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.

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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.

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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