Cytogenetics. By P. K. GUPTA. Rastogi and Co., India. 1995. 418 pages. Price US$40. ISBN 81 85 711 070.

The term 'cytogenetics' is often used loosely, but as Professor Gupta points out in his opening chapter, it should be restricted to the correlated study of genetics and cytology. This textbook, which is based on the author's experience of teaching advanced courses in cytogenetics for many years, concentrates especially on what one may call, in anything but a derogatory sense, traditional or classical cytogenetics. In an era in which supposedly more exciting 'molecular' approaches have taken over a large sector of biology, it is important that the fundamental findings of the past are not forgotten or ignored. After an introductory chapter, which is perhaps briefer than one might wish, in which Professor Gupta gives an overview of chromosome organization and behaviour the main body of this book deals in successive chapters with such types of chromosomal changes as duplications and deficiencies, inversions, interchanges, haploidy, polyploidy, and apomixis. Although the space devoted to these topics may seem rather disproportionate to an animal cytogeneticist, the author of this book is an agricultural botanist, and the importance of these phenomena in plant breeding needs to be emphasized. Indeed, throughout the book, although examples are given from both the animal and plant kingdoms, a strong preference is apparent for using plants of economic importance to illustrate various points. Nevertheless, when it comes to the consideration of aneuploidy, and of sex determination, work on humans and other animals is, appropriately, quoted extensively. The last three chapters of the book, covering molecular cytogenetics, sit a little unhappily with the rest of the book, as there seems to be little attempt to integrate the 'classical' and 'molecular' approaches to cytogenetics, in spite of the valuable insights that have been provided by techniques such as total genome hybridization, chromosome painting, and comparative genome hybridization into fields such as chromosome rearrangement and interspecific hybridization. Another rather surprising feature is the omission of any integrated discussion of chromosome changes in evolution. However, these points could no doubt be dealt with in a second edition; meanwhile, Professor Gupta is to be applauded for providing us with such a detailed account of classical cytogenetics, which is the basis for so many genetical phenomena that are in danger of being overlooked by modern 'molecular' cytogeneticists who have not had the benefit of a proper grounding in the subject.

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