mal manipulation. The depth of understanding aimed at means that it is not a particularly easy book for graduate students, but the concreteness of the examples provided should considerably aid the mastering of such elusive ideas as vacuum fluctuations, renormalization, real and bare particle states, and other such notions that quantum field theory has made the stock-in-trade of physics.

This is the first textbook that the reviewer recalls encountering which has been priced on the department store principle of making nine look like eight. It should not need that aid to sales.

Atomic Spectra. By H. G. Kuhn. 436 pp. Academic Press Inc., New York, 1962. $13.00. *Reviewed by William F. Meggers, National Bureau of Standards.*

FOLLOWING the discovery of "multiplets" by M. A. Catalán in 1921, there was a flood of scientific papers and books on atomic spectra for some twenty years. Among books, we may mention those by Sommerfeld, by Hund, by Back and Landé, by Pauling and Goudsmit, by Ruark and Urey, by Candler, by White, by Herzberg, and by Condon and Shortley.

In April 1961, H. G. Kuhn of Oxford wrote: "There appears to be a need for an up-to-date book on Atomic Spectra treating the subject in an introductory manner, yet more thoroughly than general text books on modern physics are able to." Kuhn's book has seven chapters: Introduction, Theoretical Methods, The Simple Spectra, Periodic Table and X-ray Spectra, Complex Spectra, Hyperfine Structure and Isotope Shift, Width and Shape of Spectral Lines. A ten-page appendix containing intensity ratios in multiplets, the Periodic Table, ground states and ionization potentials, nuclear moments of natural isotopes, symbols, definitions, and constants, is followed by a 567-item bibliography, and by author and subject indexes.

The author states that "the approach is that of the Physicist, not the Mathematician, starting from observed facts and classical concepts, and intentionally stressing the correspondence between classical and quantum physics." However, the absence of historical development, and the total lack of information about spectroscopic apparatus (light sources, dispersing devices, detectors) and experiments, give the impression that theory is preferred over practice. For example, on page 2 a "discrete" spectrum is said to result from a Fourier analysis performed by the spectroscope!

On page 8, we read "A commission on wavelength standards and spectrum tables set up by the International Astronomical Union has recommended that a line of the isotope 86 of krypton be adopted as a new primary standard". That recommendation originated in an Advisory Committee on Redefining the Meter, appointed in 1953 by the General Conference on Weights and Measures.

On pages 85 and 86, the Lyman, Balmer, Paschen, Brackett, and Pfund series in the spectrum of hydrogen are mentioned but the Humphreys series is ignored. On pages 174 and 186, we are told that intersystem combinations in the first spectrum of beryllium are so weak that they have not been observed with certainty. Such sins of omission and commission are difficult to explain since Prof. Kuhn quotes copiously from three volumes of C. E. Moore's *Atomic Energy Levels* (see Volume 3, pp. 238 and 239 for up-to-date (1958) information on the above topics).

In *Atomic Spectra,* equations, figures, tables, and literature references are numbered serially in each chapter and the latter are collected in a bibliography near the end. Among hundreds of cross references, only a few give the page number; the great majority are indicated by chapter number only. The reader is soon irritated, if not discouraged, in seeking interchapter connections for which no page numbers are given.

This book is illustrated by eighteen halftone plates of well-chosen examples of absorption and emission spectra but, in every case (except one), the reproductions, without warning, are of negatives.

The electron configurations and ground terms of 22 rare-earth elements (57 La to 70 Yb and 89 Ac to 96 Cm) are tabulated (pp. 320 and 321). Ten of these are in parentheses (called brackets) to show that they are theoretical and uncertain; all of them have been experimentally confirmed or corrected.

Despite the above-mentioned, and other minor, defects in the first printing of *Atomic Spectra,* we believe this book will appeal to teachers and advanced students because it is the most modern general discussion of this subject and "It is likely that semi-empirical methods, combining spectroscopic data with theoretical concepts, will continue to play a great part in the study of atoms" (p. 3).

Fundamental Problems in Statistical Mechanics. Proc. NUFFIC Internat'l Summer Course (Netherlands, Aug. 1961). Compiled by E. G. D. Cohen. 249 pp. (North-Holland, Amsterdam) Interscience Division, John Wiley & Sons, Inc., New York, 1962. $7.50. *Reviewed by Nandor L. Balazs, State University of New York at Stony Brook.*

IN the United States, statistical mechanics is not a fashionable subject to be pursued in physics departments, and much of the work is being done either in chemistry departments or in the research laboratories of different organizations. Not so in Holland, where the physics departments at the Universities of Leyden, Utrecht, Amsterdam, and Groningen are all active in this field. For this reason it seems natural that the first summer school in theoretical physics held in Holland (1961) should deal with problems in statistical mechanics. All the lectures that were given are published in this volume, except those by G. E. Uhlenbeck on condensation. The first striking feature is the speed of publication: less than one year elapsed between the summer school and the book's publication; both the editor and the North-Holland Publishing Company should be congratulated for this accomplishment.