

chemical constituent and another. Individual presentations vary, but in general the compounds, with their chemical characteristics and natural sources, are listed with appropriate references, in tabular form. The book ends with a short section on "Physiological and Nutritional Data", which is rather on the fringe of biochemistry and has a fairly strong medical bias.

If, as the authors state in the preface, this book is meant to serve as a source of material for research biochemists, criticism could be levelled at some sections. The chapter on enzymes is so condensed and indigestible that probably both specialist and non-specialist alike will prefer to reach for 'Dixon and Webb'. One or two accounts of enzymes do not cover the subjects fully, and tend to be a bit unsatisfying because the selection of data has been too stringent. (The account of  $\beta$ , 2-1 fructanases, for example, does not even mention the work of Bacon and Edelman.) Also, in Section 1, perhaps it might have been a better idea in a book of this kind to have concentrated more on drawing up fuller lists of data ( $R_F$  values of more compounds in the chapter on paper chromatography, for example) rather than to have written so much on theory and technique, which are covered extensively in more specialized text-books. When the book concentrates on condensed information in the form of tables, figures and references (which is most of the time), it is excellent.

There are, however, one or two misprints; on pp. 953-4, '*Hordenum*' appears four times: it should be *Hordeum*. '*Liriodendro*' is printed instead of *Liriodendron* on p. 951. On p. 114 ribonucleose is written for ribonuclease, and on p. 515, the word 'succharides' might cause some hilarity.

The main strength of the book lies in its references, and in this respect alone it more than justifies the authors' claims that it should be regarded primarily as a source of biochemical material. If information is sought, one is almost certain to find it in the *Biochemists' Handbook*—and even if it is not there the references will indicate the source.

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## REVIEWS OF GENETICS

### Principles of Genetics

By Prof. Eldon J. Gardner. Pp. vii + 366. (New York and London: John Wiley and Sons, Inc., 1960.) 60s.

### Principles of Plant Breeding

By Prof. R. W. Allard. Pp. xi + 485. (New York and London: John Wiley and Sons, Inc., 1960.) 9 dollars; 72s.

### Genetic Research

A Survey of Methods and Main Results. By Prof. Arne Muntzing. Pp. 345. (Stockholm: LTs Forlag, 1961.) n.p.

THESE three books are written for different readers. The first is intended "primarily for the college student taking his first course in genetics" and presents the fundamentals of genetics accurately in a straightforward and readable manner. The first eight chapters are concerned mainly with Mendel's experiments, the mechanics of the transmission of hereditary units, their interaction and the ways in which they can be located on the chromosomes by

studies of linkage and recombination. Then, among other topics, the author deals with structural alterations of chromosomes, sex determination, mutation and alleles and compound loci. He indicates some present trends in chapters on physiological genetics and population genetics. One of the pleasing features of the book is the skilful way in which experimental results from both higher and lower organisms are woven into the text; and with equal facility, the student is given a hint of the usefulness of statistics and chemistry in modern genetics. It is a pity that the book is so expensive.

Prof. Allard's book is not greatly different in scope from some of the others on this subject. The reader is assumed to have a knowledge of cytogenetics, and emphasis is placed on principles of plant breeding rather than on breeding procedures for particular crops. After a brief discussion of patterns of evolution in cultivated plants and a general account of their reproductive systems, the author separates self-pollinated and cross-pollinated crops and, in each, in turn, deals with the genetic basis of breeding and with breeding methods. In my own opinion, Prof. Allard loses some possible clarity by not considering the roles of genotype and environment in continuous variation apart from mating systems. One of the most admirable sections of the book is that on breeding for resistance to disease, in which the interactions of host and parasite are very fully discussed; unfortunately, resistance to virus diseases is completely overlooked. The author writes in a vigorous and lucid style, but at times the subject-matter is condensed to the point of oversimplification; contrary to the author's statements, cultivated potatoes are, regrettably, classified into several species and many diploid edible bananas are sterile. Several Latin names are wrongly quoted and there are other printing errors that could well be corrected in subsequent printings.

Prof. Muntzing attempts in his book to cover the whole field of pure and applied genetics for the benefit of "everybody working with living material or teaching biology". Indeed, in slightly more than 300 pages, he deals with more topics than are included in the two other books under review. The reader will find chapters on all the traditional aspects of genetics—Mendelism and the developments therefrom, the structure of chromosomes, speciation, plant and animal breeding and eugenics. The facts are described accurately and clearly, but in order to cover so much ground many behaviours have to be treated in a somewhat cursory way; for example, the topic of self-sterility in plants is dismissed with a brief account of gametophytic incompatibility; a short description of the biochemical genetics of eye colours in *Drosophila* serves as a picture of the gene-controlled formation of pigments in plants and animals. Nevertheless, the account of genetical investigations in bacteria and viruses and the discussion of the nature of the gene are masterly condensations of available information. I was left with the impression that the book is too advanced for the amateur geneticist but, without a more extensive bibliography, falls short of being a satisfactory text-book for the intending professional. It is an unfortunate compromise. The book is well reproduced with excellent illustrations and diagrams. That the text is a translation is still evident; apart from clumsy sentences, words are sometimes wrongly used: "bacteriophage . . . creeps . . .", "electron microscopes . . . large power of dissolution".

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