Book Reviews

Colchicine—in Agriculture, Medicine, Biology, and Chemistry. O. J. Eigsti and Pierre Dustin, Jr. Iowa State College Press, Ames, 1955. xvii + 470 pp. Illus. $5.

The object of this book, as stated in the preface, is to bring together the significant contributions and correlate the various lines of research concerned with colchicine and its effects on plant and animal cells. A survey of the progress made to date, rather than any prediction of future possibilities, is emphasized.

The text begins with a discussion of the knowledge of *Colchicum* in ancient civilizations and traces its botanical studies from Dioscorides to the 20th century. Medical uses of colchicine, chemical studies of the pure substances, and sources of the drug are fully covered.

In the chapter "New biological uses of colchicine," it is evident that, through meticulous effort, the priority for the discovery of the effect of colchicine on nuclear divisions is credited to Pernice, who described metaphasic arrest in 1889. A medical student, F. Litz, in the laboratory of A. P. Dustin, senior, at Brussels, Belgium, suggested in 1934 the use of colchicine for altering mitosis and in 1937 demonstrated its effect as an agent for inducing polyploidy. After the colchicine bandwagon arrived in 1938, numerous publications appeared in various periodicals around the world. More than 1600 of these references are cited at the close of the 17 different chapters.

Six of these chapters are devoted to descriptions of the effect of colchicine on cytological processes involved in the induction of experimental polyploids, including amphiploids, autoploids, and aneuploids. Criteria for judging polyploidy and methods by which it may be induced are clearly stated and may well serve as a helpful guide for an amateur in the field.

The authors have emphasized the extreme importance of colchicine as a tool for the plant breeder. The reader is fully aware of its usefulness in the improvement of horticultural plants, cereals, fruits, vegetables, field crops, and medicinal plants. Even forest types have been treated with colchicine. These results are included in the text.

The 29 pages of subject index leave much to be desired. Many plants in which polyploidy has been induced are not listed, although some of these may be found in the author index. The arrangement of bibliographic material makes checking difficult. A list of literature cited at the end of each chapter with a supplementary list of references preceding the author index would be preferable.

Colchicine is a book that every person interested in polyploidy should find very helpful, whether he is seeking a method for the induction of ploidy or an explanation of some genetic behavior of polyploids.

CLYDE CHANDLER
Boyce Thompson Institute for Plant Research

A Manual of Paper Chromatography and Paper Electrophoresis. R. J. Block, E. L. Durrum, and G. Zweig. Academic Press, New York, 1955. 484 pp. Illus. $8.

The first section of this manual, written by Block and Zweig, is an unusually complete description of paper chromatography. The mechanics of the techniques are described in such detail that they may seem irrelevant to those familiar with chromatography. However, such detail will prove to be extremely helpful to the student.

The most remarkable attribute of this section is its completeness. Each phase of the assay is dwelt upon at great length. The authors review the advantages of the various forms of chambers, the name and number of the proper filter paper for the clearest separation of different compounds, the best combination of solvents, and the methods for preparing the samples. For each group of compounds there are many reagents given for the location of the spots. For example, in amino-acid chromatography, there are 67 reagents described, including those for specific amino acids. The authors also indicate those that are recommended. Included are the methods that have been described for all biologically important compounds. There are many tables of R_f values.

Unfortunately, the second section by Durrum is not nearly as complete as the first. Durrum explains in the preface that the space allotted prevented a more detailed coverage. This was an unfortunate policy. If a new section was to be added, then it seems to me that the same thorough coverage should be insured. This is not to imply that the second section is poorly done, for such is not the case. However, the word *manual* cannot be applied.

HOWARD B. BENSUSAN
Department of Physiology, University of Maryland School of Medicine

Annual Review of Nuclear Science. vol. 4. James G. Beckerley, Martin D. Kamen, and Leonard I. Schiff, Eds. Annual Reviews, Stanford, Calif., 1954. ix + 483 pp. Illus. $7.

Seventeen essays in this volume cover nuclear physics and biological, chemical, and geologic applications. For me the outstanding review was Kohman and Saito's "Radioactivity in geology and cosmology." A large number of original references are organized into a comprehensive and logically connected survey. Critical selection is exercised without prejudicing problems still in process of solution. In addition, an element of style makes for a relatively exciting article. Another stimulating review is that of Asaro and Perlman on "Alpha radioactivity," which summarizes simply the chief insights and further problems revealed by recent developments. Also enlightening were "Positronium" (De Benedetti and Corben), "Heavy Mesons" (Dilworth, Occhialini, and Scarsi), and "Vertebrate radiobiology" (Thomson).

Unfortunately, a number of the remaining articles were not such a pleasure to read, mainly because of partial neglect of the supposedly dominant review aspect. The object of a review is to survey developments in a field, showing from a single point of view their logical connection, relative importance, and features of general interest. Since the readers are *not* experts, the presentation should remain as simple and basic as possible. All this implies that questions of literary technique, such as organization and style, are more important than they are in an original research paper. It is disappointing to note that some of the papers reviewed here compare unfavorably in perspicuity with papers in the *Physical Review*. This is especially noticeable in the shorter articles, as is to be expected; the more a subject must be compressed without losing coherence, the greater the literary virtuosity required, and the more patent its lack. One recalls Woodrow Wilson's remark on the 5-minute versus the 2-hour speech.