Biochemistry

TEXTBOOK OF BIOCHEMISTRY, 9th Ed., Benjamin Harrow and Abraham Mazur, 648 pp., $9.00, W. B. Saunders Co., Philadelphia, 1966.

The ninth edition of this represents a considerable revision over the eighth edition. Although the total number of pages remains the same, the book has been reorganized and the material has been brought up to date. A new chapter dealing with cellular organization has been included and chapters on the chemistry and metabolism of proteins greatly enlarged. Separate chapters devoted to energy metabolism, inorganic metabolism, digestion and absorption, and metabolism of foreign organic compounds do not appear in the latest edition. Short, but good, discussions of genetic control of protein snythesis, metabolic control mechanisms, and the Jacob–Monod hypothesis are contained in the first protein metabolism chapter. A few minor errors appear, but generally the book is well written and well illustrated. The present arrangement of the material permits the chapters to be assigned in the order in which they are given in the book. This text is recommended as suitable for biochemistry courses given to seniors, first year graduate students, and medical students.

Ralph H. Kathan
University of Illinois
College of Medicine
Chicago, Illinois

BIOCHEMISTRY LABORATORY TECHNIQUES, Sterling Chaykin, 164 pp., $5.95, John Wiley and Sons, Inc., New York, 1966.

This laboratory manual is suitable for graduate students in biological chemistry and, possibly, for some medical students in structured-type laboratory programs. The selection of experiments is very good. The subjects covered include photometry, purification of proteins, characterization of proteins and carbohydrates, enzymes, radioisotopes, oxidative phosphorylation, and glass blowing. The methods given are practical and up-to-date. The book suffers from one drawback which does not prevent its recommendation, however. The author purposely has kept discussion of the experimental principles to a minimum to force the student to refer to outside source material. Unfortunately, this may have been overdone and some additional explanatory information would be helpful. This reviewer, and some of his students, found the directions for the use of the "Ammonium Sulfate Conversion Tables" difficult to follow. Generally, the book is well written and should be considered for use in basic biochemstry courses or "methods" courses.

Ralph H. Kathan
University of Illinois
College of Medicine
Chicago, Illinois

Mathematics

MATRIX ALGEBRA FOR THE BIOLOGICAL SCIENCES (Including Appilcations in Statistics), S. R. Searle, 296 pp., $9.95, John Wiley and Sons, Inc., New York, 1966.

Matrix algebra is a subject basic to many techniques routinely used by many biologists. Perhaps its most widespread application is in connection with multiple regression analysis, but it is also important in solution of sets of algebraic equations, systems of differential equations, and in numerous special applications in population ecology, population genetics, and physiology. As biologists become more aware of the non-liner nature of many of their problems, matrix algebra will be further appreciated for its central role in iterative regression methods for non-linear equations. Surprisingly, in view of the widespread applicability of matrices in biology, the topic is a conspicuous lack in the training of most biologists. Some biologists pick up a little of the subject in "Dartmouth Plan" courses on finite mathematics, or in courses on advanced calculus or regression analysis. However, there has been for some time a conspicuous need for a book on matrix algebra for biologists that related this subject to statistics of many variables, and to other topics in biology.

The new book by Searle fills the gap very well. First, Searle abides by his assertion in the preface that the basic prerequisite for using the book is high-school algebra. In fact, the mathematical part of the book starts at rock bottom, on page 4 with the assertion that "Algebra is arithmetic with letters of the alphabet representing numbers." Despite this humble beginning, the coverage extends to a thoroughgoing exposition of the centrally important subject of inverses (solving systems of equations), latent roots, orthogonal matrices, Jacobians, partitioning and direct products. Two chapters are devoted to the relation between matrix algebra and multi-variable statistical procedures.

The book has a number of important features which will probably make it unique for a long time to come. In order to write a good book bridging two fields (in this case, mathematics and biology) it is necessary for the author to have deep insight into each field, and a broad