

than this if his knowledge is to have any value. There are plenty of simple quantitative examples intended to make sure that the mechanics is understood, but they are less interesting than they might have been because there is no indication whether the data are realistic, and if so whether they are typical of good or of mediocre performances. In spite of these examples, readers who know little physics are likely to be confused by the authors' sloppy use of units.

The final section of the book is about the analysis of movement from direct observation and from film. A few film sequences of first-class athletes are discussed qualitatively. More advanced techniques such as electromyography and the use of force transducers are described briefly.

The authors' knowledge of physiology appears to be poor. For instance, they imply that the efficiency of conversion of chemical energy from food to mechanical work by the human body is likely to be 60-70%. It is well established that the maximum efficiency actually attainable under the most favourable circumstances is about 25%. They also show no awareness of the role of tendon elasticity in saving energy by elastic storage.

Readers who have a good grasp of elementary mechanics will probably be infuriated by this book. Those who have not may be confused by it.

R. MCNEILL ALEXANDER
University of Leeds
Leeds, UK

An Introduction to Electromagnetic Theory

P. C. Clemmow

297 pp. Cambridge U. P., New York, 1973. \$16.50 hardcover, \$6.95 paperback

In his preface, P. C. Clemmow, lecturer in theoretical electrodynamics and radio at the University of Cambridge, claims that his book gives reasonable coverage of first and possibly second-year university work in an "introductory text that is comparatively short but fully explanatory." This is not the case. *An Introduction to Electromagnetic Theory* is neither fully explanatory nor geared to beginning physics students. It is an intermediate-advanced undergraduate textbook for a course in electromagnetism for physics majors, assuming that they have completed a first course of the Halliday-Resnick type, and also assuming that they have reasonable competence in vector calculus.

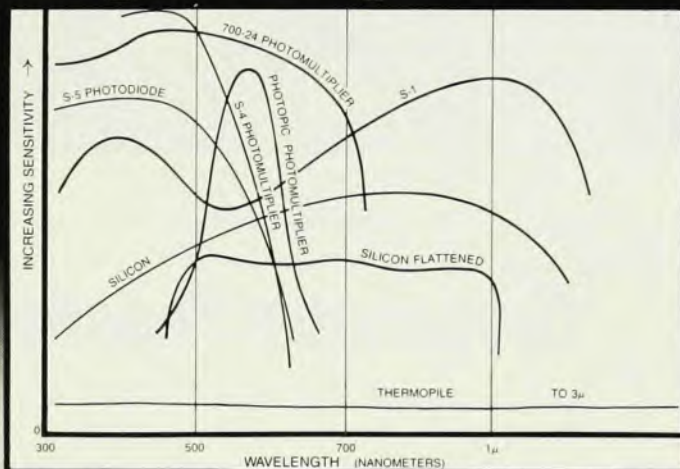
As in any textbook on classical electromagnetism, the topics covered are admittedly fairly conventional. The

book, divided into six chapters, has topics grouped in a somewhat different format, supposedly to emphasize the fundamental unity of the theory. Chapter 1 is a general introduction and discussion of both the electric and the magnetic field. Chapter 2 discusses all four Maxwell equations plus the wave solution. Chapters 3 and 4 are deeper developments of electrostatics and magnetostatics, and an introduction to circuit theory. Chapter 5 describes the properties of electromagnetic waves, waveguides, and radiation fields and chapter 6 discusses the electromagnetic properties of media.

Clemmow does not succeed in his arrangement and presentation of topics. The student does not get a better feel for the underlying unity of electromagnetism; in fact it is quite the contrary. The book flows so poorly and is so tedious to read that the student is left quite unstimulated and quite unsatisfied. There are some nice derivations of certain topics, such as the retarded solution of the wave equation and the skin effect, but these are overshadowed by the general heaviness of the text and the absence of physical insight in many cases.

The numerous problems at the end

Light Measurement for the Entire Optical Spectrum



Now you can extend your light measurement capability to cover the entire optical spectrum with Gamma Scientific's "add-on" modular systems concept. You have a choice of either analog or digital displays and the widest range of detectors available from any other one source. Whether you need a telephotometer, tele-spectroradiometer, scanning microphotometer, microreflectometer, or some other specialized system, we offer over 1001 systems from stock. Examine a system for 30 days at our own risk. What-

1,001 SYSTEMS



ever your light measurement problems are, Gamma Scientific can help you solve them.

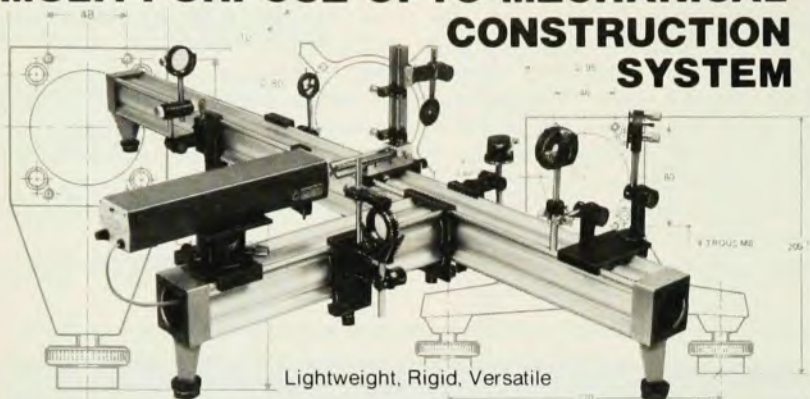
Call George Unangst collect for applications assistance and complete details at (714) 279-8034, or write to Gamma Scientific, Inc., 3777 Ruffin Road, San Diego, CA 92123. Cable GAMSI, Telex 69-7938.

