Book Reviews

Thermodynamics for chemists. Samuel Glasstone. New York: D. Van Nostrand, 1947. Pp. viii + 522. $8.00. Series price, Vol. I, $7.00.

This book on elementary chemical thermodynamics should find a receptive audience among students of chemistry and chemical engineers. In a clear, relaxed style the author presents those parts of thermodynamics and statistical mechanics that have stood the test of experiment and may deserve the name canonical. Almost every principle or formula is followed by numerous, well-selected tables, graphs, and problems, and the author has had the grace to work out, numerically, representative examples, so that the reader is not left in doubt as to the units involved. This is in wholesome contrast to the current practice of the proud Shakuntas, who delight in introducing systems of units that confound both the catechumen and the learned.

In the main, the subject matter covered does not extend beyond that given by Gibbs, Lewis and Randall, Fowler, Epstein, and Tolman; but the beginner or the practicing engineer still finds these greater treatises somewhat difficult; and, moreover, he is not yet certain which parts have proved most useful. The author has chosen those having maximum utility.

One may find here, as in all books, debatable statements. For example, the definition of energy (p. 6) causes a pang; the discussion of the exceptions to the so-called third law (p. 196) provokes the reader to wonder whether the third law is true and the crystals imperfect, or the crystals perfect and the third law false.

It is noteworthy that some part of the book was done at the university of a state (Oklahoma) famous for its fertility, fine spirit, and amazing human color. It is characteristic of this country that this same state should give encouragement to a scholar.

When the elite of science, the engineers, and students come to examine *Thermodynamics for chemists*, the first may scoff, but the two latter will probably remain to pray.

DON M. YOST

California Institute of Technology, Pasadena

College technical physics. Robert L. Weber, Marsh W. White, and Kenneth V. Manning. New York-London: McGraw-Hill, 1947. Pp. viii+761 (Illustrated.) $4.50.

This is a general textbook of physics for college students of science and engineering. The order of presentation and treatment of subject matter are conventional and the style straightforward and clear. The use of mathematics is confined to algebra and trigonometry, and even the latter is used sparingly. Calculus is avoided, although the increment notation is occasionally employed.

Numerous solved problems are interpolated at strategic places in the text, and the proper handling of units is carefully explained. Suggestive questions accompany the problems at the end of each chapter.

The book is well illustrated by numerous line drawings. An interesting feature is the introduction of portrait sketches of the Nobel Prize winners in physics from Röntgen to Bridgman. These are placed in the chronological order of award as chapter headpieces. Though this has an obvious advantage, it also possesses the drawback of providing little or no connection in general between the field of work of the prizewinner and the material of the chapter at the beginning of which his portrait appears. It must be confessed that the poor quality of the paper scarcely does justice to the sketches.

The book is weak on modern physics. Only 16 pages are devoted to 20th-century developments. The quantum theory is disposed of in a few sentences which give no conception of its importance, and relativity is barely mentioned in connection with $E = mc^2$. Even such things as the photoelectric effect and thermionic emission get scarcely more than a passing mention. This seems regrettable in a book intended for a fundamental course in elementary physics. For students going on to engineering, the treatment of thermodynamics is not sufficient, and the statement of the second law is not precise. The reviewer regrets to see no definition of mass. It has been shown that this fundamental concept *can* be made clear in an elementary book, and it seems only fair that the student should get it straight, even in his first course.

R. B. LINDSAY

Department of Physics, Brown University

Sequential analysis. Abraham Wald. New York: John Wiley; London: Chapman & Hall, 1947. Pp. xii + 212. $4.00.

In the reviewer's opinion this book is very useful and valuable and should be possessed and digested by every teacher of statistics and by every professional statistician.

Sequential analysis, a method of testing statistical hypotheses, consists of making a certain calculation after each observation is made and deciding, on the basis of this calculation, whether to (1) accept the hypothesis under test, (2) accept the alternate hypothesis, or (3) postpone judgment, pending the examination of more data.

The advantages of the method appear to be that (1) it results, on the average, in a great reduction in the number of observations required for a given degree of reliability; (2) it appears simpler than prevailing methods of analysis; and (3) most numerical calculations can be made in advance of collecting the data.

Sequential analysis is a method by which statistical data are analyzed continuously as they become available. In the book there is presented a particular method of sequential analysis, the so-called sequential probability test, to test statistical hypotheses. The idea of sequential analysis is not new. It appears that the idea was first conceived by Romig and Dodge, who gave us a double sampling procedure. Later there was a

multiple-sampling scheme by Bartky, and, also, the idea of chain experiments was discussed by Hotelling in 1941.

In the reviewer's opinion, sequential analysis is not the last word in testing procedures for the general problem of efficient testing. Too little attention appears to be given to operational testing situations to determine the pertinent factors that are involved. However, the technique appears to be useful when the test is destructive and when the cost of testing an item is large.

