

notations. The book is an unaltered republication of the work first published by the National Bureau of Standards in 1964. It is printed on good quality white paper, is sewn on a plastic cover, and opens flat. It surely is exceptionally good value for its price, and no one who ever has to deal with numerical values of functions should miss this opportunity of acquiring an outstanding handbook of mathematical functions at a reasonable price.

HISTORICAL ASPECTS OF ATOMIC THEORY

THE CLASSICAL ATOM. By Francis L. Friedman and Leo Satori. 118 pp. Addison-Wesley, Reading, Mass., 1965. Paper \$2.50.

by Robert L. Weber

Students and teachers of physics must welcome the recent cascade of good textbooks and supplemental paperbacks on atomic and nuclear physics, even though a few appear to be quickies intended to capture a share of the market with minimal effort.

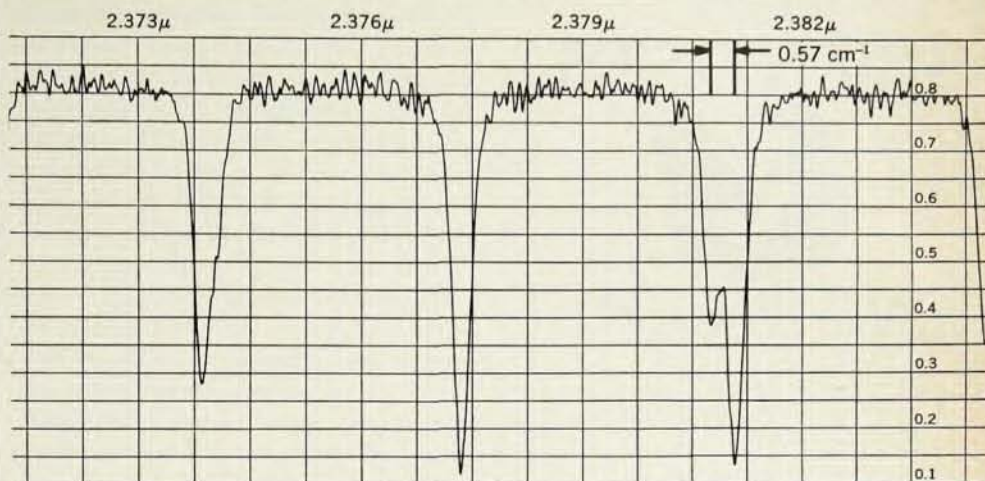
In foreword and preface, Dr. Zacharias and Dr. Sartori state that *The Classical Atom* has been completed according to a 1956 plan of the late Francis L. Friedman, AAPT Oersted Medalist. For expediency, the work is being published in a series of monographs rather than a single volume. This review deals with the first monograph. The reader of this part will occasionally encounter references ahead to volumes probably not in his hands. The series is intended to trace "the development of atomic physics from its classical foundations through the 'old' quantum theory to the birth of modern quantum mechanics."

This volume examines in more detail than is currently fashionable the classical models that culminated in the nuclear atom. About half the volume deals with the identification of subatomic particles and early theories. There is an abundance of references to the literature, and twelve

* * *

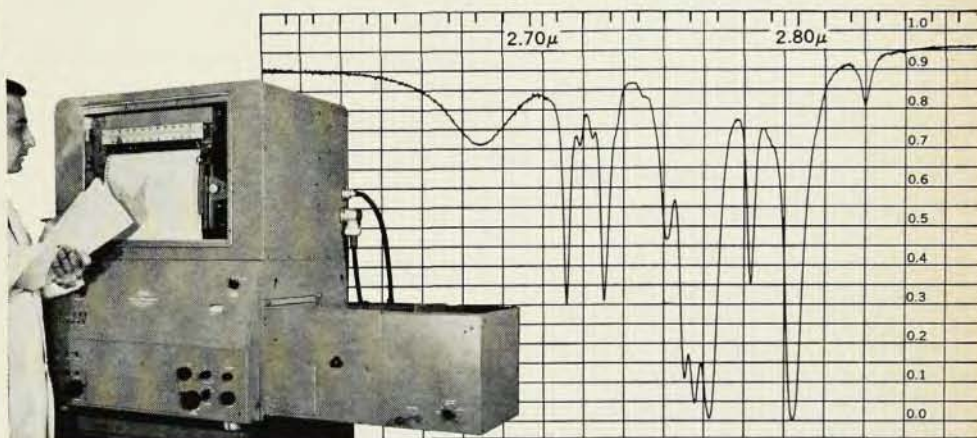
The reviewer, a professor at The Pennsylvania State University, is the author of a number of textbooks.

NEW FOR NEAR-IR SPECTROPHOTOMETRY— only the CARY 14R1 combines these 6 benefits:



High-resolution spectrum of DCI gas, path length 100 cm, pressure 250 mm Hg. Obtained using high-intensity source accessory

Spectrum of -OH stretching bands in LiF crystal. Path length 33 mm; total scan time less than 4 min.



