tially somewhat confusing to one who is familiar with the literature.

This book could be used successfully as a text for an advanced (graduate-level) course in chemical kinetics dealing specifically with unimolecular reactions. It contains problems at the end of each chapter, most of which are simple but informative. It should also be useful for anyone involved with unimolecular processes and hence I recommend it to kineticists involved in active research pertaining to unimolecular reactions. The book should provide a common language for mass spectroscopists, photochemists and kineticists to discuss their problems and thus develop more communication between these different research-oriented groups.

D. C. TARDY
University of Iowa
Iowa City

The Liquid State

F. Kohler, ed.
256 pp. Crane, Russak, New York, 1972. $32.50

Several monographs on the liquid state have appeared within the past decade, but these are for the most part devoted to the description of the properties of the simplest liquids. *The Liquid State,* edited by Frederich Kohler, is different, being much more like an extended review article. The topics covered range from elementary-thermodynamic considerations, through equilibrium and nonequilibrium statistical mechanics in the distribution-function representation, and include discussion of the properties of complicated hydrogen-bonded liquids. I feel that the general level of discussion is excellent for the purpose of introducing the reader to the key ideas and providing literature references for further research. This is not a volume that one studies to learn in detail about liquids. It is a volume that can be recommended to anyone interested in a broad survey with enough detail to provide interesting examples and to elucidate both successes and difficulties of the current level of understanding. I would have no hesitation in recommending it to first-year graduate students or even good seniors as a source book of information.

Given the above statements, I can find no better way of describing the contents than to list the chapter headings which are: Models for the Liquid State, Computer Experiments, Pair Distribution Function, Pair Potential, Thermodynamic Properties of Liquids, Equilibrium Theories of the Liquid State, Non-Equilibrium Properties: Transport Coefficients, Non-Equilibrium Properties, Liquid Dynamics, Polyatomic Molecules, Molecular Reorientation in Liquids and Associated Liquids. The book belongs in all physics and chemistry departmental libraries.

STUART A. RICE
University of Chicago
Chicago, Illinois

Introduction to Biomechanic Analysis of Sport

J. W. Northrip, G. A. Logan, W. C. McKinney
338 pp. William C. Brown, Dubuque, Iowa, 1974. $8.95

Most of us have at least some interest in sports, and if we are interested in physics as well, the mechanics of sport is a fascinating subject. A number of good books on it are available. C. B. Daish's *The Physics of Ball Games* (English Universities Press) is an outstanding book, strongly recommended to readers of PHYSICS TODAY. Geoffrey Dyson's *The Mechanics of Athletics* (U. of London Press) and R. A. R. and B. J. K. Tricker's *The Science of Movement* (Elsevier) are good books designed for readers with little or no knowledge of physics.

Introduction to Biomechanic Analysis of Sport is designed for physical educators and coaches. Its aim is to improve their effectiveness as coaches by teaching them to analyse sport movements in physical terms. Examples are taken from numerous sports including baseball, gymnastics, swimming and all branches of athletics.

The book has three sections. The first is concerned with the range of movements of which the human body is capable. The structure of the skeleton is shown in a series of quite detailed drawings. Extreme positions of many joints are illustrated by photographs of athletes; they are often striking and generally clear, but the same points could have been made with less risk of being misunderstood if simple diagrams had been used.

The second section of the book is the longest and the least satisfactory. It is an introduction to the branches of mechanics that can be applied to sport. It is full of facile and potentially misleading attempts to explain physical principles. For instance, a passage about arm movements in running includes the sentence "This force–counterforce relationship of the arms helps maintain the body in an equilibrium position from which the legs can function most effectively to accelerate the runner." A coach needs a sounder and clearer understanding of mechanics

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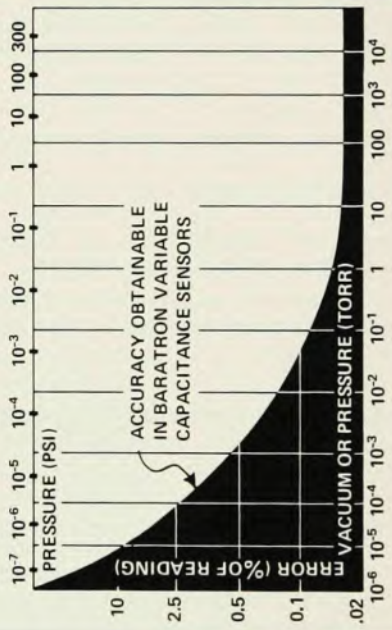

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than this if his knowledge is to have any value. There are plenty of simple quantitative examples intended to make sure that the mechanics is understood, but they are less interesting than they might have been because there is no indication whether 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