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Book reviews

Chromosomal Variation in Man A Catalog of Chromosomal Variants and Anomalies. 6th edition. D. S. Borgaonkar. John Wiley, New York. 1991. Pp. 1024. Hardback, price £76. ISBN 0 471 56157 6.

The fact that this catalogue is now in its sixth edition, the first being published in 1975, is a testimony to its value in human genetics. Like its predecessors it contains a systematic compilation of abnormal human karyotypes culled from the literature, with references in this current edition including cases published in the first part of 1991.

The catalogue is divided into three main sections; the first part, with seven hundred and seventy four pages, it devoted to a bibliography concerning structural chromosome variations and anomalies such as deletions, inversions and translocations. The second section lists numerical anomalies including trisomies, monosomies and polyploids. Entries are listed in the catalogue numerically, with each chromosome having references in ascending order according to the breakpoint. Chromosomal breakage syndromes are found in the final part where they are listed alphabetically, since aberrations are non-specific for any single chromsome. Besides the basic bibliographic data, information on the availability of mutant cell lines and cross-referencing of chromosome band numbers is available. A unique feature of the catalogue, maintained from earlier editions, is the precise summary that accompanies much of the bibliography, providing at a glance an assessment of the reference.

In recent years, a number of Mendelian conditions have been associated with partial chromosomal aneuploidy. To this end, the catalogue provides a cross reference, both in the bibliography and in separate tables, to the McKusick catalogue numbers.

This tried and trusted friend remains an invaluable compilation of published work in the field of human chromosome abnormalities providing to all who work in this area an unequalled source of information.

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Evolution and Function of Heterostyly. Monographs on Theoretical and Applied Genetics 15, S. C. H. Barrett (ed.). Springer-Verlag, Berlin. 1992. Pp. 279. Hardback, price £69. ISBN 3 540 521100.

Though the self-incompatibility polymorphisms are the most important outcrossing devices in the flowering plants, the majority of self-incompatible species possess homomorphic systems, rather than the heteromorphic systems dealt with in this book. Nevertheless, as the editor points out, the latter have fascinated biologists ever since Darwin's observations and experiments at Darwin House in Kent, the results of which, as well as those of others, were published in 1877 in his book *The Different Forms of Flowers on Plants of the Same Species*. The great advantage of heteromorphic systems is, of course, that it is possible to determine the incompatibility phenotype of individuals directly, rather than by having, as with species with homomorphic systems, to determine phenotypes by systematics and rather laborious pollination programmes. It is not surprising, therefore, that species with heteromorphic systems have attracted more attention from biologists than those with homomorphic systems. What is surprising, however, is that until now there has been no comprehensive monograph on the subject since the publication of Darwin's book. The editor and authors of the present volume are to be congratulated on the service they have performed in remedying this defect and for bringing to the attention of a wider circle of biologists the results of their own work and that of others on the evolution, genetics, development, morphology and adaptive significance of species which exhibit heterostyly.

The book contains ten chapters, the first of which is a comprehensive and wide-ranging introduction by the editor, Spencer Barrett, who has been particularly active and productive in research on heterostylous polymorphisms. This is followed by a short, but fascinating and scholarly, chapter by Ornduff on the history of investigations into heterostyly and a substantial chapter by Dulberger on the functional significance of heterostyly. Richards and Barrett follow with a chapter on the development of heterostyly and Lewis and Jones deal with the genetics of these polymorphisms. Chapters 6 and 7, both of which are by Lloyd and Webb, deal with the evolution and selection of heterostyly, respectively. The remaining three chapters review the application of sex allocation theory to heterostylous plants (Casper), pollen competition (McKenna) and the evolutionary modification of tristylous breeding systems (Weller).

That heterostylous species have been found in no less than twenty five different families of flowering plants suggests that heterostyly has evolved independently in most, if not all, of these families. The difficulty has been in understanding how it might have evolved from homostylous, self-compatible ancestors. Most who have considered this problem have assumed that self-incompatibility evolved first, followed by reciprocal herkogamy. In chapters 7 and 8, however, Lloyd and Webb revive Darwin's view that reciprocal herkogamy evolved first, from ancestors displaying approach herkogamy (stigma protruding beyond the anthers) and that the acquisition of self-incompatibility came later. The great advantage of their arguments, which is supported by much relevant