being used, and in many cases what the results might mean. The book is replete with refreshing statements, such as pointing out that plutonium is made from uranium "atom by atom" and that "the nuclear reactor is in fact one of the most sensitive barometers known to man, if also one of the most expensive."

The book (one could almost call it a pamphlet if it were not so crowded with information) contains chapters on the origin and organization of the AERE and a general description of the "programmes" of work. Chapters are then devoted to the production of isotope reactors and the accelerator programs. The health physics, or radiation safety, program is quite similar to that of the U. S., as are most of the general types of fundamental research. Here, again, the concise description of the problems convey a ready understanding of their nature. The extramural relations of the establishment are interesting in that the relations with the universities are possibly not so formal as in this country, where the counterpart might be the Brookhaven and Argonne national laboratories and the Oak Ridge Institute of Nuclear Studies. Apparently industrial cooperation and contacts are considerably better in England than in this country.

The book includes appendices listing the senior staff, a description of the Gleep and Bepo reactors, a rather extensive list of scientific papers by the staff, and a reading list and glossary. The net result is a book which, although not containing material of a unique nature, might well be included in the library of anyone interested in the nuclear field.

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Introduction to the Study of Physical Chemistry. Louis P. Hammett. New York–London: McGraw-Hill, 1952. 427 pp. Illus. $6.00.

Hammett's new book differs from the usual textbook of elementary physical chemistry in that it is rather short and that it makes considerable use of the statistical approach to thermodynamics. The first five chapters deal with gases, kinetic-molecular theory, dilute solutions, the first law of thermodynamics, and thermochemistry. Chapter 6 is entitled "An Elementary Discussion of Quantum Principles and the Use of the Boltzmann Equation." This is followed by two chapters on chemical equilibrium and then chapters on reaction rates (homogeneous systems), galvanic cells, free energy, phase diagrams, conduction in solutions, ionic reactions, effects of pressure and temperature on free energy, and effects involving surfaces. The appendix discusses mathematical techniques and the relations between probability and the Boltzmann equation.

One of the most serious dilemmas that confront teachers of courses in elementary physical chemistry is that of which topics to include and which to omit. Often the material on atomic and molecular structure is omitted from beginning courses in physical chemistry; this is unfortunate, for such an omission makes it virtually impossible to teach a thoroughly modern course. Professor Hammett has met this problem by presenting in Chapter 6 brief accounts of quantum theory, atomic and molecular structure, the Boltzmann equation, and the correlation of these with heat capacities. Although this chapter seems to provide the necessary background for the statistical treatment of thermodynamics which follows, undergraduate chemistry students need a more thorough discussion of these topics, such as is usually available in a course in atomic physics.

The statistical approach to thermodynamics is the unique feature of the book. The omission of a discussion of the classical approach to entropy will disturb some teachers, but the elementary statistical method used in this text may actually be easier for the beginning student.

In an excellent foreword to the student, the author explains the point of view of physical chemistry and also gives his reasons for omitting such time-honored topics as x-ray crystallography. This particular omission does not seem serious when one considers the usually poor understanding of x-rays and crystal structure obtained by most undergraduate students.

On the whole, the book gives a first-class treatment of a selected number of topics from physical chemistry, chosen so as to provide a modern point of view. The writing style is clear, and the book could be studied independently by capable students. The several mathematical techniques given in the appendix should be helpful to students who have forgotten much of their calculus or who fail to see the connection between mathematics and physical chemistry.

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General Genetics. Adrian M. Srb and Ray D. Owen. San Francisco: Freeman, 1952. 561 pp. Illus. $5.50.

The aim of this new textbook of genetics is to present the material in its interrelations with other biological fields and to use genetics as an integrating principle for the student's information in all fields of biology.

The book is well written, and the presentation of the material is clear and stimulating throughout. Discussions of complicated situations are very lucid and concise—e.g., the description of the rh alleles in the chapter on "The Gene." The book contains a large number of original and admirably executed illustrations. The arrangement of chapters does not deviate from that usually found in genetics textbooks. There is a tendency to select fresh material for the examples, such as the use of the fox rather than the customary rodents for the illustration of color inheritance in mammals. Each chapter closes with a short summary, a set of problems, and a bibliography. The problems are original and thoroughly considered, leading the student on from the material presented in the chapter itself. The bibliography is characterized by

the inclusion of the most recent material in the field. Many of the papers quoted were still in press at the time the book appeared. This inclusion of recent developments that have not yet been widely confirmed, however, has the disadvantage that some of the statements are apt to be superseded in a short time. This appears already to hold for the statement that sex-linked genes are unknown in rats and mice (p. 97), possibly also for the finding of aneuploidy in somatic cells of man (p. 110).

The heaviest stress of the book is on physiological genetics. This does not mean that the number of chapters dealing with this subject has been increased above that found in other textbooks. It means rather that a physiological point of view prevails throughout the book, and physiological material is found scattered in many chapters. The gene-enzyme theory, for example, is stated in the introductory chapter and is used in the chapters on Mendelian segregation to explain the phenomena of dominance and factor interaction. The *Drosophila* v^+-substance appears first in the chapter on sex linkage; self-sterility is discussed in the chapter on "Inbreeding and Selection."

