

BOOK REVIEWS

TEXTBOOK OF HUMAN GENETICS. M. Levitan. Oxford University Press, New York, 1977. Pp. x+1012. Price: £15.50.

This is the second edition of Levitan and Montagu's Textbook of Human Genetics, revised by Professor Levitan. It illustrates well the extent of inflation in publishing costs since the 1st edition in 1971, the price having risen from £5.00 to £15.50. It is a serious matter when a book written specifically for students is priced at a figure that only libraries can afford. The first edition was unfortunate in having been prepared just before, but published just after, the establishment of several important developments in the field. The new edition makes good most of these omissions and by means of a little judicious pruning does so with only a slight increase in the length of the text, and with the retention of the overall structure and style of the 1st edition. As such it remains a text best suited to the genetics or human genetics student rather than the medical or dental student, a point on which I commented in a review of the 1st edition.* This is despite the fact that the chapter on genetic counselling has been greatly improved by a more realistic approach and by the inclusion of an account of early antenatal diagnosis.

Part one of the new edition deals with human cytogenetics and introduces a good account of the banding techniques used in chromosome identification. Somatic cell hybridisation, nucleic acid hybridisation and the use of marker chromosomes in gene assignment are introduced in a chapter on linkage and synteny, which retains the excellent account of human linkage determination of the 1st edition. This chapter which comes in Part Four contains the only reference to normal chromosome variants so that there is still no account of human chromosome polymorphism or evolution. Part two deals with Mendelism and its relation to the nature of the genetic material and gene action. The revision incorporates new sections on molecular biology including a description of the type of change in the nucleic acid bases of DNA in missense and nonsense mutations, and is illustrated by examples of haemoglobin and other biochemical variants transferred from a later chapter of the first edition. Part Three describes methodology in human genetics with only minor revision from the first edition; and Part Four, on multiple loci, has been rearranged incorporating linkage and new discoveries on synteny already mentioned and another new section on HLA, the human major histocompatibility system, which is still an area of very active research. Part Five covers mutation and polymorphism. The discussion of selection and genetic drift now includes a brief consideration of the theory of Kimura and others that neutral mutations are the principle mechanism for the evolution of functionally normal polymorphic allelic systems. The final part consists of the chapter on counselling, which as stated earlier has been greatly improved.

* *Nature New Biology*, 240, 32.

In summary this 2nd edition has provided the author with the opportunity to catch up on the many exciting recent advances in human genetics and it can be regarded as a sound and now up-to-date text on the subject. As a purely personal opinion, I still believe that there would be advantages in bringing the various sections on biochemical genetics together but doubtless Professor Levitan would counter that he is better able to use them to illustrate basic principles by not doing so. It retains the merit of the first edition of not ducking the more mathematical aspects of the subject, but of leading the student gently but firmly through them. This accounts in part for the fact that the book is much longer than most basic texts in the field.

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NUCLEAR CYTOLOGY IN RELATION TO DEVELOPMENT. (Developmental and Cell Biology Series No. 6). F. D'Amato. Cambridge University Press, 1977. Pp. viii+283. Price: £15.00.

There is a dearth of books on the genetics of development; this one is rather specialised and is written for the postgraduate market. It includes chapters on life cycles, the cell cycle and meiosis, mosaics and chimaeras, chromosome complements of differentiated cells, differential DNA replication, gene expression during development and its regulation, and the totipotency of cells and nuclei. A welcome and unusual feature of the book is that it gives comparative accounts of plants and animals. It is, on the whole, clearly written and well produced; but it is strange that a book on this subject should contain no photographic plates. In a book that will be much used for reference, it is also unfortunate that the index does not give more synonyms ("puff" does not appear at all, whereas there are separate and non-overlapping entries under "polyteny" and "polytene chromosomes"). The bibliography (the vast majority of the references dating from 1974 or before) is large and extremely useful.

Especially in the first half of the book, there is a strong emphasis on formal, descriptive genetics. For example, the problem of defining the origin of mosaics is discussed, whereas the use of mosaics to study developmental mechanisms is not treated (although references to reviews are given). Likewise, cytological techniques have made an important contribution to our understanding of the mechanisms of mammalian sexual differentiation and the different rules followed by germ cells and soma: but although aspects of this question are raised in separate sections (on chimaeras, X-inactivation and sex chromosome mosaics), abnormal, non-mosaic karyotypes and their corresponding phenotypes are not mentioned and the separate sections are not interrelated. Thus an overall picture of the contribution of cytology in relation to other disciplines does not emerge.

The depth of treatment given to different topics is variable. The role of cellular reproductive kinetics in the patterns of growth in root apex and in apical meristem are discussed in some detail, but there are only two short sections on animals (concerning imaginal discs, and cell renewal in mouse epidermis and chick epithelium; nothing on morphogenesis). This presumably reflects the author's interests and in some ways the choice of topics