

Lewis (*Nature* 276, 565-570; 1978) has shown that without this gene complex most of the segments develop identically and the result is more like a worm than an insect. Unfortunately the account of bithorax by Stewart and Hunt is so replete with facts that this advanced undergraduate found it almost incomprehensible. Nevertheless, the original approach of the book makes it refreshing and, as with a cold drink, one can always leave the ice in the glass. □

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Genetics: bottom . . .

Neville Symonds

Bacterial and Bacteriophage Genetics: An Introduction. By Edward A. Birge. Pp.359. ISBN 0-387-90504-9. (Springer-Verlag: 1981.) DM54, \$25.70.

EDWARD Birge's brief was to produce a book of reasonable size which would serve as a contemporary text for introductory courses in bacterial and phage genetics. This has involved starting with a brief treatment of DNA replication and the nature of mutation, proceeding through chapters on phage genetics and the mechanisms underlying transduction, transformation and conjugation, and then bringing the story up to date with further chapters on plasmids, gene regulation, the molecular basis of recombination and gene manipulation.

The "historical" chapters on the development of the basic prokaryote genetic systems using the phages T4 and λ and the bacterium K12 as examples are of necessity only sketches of what took place and do not give a balanced idea of the nature of the discoveries involved or the problems which had to be overcome. More successful is the chapter on the properties of the less well-known phages which outlines clearly the amazing variation in the strategies which have been adopted in various situations, and there are two well-researched chapters on plasmids which bring together a lot of useful ideas and practical material. Transposition and its consequences are treated rather briefly, but there is a clear exposition at the end of the book of how modern techniques in gene manipulation are performed and of the new frontiers which are being opened up by these techniques.

Overall the book succeeds in what it sets out to do. It is clearly written, the diagrams and format are of a high standard, and it is as up to date as can be expected in such a rapidly expanding field. There is no doubt it will be a useful adjunct in teaching introductory courses in molecular genetics. □

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Dorothy A. Miller

Genetics: Human Aspects. By Arthur P. Mange and Elaine Johansen Mange. Pp.675. ISBN 0-03-056751-3. (Holt, Rinehart & Winston: 1980.) \$25.95, £14.95. *Human Chromosomes: Structure, Behavior, Effects.* By Eeva Therman. Pp.235. ISBN 0-387-90509-X. (Springer-Verlag: 1981.) DM37, \$21.80.

THE tone of *Genetics: Human Aspects* is set by the cover, which has a picture of Adam pondering as he sits alone on the stump of a primitive tree. Perhaps he is thinking about the fact that all human beings will arise from him and hence be similar, but never identical, to him. This is not to imply that this is a creationist text, but rather one which builds on the assumption that the study of human genetics should be of interest to a student just because he is a human being.

Mange and Mange have written a very readable book, indeed. It is aimed at those with only a moderate scientific background, not including a general genetics course. Hence the authors try to give a comprehensive presentation of genetics in which, whenever possible, concepts are illustrated by human rather than plant or animal examples. Simple statistics and chemistry are dealt with in appendices.

In addition to the easily understood, not to say sprightly, text, the book has much to recommend it. The material is up-to-date and relatively free of errors. The line drawings are particularly well conceived and are very effective in simplifying concepts as they are presented in the text. The references are well chosen and include some original articles so that the student can appreciate the step by step nature of research. The authors refer to numerous areas that still require research, leaving some room for student imagination. There are adequate questions at the end of each chapter and the answers are accompanied by explanations.

Will the book be suitable for a course? The fast pace that makes the book so enjoyable also means that most areas are not dealt with in depth. Hence, the text would be more suitable for undergraduate or adult education courses than for graduate or medical school courses. As in any text, the balance of material selected is a matter of personal preference which teachers must assess for themselves. They would be well advised to at least examine this text.

The material in *Human Chromosomes* by Eeva Therman overlaps about one-fourth of that in *Genetics: Human Aspects* because chromosomes play such an important role in human genetics. The text covers areas of human cytogenetics that have been studied using the light microscope: chromosome structure,

mitosis, meiosis, banding, structural and numerical abnormalities, changes in cancer cells and human gene mapping. Examples are drawn primarily from human material, but use has been made of plant or animal studies when these provide the best material available. The book does not deal with molecular approaches to cytogenetics and includes almost nothing about findings of biophysical, biochemical or electron microscopic studies (for example, nucleosomes are not mentioned).

Therman's writing is clear and her style didactic. She includes many definitions and presents the facts that have been established. Although she has carried out extensive research on the human X chromosome, her presentation is not research orientated. She does not, for example, discuss the way the facts were obtained, nor does she try to entice students into cytogenetics by emphasizing questions that remain to be answered. She prefers to cite reviews rather than original articles so that "the reader is encouraged to delve deeper into any question of interest"; whether this will have the desired effect is not clear. For me it produced a rather static image of an active field.



Cytogenetics is a visual science; unfortunately the illustrations of human chromosomes given in the book do not provide a very complete background for the student. Full human karyotypes are shown for unbanded Giemsa (two), G- and Q-banded cells, but not for C- or R-banded cells, which are represented by a partial karyotype of C-banded E group chromosomes and a single R-banded number 1. Reciprocal translocation is poorly illustrated by the karyotype of an unbanded endoreduplicated cell, even though the figure legend states the identity of the translocated chromosomes was confirmed with Q. This selection of illustrations must have been a matter of choice, rather than space limitation, because a full page is devoted to C-banding of plant chromosomes and another to a G-banded karyotype of the rat.

Human Chromosomes is an introductory text suitable for undergraduate or graduate students. Since the subject matter is not dealt with in great detail, it should be compared to presentations of the same material in general human genetics texts.

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