The reviewer does not know the extent of trivial errors in the book, but a brief random search revealed the following: the date "1935" instead of "1939" (p. vii); "methane yields" instead of "methanol yields" and "O_3" instead of "O_2" (p. 415); and "$C_{14}H_{66}$" instead of "$C_{34}H_{66}$" and "substance" instead of "substances" (Table 12, p. 581).

The author index appears incomplete, but mathematical equations seem to be reproduced faithfully and well, and the arrangement and typography are excellent. A conversion table from c.g.s. to f.p.s. has been added by the translator.

Apparently, in his zeal to couple Jost's book to the much-publicized and fetching term, "jet propulsion," the publisher has misstated on the cover page that the book is "A translation of the classic German work on jet propulsion." This, Jost's book is not—the term "jet propulsion" does not even appear.

Despite the above, this translation should fill a needed gap for those who, for one reason or another, have been deprived of reading Jost's book in the German.

BERNARD LEWIS

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Basic mathematics for technical courses. Clarence E. Tuites. New York: Prentice-Hall, 1946. Pp. xiv + 309. $5.00.

This book covers the material usually treated in trigonometry and precollege algebra courses. The approach is standard but is in some respects better suited to the needs of the technical man than most existing texts. The author is to be commended on the representative choice of problems from all fields of engineering, the inclusion of Kirchhoff's laws in his discussion of linear equations, as well as the use of j for $\sqrt{-1}$ instead of i, so easily confused with electric current. On the other hand, the viewpoint is not rigorous. The author tends to talk around his subject instead of saying exactly what he means. By the addition of four or five pages the presentation could be made mathematically correct without detracting from the clarity of the subject.

Needless to say, the average elementary textbook on mathematics is in some respects a hundred years behind the times, each author copying over the errors of the preceding. Thus, Tuites introduces the "axioms" of equality as "self-evident truths," a notion long outmoded but still persisting in the textbook literature. The treatment of number is incomplete, although more of the logic is included than in many comparable works.

It is assumed here that the reader is familiar with the operations of multiplication, division, addition, and subtraction. Many excellent short cuts for performing these operations in special cases are given, such as adjoining two zeros and dividing by 4 instead of multiplying by 25. Although these short cuts are in common use, they are seldom listed for the student. Significant figures, the checking of computations, and other arithmetical topics are brilliantly explained.

The book begins with a discussion of the slide rule, so that if the reader does not reach the chapter on logarithms, he will at least know about this application. From arithmetic the reader is led to polynomials, radicals, and imaginary numbers. The latter are explained geometrically through rotations, a popular viewpoint. With this background the reader is introduced to the solution of algebraic equations. Since this subject is not carried very far, the extremely useful process of synthetic division is not attained. The book closes with some chapters on plane trigonometry which leave little to be desired. Five-place tables of logarithms and trigonometric functions are given at the end.

Written by an instructor at the Rochester Institute of Technology, this book was intended for industrial and extension schools, as well as for technical institutes and junior colleges. The book is particularly well suited to the man who has forgotten his algebra and trigonometry or who has never studied these subjects and wishes a clear, elementary, and practical presentation. Except for questions of rigor, which would normally not bother the average reader, this work is admirably adapted to the purpose for which it was written.

RUFUS OLDENBURGER

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Physical chemistry. H. Hunt. New York: Thomas Y. Crowell, 1947. Pp. x + 610. (Illustrated.) $4.75.

In the preface to this text, the author states, in part: "Since one cannot be sure what the future chemist will need to know, all the fundamental topics of physical chemistry are presented with proper regard to their relative importance." It would be difficult indeed to find a topic of interest to physical chemistry which is not at least mentioned. Many topics are given a more thorough and precise treatment than is customary in the usual text for beginners in physical chemistry. Among these topics are: kinetic properties of gases, crystal structure of solids, atomic spectra and structure, chemical kinetics, and theory of electrolytic solutions. The large number of tables of data, the many illustrations, and numerous problems add much to the value of the book.

Specific objections can be made to details of treatment of some of these topics, but in general a fairly successful compromise is made between a completely rigorous and a descriptive treatment. The compromise would be much more successful if a more orderly presentation had been made. It was the announced plan of the author to make each chapter as nearly as possible an independent unit. As a result of this plan, concepts are frequently introduced which are not explained until several paragraphs or even chapters later. This requires considerable search on the part of the student and instructor to find the necessary background for a given deduction. This search might in itself be a good thing in the case of a large reference work, but in this text it leads to excessive repetition of concepts and equations. Preferably, the material of a text should be presented in a unified, logical order. The extent to which a given topic is to be pursued could be left to the instructor, as it must be in any case.

The treatment of elementary principles of thermodynamics is confusing and is the part of the text most open to criticism. Many formulas which are true only for the ideal gas are given without this qualification. The inexperienced student will no doubt believe that the relations have general validity. An example of this can be seen on page 90, especially the latter part of equation (3–2), and several unnumbered relations near by. Several equations in this section are in error or are misprinted. The statement of the second law as $\Delta F = \Delta H - T\Delta S$ (p. 98) may not be helpful to the student, since the entropy, aside from a complicated "definition" on page 93, is not discussed and explained until page 112. The function F is