

Proceedings of the second international conference on quantitative genetics. B. S. Weir, E. J. Eisen, M. M. Goodman and G. Namkoong (eds) Sinauer Associates Inc., Sunderland, Massachusetts, U.S.A. 1988. Pp. xii+724. Price £26.95. ISBN 0 87893 901 6.

As the title suggests this book is the published proceedings of the second international conference on quantitative genetics to be held in America. The first was held in Ames, Iowa in 1976 while this one took place in 1987 with the venue being Raleigh, North Carolina. The editors must be congratulated on the speed with which they achieved publication. They should also be commended on the quality of the production. Too many such proceedings appear in a heterogeneity of type faces and styles because of the use of authors' "camera ready" copy for setting. The speed of the publication of these present proceedings combined with a quality appearance must surely point to a standard for the future.

The book contains forty-eight presented papers each appearing as a separate chapter. As noted in the Preface, but not made explicit in the List of Contents, the contributions can be divided into sets which are each introduced by a review of progress over the intervening years since the Iowa conference. The first describes the contributions of C. Clark Cockerham, to whom the book is dedicated, and lists his publications. It also serves as an introduction to the subsequent three chapters which cover aspects of quantitative genetics relevant to Cockerham's interests. The next review (Chapter 5) gives an overview of progress in the subject followed by one covering the progress in statistical methods (Chapter 8), changes in technology associated with animal breeding (Chapter 12), molecular genetics (Chapter 16), induced variation (chapter 19), domestic animals (Chapter 22), humans (Chapter 25 and 28), inbreeding (Chapter 31), epistasis and heterosis (Chapter 34), selection in animals (Chapter 38) and plants (Chapter 41), genotype-environment interaction (Chapter 44), non-traditional species (Chapter 47), forest trees (Chapter 50) and finally, ecology and evolution (Chapter 53). As is almost inevitable, the quality of these reviews and the success with which they provide a coverage of the progress in the particular area over a ten year period is slightly variable, but generally they are admirable attempts to "set the scene". In addition they do provide some useful points at which to delve into the book and it is, therefore, a pity they are not highlighted in some way in the List of Contents. This is, however, a minor criticism in a well presented book.

Many of the individual papers concentrate on the applications of quantitative genetics to plant and animal genetics but there are some useful papers covering human aspects as well. There are a few papers which touch on the "realised" and potential contribution to our knowledge that the use of molecular techniques can make. If the symposia was held now, *i.e.*, two years later, it would be interesting to speculate which techniques would figure in the contributions and with what

emphasis! It is also interesting that although there may be a bias towards breeding applications, at least as far as plants are concerned I did not detect a feeling of the real progress that had been made in this area over the time period of concern. For example, what of the now extensive literature covering cross-prediction? What of the potential for genetic analysis using doubled-haploids? Other topics could also be raised. One reply would of course be that there is a limit to what can be covered in such a symposium and its published proceedings. This I accept, but felt that once again the excitement of working in the area of quantitative genetics was not made completely obvious. I enjoyed reading the book, but would someone who is uncommitted perceive more than a steady progression rather than a dynamic ten year period of development?

The other impression that appeared, at least to this reader, was the still obvious gap between the different "Schools of Thought" which have moulded this subject. I certainly struggled with some of the contributions and found I was somewhat unfamiliar with the concepts and approaches that were being presented. Others had a more comfortable and easy warmth to them! We are all conscious of the need to be aware of new biological techniques and how they interact with our existing experimental framework but should we not be even more anxious to develop and strengthen our intellectual interactions? Perhaps a seed should now be planted which could germinate into the Third International Conference? Maybe it should be ripened and harvested in another country?

I enjoyed reading these well presented and wide ranging proceedings. They stimulated thought and provided some useful insights into work in less familiar areas. I congratulate the symposium organisers and editors on their efforts and suspect that whatever slight bias, real or imagined, one reader may see another would feel it was actually justified from their standpoint while, perhaps, some other area was over- or under-represented.

I would recommend that anyone interested in quantitative genetics read the book but suggest that each reader does indeed decide for themselves whether it represents, to them, "Both old and new spheres of quantitative genetics and (speakers) who represent a broad international community".

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Principles of population genetics 2nd edn. Daniel L. Hartl and Andrew G. Clark. Sinauer Associates Inc., Sunderland, Massachusetts, U.S.A. 1989. Pp. xiii+682. Price £23.95. ISBN 0 87893 302 6.

