plant protection and soil inoculation measures on the different kinds of soil organisms. Finally some reference is made to soil sickness. Literature references take up about eighty pages; there is a useful index and also a list of all the genera and species of organisms mentioned.

Although not the only recent book on this subject, this volume is probably the most comprehensive at present. The book is well produced and bound and not expensive in view of its size. Misprints and errors are very rare (Beijerinck, of course, was a Dutchman, not a Dane). The text is reasonably up to date and moreover contains a fair number of references to Russian and Eastern European work as may be expected of an East German book. That it is written in German may unfortunately limit its usefulness, but it can be recommended to all advanced students and research workers, biologists and non-biologists alike, in the field of soil science.

N. WALKER

STEROIDS IN THE POLARIMETER

Selected Constants

Optical Rotatory Power. 1*a*. Steroids. By J. Jacques, H. Kagan and G. Ourisson. Edited by S. Allard. (Tables of Constants and Numerical Data, 14. Associated Organization of the International Union of Pure and Applied Chemistry.) Pp. 1031. (London, Paris and New York: Pergamon Press, Ltd., 1965.) 258 F.

THE steroids form a closely-knit group of organic compounds which have been in the forefront of natural product chemistry for more than thirty years. The reasons for this lie in their biological and economic importance (particularly in the pharmaceutical industry), and in the peculiar appropriateness of their rigid structure for investigations of reaction mechanisms, and of many physical properties. Steroid chemists have been well provided with text-books, with forums for discussion, and with specialized collections of data and materials.

Among the most valuable of these collections has been the catalogue of optical rotations of steroids, published in 1956. *Selected Constants: Optical Rotatory Power* is the second edition of this collection of data on optical rotation, to which have been added the melting-points of most of the compounds listed. Optical rotations are important as criteria of purity and also as characteristic constants for structural and stereochemical problems.

Although expensive, this work is essential for all laboratories working in the steroid field—and highly desirable for other laboratories which are interested in the general relations between optical rotation and structure. The literature is covered up to 1961, structures being corrected up to 1964 where necessary. About twenty-one thousand compounds are listed, in contrast to eight thousand compounds in the previous edition.

The introduction, in both French and English, deals with the nomenclature of steroids. The compounds are catalogued under their molecular formulae with full references (6,300 in all); the book includes extremely thorough indexes to authors and substances.

References to the important new technique of optical rotatory dispersion are given briefly. These items and data on circular dichroism will need to be dealt with more fully in the next edition.

Since optical rotation values are measured for nearly all new steroids, this book really constitutes a one-volume catalogue of steroids; it is therefore the easiest place in which to begin a literature search. The French authors are to be congratulated sincerely on carrying forward the good work of the first edition with their prolonged and meticulous labours.

The book is so valuable, and the method of indexing so simple, that the authors and editor might well ask all colleagues working in the steroid field to assist in the preparation of future editions in the following way. Authors of original papers could readily provide details of new compounds on a standard form, which would present the data on optical rotation ready for the preparation of a third edition or of a supplement. It would be the work of a few minutes to provide the data for each compound in this way, and we should all know that in doing this we were speeding up (and perhaps making a little cheaper) the next edition of this invaluable index and reference book.

W. KLYNE

VARIATION AND GENETICS OF BACTERIA

Bacterial Genetics

By Werner Braun. Second edition. Pp. xiii + 380. (Philadelphia and London: W. B. Saunders Company, 1965.) 70*s*.

THE first edition of *Bacterial Genetics* was published in 1953 when text-books in this field were almost non-existent. To-day, however, the reader is confronted with a choice of good texts each covering much the same material. It is against this background that Prof. Braun's revised book has to be evaluated. Both editions of *Bacterial Genetics* have had as an explicit aim the presentation of ". . . the more important findings and principles of bacterial genetics to those primarily trained, or being trained, in bacteriology . . . ". Much of bacterial genetics is complex and too frequently communicated in a confusing manner. Furthermore, data tend to be submerged in a bewildering jargon with the result that the subject becomes largely unintelligible to the non-specialist. Prof. Braun is to be congratulated on making his book clear and palatable to those not primarily trained in genetics and in attempting to relate genetic discoveries to other aspects of bacteriology such as pathology and physiology.

The recent progress of bacterial genetics has been enormous and this second edition of *Bacterial Genetics* is, in large measure, a new book although the layout of the first edition is retained. Part 1 is devoted to introductory considerations, cytology and certain molecular features including mutation and mutagenesis. Part 3 deals with genetic transfer systems and "gene action" and its regulation. The middle section discusses "Representative Mutant Types" and "Population Changes" and, although the approach here is necessarily itinerative, the material is offered interestingly and will make particularly apposite reading for the bacteriologist. Several features of this book appealed to me, notably the careful definition of terms, the cross-referencing within the text, the inclusion of technical details and the insistent distinction made between working hypotheses and established facts. The book is comprehensive but several topics have received but brief consideration. Thus, although the reader is directed to other sources for additional details, this brevity can be misleading; for example, the statement that the life-time of messenger RNA is only a few minutes requires qualification. Also unsatisfactory is the abrupt termination of the book; we are suddenly halted during a discussion of feedback inhibition and allosterism. A more satisfying conclusion might have pursued the theme of regulatory mechanisms and cellular differentiation. Occasionally terms are used rather inconsistently (for example, nucleus and nucleoid), quoted data are at variance (for example, proportion of RNA that is ribosomal) and cited references incorrect. Little mathematical treatment is included. However, these are minor criticisms of an otherwise admirable book. Prof. Braun has accomplished his stated aims and his book deserves to be read by both geneticists and bacteriologists. *Bacterial Genetics* will be especially useful to those bacteriologists and other microbiologists who are not aware of the immense impact and relevance of genetics in their own fields.

ALAN T. BULL