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This however will have to be written by a single author or closely knit group, in order to achieve uniformity of style and approach, and it will have to be published at great speed to avoid being out of date before it appears. The present book will be useful in that it throws light on the Russian work, and it contains in collected form a great many facts and figures which have been published about fission over the past twenty years or so. It is not, however, the unified, comprehensive, and up to the moment review for which many physicists associated with atomic energy have been waiting.

Thermodynamics, Electrostatics, and the Biological Significance of the Properties of Matter. Vol. 1 of Biophysical Chemistry. By John T. Edsall and Jeffries Wyman. 699 pp. Academic Press Inc., New York, 1958. \$14.00. *Reviewed by Joseph G. Hoffman, University of Buffalo.*

A perusal of the table of contents and a quick glance at the various chapters shows that this book is uniquely suited for those students of the borderland science between physics, chemistry, and biology, for which the title of the book is happily conceived. There has been a real need for a text covering the topics in this volume as well as the ones that are to be included in the second volume yet to come, if one can judge from the announcement on the jacket. As the preface indicates, this is the culmination of a college course in biology started 25 years ago, and this long experience shows effectively in the selection of essentials.

First of the essentials is water. To some extent biophysics may be thought of as the physics of matter in its aqueous phases. Thus, Chapter 2 entitled "Water and Its Biological Significance" gives a concise description of the water molecule and its properties ending with a discussion of the famous dielectric constant of water. This is preliminary to the vastly interesting topics of ionization and solubility which are taken up in three chapters: Chapter 5, "Electrostatics: Its Application to Polar Molecules and Ionic Solutions"; Chapter 6, "Dielectric Constants and Their Significance"; and Chapter 7, "Conductivity of Electrolytes". These chapters together with Chapter 4 on thermodynamics present a very readable account of fundamentals in aqueous systems beginning with first principles of electrostatics.

The peculiarly biological properties of matter are pointed up in the three chapters that follow. Thus, Chapter 8 on acid-base equilibria and Chapter 9 on polybasic acids, bases, and ampholytes, including proteins, along with Chapter 10 on carbon dioxide and carbonic acid contain essentials that will someday lead to our understanding of the classical enigma of life. These chapters too are written in terms of the properties of electrically charged systems in water. The chapter on carbon dioxide emphasizes the special properties of that molecule which ranks in importance with those of the water molecule in life. Anyone who has

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made medium for cell cultures or waded through the intricacies of respiration will appreciate the excellence of Chapter 10.

The concatenation of atoms into highly organized proteins is described, not under the definitive title of structure, but rather under "Problems of Protein Structure", Chapter 3. The use of the word "problems" is appropriate, and the authors succeed in showing the importance of these structures and what is known about them at this stage of inquiry. A long chain of ionizable molecules will have a great diversity of properties depending on whether it is stretched out, folded back and forth, or rolled into a ball. The description of some of these properties is discussed in Chapter 11 under some general aspects of molecular interactions.

This is a superb textbook. There are ample references for general reading as well as for technical specialties. There are 8 problems given at the end of Chapter 8 on acid-base equilibria. But the special nature of its subject matter makes this more than a textbook. Many of the passages are intriguing for their general nuances about the physical basis of life. One must conclude that this is a highly commendable volume because it brings insight from several scientific disciplines into the complexities of living processes.

Zum Weltbild der Physik (7th Revised Edition). By Carl Friedrich von Weizsäcker. 378 pp. S. Hirzel Verlag, Stuttgart, Germany, 1958. DM 14.70. *Reviewed by R. Bruce Lindsay, Brown University.*

This is the seventh edition of a collection of essays on the methodology and philosophy of modern physics, originally given by the author as addresses before various groups. The first edition appeared in 1943. The work is by no means unknown to readers in the United States and Britain since the fourth German edition (published in 1949) appeared in English translation in 1952 under the title *The World View of Physics* (University of Chicago Press). The latest German edition contains eighteen essays as against seven in the English translation.

