
Book Reviews

Kornberg, A.: DNA Replication.

Oxford: Freeman 1980. 724 pp., 308 figs., Hard bound £ 19.20. Written both for undergraduates just beginning in the field of DNA synthesis and for research workers actively engaged in this area, Arthur Kornberg's latest book 'DNA Replication' is immensely readable, yet filled with the most useful and up-to-date information and comment possible. For those familiar with his earlier book 'DNA Synthesis' (1974), the new book is more than a major revision, and much larger.

In changing the little to 'DNA Replication', Dr. Kornberg indicates that the new book covers biochemical, genetic and physiological aspects as well as the numerous DNA transactions that determine the structure and function of genetic material. The first 300 pages are devoted to the enzymological aspects of DNA, e.g. the polymerases, with a great deal of emphasis on *E. coli* DNA polymerase 1, ligases, binding and unwinding proteins, topoisomerases and deoxyribonucleases. The latter half of the book (another 400 pages) deals in great detail with the large variety of replication mechanisms prevailing in such diverse situations as the life cycles of bacterial and animal viruses and of plasmids and organelles. Also included are sections dwelling on repair, recombination, restriction, and modification, and a final chapter on the synthesis of genes and chromosomes. The latter speculates on the origins of DNA on earth, and gives an account of DNA sequencing, the chemical synthesis of DNA (and of a gene) and of course recombinant DNA technology.

For those of us who have been fortunate enough to have learnt from lectures, discussions and by example from Dr. Kornberg, the book is written and produced with that same clarity, attention to detail and authority that one expects from him. The easy-to-follow down to earth approaches to the latest on the subject leads the reader to the very frontiers of research. With 308 figures, the book is very effectively illustrated, and as well as containing a long list of authors quoted, it has an extensive subject index.

J.F. Jackson, Glen Osmond

North, C.: Plant Breeding and Genetics in Horticulture.

London: MacMillan 1979. 150 pp., 20 figs., 9 tabs. Soft bound £ 4.95.

The author presents nearly all concepts and techniques of plant breeding and genetics. He does assume an extensive vocabulary and knowledge of terms employed by scientists in these fields. Since this book is intended to aid more advanced students in horticulture, such an assumption may be valid. But I do believe the university students in U.S. Horticulture Departments will have difficulty appreciating the content. The book would be strengthened by a longer introduction with suitable horticultural problems to be solved by breeding and genetics. The first chapter on 'The Mechanism of Inheritance' begins rather abruptly in the description of differences between mitosis and meiosis and, because these are fundamental processes which require thorough understanding before the next topics are discussed, a more detailed comparison would be beneficial. The chapters which follow on 'Chromosome Number, Flower Form and Pollination and Fertilization and Seed Development' are very well written, concise and should be readily understood by advanced students. In my reading of these chapters, each time a specific topic occurred to me, I was pleased to find it discussed. But the chapter on 'Segregation and Combining Ability' is again presented without adequate background relating horticulture to genetics. However, the next two chapters were the most enjoyable and appropriate for me as a university teacher of horticulture. These give very complete lists of 'Vegetatively Propagated Cultivars and Seed Propagated Cultivars'. These two chapters are extremely informative for all those who have sought to explain the major problems in improvement of various cultivars and how their individual breeding programs are tailored to meet the requirements of a specific cultivar. In this regard the book will prove to be a very helpful resource.

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