell cycle regulation. It is a pity that Whitaker himself did not make a contribution by reviewing some of his own work. Perhaps he could be persuaded that this area, somewhat disproportionately under-represented in the cell cycle field, would benefit from an even greater depth of review in future.

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## Books received

**Feminism and Evolutionary Biology.** Patricia A. Gowaty (ed.) Chapman and Hall, London. 1997. Pp. 623 Price £39.00, paperback. ISBN 0 412 07361 7.

**Dysgenics — Genetic Deterioration in Modern Populations.** Richard Lynn. Praeger, Westport, Connecticut. 1996. Pp. 237 Price £47.50, hardback. ISBN 0 275 94917 6.