Book Reviews

Radioactive tracers in biology: an introduction to tracer methodology. Martin D. Kamen. New York: Academic Press, 1947. Pp. xiii + 281. (Illustrated.) $5.80.

Prof. Kamen has achieved to a remarkable degree his objectives in having *Radioactive tracers in biology* provide (1) an introduction or a review of those concepts in nuclear physics, an understanding of which is basic to the intelligent application of tracer methods in biology; (2) a presentation of a systematic and critical survey of existing tracer methods; and (3) an indication of potentialities and limitations of these methods as applied to biological problems. This small, but extremely fact-packed, guide should find a welcome place on the working bookshelves of biochemists, biophysicists, physiologists, and physicians who are interested in the application of radioactive tracers to studies in biology.

The first section, a review of nuclear physics, demands a greater amount of reader effort than do the sections relating to procedures in the production and assay of radioactive isotopes. The information about procedures for radioactive assay is given in precise detail.

For the biologist, Chapter V, "A Survey of Tracer Biology," is an extremely stimulating and informative presentation of biochemical and physical applications, including the study of intermediary metabolism and a well-presented discussion on analysis by isotope dilution methods. Under physiological applications, the author discusses permeability studies, metabolic turnover, and transport studies.

Chapters VI to X, inclusive, elaborate on the use of radioisotopes and include a thorough discussion of radioactive hydrogen (tritium)—and, incidentally, an extremely valuable table of deuterium compounds—as well as C^{11}, C^{14}, P^{32}, and S^{35}. The isotopes of secondary importance in biology are discussed in Chapters XI and XII, and the final chapter, entitled "Various Radioactive Isotopes of Importance in Biology," deals with such trace elements as manganese, iron, cobalt, copper, and zinc.

The biologist will find the study of this book of real value whether he plans to engage in utilizing radioactive isotopes or to broaden his understanding of this important technique.

The book is not without some weaknesses, stemming chiefly from an insufficient attention to radiation hazards. Although reference is made to National Bureau of Standards' Handbooks H-23 and HB-20, on "Radium Protection" and "X-Ray Protection," the reviewer believes that somewhat greater detail regarding the handling of hazards could have been incorporated in this volume. The author might also have elaborated his discussions of radiation effects in organisms and of the need for awareness of the ever-present hazards in research on metabolism with radioactive isotopes, because of the physiological effects of the radiation from the tracers.

This is apparently Volume I of a new series of monographs in Organic and Biological Chemistry under the editorship of Louis F. and Mary Fieser, to be published by the Academic Press. As such, one would hope for greater care in publication. An errata sheet listing 10 errors in a 270-page book does not speak highly of the diligence of proofreading. A certain amount of distraction, if not occasionally confusion, develops from the use of superscripts of the same type and point for designating the mass numbers and references to bibliographic footnotes.

The author has done the biologist a real service in offering this excellent work.

M. C. Shelesnyak
5606 Moorland Lane, Bethesda, Maryland

Descriptive and sampling statistics. John Gray Peatman. New York: Harper, 1947. Pp. xviii + 577. (Illustrated.) $5.00.

This book recognizes the dilemma of social science students who need certain statistical knowledge and skill, but for whom the time requirement of mathematical training is either discouraging or prohibitive. In his attempt to meet the needs of this particular group, the author has made commendable use of ordinary English prose for the presentation of various statistical devices and the illustration of their uses. The text is entirely free from elaborate formulas and derivations. Its content is well supported by timely and appropriate illustrations, and excellent pedagogical value may be anticipated for the exercises at the conclusion of each chapter.

This very practical book will probably enjoy a wide demand as a text for undergraduate and first-year graduate students in education and sociology. It should provide a useful background for some kinds of research and will greatly facilitate the comprehension of those who must read the current literature in education, sociology, anthropology, and psychology.

Although the author has realized most of his expressed aims, his work is not without serious fault. The problem of nonlinear correlation receives a most summary dismissal; for example, Eta and Epsilon are ignored. The use of the important F test and the simplest illustrations of analysis of variance and covariance are omitted. A chapter on cluster and factor analysis is included, but the discussion is misleadingly inadequate. Neither the assumptions of factor analysis nor their implications are given. Spearman's two-factor theory receives one paragraph. All multiple-factor theories are lumped together in one paragraph. The rest of the chapter is concerned with a little-used, casual method of cluster analysis.

Despite the omission of certain important topics, the book has a broad scope and may create the illusion in the student that the treatment is comprehensive. This would be regrettable, because in general the assumptions underlying the development of the various statistics and governing their appropriate use are poorly defined or omitted. Equally serious is the presentation of a large group of standard-error formulas with the instruction that the statistics in question are essentially normally distributed. In the case of sample sizes commonly encountered, this assumption is questionable for some of the statistics, and for other statistics, e.g. the standard deviation, it is known to be incorrect. With few exceptions,