

the correct value, 6.025×10^{23} , is given in the table of "Constants of Nature" in the Appendix. Errors and inconsistencies such as this are perhaps inevitable in a book of over 900 pages and can be easily corrected in a subsequent printing, but they detract from an otherwise excellent and well-printed text.

The Present State of Physics. Arranged by F. S. Brackett. 265 pp. American Association for the Advancement of Science, Washington, D. C., 1954. \$6.75. *Reviewed by T. Teichmann, Hughes Research and Development Laboratories.*

Though this book was published in 1954, it is based on a symposium presented on December 30, 1949 at the New York meeting of the American Association for the Advancement of Science, and consequently the reader who eagerly snatches it up to learn the present state of physics will be disappointed. If he is a physicist, he is likely to be further disturbed by the absence of such important topics as quantum electrodynamics, nuclear physics and cryogenics, though these omissions may be at least partly accounted for by the rapid change in the state of knowledge at that time, and the evident difficulty of saying something definitive at that stage. On the other hand the book gives a much broader view of physics than is usual, and if the reader is prepared to set aside his initial disappointment he may learn much that is useful and interesting.

The book is divided into four parts: elementary particles, physics of the solid state, chemical physics, and biophysics. The first part contains an article by P. Kusch on the magnetic moment of the electron which is clear, simple, and short and probably the best of the "pure" physics papers in the book. It also contains articles by E. P. Ney (cosmic-ray experiments at high altitude) and J. C. Street (developments in cosmic radiation 1945-1950) which describe painstaking and important experiments, largely pushed into the background, however, by the more spectacular discoveries of recent years (V-particles and heavy mesons, etc.).

The second section contains a lengthy review article by K. Lark-Horowitz on the electrical properties of nonmetals, and the bulk behavior of germanium semiconductors. This article contains a bibliography of more than 350 items and will probably become a sine qua non for anyone starting work in this field. In addition there is an elegant and simple discussion of the flow of electrons and holes in a semiconductor by J. Bardeen, and a description of some structural aspects of barium titanate ferroelectrics by A. von Hippel.

The last two sections of the book describe applications of physics rather than physics itself. P. J. W. Debye gives an illuminating account of the use of optical scattering experiments to determine the structure of polymers. R. Lumry and H. S. Eyring describe in an interesting and suggestive way the application of chemical kinetics to some biological systems. F. Brink discusses some aspects of axons as related to the conduction of nerve impulses. In the final paper F. H. John-

son uses reaction rate theory to discuss bioluminescence. These last four papers thus do not deal with fundamental physics, but rather with the use of well-established and often simple techniques of modern physics to probe the basic mechanisms of vastly more complicated chemical and biological systems. The large scale success of such endeavors would be of enormous significance, and this possibility in itself would support their inclusion in this book.

Proceedings of the Second International Congress on Rheology. Edited by V. G. W. Harrison. 451 pp. Academic Press Inc., New York, 1954. \$10.00. *Reviewed by Abraham S. Friedman, National Bureau of Standards.*

The Second International Congress on Rheology was held in July of 1953 at Oxford, England. The papers presented at this meeting and the discussions on them are included in this fine book, edited by V. G. W. Harrison. The articles, representing contributions from the laboratories and universities of about ten countries, indicate that the aim of the Conference—to cover the field of the "study of the deformation and flow of matter"—has been liberally interpreted and successfully fulfilled.

The papers are arranged in five groups. The first includes six general lectures on rheological problems related to biology, plastics, colloids, applied mechanics, hydrogels, and relaxation phenomena. There then follows a series of experimental and theoretical papers, representing about half of the book, on high polymers. The third group of papers is made up of an uneven collection of articles on viscosity and plasticity. The remaining papers are grouped in a small section on biology and one on oils and greases. Most of the papers are in English; several are in French and in German. The book is introduced by Sir Geoffrey Taylor's presidential address on "Rheology for Mathematicians". This amusing article is well-written and most appropriate to the subject.

A comparison of this volume with the *Proceedings of the First International Congress on Rheology* held in 1948 in The Netherlands, and published by the North-Holland Publishing Company in 1949, graphically demonstrates the rapid advances made in this field in the past several years.

This book will be of interest, not only to the rheologist, but to the biophysicist, the thermodynamicist, the solid-state physicist, and the physical chemist, as well.

A Brief Text in Astronomy. By William T. Skilling and Robert S. Richardson. 327 pp. Henry Holt and Co., New York, 1954. \$4.00. *Reviewed by S. F. Singer, University of Maryland.*

This book represents another collaboration (their earlier volume was *Sun, Moon and Stars*) of an experienced teacher and a practicing astronomer. The result,