The book is divided into three parts and an appendix. Part I includes: (1) an elegant discussion of the elements of the current theory of testing hypotheses, (2) a clear and concise general statement of a sequential test of a statistical hypothesis, (3) the nature and meaning of a probability ratio test, and (4) an outline of a theory of sequential tests of simple and composite hypotheses against a set of alternatives. In Part II we have certain simple applications of the theory to very special cases involving the binomial and normal distribution functions. It would have been interesting and useful to have had, in addition, illustrations of less common cases. Part III outlines a possible approach to the problem of sequential multivalued decisions and estimation. As is well known to the author of the book, this field is unexplored, and in it there is much left to be done. In the appendix the author gives certain mathematical derivations pertinent to the theory of sequential testing.

In the reviewer's opinion, the book is well and clearly written and may be read and understood by those who have no advanced mathematical training.

FRANK M. WEIDA
The George Washington University, Washington, D. C.

Diseases of the nose and throat. (3rd ed.) Charles J. Imperatori and Herman J. Burman. Philadelphia: J. B. Lippincott, 1947. Pp. xxvi + 576. (Illustrated.) $12.00.

This revised standard work is addressed to surgeons and therapists in the field of rhinolaryngology. It stresses the point of view that modern surgery is performed not merely to correct pathology or deformity, but to achieve an optimum postoperative functional result for the patient. The new material introduced in the present edition has to do chiefly with the oral manifestations of nutritional disturbances, vitamin deficiency, and the use of sulfonamides and penicillin, particularly in relation to intracranial complications. The chapter on radiation therapy has been completely revised in the light of recent clinical research. The volume is presented as a working manual for the diseases of the nose and throat written in terse sentences and arranged in well-outlined, almost tabular, form. The condensed text is complemented by 480 good illustrations, a large number of them actual photographs and a fair number in color. Supplementing 49 chapters by the authors are three by other contributors: Frederick M. Law, on "Roentgen Examination of Nasal Accessory Sinuses"; Ira I. Kaplan, on "Radium and Roentgen Ray"; and Andrew A. Eggston, on "Laboratory Aids." Although the volume is supplied with a very good index, it is almost wholly lacking in references to pertinent literature and leaves the reader at a complete loss in reference to the sources for statements made or where further elaboration of techniques and topics could be secured.

W. R. MILES
Yale University School of Medicine

Scientific Book Register

BOURIQUET, G. *Les maladies des plantes cultivées à Madagascar.* Paris: Paul Lechevalier, 1946. Pp. 545. (Illustrated.) 1200 fr.

BOYCE, JOSEPH C. (Ed.) *New weapons for air warfare.* (Science in World War II, OSRD.) Boston: Little, Brown, 1947. Pp. xviii + 292. (Illustrated.) $4.00.

CAHALANE, VICTOR H. *Mammals of North America.* New York: Macmillan, 1947. Pp. x + 682. (Illustrated.) $7.50.

CARSWELL, T. S. *Phenoplasts: their structure, properties, and chemical technology.* New York-London: Interscience, 1947. Pp. xii + 265. $5.50.

CROWTHER, J. A. (Ed.) *Handbook of industrial radiology.* (Industrial Radiology Group, Institute of Physics.) London: Edward Arnold, 1946. Pp. viii + 203. (Illustrated.) $7.00.

DEGERING, ED. F., and collaborators. *The work book of fundamental organic chemistry.* Ypsilanti, Mich.: Univ. Lithoprinters, 1947. (Rev. ed.) Pp. 256. (Illustrated.) $1.75.

DENNIS, WAYNE, *et al. Current trends in psychology.* Pittsburgh, Pa.: Univ. Pittsburgh Press, 1947. Pp. vii + 225. $3.50.

EASTMAN, E. D., and ROLLEFSON, G. K. *Physical chemistry.* New York-London: McGraw-Hill, 1947. Pp. viii + 504. $4.50.

HALDANE, J. B. S. *Science advances.* New York: Macmillan, 1947. Pp. 253. $3.00.

KRAEHENBUEHL, JOHN O., and FAUCETT, MAX A. *Circuits and machines in electrical engineering.* Vol. I: *Circuits*; Vol. II: *Machines.* (2nd ed.) New York: John Wiley; London: Chapman & Hall, 1947. Pp. ix + 367; ix + 370. (Illustrated.) $4.25 ea.

LAUFFER, MAX A. *Viruses.* (From 20th Annual Priestly Lectures, 1946.) Ann Arbor, Mich.: Edwards, 1947. Pp. 62. (Illustrated.)

LEROI-GOURHAN, ANDRÉ. *Archéologie du Pacifique-Nord.* Paris: Université de Paris, Institut d'Ethnologie, Musée de L'Homme, 1946. Pp. xviii + 538. (Illustrated.)

MCINTYRE, A. R. *Curare: its history, nature, and clinical use.* Chicago: Univ. Chicago Press, 1947. Pp. vii + 240. (Illustrated.) $5.00.

NELSON, J. RALEIGH. *Writing the technical report.* (2nd ed.) New York-London: McGraw-Hill, 1947. Pp. xiv + 388. $3.00.

NORD, F. F. (Ed.) *Advances in enzymology and related subjects of biochemistry.* (Vol. VII.) New York-London: Interscience, 1947. Pp. xi + 665. $8.75.

———. *Heredity and variation in microorganisms.* (*Cold Spr. Harb. Sympos. quant. Biol.*, Vol. XI.) Cold Spring Harbor, N. Y.: Biological Laboratory, 1946. Pp. xi + 314. (Illustrated.) $6.00.