The wealth of material included in the book and the emphasis on physiology have led to the result that relatively little space is devoted to purely formal genetics. Since this field occupies much time in most introductory courses in genetics it appears somewhat doubtful whether the book will gain wide acceptance in the teaching of elementary genetics. It should, however, prove very useful in stimulating superior and advanced students to occupy themselves more deeply with the study of genetics and its fascinating progress in recent years. Even the professional geneticist will read it with pleasure and profit, since he will find clearly presented much material outside his own field of specialization.

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The Psychoanalytic Study of the Child, Vol. VII. Ruth S. Eissler *et al.*, Eds. New York: International Univ. Press, 1952. 448 pp. $7.50.

Die Entwicklung des Braunen Grasfrosches Rana Fusca Roesel. *Dargestellt in der Art der Normentafeln zur Entwicklungsgeschichte der Wirbeltiere.* Fr. Kopsch. Stuttgart: Georg Thieme, 1952. 70 pp. and plates. DM 48.

Manual of Photogrammetry. 2nd ed. Box 286, Benjamin Franklin Sta., Washington 4, D. C.: American Society of Photogrammetry, 1952. 876 pp. $12.50.

Introduction to Theoretical Physics. 3rd ed. Leigh Page. New York–London: Van Nostrand, 1952. 701 pp. Illus. $8.50.

Physics for Science and Engineering Students. W. H. Furry, E. M. Purcell, and J. C. Street. New York–Toronto: Blakiston, 1952. 694 pp. Illus.

The World of Eli Whitney. Jeannette Mirsky and Allan Nevins. New York: Macmillan, 1952. 346 pp. Illus. $5.75.

Essentials of Microwaves. Robert B. Muchmore. New York: Wiley; London: Chapman & Hall, 1952. 236 pp. Illus. $4.50.

The Mechanisms of Disease. A study of the autonomic nervous system, the endocrine system and the electrolytes in their relationship to clinical medicine. Joseph Stambul. New York: Froben Press, 1952. 746 pp. $15.00.

Mathematics at the Fireside: Some Fundamentals Presented to Children. G. L. S. Shackle. New York: Cambridge Univ. Press, 1952. 156 pp. $3.25.

Biological Chemistry: An Introduction to Biochemistry. Alexander Gero. New York–Toronto: Blakiston, 1952. 340 pp. Illus.

Die Krankhafte Blutdrucksteigerung. L. Hantschmann. Stuttgart: Georg Thieme, 1952. 228 pp. Illus. DM 36.

An Essay on Method. C. Hillis Kaiser. New Brunswick, N. J.: Rutgers Univ. Press, 1952. 163 pp. $3.25.

Personality in the Making: The Fact-Finding Report of the Midcentury White House Conference on Children and Youth. Helen Leland Witmer and Ruth Kotinsky, Eds. New York: Harper, 1952. 454 pp. $4.50.

Industrial High Vacuum. J. R. Davy. New York–London: Pitman, 1951. 243 pp. $5.50.

Rheumatic Fever. A symposium held at the University of Minnesota on November 29, 30, and December 1, 1951, under the sponsorship of the Minnesota Heart Association. Lewis Thomas, Ed. Minneapolis: Univ. Minnesota Press; London: Geoffrey Cumberlege, Oxford Univ. Press, 1952. 349 pp. Illus. $10.00.

A Physiological Approach to the Lower Animals. J. A. Ramsay. New York: Cambridge Univ. Press, 1952. 148 pp. Illus. $2.75.

Diffusion in Solids, Liquids, Gases. W. Jost; Eric Hutchinson, Ed. New York: Academic Press, 1952. 558 pp. $12.00.

Morphogenesis in Plants. Methuen's Monographs on Biological Subjects. C. W. Wardlaw. London: Methuen; New York: Wiley, 1952. 176 pp. Illus. $2.25.

Quantitative Analysis. William Marshall MacNevin and Thomas Richard Sweet. New York: Harper, 1952. 247 pp. Illus. $3.75.

Ink and Paper in the Printing Process. Andries Voet. New York–London: Interscience, 1952. 213 pp. Illus. $5.90.

An Introduction to the Chemistry of the Hydrides. Dallas T. Hurd. New York: Wiley; London: Chapman & Hall, 1952. 231 pp. Illus. $5.50.

Geography of Living Things. M. S. Anderson. New York: Philosophical Library, 1952. 202 pp. Illus. $2.75.

Quantitative Analysis: Elementary Principles and Practice. Harvey Diehl and G. Frederick Smith. New York: Wiley; London: Chapman & Hall, 1952. 539 pp. Illus. $5.00.

Elementary Analysis. Kenneth O. May. New York: Wiley; London: Chapman & Hall, 1952. 635 pp. $5.00.