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,

the student is encouraged to regard his samples as large samples. These limitations are not unique to this textbook, but they are regrettable in that they may encourage a "cookbook" approach to experimental design and the testing of statistical hypotheses.

The sequence of topics is unusual, and many things which ordinarily go together are widely separated and treated in a piecemeal fashion. Although there may be good reason for this, its merit was not apparent to this reviewer.

The simplicity and rigor of modern inferential statistics, particularly for small samples, may not be discerned by the student who uses this textbook, and he will have little opportunity to be discouraged by either the mathematical or logical rigor which features many textbooks in statistics.

Nevertheless, in terms of the aims of this textbook, its positive features greatly outweigh its shortcomings.

J. R. WITTENBORN

Yale University

Scientific Book Register

ALLEN, ARTHUR. *Ornithology laboratory notebook.* (5th ed.) Ithaca, N. Y.: Comstock, 1947. Pp. 256. (Illustrated.) $4.00.

BABCOCK, ERNEST BROWN. *The genus Crepis*; Pt. I: *The taxonomy, phylogeny, distribution, and evolution of Crepis*; Pt. II: *Systematic treatment.* Berkeley-Los Angeles: Univ. California Press, 1947. Pt. I: Pp. x + 197. (Illustrated.) $3.50. Pt. II: Pp. viii + 198–1030. (Illustrated.) $10.00.

CAMPBELL, J. W. *An introduction to mechanics.* New York-London: Pitman, 1947. Pp. xviii + 372. (Illustrated.) $4.50.

CULVER, CHARLES A. *Theory and applications of electricity and magnetism.* New York-London: McGraw-Hill, 1947. Pp. xii + 594. (Illustrated.) $5.00.

CURTIS, WINTERTON C., and GUTHRIE, MARY J. *Textbook of general zoology.* (4th ed.) New York: John Wiley; London: Chapman & Hall, 1947. Pp. xx + 794. (Illustrated.) $4.50.

DANGEARD, PIERRE. *Cytologie végétale et cytologie générale.* Paris, France: Paul Lechevalier, 1947. Pp. 611. (Illustrated.) 1.250 fr.

DICKSON, JAMES G. *Diseases of field crops.* New York-London: McGraw-Hill, 1947. Pp. xii + 429. (Illustrated.) $4.50.

DRINKER, CECIL K., *et al. Psychiatric research.* Cambridge, Mass.: Harvard Univ. Press, 1947. Pp. 113. $2.00.

ELLIS, CARLETON, and SWANEY, M. W. *Soilless growth of plants.* (2nd ed. rev. and enlarged by Tom Eastwood.) New York: Reinhold, 1947. Pp. x + 277. (Illustrated.) $4.75.

FEARON, WILLIAM ROBERT. *An introduction to biochemistry.* (3rd ed.) New York: Grune & Stratton, 1947. Pp. x + 569. $6.00.

FERGUSON, L. KRAEER. *Surgery of the ambulatory patient.* (2nd ed.) Philadelphia-London-Montreal: J. B. Lippincott, 1947. Pp. xxiii + 932. (Illustrated.) $10.00

GESELL, ARNOLD, and AMATRUDA, CATHERINE S. *Developmental diagnosis: normal and abnormal child development.* (2nd ed.) New York-London: Paul B. Hoeber, 1947. Pp. xvi + 496. $7.50.

GRIFFITHS, LOIS WILFRED. *Introduction to the theory of equations.* (2nd ed.) New York: John Wiley; London: Chapman & Hall, 1947. Pp. ix + 278. $3.50.

HOFF, ARTHUR G. *Secondary-school science teaching.* Philadelphia-Toronto: Blakiston, 1947. Pp. xi + 303.

HOLM, RAGNAR. *Electric contacts.* Stockholm, Sweden: Almquist & Wiksells, 1946. Pp. xvi + 398. (Illustrated.) 45:—.

KIMURA, HISASHI. *Results of the International Latitude Service from 1922.7 to 1935.0.* (Vol. VIII.) Mizusawa, Japan: Published under the auspices of I.A.U., 1940. Pp. 327. (Illustrated.) (Copies may be obtained free of charge from U. S. Coast and Geodetic Survey, Washington 25, D. C.)

KINIETZ, W. VERNON. *Chippewa Village, the story of Katikitegon.* (Bull. No. 25.) Bloomfield Hills, Mich.: Cranbrook Institute of Science, 1947. Pp. ix + 259. (Illustrated.) $3.00.

KOLTHOFF, I. M., and STENGER, V. A. *Volumetric analysis.* (2nd ed.) Vol. II: *Titration methods.* New York: Interscience, 1947. Pp. xiii + 374. $6.00.

LIAPOUNOFF, A. *Problème général de la stabilité du mouvement.* (Annals of Mathematics Studies, No. 17.) Princeton, N. J.: Princeton Univ. Press; London: Oxford Univ. Press, 1947. $3.50. (Trans. by M. Édouard Davaux from Russian article in *Ann. Fac. Sci. Toulouse,* 1907, Vol. 9, 2nd Ser.)

MAVOR, JAMES WATT. *General biology.* (3rd ed.) New York: Macmillan, 1947. Pp. xiii + 986. (Illustrated.) $5.50.

MILLER, JOHN ANDERSON. *Men and volts at war: the story of General Electric in World War II.* New York-London: McGraw-Hill, 1947. Pp. ix + 272. (Illustrated.) $3.75.

MURPHY, GARDNER. *Personality: a biosocial approach to origins and structure.* New York-London: Harper, 1947. Pp. xii + 999. $5.00.

PIRSSON, LOUIS V. *Rocks and rock minerals.* (3rd ed., rev. by Adolph Knopf.) New York: John Wiley; London: Chapman & Hall, 1947. Pp. vii + 349. (Illustrated.) $4.00.

POPE, ALAN. *Wind-tunnel testing.* New York: John Wiley; London: Chapman & Hall, 1947. Pp. xi + 319. (Illustrated.) $5.00.

RICHARDSON, LEON B., and SCARLETT, ANDREW J. *General college chemistry.* (4th ed.) New York: Henry Holt, 1947. Pp. vii + 704. (Illustrated.) $4.25.

RIDEAL, E. K., *et al. Colloid science: a symposium.* Brooklyn, N. Y.: Chemical Publishing Co., 1947. Pp. x + 208. (Illustrated.) $6.00.

ROSSER, J. BARKLEY, NEWTON, ROBERT R., and GROSS, GEORGE L. *Mathematical theory of rocket flight.* New York-London: McGraw-Hill, 1947. Pp. viii + 276. $4.50.