At one time there was only one textbook on population genetics. It was so rarefied that it barely mentioned selection, or even living things. There were also books

on the evolution of plants and animals, but it was difficult to relate their treatment to the genetics. Since then a growing number of texts have appeared which relate the two aspects of the subject in a way suitable for university courses, and introduce the relevant molecular biology and population dynamics as well. Hartl's 1980 Principles of Population Genetics was a distinguished member of this group. Although the present volume has the same title and is described on the cover as a second edition, it has gained another author, four more chapters and an additional two hundred pages and is considerably reorganized. The result is excellent.

The treatment starts with Darwinian evolution in Mendelian populations. Observations of genetic variability and the techniques used to observe it are covered, and the basic methods of recording and describing gene frequency. This is followed by chapters on genetic drift, on mutation and neutral theory, natural selection, inbreeding and population subdivision to provide a sound coverage of the main features of the subject. The book ends with three chapters respectively on molecular population genetics, evolutionary genetics of quantitative characters and ecological genetics and speciation. An up-to-date coverage is presented, from restriction sites to adaptationist just-so stories; references certainly take us to 1987 and possibly later. Each chapter ends with a set of problems. Throughout, there is emphasis on methods of analysis, ideal for a rigorous and extensive course. Consistent with this approach, there are many graphs and diagrams of zymograms, sequences and equipment, including the inebriometer, a device for measuring knockdown resistance to ethanol fumes. There are few pictures of organisms, I only counted four, but they include *Drosophila* and *Biston betularia* as well as *E. coli*. As the authors say in their preface, this is an exciting time for population genetics because it is becoming united with molecular biology. The book provides a feeling of the current strength of the subject and the techniques upon which it rests. I recommend it strongly. It is too advanced for the undergraduate students I teach, although intended by the authors for third and fourth year undergraduates in American universities as well as for graduate students. As a text for research students and academics working in, or wishing to know more about, the subject it is ideal.

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Parental line breeding and selection in potato breeding. K. M. Louwes, H. A. J. M. Toussaint and L. M. W. Dellaert (compilers). Centre for Agricultural Publishing and Documentation, Pudoc, Wageningen, Netherlands 1989. Pp. 210. Price: not yet listed. ISBN 90 220 0981 5.

The breeding section of the European Association for Potato Research and the potato section of the European

Plant Breeders Association (EUCARPIA) hold joint meetings every 2-3 years. This book is a compilation of the 31 papers and 18 posters presented at the meeting held at Wageningen in the Netherlands in December 1988.

Papers are printed as presented so there are the inevitable variations in typefaces, spelling and terminology which one must expect when contributions are received from most European countries and from as far afield as Wisconsin, Siberia and Bangladesh.

The intended audience for the book is "scientists involved in potato research, potato breeders and students of agricultural universities". The first two categories are clearly appropriate as they are the main contributors and participants at these conferences. However, as the papers are often highly specialised, a student is likely to follow only those subjects which he has covered in research projects.

The papers are divided into four sections, Combining Ability, Parental Choice, Asexual Gene Transfer and Parental Line Breeding. Only the first and last of these sections kept to the theme of the conference but the papers in the other sections are no less interesting for that. The poster summaries cover a wide variety of related topics.

The first section on Biometrics illustrates the diversity of approach between the highly mathematical papers of Tai and Boudec and the progeny testing methods based on simple means and variances presented here by Brown, and later by Mackay. Also included in this section is a paper on the application of a mathematical model, developed for human epidemiology, to fungal leaf diseases. The model appears to fit well but is likely to be too complex for use in breeding programmes.

The second section dealing with parental choice, covers some interesting papers on physiology and nematode resistance; the section title of Parental Choice is misleading as already indicated. The paper by Colon *et al.* discusses the transfer of the low-temperature, non-sweetening character from the wild species *Solanum goniocalyx*; it is interesting to note that several commercial varieties, including Brodick from the SCRI in Scotland, have achieved the same aim using existing *S. tuberosum* germplasm. Even in the restricted germplasm base of *S. tuberosum*, it is surprising what you can find if you look hard enough!

Section 3 on Asexual Gene Transfer covers the most rapidly evolving field in potato breeding. Fusion continues to make progress and is highly desirable as a means of combining diploids into a tetraploid "final product" but is bedevilled by problems of chromosome number instability. The transformation papers contain two particularly interesting contributions; Willmitzer *et al.* on tissue specific gene expression and van den Elzen on its commercial application. The latter paper was received with great interest at the conference as it showed the commercial relevance of this work but unfortunately is only reproduced here in short, summary form.

The final section covered Parental Breeding at the Tetraploid and Diploid levels. The tetraploid papers provide an interesting comparison between the aims and