 **GAMMA SCIENTIFIC**

Circle No. 36 on Reader Service Card

KLINGER "Precision at work"

MULTI-PURPOSE OPTO-MECHANICAL CONSTRUCTION SYSTEM



Ideally Suited For Most Experimental Needs ... With Sturdy Aluminum Rail

This highly innovative group of construction elements features a rugged, 4-sided extruded aluminum beam; single and double supports; special teflon coated carriages; an adjustable rod support and scale ruler. Each side of the sturdy beam may be used as an optical bench for most multipath experiments. 3

dimensional assemblies can be formed with rigid supports to meet critical positioning demands. In addition, all single degree modules mount easily on the 4-sided rail. Carriages are offered in 50, 80 & 120mm lengths; rails in 1/2, 1, 1 1/2 & 2 meter lengths. Custom rail sizes to 6 meters long available on special order.

Write for Catalog #X95.

KLINGER Scientific Apparatus Corp.
83-45 Parsons Blvd, Jamaica, N.Y. 11432 (212) 657-0335

Circle No. 37 on Reader Service Card

of each chapter range from *very* challenging to extremely difficult. This is an unsatisfactory spread for a standard undergraduate text. The author appears here as an adversary to the student, rather than as an educator.

Clemmow's book is a throwback to the times when many physics textbooks were very heavy, unclear, and unsatisfying to read. This book is an example of what the Feynman series, the Berkeley series, and many intermediate and advanced contemporary textbooks are trying to replace.

JACK JAFFE
Boston College
Chestnut Hill, Massachusetts

new books

Chemical Physics

Functional Monomers Vol. 2. R. H. Yocum, E. B. Nyquist, eds. 817 pp. Marcel Dekker, New York, 1974. \$46.50

Nuclear Magnetic Resonance. F. A. Rushworth, D. P. Tunstall. 253 pp. Gordon & Breach, New York, 1974. \$24.00

Progress in Physical Organic Chemistry Vol. 11. A. Streitwieser Jr, R. W. Taft, eds. 440 pp. Wiley, New York, 1974. \$24.95

Spectrometric Identification of Organic Compounds, 3rd ed. R. M. Silverstein, G. C. Bassler, T. C. Morrill, 340 pp. Wiley, New York, 1974. \$13.95

Optics

Holography. M. Françon. 143 pp. Academic, New York, 1974. \$11.00

An Introduction to Electrooptic Devices. I. P. Kaminow. 409 pp. Academic, New York, 1974. \$17.50

Space Optics. (Proc. of the 9th Int. Congress of the Int. Commission for Optics). B. J. Thompson, R. R. Shannon, eds., 841 pp. National Academy of Sciences, Washington, D. C., 1974. \$27.00

Fluids and Plasmas

Proceedings of the 1974 Heat Transfer and Fluid Mechanics Institute. (Corvallis, Oregon, 12-14 June 1974). L. R. Davis, R. E. Wilson, eds. 364 pp. Stanford U. P., Stanford, Calif., 1974. \$17.50

Electricity and Magnetism

Electronic Analog Measurements and Transducers, Module 1, Text with Experiments. H. V. Malmstadt, C. G. Enke, S. R. Crouch. 203 pp. W. A. Benjamin, Reading, Mass., 1974. \$4.95

Electronic Measurements for Scientists. H. V. Malmstadt, C. G. Enke, S. R. Crouch. 906 pp. W. A. Benjamin, Reading, Mass., 1974. \$17.95

An Introduction to the Mathematics of Electricity and Magnetism. L. I. G. Chambers. 271 pp. Halsted, New York, 1974. \$12.50

Cooperative Phenomena

Edited by
H. Haken and M. Wagner

Cooperative phenomena has become one of the outstanding fields of investigation in contemporary physics. Its broad scope leads to fascinating interdisciplinary discussions which take into consideration all the natural sciences from physics to biology and even include social sciences such as sociology.

In addition to covering essential aspects of contemporary physics, the contributions—prepared by eminent scientists in cooperative phenomena—discuss in considerable depth the impact of this important field on other scientific disciplines.

Chapters are devoted to quasi-particles and their interactions, superconductivity and super-fluidity, dielectric theory, reduced-density matrices, phase transitions, synergetic systems, and related topics.

1973. xv, 458p. 86 illus. 13 tables. cloth/\$54.20
ISBN 0-387-06203-3

Order from



Springer-Verlag New York Inc.
175 Fifth Avenue
New York, NY 10010

Circle No. 38 on Reader Service Card