The author has made distinguished contributions to quantum mechanics and to cosmology. He is also known as a persuasive and skillful lecturer on the cultural and philosophical implications of physics. Moreover he has not hesitated to explore the relations between physical science and religion. His lectures in the United States some years ago will be recalled with pleasure by those who met and heard him.

The most elaborate, and probably the most important, new material in the present edition of Weizsäcker's book is connected with Bohr's principle of complementarity, which has provoked so much interest among both scientists and philosophers. Weizsäcker feels that it has even greater significance than is usually attributed to it and he devotes some 50 pages to a discussion of its relation to logic. Unlike most of the other essays this is rather technical and by no means easy reading. For those who wish a rather more detailed presenta-

tion of all facts of the principle than is commonly available, a careful reading of it will prove however a very rewarding experience.

Other attractive essays in the present edition relate to the relations between mathematics and physics (Kontinuität und Möglichkeit), science and secularization, and the significance of logic for science.

The book contains so much valuable material to which the thoughtful reader would like to return again and again that it is a pity no index has been provided. An English translation of the 7th German edition would be a worthwhile project.

Books Received

INTRODUCTION TO NUCLEAR ENGINEERING (2nd Revised Edition). By Richard Stephenson. 491 pp. McGraw-Hill Book Co., Inc., New York, 1958. \$9.50.

PREPARATION, MAINTENANCE, AND APPLICATION OF STANDARDS OF RADIOACTIVITY. NBS Circular 594. By W. B. Mann and H. H. Seliger. 47 pp. US Govt. Printing Office, Washington, D. C., 1958. Paperbound \$0.35.

NUCLEAR MOMENTS (English version prepared from 2nd German edition by E. E. Schneider). Vol. 2 of Pure & Applied Physics. By Hans Kopfermann. 505 pp. Academic Press Inc., New York, 1958. \$13.00.

SERIAL PUBLICATIONS OF THE SOVIET UNION, 1939-1957. Compiled by Rudolf Smits. 459 pp. US Govt. Printing Office, Washington, D. C., 1958. Paperbound \$2.75.

NO MORE WAR! By Linus Pauling. 254 pp. Dodd, Mead & Co., New York, 1958. \$3.50.

ELECTROMAGNETIC ISOTOPE SEPARATORS AND APPLICATIONS OF ELECTROMAGNETICALLY ENRICHED ISOTOPES. By R. H. V. M. Dawton, M. L. Smith, W. Walcher. Edited by J. Koch. 314 pp. (North-Holland, Holland) Interscience Publishers, Inc., New York, 1958. \$7.50.

NUMBER-AVERAGE MOLECULAR WEIGHTS: Fundamentals and Determination. By Robert U. Bonnar, Martin Dimbat, Fred H. Stross. 310 pp. Interscience Publishers, Inc., New York, 1958. \$7.50.

ELECTRIC CONDUCTION IN SEMICONDUCTORS AND METALS. By W. Ehrenberg. 389 pp. Oxford U. Press, New York, 1958. \$10.10.

SELLING TO AEC (3rd Revised Edition). US Atomic Energy Commission. 34 pp. US Govt. Printing Office, Washington, D. C., 1958. Paperbound \$25.

ON THE MAGNET. By William Gilbert. The Collector's Series in Science, edited by Derek J. Price. 332 pp. (1st Edition, Peter Short, London, 1600) Basic Books, Inc., New York, 1958. \$8.50.

ELASTICITY AND PLASTICITY. Vol. 6 of Handbuch der Physik. Edited by S. Flügge. 642 pp. Springer-Verlag, Berlin, Germany, 1958. DM 145.00 (subscription price DM 116.00).

NUCLEAR SCATTERING. By K. B. Mather and P. Swan. 469 pp. Cambridge U. Press, New York, 1958. \$14.50.

SOUND PULSES. By F. G. Friedlander. 202 pp. Cambridge U. Press, New York, 1958. \$7.50.

ADVANCES IN CATALYSIS AND RELATED SUBJECTS, Vol. 10. Edited by D. D. Eley, W. G. Frankenburg, and V. I. Komarewsky. 326 pp. Academic Press Inc., New York, 1958. \$11.00.