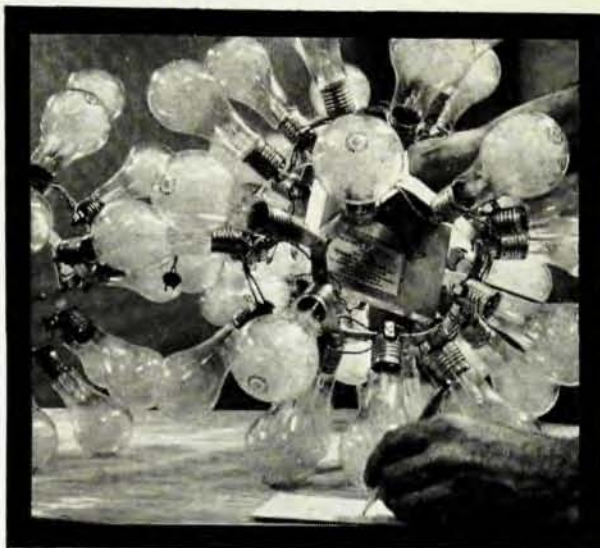




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Theoretische Metallkunde. By Ulrich Dehlinger. 250 pp. Springer-Verlag, Berlin, Germany, 1955. DM 27.00. Reviewed by Ernest A. Lynton, Rutgers University.

This book on theoretical metallurgy, which attempts to cover quantitatively every aspect of the field from the simplest description of crystal lattices to an up-to-date discussion of relaxation processes in 208 pages, surely deserves an A for effort. It is not clear, however, what mark such a book should receive for achievement, for it is difficult to gauge who would find this slim volume particularly useful. To the beginner in the field, or to the man principally versed in the more applied aspects of metallurgy, the breathtaking pace of the presentation is a great obstacle. For the more expert reader, on the other hand, the monograph lacks thoroughness, a shortcoming aggravated by a total and incomprehensible lack of specific references other than a general bibliography appended to the book. These faults are all the more regrettable because the organization of the book is very good, and its general approach mixes descriptive and quantitative matter in a very illuminating fashion. Dr. Dehlinger should be persuaded to expand his book to about twice its present size.

Advances in Biological and Medical Physics. Vol. IV. Edited by John H. Lawrence and Cornelius A. Tobias. 356 pp. Academic Press Inc., New York, 1956. \$8.80. Reviewed by Joseph G. Hoffman, Roswell Park Memorial Institute.

The fourth volume of *Advances* has eight chapters illustrating the Editors' very broad concept of biophysics. The chapters range from physics in one of its most interesting forms, namely information theory and protein structure, to physiological aging having no immediately discernible physical basis. Between these extremes of physics at its best to no physics at all, the other six chapters describe x-ray analysis of proteins, cell division, temperature effects on unicellular organisms, infrared spectrometry, iron metabolism kinetics, and chemistry of the human body.

The chapter, "A Special Consideration of the Aging Process, Disease, and Life Expectancy", by H. B. Jones, has no allusion even remotely to physics nor does the author indicate any possible physical basis for his subject. Extensive information of interest to actuarial statisticians, physicians, and epidemiologists is presented.

"The Gross Composition of the Body" by Siri is a biochemical review of methods for determining body components. Various formulas for estimating magnitudes of gross components are discussed and four tables of data given.

Huff and Judd in "Kinetics of Iron Metabolism" seek to determine many parameters in several simultaneous differential equations by the use of an analogue computer. The physiological problem is to follow iron tracer atoms through many compartments in the body.

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D. Mazia has discretely entitled his excellent description of cell division: "Materials for the Biophysical and Biochemical Study of Cell Division". I assume he means (and rightly) this is the *material* with which a physical analysis may begin. As a condensed review of the fundamental aspects of how living matter divides itself this chapter is highly commendable.

T. H. Wood contributes a timely review, "Lethal Effects of High and Low Temperatures on Unicellular Organisms", and carries out the discussion in analytic terms that carry meaning for the physical chemist. This desirable approach is seen also in N. K. Freeman's discussion of "Infrared Spectrometry", as well as in D. Harker's chapter on "X-ray Diffraction Applied to Crystalline Proteins". I was let down by the inclusion of a derivation of the Bragg Law for x-ray diffraction, and the Patterson-Fourier function, both of which have been given in print many times. This may be a peculiarity of biophysics, but I doubt that the elementary things have to be said over and over, especially not in reviews of latest advances.

Many different scientists will want this volume for the chapter by Gamow, Rich, and Ycas: "The Problem of Information Transfer from the Nucleic Acids to Proteins". It deals with the molecular template that determines reduplication of biological specificity in living units. Is there a code for protein synthesis, and what are the physical channels for expressing its contents? Although they have, understandably, not cracked the code, the authors present some fascinating and important ideas about it. Their work is the first concrete approach to the special arrangement of molecules in self-reproducing systems.

Books Received

EDUCATIONAL EXCHANGES: Aspects of the American Experience. Report of Conf. sponsored by Committee on Internat'l Exchange of Persons of the Conference Board of Associated Research Councils. (Princeton, N. J., 1954) 74 pp. National Academy of Sciences-National Research Council, Washington, D. C., 1956. Paperbound.

SOLID STATE PHYSICS: Advances in Research and Applications. Vol. 2. Edited by Frederick Seitz and David Turnbull. 468 pp. Academic Press Inc., New York, 1956. \$10.00.

ELECTROMAGNETICALLY ENRICHED ISOTOPES AND MASS SPECTROMETRY. Proceedings of the Conf. at Harwell, Sept. 1955. Edited by M. L. Smith. 272 pp. (Butterworths, England) Academic Press Inc., New York, 1956. \$8.00.

AUTOMATIC DIGITAL CALCULATORS (2nd Revised Edition). By Andrew D. Booth and Kathleen H. V. Booth. 261 pp. (Butterworths, England) Academic Press Inc., New York, 1956. \$6.00.

RANDOM PROCESSES IN AUTOMATIC CONTROL. By J. Halcombe Laning, Jr. and Richard H. Battin. 434 pp. McGraw-Hill Book Co., Inc., New York, 1956. \$10.00.

SPECIAL FUNCTIONS OF MATHEMATICAL PHYSICS AND CHEMISTRY. By Ian N. Sneddon. 164 pp. (Oliver & Boyd, England) Interscience Publishers, Inc., New York, 1956. \$1.75.

AUTOMATION FRIEND OR FOE? By R. H. Macmillan. 100 pp. Cambridge U. Press, New York, 1956. \$1.95.