For details on the Model 14R1, send for Data File P402-116

1. High recording speed with low noise
2. Resolution: better than 1 cm^{-1}
3. Photometric accuracy to 0.1%
4. Wavelength accuracy to 4 Å
5. Stray light less than .0002% at 1.7μ
6. Range: 2250 Å to 3.0μ

Spectra illustrate typical high resolution and high signal-to-noise ratios on fast scans. Other features include spacious sample compartment ($6 \times 5 \times 9\frac{1}{4} \text{ in.}$), complete line of accessories and the outstanding performance and reliability of the time-proven CARY Model 14.

APPLIED PHYSICS CORPORATION
2724 SOUTH PECK ROAD • MONROVIA, CALIFORNIA

Cary
INSTRUMENTS

Raman/UV/IR Recording Spectrophotometers • Vibrating Reed Electrometers

SCIENTISTS & ENGINEERS

with exceptional abilities are invited to investigate opportunities with the
Research Laboratories of Brown Engineering Company, Inc.

As the prime research support contractor for NASA-Marshall Space Flight Center, Brown's Research Laboratories have a major role in America's most advanced space project: Apollo Extension Systems.

Staff positions are open in many disciplines, with urgent requirements in • geo-astronautics • space instrumentation • mission analysis • electronic systems.

Openings normally require advanced training (25% of the staff hold PhD degrees) but inquiries are invited from capable personnel at all education and experience levels. Submit your resume in confidence to Raymond C. Watson, Jr., Director of Research.

BROWN

ENGINEERING COMPANY, INC.
300 Sparkman Drive, N.W.
Huntsville, Alabama 35805

An Equal Opportunity Employer

numerical problems are included to illustrate and amplify the text. Although calculus is used, the mathematical treatment is not formidable. Gaussian units are used possibly to the annoyance of students currently studying texts using mksa units. A seven-page appendix shows the use of Lagrange multipliers in finding the maximum of a function of n variables, discusses the flow of molecules across an area, and derives the expression for scattering in an inverse-square field.

The book is chiefly valuable for its enlightenment on historical aspects of atomic theory, and on viewpoints not commonly presented in general first-year physics texts. Among such topics are: virial theorems and equations of state, reasons for the ^{12}C scale, the state of confusion in early (1906) views of atomic composition, and Thomson's indifference to relativity. The last twenty pages deal with the experiments of Rutherford, Geiger and Marsden on alpha particle deflections and their elucidation of the nuclear structure of atoms and the significance of atomic number.

A NONCALCULUS COURSE

CONCEPTS IN PHYSICS. Reuben Benumof.
562 pp. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1965, \$13.00.

by **Daniel B. Butrymowicz**

In *Concepts in Physics*, Benumof undertakes to provide a course in general physics from a modern point of view for students in career-oriented programs. The author, who is associated with the City University of New York-Staten Island Community College, feels there are few textbooks available for these programs. It is a noncalculus text written on the premise that the mathematical preparation of such students is usually insufficient, and at the outset only a minimum dexterity in algebra and trigonometry is assumed. All twenty chapters are arranged in somewhat like fashion: each begins with an introduction in which

* * *

The reviewer is a physicist with the National Bureau of Standards in Washington.

a simple basic experiment is described, follows with a statement of the objectives and a development of the important ideas, and concludes with a summary of the main concepts and problems to be solved.

Rather than use the customary procedure of beginning with a discussion of mechanics, the author prefers to use an introduction to modern physics, and presents the new student with such topics as nuclear, atomic, and molecular structure in the first three chapters. Kinematics, dynamics, and statics are covered in the next six chapters. It is assumed that the student, taking a concurrent course in mathematics, will have at this stage acquired a great facility in the use of trigonometry and quadratic equations and thus be prepared for the material contained in these six sections. A short review of simple trigonometry is included to assist in gaining the mathematical tools.

Chapters 10-12 are concerned with defining temperature, deformations of solids and liquids resulting from temperature and stress, ideal gases, and the first and second laws of thermodynamics. Electricity and magnetism are discussed in Chapters 13-16. Electrostatics, the principles underlying the operation of direct current circuits, the notion of a magnetic field and magnetic forces, and transient and alternating currents are treated in this portion of the book.

Explained in Chapter 17 are both electromagnetic and sound waves, along with some of the photon aspects of light. Light itself is considered in the two following chapters: one dealing with geometrical optics, the other with physical optics. Included in these sections are a description of a ruby laser and interference in thin films. There is a summary and additional discussion in the final chapter entitled "Recapitulation and Extensions."

At the end of each of the chapters is a substantial number (usually 20 or more) of problems of varying degrees of difficulty. Answers follow immediately after the problem; however, none are supplied for the review problems of the last chapter.

In general, the text must be considered well organized. The author has